**Draft version!**

**Serves the initial teacher training**

*The content will be updated according to*

*inputs from teachers during training*

# Annex 4:

**Key Competences**

**Handbook for teachers in primary and secondary schools**

**(ISCED levels 1, 2 and 3) with guidelines on formative assessment**



**Project "Integration of Key Competences into the Education System of Montenegro"**

Co-finances by the EU and the Government of Montenegro, implemented by the EPRD Consortium

**Version:** 31/8/2020 – serves the teacher training

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| * *The contents of this publication are the sole responsibility of the EPRD Consortium and can in no way be taken to reflect the views of the European Union.* * *Sentences in this publication written in the same gender refer to both men and women.* |

**Foreword**

This document was developed within the Project "Integration of key competencies in the education system of Montenegro" co-financed by the European Union and the Government of Montenegro through the IPA 2 Program of the EU and Montenegro for employment, education and social protection. The project lasts for two years and has been implemented since August 31, 2019 to August 30, 2021 with the aim to improve the quality of primary and secondary education and support initial education as well as continuous professional development of teachers and quality assurance at the level of primary, secondary and higher education.

Since 2000, when the Book of Changes was published as the main reform document containing ideas and visions on the future of the education system in Montenegro, significant improvements have been made to the education system at all levels. For more than 12 years, the education system of Montenegro has been developing some of the key competencies for lifelong learning, such as civic competence, entrepreneurial learning, sustainable development, and more recently digital competences. In addition, various programs develop a number of skills that belong to the concept of key competencies, such as critical thinking, problem solving and communication, and since 2015 the development of social and emotional competencies is encouraged through UNICEF's My Values ​​and Skills program. Relevant teaching materials have been developed, and many teachers have been trained and thus regularly apply some of the above concepts in teaching and learning.

Therefore, the concept of key competencies is not unknown to teachers in Montenegro. Through the Project "Implementation of key competencies in the education system of Montenegro" it is planned to systematize all previous initiatives that have developed key competencies from preschool to higher education in accordance with the European reference framework for key competencies for lifelong learning from 2018. The Montenegrin Framework Program of Key Competences has been developed, as an elaboration of the European Reference Framework. The Montenegrin Framework Program of Key Competences identified eight key competencies and defined them through definitions and learning outcomes for typical educational levels: level of preschool education, primary school teaching (ISCED 1), subject teaching in primary school (ISCED 2), secondary schools (ISCED 3), and higher education.

The purpose of this Handbook is to help primary and secondary school teachers to improve the education and upbringing of students through the integration of key competencies into teaching and school learning. Since teachers have a crucial role in education and upbringing, they are the bearers of change, and by their example they can strongly influence the development of key competencies of students. The Project plans the training of 900 primary school teachers and 960 teachers of STEM subjects. The first version of the Handbook will be used as teacher training material. It will also be an opportunity to test the presented concepts and contents in implementation. After completing the first cycle of training, based on the experiences gathered from teachers in a structured way, the Handbook will be finalized and submitted for final adoption.

**List of abbreviations**

|  |  |
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| **STEM** | Science, technology, engineering, mathematics |
| **OECD** | *Organisation for Economic Cooperation and Development* |
| **PISA (OECD)** | Programme for International Student Assessment |
| **TALIS (OECD)** | *Teaching and Learning International Survey* |
| **PIAAC** | *Programme for the International Assessment of Adult Competencies* |
| **IEA** | *International Association for the Evaluation of Educational Achievement* |
| **TIMSS (IEA)** | *Trends in International Mathematics and Science Study* |
| **ICCS (IEA)** | *International Civic & Citizenship Study* |
| **ICILS (IEA)** | *International Computer and Information Literacy Study* |
| **PIRLS (IEA)** | *Progress in International Reading Literacy Study* |
| **ESLC (IEA)** | *European Survey on Language Competences* |
| **ECES (IEA)** | *Early Childhood Education Study* |
| **ISCED** | *International Standard Classification of Education* |
| **EntreComp** | *The Entrepreneurship Competence Framework* |
| **CEFR** | *Common European Framework of Reference for Languages* |
| **RFCDC** | *Reference Framework of Competences for Democratic Culture* |
| **DigComp** | *The Digital Competence Framework* |

**Glossary**

**Competence** is a combination of knowledge, skills and attitudes.

**Knowledge** consists of already existing facts and data, concepts, ideas and theories that support the understanding of a particular area or topic.

**Skills** are the ability and possibility to carry out a process and use existing knowledge to achieve results.

**Attitudes** describe a willingness to act or react to ideas, people, or situations, and a related way of thinking.

**Values** ​​are general and individual aspirations to achieve goals that are considered attractive, desirable or acceptable, i.e. perceived as correct and good, and are characterized by the process of socialization.

**Key competencies**

(1) are a combination of knowledge, skills and attitudes that are a prerequisite for successful learning, work and life in the 21st century, and the basis for the development of sustainable social communities and a competitive economy.

(2) are a set of knowledge, skills and attitudes that all individuals need for personal fulfilment and development, employability, social inclusion, sustainable lifestyles, successful living in peaceful societies, healthy lifestyles and active citizenship.

**Learning outcomes** are the results of the learning process; acquired behavioural repertoires, acquired knowledge and skills; developed competencies in different areas.

**Subject teaching** is teaching organized by subjects that are composed according to educational areas.

**A** **module** is a functional, meaningful whole concentrated around a relevant topic. In teaching, it includes a set of facts, procedures and skills that are activated in solving a problem. Modular teaching gives the teacher part of the responsibility of the curriculum designer (Batstone, 1985: 185), it is characterized by flexibility, but its introduction can disrupt the systematic nature of the classical approach (Brumfit, 1984: 98).

**Interdisciplinary teaching** is teaching that connects subjects and contributes to the purposeful rationalization of teaching, deepening the content, knowledge and awareness of students about health, rights, personal and social responsibility, socio-cultural, economic, technological and sustainable development, values ​​of learning and work, and self-esteem and respect for others and different.

**Integrated teaching** is a thematic teaching whose starting point is a common topic that is studied from different points of view. In addition to uniting the contents of teaching, the peculiarity of such teaching is the organization of student activities during the school day through teaching stages of different duration, which completely deviates from the subject-lesson system. Integrated teaching has the task of approaching natural and social phenomena in an integrative way, connecting the parts into a whole. The levels of integration are intra-subject, inter-subject (use of inter-subject connections) and inter-system integration (the contents of different subjects are united as a whole).

**Interdisciplinary teaching** is teaching in which the contents of different disciplines, ie subjects are connected into logical units. This is done through specific topics or problems, the understanding and solution of which requires knowledge of different disciplines, in order to look at a topic from several sides.

**Creating a project in teaching** is an activity that creates something that did not exist before. The starting point is the problem and setting hypotheses, but after that a written plan for solving the problem is made. The necessary resources, the sequence of tasks, the time required for work and the goal to be achieved are planned. After that, work is done according to the plan in larger or smaller groups. The acquired experiences are systematized, conclusions are drawn based on the results we have reached. The course and results of the project can be documented.

**Project teaching** is teaching in which students work on specific research or work projects. Projects can be different, and the types of projects depend on the level of education and teaching goals and contents. Creating a project can take a day, a month or longer.

**Problem-based teaching** is teaching in which students are presented with a problem and in which they are encouraged to do independent research. To solve the problem, students explore, learn to think scientifically, and discover sequences of procedures by which they come to new insights.

**Team teaching** is the organization of the teaching process in which a close cooperation of a large number of teachers is achieved according to the principle of division of labour within the curriculum of one and the same subject or the program of several subjects (*Matijević*).

**Research teaching** is one in which students gain new knowledge through independent research and get to know different sequences of procedures by which they come to them.

**An** **integrated day** is a day in which students and teachers deal with the same topic in all subjects, each subject deals with the same topic from its own angle. The main goal of such a day is ACTIVE LEARNING because it provides numerous pedagogical advantages. Active participation in the teaching process enables students to work motivationally, intellectually stimulating and more effectively. The dynamics of changing the form and method of work encourages and develops a positive attitude of students towards themselves and others. Learning is more lasting when students observe the work of their friends and through collaborative activities, joint discussions about procedures and ways of working come to results.

**Formal education** is that which is conducted in various accredited educational institutions according to approved programs with the aim of improving knowledge, skills and competencies for personal, social and professional needs and through which recognized diplomas and qualifications are obtained. It is most often implemented as a structured, chronologically determined regular education for young people (usually between 5 and 25 years of age) in primary and secondary schools, universities and in specialized programs of regular vocational and higher education. In addition to that education, it includes formal adult education.

**Non-formal education** is any form of education that does not lead to the acquisition of new qualifications, i.e. new diplomas or advancement on the qualification ladder. Denotes organized learning processes aimed at training adults for work, for various social activities and for personal development, represents organized learning activities with the aim of improving competencies, for which no public document is issued.

**Informal education** is learning that acquires or improves competencies through daily activities related to work, family or leisure. It is not organized or structured in terms of goals, time, or learning support. Informal learning is in most cases unintentional from the perspective of the learner.

**Quality assurance** is a comprehensive, continuous process of self-evaluation of the quality of work of the entire educational institution and the achieved results of students, and external evaluation of the objectivity of self-evaluation, according to the prescribed criteria and quality indicators. It involves gathering information and assessments through an agreed and consistent process based on established criteria and the development of long-term strategic and annual operational work plans. As a regular mechanism, it deals with the responsibility and improvement of the quality of work of each educational institution so that its own work will be better tomorrow than today. By developing a dynamic quality assurance system, educational institutions take responsibility for the continuous improvement of their work.

**The quality assurance cycle** in education comes from Deming’s PDCA (Plan-Do-Check-Act) cycle which involves planning, executing what is planned, reflecting on what has been done and determining improvements for the next cycle like a spiral**.**

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| ***Pic. 1. Quality assurance cycle in education*** | ***Pic.2. Spiral display of improvement of each subsequent quality cycle*** |

**The culture of quality in education** is a value system based on responsibilities for one's own work, results and continuous development, at the individual and institution level.

**Formative assessment** (Evaluation for learning) is an integral part of the continuous learning and teaching process, in order to provide information on student progress and improve future learning and teaching, encourage student reflections on learning, identify learning deficiencies and identify students' own strengths and better planning of learning and teaching . The result of formative evaluation is not an assessment, but qualitative feedback and exchange of experiences on the processes of learning and acquisition of knowledge and skills in relation to the set educational outcomes. Evaluation as learning is an evaluation carried out by the student and necessarily implies his active involvement in the evaluation process with the constant support of teachers in order to maximally encourage the development of students' autonomous and self-regulated approach to learning.

**Summative assessment** is an assessment that involves assessing the level of student achievement at the end of the learning process (teaching units, semesters and years of learning and teaching). The result of summative evaluation is, as a rule, grades. Summative assessment is most often a test or written knowledge test, including external final knowledge tests.

**ISCED** – The International Standard Classification of Education is the statistical framework for the organization of information on education maintained by the United Nations Educational, Scientific and Cultural Organization (UNESCO). It is a member of the international family of economic and social classifications of the United Nations.

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# Introduction

Key competencies are a dynamic combination of knowledge, skills and attitudes needed by all individuals for their personal realization and development, sustainability, inclusion in society and employment, and for the development of their own values and integrity.

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| Key competences: |
| 1. Literacy competence; 2. Multilingual competence; 3. Mathematical competence and competence in science, technology and engineering; 4. Digital competence; 5. Personal and social competence and competence to learn how to learn; 6. Citizenship competence; 7. Entrepreneurial competence; 8. Competence of cultural awareness and expression. |
| They encompass: |
| * knowledge, * skills, * values and * attitudes |
| They contribute to: |
| * personal fulfilment * social inclusion and active citizenship * employability |

International studies and research, such as PIAC, PISA and TIMSS, show that educational outcomes do not enable pupils and students to be trained in all the challenges of everyday life and work, either immediately after completing formal education or later in life. Although students spend thousands of hours during their education, unfortunately, the applicability and functionality of most of them is not at the required level, necessary for critical thinking about the world around us, constructive problem solving and taking on responsibilities as a community member. The only answer to this problem is a holistic education that connects what is learned from all subjects and which enables the learner to develop all his potentials and apply everything he has learned in different situations of learning, work and everyday life. Like other areas of learning, learning for key competencies is a lifelong process and is acquired in a formal, informal and nonformal way.

Nevertheless, schools have a key role to play in lifelong learning and therefore action is needed to improve the quality and success of school learning. Unfortunately, research shows that already at the level of ISCED 2 education, many teachers "academize" teachings, which reduces the motivation of students to learn and the ability to functionally apply what they have learned. No one can say for sure what the world will look like in 10, 20 or 50 years, when today's students will still be working, but neither can tell what the world will look like in 50, 60 and 70 years when today's students will still be alive. It is all the more important to train students for key competencies in order to be able to understand the social relations and functioning of the society and community whose members they are, learn new facts and apply new technologies in work and life. Skills such as studying different sources of knowledge and finding relevant information and facts, communication, teamwork, self-presentation, taking responsibility for one's own professional and personal growth and development, interconnecting newly learned knowledge and skills with those in which one belongs, independent research, thinking and reasoning, innovative and creative approach to problem solving and the like, are those that do not change and can be useful for life. It is through the development of key competencies that the above skills are achieved, useful and irreplaceable for a lifetime.

Almost all EU countries face several key challenges:

* **Shortcomings in the development of competencies:**

- every fifth student has serious difficulties in developing reading skills, mathematics and science skills, which is why they are more likely to face obstacles in social inclusion and employability throughout their lives;

- relatively low share of students achieve very good results;

- many young people do not have adequate digital skills;

- despite progress towards the Europe 2020 targets of reducing the drop-out rate to 10%, too many young people drop out of school or training too early.

* **School education does not always play its role in promoting equality and social justice:**

- gender differences in the field of mathematics and natural sciences are decreasing, but due to stereotypes it is still difficult to achieve significant improvement;

- young people in an unfavourable social position are four times more likely to achieve poor success in education compared to people of a better social status;

- there are specific challenges for migrant and Roma students;

- Estonia and Finland have shown that school education systems can achieve a high level of both success and equity at the same time.

* **The effect of the speed of technological and digital change on economies and societies:**

- schools need to better adapt to these new circumstances - it is no longer enough to transfer skills or knowledge to young people that are not permanent;

- schools must develop resilience and the ability to adapt to change in new ways of learning in a society that is increasingly mobile and increasingly relies on digital technology;

- education systems must be modernized to promote problem-solving, creativity, critical thinking and an entrepreneurial way of functioning.

The integration of key competences into teaching and learning should enable everyone who learns to become useful for their life, family and community. Key competencies are also called core, transversal or generic competencies, because they represent the basis for a successful life, work and learning. Regardless of the fact that not all students will be excellent students, all of them, by developing key competencies, can be excellent and moral people fully qualified for life and excellent experts and responsible professionals in the chosen professional field.

Key competencies are not subject, i.e. they are not achieved by learning any single subject. Some of them are somewhat more contained in some subjects, but this does not mean that only one subject is sufficient for their adoption (e.g. communication of literacy within the subject: mother tongue and literature, or e.g. when we talk about STEM competence, we do not mean competences which are acquired through regular education in mathematics, natural and technical subjects, rather than the application of mathematical principles, concepts and rules in other subjects, various projects and everyday life). Key competencies are interdisciplinary in nature, as they are learned by functionally linking knowledge, skills, attitudes and values ​​from different, often diverse subjects. Therefore, it is very important to be aware that all key competencies can be developed in all subjects and their combinations. When we talk about one of the key competencies, we primarily mean their functional application, i.e. on skills and expressing attitudes as well as on problem-solving ability, constructive communication, and creativity.

Teachers have a key role to play in the education system and in helping people develop their talents, fulfil their potential and acquire the knowledge and skills they will need as citizens and as workers. In the Communication "Improving the Quality of Teacher Education"[[1]](#footnote-1), the European Commission emphasized the great inconsistencies in standards and practices of teacher education among different EU countries, such as the minimum amount of time allocated annually for compulsory in-service training, as well as support and monitoring of new teachers. Teachers must have subject knowledge, attitudes and skills to help young people reach their full potential, identifying the needs of each student and using a range of learning and teaching strategies. Teachers should be able to take responsibility for their own learning, just as they help young people take responsibility for their own. This includes systematic reflection on one's own practice, as well as research at the class and school level.

This Handbook and the trainings for which it was primarily developed are of little contribution to this. Following this introductory chapter, the **European Reference Framework for Key Competences for Lifelong Learning** 2018 is briefly presented in **Chapter 2**, as a basic document for the implementation of key competences in national education systems. Definitions and generic learning outcomes (for lifelong learning) are given for each of the eight key competencies.

**Chapter 3** describes the **Montenegrin Framework Program of Key Competences**, its origin, concept and description of key competencies with general proposals for education for the development of key competencies as well as for their planning and implementation. The Montenegrin framework contains learning outcomes for key competencies at ISCED levels of education, i.e. in class teaching during the first 5 years of education (ISCED1), in subject teaching during the last 4 years of primary education (ISCED2) and during the three-year or four-year secondary education (ISCED3) listed in **Annex 1**.

**Chapter 4** is the most comprehensive chapter in the Handbook. An approach to the integration of key competencies into teaching and school learning is presented (holistic, student-oriented, interactive, research, project work with teachers and teamwork of students), with simple examples for individual or more key competencies. The examples in **Annex 4** represent a **set of selected active learning strategies** that are, in addition to regular teaching and extracurricular activities, applicable and extremely effective in education for key competencies.

**Chapter 5** explains why **formative assessment** is recommended as the dominant form of evaluation for education for key competencies. Forms of formative monitoring and evaluation are listed in a little more detail. **Appendix 4.c** presents many practical examples of formative assessment. Examples of prepared and implemented activities that include education for key competencies from the previous chapter are accompanied by suggestions for formative assessment (under chapter 9).

In the **last chapter**, the main messages from the Handbook are briefly repeated once again. We hope that the Conclusions will be motivating and supportive so that as many teachers as possible include education for key competencies in their work. This implies those who have done so far receive a certificate for their work and a new idea, and so that those who have not done that so far, can be empowered and optionally apply some of the proposed to help students improve their key competencies.

## **Brief explanation of the attachments provided with the Manual**

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| **Annex 1** lists the **learning outcomes for each key competence at the end of each ISCED level**, in order to make it as easy as possible for the teacher to find and apply the corresponding outcomes for their extracurricular activity and the corresponding year of study. |
| **Annex 2** proposes a set of possible **criteria and associated indicators for monitoring teaching / activities** for key competences for each ISCED level of education. |
| **Annex 3** proposes **forms for teacher self-evaluation and peer observations** (teachers, professional associates, principals), **self-evaluation of students** and evaluation of applied education for key competencies by students. |
| **Annex 4a** lists proposals for **teaching and learning strategies**, which can be used in the planning and implementation of regular classes and extracurricular activities, and are useful and applicable for the implementation of key competencies in education, characteristics of different types of groups, ways of dividing students into teams and ways of assigning roles in the team. |
| **Annex 4.b** proposes **instruments for student self-detection of learning styles** and multiple intelligences, as a basis for the most successful development of key competencies. |
| **Appendix 4.c** shows the **different ways of organizing classrooms and learning spaces**, which enable active teaching and encourage students to be responsible, independent and be open for teamwork, which is necessary for the development of key competencies. |
| **Annex 4.d** lists various **examples of formative assessment** that can be used according to the type of activity being evaluated and the purpose of the evaluation (short-term or long-term, part of a process, process or results, etc.) |
| **Annex 5** provides **examples of activities to develop different key competencies in STEM content**. |
| **Annex 6** is currently blank and will be filled with selected examples of teachers undergoing training. It will contain examples of ideas and scenarios, as well as concrete preparations and evidence of implementation for different activities for individual key competences or their combinations for different subjects, group of subjects, extracurricular activities, at different levels of education and learning materials (e.g. worksheets), intriductory texts, exercises, presentations for introductory information, instructions for conducting experimental classes, etc.) Since the above approach to education for key competencies is previously known and applied in previous classes, the greatest usefulness of this Teacher's Manual will be in the examples where activities for acquiring key competencies are emphasized.  Each example should have the following determinants:  1. ISCED level of education;  2. Subject(s), extracurricular activities;  3. Educational outcome and learning outcome;  4. Key competence(s) (learning outcome or part thereof);  5. Number of hours and time/period of realization;  6. Learning strategies, methods and forms of work, other elements that are a standard part of preparation;  7. Method of determining the achievement of the planned outcome of key competencies for teaching / student activities;  8. Verification of the achievement in accordance with the envisaged method of determination and evidence thereof. |

# European reference framework for key competences for lifelong learning

Everyone has the right to quality and inclusive education, training and lifelong learning which develop key competences and basic life skills. Key competencies and basic life skills are needed for personal fulfilment and development, employability, social inclusion and active citizenship.

The results of a survey under the International Student Assessment Program (PISA) in 2018 showed that at least every fifth student in the EU achieves insufficient results in reading, mathematics and science. In 2018, 21.7% of students achieved poorer results in reading, 22.4% in mathematics and 21.6% in natural sciences. In the period from 2009 to 2018, the results in reading and natural sciences deteriorated at the EU level, while those in mathematics remained unchanged. These, and the results of similar research, call for changes in education. The European Union has responded with a number of policies, since 2000, when education became part of the EU's general strategic framework. The policy of developing key competencies through education and lifelong learning is one of the key ones that focus on changes in education at all levels.

*The European Framework of Reference for Key Competences for Lifelong Learning*, adopted as a recommendation of the EU Parliament and the Council of the EU (2006/962 / EC) in 2006, is an education policy document providing a common framework of key competences for policy makers, education and training providers (schools , universities, educational centres, etc.), social partners and students themselves. In addition, it was supposed to support other related policies such as employment and social policy and other policies that affect youth. **The aim of the reference framework was to contribute to the development of quality, future-oriented education, as well as to the development of training tailored to the needs of European society, supporting and complementing the aspirations of European countries to ensure that the initial education and training system offers all young people which will equip them for adult life, which in turn form the basis for further learning and work so that adults are able to develop and enhance their key competencies by providing coherent and comprehensive lifelong learning.**

The reference framework identified **eight key competencies**, a dynamic combination of knowledge, skills and attitudes that a student should develop throughout life, from an early age onwards, to educate all individuals for professional development, active participation in the economy, social inclusion and employment. High-quality and inclusive education, training and lifelong learning provide an opportunity for everyone to develop key competences, so a competence-oriented approach can be used in all environments of education, training and lifelong learning. Key competencies are the backbone and foundation of ideas for lifelong learning and come to the fore at all levels of education. That is why they are important for every education system.

In June 2016, the European Commission launched the 2006 Review of Recommendations on Key Competences for Lifelong Learning with a view to revising the 2006 Recommendation and further supporting the development of key competences across Europe. Based on the conclusions of the Audit, the revised framework was adopted by a new recommendation of the Council of the EU and the Parliament (2018 / C 189/01). The new recommendation focuses on how the education system can respond to the challenges highlighted by the latest PISA survey and on the growing need for learners of all ages to develop their key competences throughout their lives, including soft skills and creativity. Special emphasis was placed on areas such as basic competencies, motivating young people, especially girls, then learning science, technology, engineering and mathematics, and nurturing entrepreneurial skills. It also provides a definition of “scientific, technological, engineering and mathematical competence” explaining the importance of this competence and the interrelationships.

The European Framework of Key Competences defines key competences as a combination of knowledge, skills and attitudes, where knowledge consists of pre-existing facts and data, concepts, ideas and theories that support understanding of a particular area or topic, skills are defined as the ability to implement processes and use existing knowledge to achieve results, and attitudes describe a willingness to act or react to ideas, people, or situations, and a related way of thinking. The key competencies are those that all individuals need for personal fulfilment and development, employability, social inclusion, sustainable lifestyles, successful living in peaceful societies, healthy lifestyles and active citizenship. They develop in a lifelong learning perspective, from early childhood to adulthood, and through formal, non-formal and informal learning in all contexts, including family, school, workplace, neighbourhood and other communities.

## **Definitions and generic outcomes of key competencies**

According to the new Reference Framework (2018), eight key competences, their definition and generic learning outcomes (knowledge, skills and attitudes) are presented in the following tables:

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| **LITERACY COMPETENCE** | |
| **Definition:** Literacy is the ability to identify, understand, express, create and interpret concepts, feelings, facts and opinions orally and in writing, using visual, audio / audio and digital material in disciplines and contexts. It implies the ability to communicate and connect effectively with others, in an appropriate and creative way. Literacy development forms the basis for further learning and further linguistic interaction. Depending on the context, literacy competence can be developed in the mother tongue, the language of instruction and / or the official language of the country or region. | |
| Outcomes from the EU reference framework | |
| **K** | This competence includes knowledge of reading and writing and a good understanding of written information, which implies the possession of an appropriate vocabulary and the functional application of grammatical and spelling knowledge. It includes awareness of the types of verbal interaction, the meaning and characteristics of artistic and non-artistic texts and their purposeful use. |
| **S** | Individuals should possess oral and written communication skills in a variety of situations by adapting their own communication to the circumstances in which it takes place. This competence also includes the ability to distinguish and use different sources of knowledge, to seek, collect and process information, and to express arguments orally and in writing in a convincing way appropriate to the context. It includes critical thinking, and the ability to evaluate and work with information. |
| **A** | A positive attitude towards literacy includes a willingness to engage in critical and constructive dialogue, and an interest in interacting with others. This implies awareness of the impact of language on others and the need to understand and use language in a positive and socially responsible way. |

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| **MULTILINGUALITY COMPETENCE** | |
| **Definition:** Multilingual competence defines the ability to use different languages in an appropriate and efficient way to communicate. In a broader sense, it shares major dimensions with literacy skills: it is based on the ability to understand, express and interpret concepts, thoughts, feelings, facts and opinions orally and in writing (listening, speaking, reading and writing) in an appropriate range of social and cultural contexts. in line with one’s desires or needs. Language competences integrate the historical dimension and intercultural competences. It relies on the ability to mediate between different languages and media, as stated in the Common European Framework of Reference for Languages. If necessary, it may include the maintenance and further development of mother tongue competencies, as well as the adoption of the official language of the state. | |
| Outcomes from the EU reference framework | |
| **K** | This competence requires knowledge of vocabulary and functional grammar of different languages and knowledge of the main types of verbal interaction and language registers. Knowledge of social conventions, cultural aspects and language variability is important. |
| **S** | The basic skills of this competence consist in the ability to understand spoken messages, initiate, maintain and conclude conversations and readings, understand and write texts, with different levels of knowledge in different languages, according to the needs of the individual. Individuals should be able to use tools appropriately and learn languages formally, informally and non-formally throughout life. |
| **A** | A positive attitude includes respect for cultural diversity, interest and curiosity about different languages and intercultural communication. It also includes respect for the individual language profile of each person, including respect for the mother tongue of persons belonging to minorities and / or with a migrant background and respect for the official language (s) of the state as a common framework for interaction. |

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| **COMPETENCE IN MATHEMATICS, SCIENCE, TECHNOLOGY AND ENGINEERING** | |
| **Definition:** Mathematical competence is the ability to develop and apply mathematical thinking, knowledge and skills, to solve various problems in everyday situations. It is based on knowledge of mathematical concepts and complete mastery of computing, with an emphasis on understanding processes and activities, i.e.. to develop functional mathematical knowledge and skills, which can be applied in a variety of situations. Mathematical competence includes, to varying degrees, the ability and willingness to adopt and use other forms of mathematical thinking and the presentation of their application (formula, model, construction, graph, mathematical modelling).  Competence in science refers to the ability and willingness to explain the natural world using existing knowledge and applying methodology in order to identify issues and draw conclusions based on empirical data. Competencies in technology and engineering are the application of that knowledge and methodology to people’s requirements. Competence in science, technology, and engineering includes understanding the changes caused by human activity and the responsibility of the individual as a citizen. | |
| Outcomes from the EU reference framework | |
| **K** | Required knowledge of mathematics includes a good knowledge of numbers, measures and structures, basic operations and basic mathematical presentations, an understanding of mathematical terms and concepts, and an awareness of the questions that mathematics can offer answers to.  For science, technology and engineering, basic knowledge contains the basic principles of the natural world, fundamental scientific concepts, theories, principles and methods, technology and technological products and processes, as well as understanding the impact of science, technology, engineering and human activity on the natural world. These competencies should enable individuals to better understand the progress, limitations and risks of scientific theories, applications and technologies in societies in general (in relation to decision-making, values, moral issues, culture, etc.). |
| **S** | The individual should have the skills to apply basic mathematical knowledge, principles and algorithms in everyday situations, at home and at work (e.g. financial skills, measurements, etc.), to analyze and evaluate statements and chains of statements and to draw conclusions. The individual should be able to mathematically explain and understand mathematical proof, to communicate in mathematical language and to use appropriate aids that include statistics and graphs, and to understand the mathematical aspects of digitization.  Skills include understanding science as a research process using specific methodologies, including observations and controlled experiments, the ability to use logical and rational thought to verify a hypothesis, and a willingness to reject one's own beliefs when inconsistent with new experimental findings. This includes the ability to use and handle technological tools and machines as well as scientific data to achieve a goal or to make a decision or conclusion based on evidence. |
| **A** | A positive attitude in mathematics is based on respect for truth and a willingness to search for reasons and assess their importance.  Individuals should also be able to recognize the essential characteristics of scientific inquiry and be able to communicate the conclusions and insights that led to them. Competence includes an attitude of critical respect and curiosity, concern for ethical issues and support for both safety and environmental sustainability, especially in terms of scientific and technological advances regarding self, family, community and global issues. |

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| **DIGITAL COMPETENCE** | |
| **Definition:** Digital competence includes the resolute, safe and responsible use of digital technologies and the use of learning, working and participating in society. It includes information literacy, communication and collaboration, media literacy, digital content creation (including programming), security (including digital well-being and competences related to cybersecurity), intellectual property issues, problem solving and critical thinking. | |
| Outcomes from the EU reference framework | |
| **K** | Individuals need to understand how digital technologies can support communication, creativity and innovation and be aware of their opportunities, limitations, effects and risks. They should understand the general principles, mechanisms and logic underlying digital technologies and know the basic function and use of different devices, software and networks. Individuals should critically approach the validity, reliability and impact of information and data available digitally and be aware of the legal and ethical principles related to interaction with digital technologies. |
| **S** | Individuals should be able to use digital technologies to support active citizenship and social inclusion, collaboration with others, and creativity toward personal, social, or commercial goals. Skills include the ability to use, access, filter, evaluate, create, program, and share digital content. Individuals should be able to manage and protect information, content, data, and digital identities, as well as to recognize and collaborate effectively with software, devices, artificial intelligence, or robots. |
| **A** | Engaging with digital technologies and content requires a thoughtful and critical, and at the same time curious, open and perspective attitude towards their evolution. It also requires an ethical, safe and responsible approach in using these tools. |

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| **PERSONAL, SOCIAL AND LEARNING TO LEARN COMPETENCE** | |
| **Definition:** Personal, social and learning to learn is the ability to think for yourself, manage time and information effectively, work with others in a constructive way, be resilient (to stress caused by constant life changes, pressures and risks) and manage your own learning and career. Personal competence includes the initiative to recognize the need for change and the introduction of change as well as the perception of oneself, one's skills, attitudes and values. Personal, social and competence learning how to learn includes: the ability to deal with and learn from personal mistakes, responsibility and realistic self-assessment of what you do, dealing with insecurity and complexity in everyday life, learning how to learn (developing cognitive skills), self-support physical and emotional well-being, maintaining physical and mental health, leading a healthy future-oriented life with empathy and conflict management in an inclusive and supportive context, discovering one's own strengths and weaknesses, affinities and interests and taking responsibility for personal and professional growth, professional career and personal realization. | |
| Outcomes from the EU reference framework | |
| **K** | For successful interpersonal relationships and social participation, it is essential to understand the codes of conduct and rules of communication generally accepted in different societies and environments. Personal, social and learning competence how to learn also requires knowledge of the components of a healthy mind, body and lifestyle. This includes knowing the personal way of learning that best suits each individual, knowing the personal needs for competence development and the different ways to develop competences, as well as looking for available opportunities for education, training and career and guidance or support. |
| **S** | Skills include the ability to recognize personal capacities, focus, deal with complexity, think critically, and make decisions. This includes the ability to learn and work both collaboratively and autonomously, organizing and persevering in learning, assessing and sharing it, seeking support when it is appropriate and effective to manage one's career and social interaction. Individuals need to be resilient and able to cope with insecurity and stress. They should be able to communicate constructively in different environments, collaborate in teams and negotiate. This includes tolerance, expression and understanding of different points of view, as well as the ability to develop self-confidence and a sense of empathy. |
| **A** | Competence is based on a positive attitude towards personal, social and physical well-being and lifelong learning. It is based on an attitude of cooperation, assertiveness and integrity. This includes respect for the diversity of others and their needs and a willingness to overcome prejudice and make compromises. Individuals should be able to identify and set goals, motivate and develop resilience and self-confidence for their lifelong learning success. The problem-solving attitude supports both the learning process and the individual’s ability to cope with obstacles to change. This includes a desire to apply prior learning and life experiences and a curiosity for learning and development opportunities in different life contexts. |

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| **CIVIC COMPETENCE** | |
| **Definition:** Civic competence is the ability to act as a responsible citizen and to participate fully in civic and social life, based on an understanding of social, economic, legal and political concepts and structures, as well as global development and sustainability. | |
| Outcomes from the EU reference framework | |
| **K** | Civic competence is based on knowledge of basic concepts and phenomena that refer to individuals, groups, work organizations, society, economy and culture. This includes an understanding of common European values, expressed in Article 2 of the Treaty on European Union and the Charter of Fundamental Rights of the European Union. This includes knowledge of contemporary events, as well as a critical understanding of major developments in national, European and world history. In addition, it includes awareness of the goals, values and policies of social and political movements, as well as sustainable systems, especially climate and demographic change at the global level and their root causes. Knowledge of European integration, as well as awareness of diversity and cultural identities in Europe and the world, are essential. This includes understanding the multicultural and socio-economic dimension of European societies and how national cultural identity contributes to European identity. |
| **S** | Civic competence skills refer to the ability to engage effectively with others in the common or public interest, including the sustainable development of society. This includes critical thinking and integrated problem-solving skills, as well as skills for developing arguments and constructive participation in community activities, as well as in decision-making at all levels, from local and national to European and international. This also includes the ability to access, critically understand and interact with traditional and new forms of media, and understand the role and functions of the media in democratic societies. |
| **A** | Respect for human rights as the foundation of democracy lays the foundations for a responsible and constructive attitude. Constructive participation includes a willingness to participate in democratic decision-making at all levels and civic activities. It includes support for social and cultural diversity, gender equality and social cohesion, sustainable lifestyles, the promotion of a culture of peace and non-violence, a willingness to respect the privacy of others and to take responsibility for the environment. Interest is needed in political and socio-economic developments, the humanities and intercultural communication in order to overcome prejudices and compromises where necessary and to ensure social justice and fairness. |

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| **ENTREPRENEURIAL COMPETENCE** | |
| **Definition:** Entrepreneurial competence refers to the ability to act on opportunities and ideas and to transform them into values for others. It is based on creativity, critical thinking and problem solving, taking initiative and perseverance and the ability to collaborate in order to plan and manage projects that have cultural, social or financial value. | |
| Outcomes from the EU reference framework | |
| **K** | Entrepreneurial competence requires knowledge that there are different contexts and opportunities to turn ideas into action in personal, social and professional activities and an understanding of how they arise. Individuals need to know and understand approaches to project planning and management, which include both processes and resources. They should have an understanding of the economy and the social and economic opportunities and challenges faced by the employer, organization or society. They should also be aware of the ethical principles and challenges of sustainable development and have a self-awareness of their own strengths and weaknesses. |
| **S** | Entrepreneurial competencies are based on creativity that includes imagination, strategic thinking and problem solving, and critical and constructive reflection within upcoming creative processes and innovations. These include the ability to work as individuals and together in teams, to mobilize resources (people and things) and to sustain activity. This includes the ability to make financial decisions regarding costs and values. The ability to communicate and negotiate effectively with others and to deal with uncertainty, ambiguity and risk as part of making informed decisions is essential. |
| **A** | An entrepreneurial attitude is characterized by a sense of initiative and action, proactivity, future, courage and perseverance in achieving goals. This includes the desire to motivate others and value their ideas, empathy and concern for people and the world, as well as acceptance of responsibility while applying ethical approaches throughout the process. |

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| **COMPETENCE OF CULTURAL AWARENESS AND EXPRESSION** | |
| **Definition:** The competence of cultural awareness and expression includes understanding and respecting the way in which ideas and meaning are creatively expressed and transmitted in different cultures in the form of a range of artistic and other cultural forms. This includes understanding, developing and expressing one’s own ideas and feelings of belonging or role in society in different ways and in different situations. | |
| Outcomes from the EU reference framework | |
| **K** | This competence requires knowledge of local, national, regional, European and global cultures and expressions, including their languages, heritage and tradition, cultural products, as well as understanding the mutual influences of these ways of expression, but also their impact on individual ideas. This includes understanding the different ways in which ideas communicate between creators, participants and audiences within written, printed and digital texts, theater, film, dance, games, art and design, music, ritual and architecture, as well as hybrid forms. It requires an understanding of one's own identity and cultural heritage that is evolving in a world of cultural diversity and the way in which art and other cultural forms can experience, but also shape, the world. |
| **S** | Skills include the ability to express and interpret figurative and abstract ideas, experiences and emotions with empathy and the ability to do so through art and other cultural forms. Skills also include the ability to recognize and realize opportunities for personal, social, or commercial value through art and other cultural forms, and the ability to engage in creative processes, both individually and collectively. |
| **A** | It is important to have an open attitude towards and respect for the diversity of cultural expression, together with an ethical and responsible approach to intellectual and cultural property. A positive attitude also includes curiosity about the world, openness to imagining new possibilities and a willingness to participate in cultural experiences. |

# Montenegrin framework program of key competencies

The European Framework of Reference for Key Competences has identified eight key competences relevant to living and working in the 21st century, defining them by definition and generic outcomes (lifelong learning). The European Reference Framework is a principle document, which EU member states and others (candidates, potential candidates) develop in their own policies and the documents by which these policies are established. This is how **the Montenegrin framework program of key competencies** was created.

Groups of more than 50 members from the entire Montenegrin education system worked on its development, including teachers from primary and secondary schools, universities, advisors and civil servants of the Ministry of Education, the Bureau for Education Services, the Centre for Vocational Education and the Examination Centre of Montenegro. Key competencies have been taken over from the European framework. Each of the eight key competencies was developed in such a way that learning outcomes were developed at five characteristic levels:

* Preschool education and upbringing,
* Classroom teaching in primary school (first five grades) - ISCED level 1,
* Subject teaching in primary school (6th to 9th grade) - ISCED 2,
* High school - ISCED 3, and
* Higher education.

Outcomes for each competence follow the definition and generic outcomes of the European framework (for knowledge, skills and attitudes). They are given at the end of each level. The definitions of key competencies are mostly taken from the European framework with minimal adjustments to the Montenegrin education system.

Given the set learning outcomes at the level of the education cycle and the fact that mastering key competencies requires a **holistic approach** to learning, it is necessary to have (interdisciplinary) cooperation of teachers in planning and implementing education to achieve key competencies. The objectives / learning outcomes in the Montenegrin Framework Program of Key Competences are comprehensive, uniform in style and with an emphasis on applicability and functionality.

The defined learning outcomes in the Framework are listed so that they can be applied in as many subjects as possible (most are applicable in all subjects), so their combinations or extracurricular activities can be elaborated during planning for a particular subject, group of subjects, extracurricular activities. in accordance with the chosen activity and topic, as well as the personal teaching style of the teacher. Not all learning outcomes need to be planned and achieved in every subject, given their connection to a particular subject and related topics, but during 3, 4 or 5 years of education at a certain level of education, **all learning outcomes for all key competences listed in this framework should be achieved for that level of education.**

Therefore, great interdisciplinary cooperation is needed and planning is necessary at the level of all teachers who teach one class, but also the whole school, due to the use of extracurricular activities to achieve some of the prescribed learning outcomes for key competencies. The goal is for each student to achieve all learning outcomes for all key competencies at a particular ISCED level.

The authors of the Framework would be satisfied if the learning outcomes are clear, simple and understandable and if you, the teachers, recognize the meaning and importance of the defined learning outcomes and are motivated to implement them in teaching and all forms of work with students.

The following are brief descriptions of each of the key competences in the Montenegrin Framework Program of Key Competences for Lifelong Learning and examples of school activities (teaching and extracurricular), within which each of them is developed.

## **Literacy competence**

Although a large number of literacy outcomes, especially at ISCED levels 1, 2 and 3, are indeed achieved through the subject mother tongue (Montenegrin, Serbian, Bosnian, Croatian, and minority languages), it is clear from the definition of literacy that it is significantly broader than mother tongue itself and that the focus of competence is on the application and effective use of speech, writing, reading and comprehension. This of course includes the functional application of grammar and spelling, basic language standards, and the development of vocabulary, but also proper and positive communication (oral, written, nonverbal) in different situations, finding and processing relevant information, and presenting them in different forms, searching for different sources of information, a critical attitude towards information, and the development of a line of argumentation. Literacy competence includes a positive attitude towards literature, especially aesthetic and literary values, but also awareness of the impact of language on the environment (speech and texts can hurt others), and openness to dialogue and constructive communication.

In teaching and school learning, literacy competencies are developed through all subjects. Of course, the basic outcomes of knowledge, which relate to grammar, spelling, literature, literary texts, language styles, etc., students achieve through the subject of mother tongue, but their application is developed through other subjects, from the earliest age. This natural interdependence of learning and literacy (reading, comprehension, speaking and writing are the basis of any learning) needs to be encouraged and developed. It is a common example that students have difficulty expressing achievement from e.g. mathematics, physics or chemistry because they have a problem with understanding the descriptive task, which creates space for the teacher of these (and other) subjects to work with students and to develop an understanding of what is read.

Developing clear, concise, argumentative writing, developing vocabulary from various fields, working with information, data sources, nonlinear texts and models of presenting information (charts, tables, timelines, etc.) is also the job of every teacher. Developing skills such as communication, creativity and critical thinking, which are also applicable in all subjects, are very important for the development of literacy competence. This puts a lot of room for teachers of all subjects to develop these components of literacy competence.

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| Examples of school activities (teaching and extracurricular) within which literacy competence is developed: |
| * Clubs: literary, recitative, acting, journalistic, debate club, readers' club, literary club, film club, etc. * School performances, plays, literary evenings, guest writers or actors * Competitions for the best poem, the best short story, the best literary work, the best essay, etc. * School projects - research on celebrities, historical events, school history, tourist guide of the place where the school is located, school prospectus, shooting of short films and videos; writing reports, composing posters (poster presentations), etc. * School library - promotion of students who read the most * Visits to cultural institutions and events (book fair, cinema, theatre, etc.) - it is advisable to ask each student to compile a report after the visit |
| Examples of teaching activities (in the class): |
| * Role play - students need to be put into an activity to speak or communicate with each other * Essay writing - from any subject, on any topic, the focus is on the development of clear writing, presentation of collected data, line of argumentation, etc. * Writing and presenting abstracts based on what has been read and studied, also from any subject * Compiling reports - e.g. about a conducting experiment or research, about a visit to an institution, about practical activities, about an excursion, etc. Reports are becoming more prevalent today in a variety of work environments. * Independent or group research papers, based on the collection and processing of information from various sources and concise presentations of researched topics (in the form of essays - reports, simple professional work, poster presentations, power-point presentations, etc.) |

## **Multilingual competence**

In previous years, the education system in Montenegro has made a significant effort to strengthen foreign language learning. English is learned in pre-school education, and as a subject in all grades of primary school, as well as in secondary school. The subject of a second foreign language is introduced at ISCED 2 level (6th grade), and in general secondary education, and certain vocational education programs. Intensive learning of two foreign languages ​​through compulsory education subjects creates an excellent basis for developing multilingual competence, especially when it comes to outcomes related to functional grammar, vocabulary and general formal foreign language learning.

Similar to literacy competence, multilingual competence is broader than school foreign language learning through subjects and it implies functional use of foreign languages ​​(understanding, reading, speaking and writing), and openness to foreign language learning and intercultural communication, so its development in The school should be supported through all subjects. This could be a particular challenge for teachers who do not speak foreign languages, but it is not impossible for a teacher, as a facilitator of the learning process, to develop a multilingual competence even if he or she does not speak a foreign language. The essence of the development of any competence is to encourage students and put students in an active role. In this sense, teachers should encourage students to use foreign languages ​​in the learning process, through studying literature (e.g. by searching the Internet) in different languages, watching different videos (e.g. tutorials) in foreign languages, and in secondary vocational education and using catalogues, brochures, manufacturer's instructions, technical documentation and the like in foreign languages. Such situations occur in simple research activities, essay writing, subject or school projects. Teachers should also encourage students to learn foreign languages in ​​informal and nonformal way, through courses, summer schools, social networks, music, research, exhibitions and various forms of artistic expression.

The most effective learning of foreign languages ​​is achieved through student mobility, since the basis of learning is communication in a foreign language (ideally with a native speaker). Mobility, of course, is not possible for all students and in general mobility is expensive, but schools should definitely get involved in international cooperation, building partnerships and developing projects with similar schools in the world or get involved in Erasmus+ mobility projects. This would have a significant positive impact on the development of multilingual competences in students, would create opportunities for at least some students to interact with peers and teachers from other countries, but would also have a number of other positive effects.

Schools in which some teachers speak a foreign language can implement the CLIL program. CLIL (Content Language Integrated Learning) means that in some subjects the teaching is conducted in a foreign language (e.g. English). In this way, students, in addition to developing subject outcomes, also achieve multilingualism outcomes, and after graduating from school, they have a high level of achievement in a foreign language. CLIL is an innovative didactic-methodological approach to teaching, first applied in 1994 in vocational schools in Finland, in order for students to develop multilingual competence in addition to the outcomes of the profession. The concept is applicable in both primary and secondary schools.

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| Examples of school activities (teaching and extracurricular) within which multilingualism competence is developed: |
| * Introduction of the CLIL program * International cooperation of the school, projects with other schools in the world, student exchange, joint activities and projects, international student mobility, organization of international summer schools (eg students from abroad can volunteer over the summer by holding their mother tongue courses in Montenegro), or involvement students to existing international summer schools. This may include cooperation with embassies (they often support the learning of their mother tongues through various programs), cooperation with "twin cities", and cooperation with international events, where applicable. * Organizing foreign language courses for students * School projects - research on celebrities, historical events, tourist guide of the city (place) where the school is located, shooting short films and videos, etc. * Organizing events or activities involving international guests * At school events, students can perform points in foreign languages ​​(e.g. songs, recitations or acting, presentation of videos, etc.) * Excursions, study visits, professional and targeted excursions, camping / camping, socially useful work abroad |
| Examples of teaching activities (in the class): |
| * Independent or group research papers using literature in a foreign language, and collecting and processing information from various relevant sources, including sources in foreign languages |

## **Competence in mathematics, science, technology and engineering**

Unlike literacy and multilingual competences, in which the outcomes of basic knowledge are significantly achieved through one subject (mother tongue or foreign language), mathematical competence and competence in science, technology and engineering are related to a group of subjects (mathematics, nature, biology, chemistry, physics, technical education, informatics, and numerous professional modules in secondary vocational education). Through all these subjects, not only the outcomes of basic knowledge related to this competence can be achieved (knowledge of numbers, structures, measures, operations, basic natural laws, technical principles, etc.), but also the competence can be significantly developed since the focus of all of these subjects is on the application of existing knowledge to explain and simply present natural phenomena. Students often have a problem with recognizing and connecting what they have learned, so special attention should be paid to correlations. Although key competencies are a much broader concept than interdisciplinary correlations, correlations can help recognize what is learned from one subject to another, which at the same time provides a good example of applying what is learned.

However, mathematical competence and competence in science, technology and engineering can and should be developed through other subjects as well. Percentage calculation, use of statistics and probabilities, size estimation, comparison, tabular and graphical representation, observation of legality and creation of models, drawing conclusions, influence of science and technology on the development of society and civilization, responsible and ethical relationship in science, etc. are applicable in each areas and not only should they be developed through each subject, but they can support the learning process in different subjects (including social and humanities). Functional knowledge and skills can be achieved if the concepts learned are applied frequently and in different situations. Therefore, the mentioned concepts should be "incorporated" in all subjects, at the beginning (at lower ages) for students to recognize them, and later to use them in various less complex and complex situations.

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| Examples of school activities (teaching and extracurricular) within which mathematical competence and competence in science, technology and engineering are developed: |
| * Clubs: club of young mathematicians, club of physicists; technical, modelling, informatics, photography, ecology, etc. * School activities in nature: cleaning the school yard, planting trees and afforestation, collecting plants and making a herbarium, making a sundial, etc. * Visits to production plants, farms, greenhouses, fish farms, botanical gardens, biological collections, natural or technical museums, etc. * Competitions for the best research project, the best energy efficiency solution for a school (rational use of energy), the best presentation of a certain production process (e.g. food processing, process industry, how a mobile phone works, car radar, car engine), create a partnership with a company from the area that would reward the best works, etc. * School projects - marking different days: International Wetlands Day (2 February), World Water Day (22 March), World Meteorology Day (23 March), World Health Day (7 April), Earth Day (22 April), World Migratory Bird Day (9 and 10 May), World Telecommunication and Information Society Day (17 May), International Biodiversity Day (22 May), World Environment Day (5 June), World Ocean Day (8 June), International Day for the Protection of the Ozone Layer (16 September), European Car Free Day (22 September), World Heart Day (28 September), World Animal Day (4 October), World Food Day (16 October), World Information Day on Development Issues (24 October), World Science Day for Peace and Development (10 November), International Mountain Day (11 December). Activities can be organized at the school level, or with several teachers, can be addressed as cross-curricular topics within one class (to cover a certain topic from different subjects, within regular classes), students can do their own thing. The works will later be exhibited at a school exhibition, event, on a Facebook page, etc. Projects can, of course, be designed on other topics as well. It is only important to involve students in all activities. |
| Examples of teaching activities (in the class): |
| * Experiments - where applicable laboratory experiments (chemistry, physics, biology, technical subjects) involving measurements of quantities or comparison with a reference value and observation of regularity, or induction of typical phenomena (electrolysis, electricity, chemical reactions, etc.), in others subjects observation, research, interviews, etc. * Independent or group research papers, based on data collection, processing, systematization and presentation, and drawing conclusions based on processed data * Representation of numerical and other data - graphs, tables, time diagram (line), block diagram, Venn diagram, Gantt diagram, network diagram, maps, functions, pies (estimate calculation and graphical representation), etc. * Writing a seminar (simple professional or scientific) paper - conceptual approach, rules of writing and structure, way of citing literature, plagiarism and ethical aspects * Discussions with students about scientific achievements - various aspects (e.g. contribution to the development of society and civilization, incentive for new knowledge, innovation, ethical aspects of innovation, environmental aspects, development of science through history, etc). |

## **Digital competence**

Digitization is becoming widespread in the modern world, digital technologies are entering an increasing number of spheres of activity, so the concept of digital literacy is spreading more and more, and is no longer reduced to the use of computers. Children and students come into contact with digital technologies (mobile phones, tablets, computers) from an early age, and acquire user skills informally. This of course represents an excellent basis for the development of digital competence, but in a way that it directs the role of the education system towards that development. Significant focus is on the proper use of digital technologies, digital security, digital identity, intellectual property and the like.

In addition, given the ubiquity of digitization and its virtually almost unlimited use, the education system should focus students on those aspects of digitization necessary for normal life and work in the 21st century. This primarily refers to communication and cooperation, and not only to e-mail communication, but also to communication and cooperation through social networks, and communication through various applications and portals (communication with the state and the commercial sector - online applications, reservations, online shopping, etc.). An important aspect also applies to information because the Internet has become a major source of information, which includes searching, finding the necessary information, critical attitude towards sources of information, and processing and presentation of information.

Creating digital content is also an important aspect of digital competence and it refers to the creation of everyday digital content (digital photography, word processing, numerical data processing, working with simple databases, making presentations, simple graphic design, etc.). This certainly includes working with a variety of custom software and applications, especially fast learning and working with new applications (they are being updated and new ones created on a daily basis), easy customization, and can include simpler programming. Complex programming skills are of course desirable for every individual, but those that lead to professionalization in the ICT sector are not part of digital competence.

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| Examples of school activities (teaching and extracurricular) in which digital competence is developed |
| * SELFIE is a free tool developed within the EU Commission for all schools, so that schools can see their potential for the use of digital technologies in teaching and learning. The evaluation-based tool is completed by teachers and students and generates a picture of the school with strengths and challenges. More about the program at: <https://ec.europa.eu/education/schools-go-digital/about-selfie_hr> This could be an initial activity in a strategic approach to strengthening the development of digital competence. * The development of digital competence is related to the existence of digital infrastructure in the school. This primarily means access to broadband Internet (open to teachers and students), and a number of computers and devices. Of course, it is not necessary (it is not possible or realistic) for every student to get a computer for use in school. That is why there is the so-called BYOD approach (bring your own devices), which means that students who have a computer (tablet, smartphone) use their own equipment. The rapid development of digital technologies leads to the fact that in most environments this approach is becoming socially acceptable. * Digitization of the process in school (digital diary, online applications, online class schedule, etc.) will certainly contribute to the development of digital competencies of both students and parents. * The school should pay special attention to the development of digital competence of teachers, because it is logical that digitally competent teachers will better develop digital competence in students. * The school should also establish a digital security policy, which would include the development of procedures, promotional activities, parental involvement, etc. * Clubs: IT club, robotics club, etc. |
| Examples of teaching activities (in the class): |
| * The emergency situation caused by Covid 19 and when much of the teaching took place online has significantly improved the skills of both teachers and students for distance learning. Urgency and the ultimate demand for social distance has partly led to the introduction of digitalization in teaching (learning platforms, e-mail communication, social networks, etc.). This trend needs to be continued and the experiences gained in emergency situations need to be upgraded and structured. Digital technologies can really help in the learning process and every teacher should keep that in mind. Submission of tasks can be e.g. performed through the platform, part of the specific educational content can be distributed to students in digital form, monitoring of school projects can be done through the platform (e.g. Microsoft Teams), etc. * Students may be required to do assignments that include word processing or presentations (homework or school assignments, seminar papers). Part of the evaluation process can be processed for word processing or presentation. * Students need to be given tasks that involve finding information (searching the Internet or databases), processing it digitally (through, for example, MO Excel or MO Access) and presenting (tables, charts, graphs). * Given the great development of digitalization in almost all areas of life, specific applications and digital tools can be found in each subject that can support the learning process. Many of them are available completely free of charge. Encouraging students to work with these applications, in addition to the learning process, also supports the development of their digital competence. |

## **Personal, social and learning to learn competence**

From the very title of this key competence, it can be concluded that it consists of three competencies: personal competence, social competence and learning to learn competence. The three competencies were identified as one competence due to their relatedness and interdependence through the Framework.

The focus of **personal competence** is on encouraging personal and professional development, health and well-being. It also includes working on yourself, realizing your potential and opportunities and improving personal growth, as well as coping with change, insecurity and various life situations, adaptability and flexibility, and building resilience to stress.

**Social competence** is based on cooperation and communication, teamwork, negotiation and conflict management, as well as tolerance, empathy, expression and understanding of different attitudes. Communication as an important skill, contained in many other competencies, in the context of this competence includes not only verbal but also nonverbal communication (tone of voice, facial expression, posture, silence, etc.), active listening, clear expression, clarification, summarizing and giving feedback. information about the message to others, as well as etiquette in communication, the principles of positive communication and the need to adapt communication to the situation.

**Learning to learn** is based on effective learning management - choosing the approach to learning and the most appropriate learning strategies, organizing and persevering in learning, assessing it (self-evaluation of the learning process and results achieved and assessing progress) and sharing. This includes spotting key concepts and distinguishing the important from the irrelevant, distinguishing facts from non-evidence-based statements, summarizing material and noticing the connection between parts of the material, translating material from one form to another (e.g. making graphic knowledge organizers, etc.), searching new information from different sources, comparing information from different sources and their transformation into new knowledge and ideas, noticing the connection between information and creative application in problem solving, etc. Critical thinking and problem-solving skills are key to this competency.

From the fact that personal, social and competence to learn how to learn is not easy to directly link to one particular subject, it follows that, as in the case of all other competencies, this competence in teaching and school learning competencies develop through all subjects. It is also noticeable that competence is significantly based on attitudes and values ​​(empathy, assertiveness, openness to change, overcoming prejudices, positive communication, promoting healthy lifestyles, etc.). Establishment of values ​​and positive attitudes needs to be developed from the earliest age, so there is a lot of room for the development of this competence in the first and second cycle of primary education (classroom teaching).

Significant support to students in the development of this competence can and should be provided by the professional service of the school (pedagogue, psychologist), who should include all teachers in their work on counselling activities. It is also possible to organize numerous activities at the school level that would encourage students in their personal development and social inclusion.

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| Examples of school activities (teaching and extracurricular) in which personal, social and competence to learn how to learn are developed: |
| * The work of the school's professional service (pedagogue, psychologist) should be opened to students through counselling on learning, personal development and career. This work needs to be promoted among students and parents; it is not expected from student to report themselves from the beginning of the process. Counselling days can be organized, and especially for the final grades, days of professional orientation. * High schools should develop career centres that will provide students with counselling support (how to write a CV, what are the employment opportunities, how to find internships for leisure work, what are the opportunities for continuing education, information on available scholarships, open day visits to universities and faculties, preparation for entrance exams, etc). * The school can and should encourage students for extracurricular activities that contribute to personal development, health and well-being (inclusion in a foreign language school, sports activities, music school, acting troupe, cultural and artistic societies, robotics or modelling club, etc). Some of these activities can be organized within the school itself as extracurricular activities (clubs or similar), but due to the limited resources available to schools, there will certainly be a greater "supply" in the community. Schools should recognize and value students' participation in such activities and act in a supportive manner. * The school can organize events that would encourage students to get involved in humanitarian or voluntary work (help others in the near or far environment, in times of global natural disasters, famines or wars, work for the benefit of the community, etc.). |
| Examples of teaching activities (in the class): |
| * Teamwork - giving tasks to teams (groups of students), supervising the work schedule in the team, contribution, team relations, etc. Encourage students to talk about it, summarize the conclusions from different teams. * Within teaching, students should be placed in a position of changed circumstances (e.g. seating arrangements, practical work, fieldwork, tasks that include coping with issues and seeking help from others, etc). * Subject teachers should advise students on the specifics of learning related to the subject (creating tasks, linking "theory" and tasks, reading and understanding, memorizing data), in order to guide them in building their own learning style. * Teachers should encourage students to draw up a map of personal development, to set their own goals and to evaluate progress, to draw conclusions from the progress made. This is relevant and appropriate for the younger age, in the classroom it can be done by teachers, and in the subject class teachers in the class community, but also the subject teachers can set aside part of the time to talk about it within their regular classes. * Teachers of subjects in which some students have difficulty mastering the material can organize pairs of students on a voluntary basis in which there would be a student who masters the material better and a student who has difficulties to get peer learning and knowledge sharing through working together. Working with students who have difficulty mastering the material should be particularly valued. Even "additional classes" can be organized with the involvement of students who excel in certain subjects. |

## **Civic competence**

Civic competence focuses on the development of an active citizen, socially included, who has a developed critical attitude towards social phenomena, is open to cultural, social, racial, ethnic, gender and other differences, and different views, attitudes and beliefs. It also includes tolerance, empathy, and a positive attitude toward human dignity and human rights, democracy, justice, fairness, equality, and the rule of law.

In teaching and school learning, civic competence is developed through all subjects. The elective subject of civic education that exists in secondary schools contributes to the development of the outcomes of this competence, but this does not exclude the involvement of other teachers and the school as a whole. It is necessary to encourage students to social engagement through volunteering, involvement in social movements, youth and non-governmental organizations, campaigns, etc. Building one's own attitudes and their responsible presentation in public and development of media culture - media monitoring and information, appearances in the media, creation of media content, critical attitude towards media content, etc. it is also part of this competence, so teachers should create situations in which they would involve students in such activities. Students can learn the essence of democratic decision-making and democratic representation at the school level, through the work of student associations.

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| Examples of school activities (teaching and extracurricular) within which civic competence is developed |
| * Clubs: journalism, debate club, environmental (sustainable development), etc. * School activities or school projects that affirm human rights, children's rights, sustainable development, healthy environment, etc. * Student visits and school participation in social institutions and events (visits to Parliament or City Hall, visits to radio or TV stations, movements for a healthy environment, nature conservation, campaigns focused on the public good, etc.) * Organizing elections for the bodies of student associations, affirming the work of student associations and supporting student associations (material, advisory, technical, etc.). |
| Examples of teaching activities (in the class): |
| * There are numerous examples in which school materials can be placed in the current context. By encouraging students to expand their knowledge with current information through media content, it can significantly contribute to the learning process, connecting materials with real life and building functional knowledge. A variation is to search the Internet for examples (earthquakes, air pollution, rivers, soil, acid rain, mini hydro power plants, viruses, cloning, smartphones, technology development, etc. Through conversation, students can be encouraged to build their own attitudes through argumentation. * Critical thinking can be developed in teaching by various methods that are generally known to teachers: storm of ideas, INSERT reading method, guided reading, conceptual table, rotating overview, Venn diagram, etc. * Students can be given the task of conducting a simple social research (e.g. examining attitudes) through a survey or interview, through individual or group work. |

## **Entrepreneurial competence**

Entrepreneurial key competence entered the Montenegrin education system approximately 15 years ago and according to all national and EU reports on entrepreneurial learning, it is highly integrated into all levels of the education system. The focus of entrepreneurial competence is to equip students with knowledge, skills and attitudes that mostly entrepreneurs have, not for the reason that all students would engage in entrepreneurship in the future, but to act entrepreneurially whatever they do in private and business life. The essence is in turning ideas into action, which requires initiative, assessment and reasonable acceptance of risk, recognition of opportunities, creativity, vision, evaluation of ideas, but also self-awareness and personal efficiency, motivation and perseverance, knowledge and skills of resource management, and financial and economic literacy, and the skill of engaging other participants. It also includes planning and management skills, dealing with unclear and risky situations, working with others, and learning through experience.

Entrepreneurial competence is developed from the earliest age, and the focus is not on the development of business ideas or business plans, although entrepreneurial skills can be developed on these examples as well. It is necessary to put students in activism, give them tasks in which they plan, organize, cooperate and work as a team, take responsibility, take care of deadlines, take the initiative and the like. This, of course, can be achieved through any subject, regardless of what the subject of study is. The project approach has a significant role in the development of entrepreneurial competence, so students' projects, in which they plan, take into account resources, time, goals, evaluate progress are a good model for the development of entrepreneurial competence.

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| Examples of school activities (teaching and extracurricular) within which entrepreneurial competence is developed |
| * School projects involving students (e.g. creating a school website, collecting secondary raw materials, creating a tourist guide to the city or place of school, various school fairs, school cooperatives and school companies for secondary vocational schools, etc.) * School events and manifestations - students need to be entrusted with the organization, depending on the age under supervision or in part * School partnerships involving students are also an opportunity to develop entrepreneurial key competences. The term school partnership means a structured (formally signed, with a concrete plan of activities) partnership between the school and the institution, organization or company from the environment. Vocational high schools have many years of experience in creating partnerships with companies focused on student internships or, more recently, on dual education. These partnerships can be extended to other activities. School partnerships are also relevant for general schools (gymnasiums and primary schools). * Promotion of entrepreneurial teachers: they have a passion for teaching. They are inspiring, open-minded and have self-confidence, flexibility and responsibility, they listen well, they can use and "sell" ideas and they are practice oriented. They are team players and have a good network. They include external experts in teaching; focusing on real life experiences. They follow a flexible and adaptable learning plan and prefer interdisciplinary, project-based learning, using training materials rather than textbooks. They emphasize group processes and interactions; they nurture dialogue, a variety of opinions, answers and solutions, as well as thinking about the learning process. An enterprising teacher provides support for learning processes and the development of competencies and thinking about entrepreneurial teaching is based on a large number of teaching topics. |
| Examples of teaching activities (in the class): |
| * Student projects - the project task can be individual or group, it can include work at school or at home, it can be given as part of one or more subjects. The teacher has a mentoring role. * Work in teams (groups), individual work, situations in which students take responsibility for performing tasks, it is important that the student is in an active role because it will be more significantly involved in the learning process, and will build their knowledge independently. * Experiments (challenging phenomena to explore and / or learn about them) are also an opportunity to develop entrepreneurial competence, as each experiment needs to be planned, resources provided, and the course and experiment success evaluated. * Students need to be encouraged to present their ideas regarding the realization of teaching and learning, to discuss ideas, to elaborate them, to enable the realization of those ideas. Students should have the opportunity to take responsibility for the realization of their ideas. |

## **Competence in cultural awareness and expression**

The competence of cultural awareness and expression in focus has a relationship to one's own culture, openness to other cultures, artistic values and all-round creativity. Students need to be encouraged to be creative, to participate in cultural and artistic creation.

The competence of cultural awareness and expression is especially developed through subjects such as art education, music education, mother tongue and literature, etc., because students are given opportunities to participate in creativity within these subjects. However, competence needs to be developed through all other subjects, because creative expression supports learning processes in any subject, while top artistic achievements or cultural heritage are part of educational content in many subjects. It is important for students to develop an openness to different forms of artistic expression, as well as knowledge of top artistic achievements that are part of the world heritage.

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| Examples of school activities (teaching and extracurricular) in which the competence of cultural awareness and expression is developed: |
| * School events and cultural events in which students can present their work * Organized visit to cultural and artistic institutions (theatre, bishop, gallery, concerts, etc.) * Clubs: choir, orchestra, music section, dance, folklore, art, literature, drama, recitation, etc. |
| Examples of teaching activities (in the class): |
| * Encouraging students to express themselves creatively - within any subject (to draw, express themselves through verses, through music, graphically shape their works, etc.). Encouragement is especially good if such expression of students is especially valued. |

## **Planning the integration of key competencies in school**

Outcomes of key competencies from the Montenegrin Framework Program should be carefully planned in order to achieve student progress. The basic precondition for the successful implementation of the Framework in educational institutions is the inclusion of developed outcomes in the complete school curriculum. It should be possible to include key competencies in all key areas of learning, through various subjects or groups of subjects (compulsory and elective subjects), interdisciplinary topics, through compulsory electives and extracurricular activities (trips, excursions, outdoor schools, school projects), teacher training and the like. Respect for the integrative approach is one of the most important prerequisites for successful integration of knowledge, skills and attitudes through activities that combine the teaching and learning process and should be planned in the annual work plan of the institution, annual planning of teachers, as well as in scenario / immediate preparation for teaching and extracurricular activities.

### **Development of key competencies and annual planning of the work of the institution**

The first step towards creating a culture of developing key competencies at the institution level is to include them in the annual work plan that describes the steps necessary to implement the vision of the institution. The direct involvement of the management of the institution in supporting and defining goals and tasks for teachers is extremely important for the successful implementation of key competencies.

The basic preconditions for the successful implementation of the Key Competences Framework are the inclusion of the outcomes developed in the Framework during the development of the **annual work plan of the institution**. This includes:

* + introduction of key competencies in the complete school curriculum / area of activity
  + training of teachers and other staff
  + planning the development of key competencies in all areas of learning and extracurricular activities
  + developing a culture of developing key competencies in the institution
  + Involvement of parents and the local community.

### **Development of key competencies and annual planning of teachers' work**

The teacher plans to achieve the outcomes defined in the Key Competences Framework in the **annual work plan** together with the outcomes of the subject program. The learning outcomes defined in the Framework serve teachers for immediate teaching planning and it is necessary to plan them together with the subject outcomes. Thus e.g. When planning classes, in addition to planning the learning outcomes of the chemistry program in his annual plan, the chemistry teacher also plans the learning outcomes related to the achievement of key competencies that he previously determined to be compatible and complementary with the learning outcomes in the Chemistry program. This means that the teacher or the active teacher at the school level, when planning the teaching starting from the outcome of his subject in the annual plan includes learning outcomes of key competencies that can be realized together with the subject outcomes.

### **Development of key competencies and immediate preparation for teaching / scenario**

The development of preparation / scenarios for teaching is a key point in the realization of the idea of developing key competencies in the process of teaching and learning. The preparation of the preparation / scenario for the lesson projects the connection between the goal of the lesson or the learning outcome that is to be achieved and the practical realization.

Immediate preparation / scenario for teaching is an important and obligatory part of every teacher's work activity. It should contain at least:

* subject name and grade,
* time/period of realization
* learning outcomes/goals
* learning activities
* review of implementation.

It can refer to one or more classes. Learning outcomes and learning activities are crucial in making immediate preparation for teaching.

The illustration below shows the proposals of two preparation for teaching, in order to notice the difference between the usual daily preparation of teachers for any subject, which does not include key competencies, and preparation where, in addition to learning outcomes, outcomes of key competencies are included. In addition to the difference in planning, the main difference is in the activities and performance testing. In the first case, the teacher plans learning activities and performance tests to achieve the learning outcomes of his subject, while in the second case the planned activities and performance tests should lead to the achievement of learning outcomes and outcomes from the Framework of Key Competencies at the same time.

In the first case, the immediate preparation for teaching (scenario) for any subject is shown. In the second case, immediate preparation for teaching (scenario) is presented, which includes learning outcomes that are defined within the key competencies.

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| Learning outcome(s) of the subject program |  | Learning outcome(s) of the subject program |
|  | Outcome(s) of key competencies |
| Student activities to achieve outcomes |  | Student activities to achieve outcomes |
| Performance check |  | Performance check |
| ***Picture 3. Immediate preparation for teaching (scenario) and immediate preparation for teaching (scenario) which includes the outcomes of key competencies*** | | |

The activities proposed in the scenarios can fit into the teaching as a complete unit (lesson) or as part of the lesson. It is possible to fit only a part of an activity into a lesson and / or combine several suggested activities or their parts. Approaches and forms of guiding students through the activity, such as e.g. making assumptions, measuring instructions and discussing the results should be chosen by the teacher.

# Approach to learning and teaching to achieve key competencies

To master key competencies, a holistic approach to learning is necessary, which is best achieved through integrated and interdisciplinary teaching and extracurricular activities. Precisely because of the holistic approach to the learning and teaching process, in addition to stating the goals/learning outcomes of ISCED levels of education, the Handbook also provides **recommendations for implementation in subject, integrated (multidisciplinary) and interdisciplinary teaching and extracurricular activities for key competencies**.

The emphasized differentiation of subjects is a consequence of constant research and discovery of new knowledge, which are classified into scientific disciplines by relatedness. Following the differentiation of disciplines and subjects, the very early and inappropriate age of students, the academicization of teaching places an emphasis on factual knowledge and memorization. Such a way of learning and teaching neglects the development of the student's key competencies, creativity, thinking and reasoning. However, the world cannot be viewed differently but as a whole. In order for students in the future to be able to work successfully and independently, knowledge, skills and attitudes from all scientific disciplines should be interconnected, permeated, supplemented, i.e. integrate.

The cooperation of not only students, but also teachers is important for successful interdisciplinary and integrated teaching. The realization of education for learning outcomes, listed in the Montenegrin Framework Program of key competencies is a unique opportunity to connect with colleagues from related and other disciplines and plan activities for certain content, processed from different angles. **The proposed learning outcomes in the Montenegrin Framework Program for Key Competences can be a common denominator for different disciplines, i.e. various subjects that provide you with the possibility of their interconnection and the realization of integrated and interdisciplinary teaching.**

Although the subject organization of work with fixed classes still prevails in school practice, there are more and more efforts to adapt the teaching process to the learning process, respecting the laws of the child's development. One of such organizational forms of work that respects the integrity of the student's consciousness and experience of the world around him is **integrated teaching**. The basis of integrated teaching is thematic teaching, the starting point of which is a common topic that is studied from different points of view.

In addition to uniting the contents of teaching, the peculiarity of such teaching is the organization of student activities during the school day through teaching stages of different duration, which completely deviates from the subject system with fixed classes. For example, the teaching of mathematics is inextricably linked with other educational areas, it is understandable that it can also be "incorporated" into integrated teaching, while ensuring that the connection with other content is real, not artificially created. An example of such a thematic connection of mathematics teaching with the contents of other subjects is the determination of the percentage, e.g. population growth, the involvement of part of the population in migration, the share of plant species in the living world, the share of chemical elements in the alloy or food in the gastronomic product, etc.

The contents of the material of different disciplines, which logically go best together, will contribute to a better understanding of the whole, knowledge related to a specific subject, better motivation for lifelong and holistic learning and will develop key competencies of students even without explicit intention. It goes without saying that there are some thematic units that cannot be connected and should not be done at any cost, but only where the connection is meaningful and purposeful.

In addition to helping students form a unique view of the world around them, interdisciplinary teaching helps prepare students for work and life in the modern world. We are witnesses that, on the one hand, development has led to the extinction of a large number of professions until yesterday, and on the other hand, to the development of completely new interdisciplinary professions and scientific disciplines. In addition, the environmental, health and social problems facing the world require us to think more comprehensively and divergently. Due to all the above, students need to develop key competencies from an early age, throughout education, but also throughout life in order to be able to respond to all the challenges that cannot be seen and predicted today. Interdisciplinary and integrated teaching can be very stimulating and stimulating for both students and teachers, because it will give the teacher the opportunity to cooperate with colleagues, to renew knowledge in related fields, and to use classes more effectively and efficiently.

The approach to learning and teaching for key competencies primarily implies **active methods** and approaches that encourage students to think, gain experience and draw their own conclusions and solve problems based on a positive value system and relevant facts. Basically it is not and should not be different from any learning process, but given that a significant part of today's learning and teaching is reduced to memorization, learning factual knowledge and insufficient involvement of students in higher cognitive learning processes, in training for key competencies, this aspect should be especially emphasized. All teachers who approach their work as a vocation, consciously or unconsciously, largely teach and organize learning that is active and that requires students to take a holistic approach, thinking, creating an argumentative attitude and skills to achieve key competencies.

All the methods that will be listed in this Handbook have already been seen and mostly applied to all such teachers. For many teachers, there will be nothing revolutionary new in this chapter. We assume that the most useful examples will be in Annexes 5 and 6, which will concretely present ideas and implemented activities with one to two specific examples of education for individual key competencies or their combinations for different subjects, group of subjects, or extracurricular activities at different levels of education.

International tests such as TIMSS (which examines science knowledge after the first 4/5 years of education) and PISA (which examines reading, math, language and financial literacy, problem solving and ability to cooperate after primary school), show that a holistic approach to learning and teaching is more innate to female teachers (classroom teaching), who connect subjects extremely well and enable the student an interdisciplinary approach and the development of key competencies. Comparison of results at the end of the first and second cycle of education shows that subject teaching, even in primary school, is quite academic, interconnected by subjects and that the representation of education for key competencies, problem solving, creativity and critical thinking is very weak. It is the introduction of education for key competences that should help to improve all other student-centred activities and include interdisciplinary linking of subjects, teacher cooperation and student cooperation.

To meet the challenges of society and economics, students need to develop **critical skills** to analyse, compare, spot contradictions, explore, evaluate, and evaluate **creative skills** to imagine, hypothesize, and discover. To achieve this, they need to be able to manage their own learning - set goals, persevere, monitor and evaluate their own progress, and adapt and improve their learning strategies.

The need for change in education is greater than ever. **A content-based approach is an outdated thing!** We need to move **from acquiring knowledge through developing skills to reaching attitudes and establishing values.** It is education for key competencies that enables this necessary paradigm shift in learning.

* + *values*
  + *attitudes*
  + *skills*

*- knowledge*

The fact is that we need **to move from something safe but solid and rigid to something uncertain but adaptable**. No one can imagine what the world will look like in 20 years, and especially not in 50 years, when today’s students will still be working. The new, future world that belongs to today's children and is their future includes new challenges such as the dramatic development of technology, multimedia, sustainable energy sources, global migration, exponential information growth, globalization, sustainable development and changed / lost family values. Due to the above, the contents and methods of formal learning can no longer be developed within the framework of traditional practice. It is necessary to train students for key competencies and to develop their awareness of continuous lifelong learning, because only this can be a guarantee of sustainability and survival for the rest of their lives.

The traditional school is based on information, and the teacher and textbook as the main source of information. In this paradigm, information is the basis of education and one who possesses information can automatically handle it satisfactorily. Such an educational pattern has produced a serious defeat at the level of mass education. All over the world, the post-industrial era is looking for a large number of people whose training allows the use of sophisticated tools of the new millennium, even where economic conditions are poor. The goal, which reads "the student should know some of everything," is not effective, but counterproductive, because **knowledge that cannot be applied is knowledge for a quiz, not for life**. The best example are many intellectuals who are able to utter all definitions for grammatical rules in a foreign language and even the meaning of a large number of foreign words, but are unable to communicate in that language, either in written or oral form. Everything learned in school should result in an individual’s ability to live, learn, work, and grow. Education for key competencies should significantly contribute to this, not only in education for key competencies but also in all other activities in working with students.

The goal of education today is to support students in building a structured set of functional skills (competencies). This marks the transition from encyclopaedic knowledge, which is unsustainable today when information is multiplied at tremendous speed, towards a culture of action in a specific context involving the implementation of adequate techniques and strategies.

**The principles of student learning that we should respect, especially when training for key competencies are:**

* Students possess different learning styles and individual pace of learning
* Learning today is no longer memory of facts, but training for the application of knowledge
* Learning means constant research, effort and self-discipline
* Learning develops attitudes and skills and contributes to the acquisition of functional and applicable knowledge, taking into account its social dimension
* Learning should start with aspects that are relevant to the personal development of students and their inclusion in social life
* Learning is achieved through individual responsible work as part of group activities

In order to achieve the above, when training for key competencies, it is necessary to move from teacher-cantered teaching to student-centred teaching. The content should be in the service of the process of thinking and learning, but also connecting with everything that has already been learned (holistic approach).

**Teaching principles for the development of key competencies:**

* Teaching should develop and support the student's motivation for continuous learning
* Teachers should develop multiple opportunities to achieve their goals
* Teachers should discover and encourage students' innate preferences and interests
* Teaching key competencies is not about acquiring knowledge, but about behaviours and attitudes (where the transfer of desirable values ​​and attitudes is most effective if shown by example and behaviour - e.g. proclaiming consistency and honesty will have much less impact on the student than applying consistency and honesty in working with them)
* Teaching for key competences should facilitate the transfer of information and skills from one subject to another, their connection and full wider functional application
* Teaching for key competences should take place in contexts in which learning activities take place in situations as close as possible to everyday real life.

It is logical that teachers teach in the way that is closest and most acceptable to them, with an emphasis on the domains of learning for which they are trained and professional, but the world of students extends beyond all that - the world is intertwined - so there should be a transfer from one subject to another. to make school similar to life. It is the training for key competencies that makes this possible.

**Example 1.**

Subject: **History (6th - 9th grade)** - Timeline

Key competence: **STEM** (knowledge of negative and positive numbers in mathematics and their representation on the number line)

Show the timeline as an example to apply what has been learned about negative numbers and the number line from -infinite to + infinite

Show the events listed in the timeline in relation to the current year and determine:

a) How long did Socrates live and how many centuries ago did he say “Young people today love luxury. They don’t know how to behave, despise authority, disrespect elders, and have fun instead of working. Young people do not get up when the elderly enter the room. They contradict their parents, chatter in society, devour sweets at the table, cross their legs and bully teachers! ”) If he was born in 470 BC and died in 399 BC?

b) The first Olympic Games were held in 776 BC. How many centuries ago, and how many years ago were the First Olympic Games held?

c) The Great Fire of London, which ended the great plague epidemic, occurred on September 1, 1666. How many years ago did this happen?

**Example 2.**

Subject Title: **Biology 7th grade**

Key competencies:

1. Literacy competence - Reading with comprehension

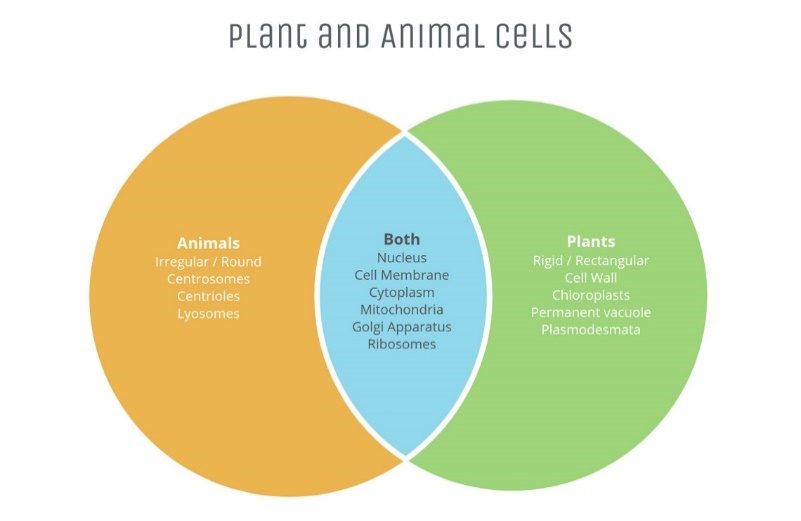
2. STEM - Venn diagram

**Task**: Determine the similarities and differences of plant and animal cells and show them with a Venn diagram

**Starting text/point:**

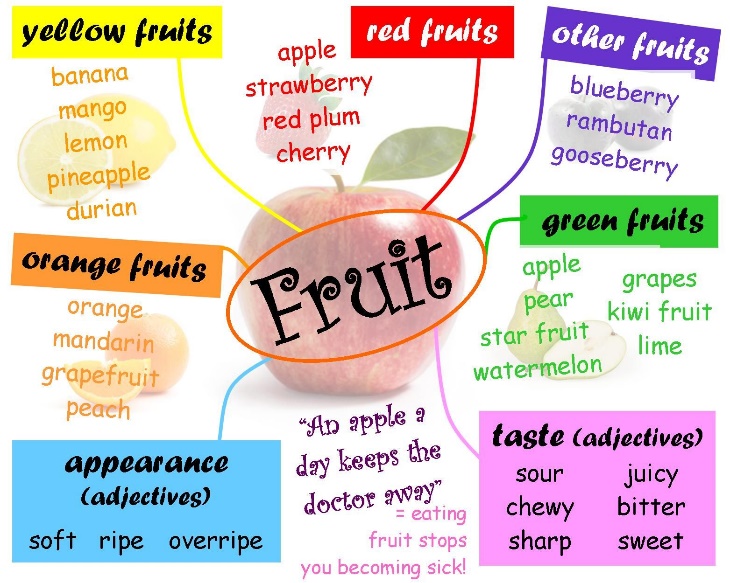
*CELL MATERIAL*

*Exploring nature, biologists observe the living world with the naked eye, a magnifying glass or a microscope, and many other devices. The discovery of the microscope represented a major advance in biology and medicine as it prompted new discoveries at the level of cell biology and medicine. All living things are built of cells. The cell is the basic unit of material of living beings. Cells can be observed with a light and electron microscope. Observing the cells with a light microscope, we notice in them: the nucleus, cytoplasm, and cell membrane. We will use an electron microscope to detect mitochondria, a network of tubules and ribosomes in the cell. The cellular parts that are located in the cytoplasm of a cell are called cell bodies, organelles. In addition to these parts, the plant cell also has a chloroplast, a cell wall and large vacuoles. The nucleus controls the work of the cell and contains a hereditary substance, a DNA molecule that is enveloped in an envelope. Cell membrane, a semipermeable envelope that allows substances to pass from the environment to the cell and from the cell to the environment. The cytoplasm, a semi-liquid substance that fills the inside of a cell, consists mostly of water. It allows the transfer of substances through the cell. Mitochondria are bodies in which nutrients are broken down and in the presence of oxygen and released energy. The tubular network is a system of tubules located in the cytoplasm and extends from the nucleus to the membrane. Ribosomes are bodies that can be independent in the cytoplasm or located on a network of tubules. They are involved in the creation and transfer of proteins and fats through the cell. The parts of the cell that only a plant cell has are chloroplasts, and they contain the green colour chlorophyll that absorbs sunlight. In chloroplasts, manufacturers produce food and oxygen in the light. The cell wall is the envelope that envelops the cell membrane and gives proper shape to plant cells. The vacuole is a space bounded by a membrane and filled with an aqueous solution of various substances (reserve substances, undigested remains, plant dye).[[2]](#footnote-2)*



***Picture 4. Venn diagram to show the similarities and differences of plant and animal cells***

|  |
| --- |
| **Example 3.** |
| Subject: **Nature and society - introduction to fruit (previously acquired knowledge, repetition or introduction)**  Key Competence: Learn how to learn  Task: Make a mind map for fruits |



***Picture 5. Mind map for fruits***

Annex 5 contains examples of activities for the development of key competencies in the STEM area, and Annex 6 examples of classes held (preparation for teaching, evaluation, formative evaluation, evidence of success for different levels of education, etc.)

The physical environment in the classroom can enhance or destroy active learning. No layout is ideal, but there are many options to choose from. The "interior design" of an active learning space is interesting and challenging (especially when the furniture is not ideal at all). In some cases, the furniture can be arranged very easily to get different templates. Even traditional benches can be assembled to make larger tables and other shapes. Anyone who changes the seating schedule can testify that even the slightest change in the seating arrangement in the study room encourages students to actively learn, especially if the schedule is adapted to the planned activities, which requires only a little will and thought. No one can have an excuse to sit like on a bus that reduces the possibility of active learning in almost all situations. If you decide to arrange the furniture, ask the students to help you, thus activating them and enabling them to participate in the different arrangement of the classroom.

Most of the templates described in Annex 4.c should not remain as a permanent class schedule. If your furniture is portable, you can take advantage of several suggested ways of stacking furniture whenever it suits the activity you are carrying out and even for one hour (e.g. initially sitting in a circle without tables, for an icebreaker / introduction to class, then herringbone with islands for teamwork, and finally U form for monitoring the presentation of teamwork). Annex 4.c lists templates that can be used as ideas for classroom seating arrangements.

**Seven key factors of the learning environment, which encourage the development of key competencies and personal growth and development of students are:**

1. **An environment in which students feel safe and supported**, where individual needs and uniqueness are valued, where abilities, opportunities and positive achievements are recognized and respected.
2. **An environment that nurtures intellectual freedom** and encourages experimentation and creativity.
3. **Environment where students are recognized as persons with all their specifics** - accepted and valued, persons whose opinions are heard, respected and considered.
4. **An environment that creates the preconditions for learning** for which students take responsibility and direct it independently. Together with teachers or independently, they create individual learning programs that contain what each student needs and wants to learn in order to function optimally in their environment.
5. **Successfully determine the optimal level of task complexity for each student** (neither too difficult nor too easy). If a student is too challenged, he is frustrated and gives up. If a student is under-challenged, he gets bored, learns little and makes little progress.
6. **Teaching that actively involves the student in learning**, as opposed to passive listening to lectures. Where students and teachers talk, where students try new ideas while learning and solving problems and tasks, where exercises and experience are used to substantiate facts and theories, students feel better, progress and “grow”.
7. **Regular feedback mechanisms**, the teacher to the student about his progress and necessary improvements and the student to the teacher about what works best for their learning and what they really need and want to learn, so that teachers make changes based on information received from students.

**Learning as a journey to acquire key competencies - focus on the process** [[3]](#footnote-3)

Because today’s students face exponential increases in knowledge, rapid change, and insecurity, they can be nervous (anxious) and defensive. The development of key competencies significantly improves the opportunities for each student to successfully cope with the challenges of real life. Abraham Maslow states that a human being has two types of strengths or needs in him: one that strives to grow and one that sticks to security. Most people who have to choose between these two needs will choose security before growth. The need for a sense of security should be met before the need to take risks and explore new ones. Growth forward takes place in small steps, according to Maslow, and: "a sense of security enables and encourages a step forward, a direction towards the unknown from a safe home port" (Maslow 1968). about himself and acquires a better opportunity for self-realization and self-realization.

One of the key ways to achieve a sense of security is to be connected to other people and feel included in the group. This sense of belonging allows the student to face the challenges that lie ahead. When learning together with other students and not alone, the student has emotional and intellectual support available that allows him to move beyond his current level of knowledge and skills. In order to be as successful as possible in connection with the environment, one should try to develop communication, the ability to work in a team, one's own way of learning best, etc. which just represents some of the key competencies. We hope that you will receive help and encouragement in this Handbook to create an environment for all students to successfully develop key competencies.

# Monitoring and formative assessment of key competencies

Many countries have reformed their general and vocational curricula to introduce key competencies into the educational process. This implied a major paradigm shift, as knowledge is transformed into a more dynamic and complete development of applicable and functional competencies.

Assessment of key competencies is one of the main challenges of education systems in many European countries. Thus, in Scotland for more than 10 years, students, in addition to a certificate with grades for school subjects, receive another certificate with a description of achievements in key competencies (communication, teamwork, cooperation). Assessment is one of the most powerful instruments influencing teaching and learning, but so far it has mainly referred to the evaluation of subject knowledge, and less skills and attitudes, applicable and functional knowledge, interconnected acquired knowledge, problem solving skills, critical thinking and creativity.

Assessment needs to be improved in order to evaluate key competences, but also to step out of the subject itself and ensure the application of all key competences that are primarily taught in traditional school subjects (such as mother tongue, foreign languages, mathematics and natural sciences) with the aim to ensure application of all key competences in all subjects and beyond in everyday life.

## **Principles of assessment and grading**

Basic principles of assessment are:

* **Monitoring and evaluation of the learning process** and evaluation of the achieved results are a very important dimension of the curriculum process and represent a permanent activity in working with students.
* Evaluation/assessment should use a wide range of different methods
* Evaluation/assessment should be part of the learning process **as a quality assurance** to inform the learner and the one who teaches and organizes learning what is the quality of the implemented activities/learning processes and what are the learning outcomes
* Evaluation/assessment should **help students to realistically assess their learning process and outcomes** and their continuous improvement
* The evaluation/assessment of key competencies is **based on pre-known and agreed standards**, aimed at the final achievements of students at the end of a certain cycle of education, and especially the one that marks the beginning of their professional career and active participation in community life**.**

It is recommended that the achievement of key competencies be assessed by the quality of the implemented project, developed portfolio, conducted research, etc. It is important for the student to assess their own progress, to receive feedback from the teacher and colleagues on how they see their progress, to plan the areas that need to be improved and to take the initiative to improve their work and results. In this Teacher's Guide, the focus will be on evaluating the performance of individual students or groups of students, not on evaluating curricula, educational institutions, or the education system.

Formative assessment is also called **evaluation FOR learning**. Its main characteristic is the emphasis on student-oriented teaching with a supportive atmosphere, where students are not afraid of mistakes, but learn from them.

Assessment is crucial for the development of key competencies for two reasons. First, by focusing on specific learning outcomes, evaluation sends a clear signal that key competencies are also a priority for teaching and learning as well as the expected quality for achieving them. Second, by providing information to the student about their progress toward learning outcomes for key competencies, assessment stimulates their motivation. In general, assessment directs the educational pathways of the learner as well as how one sees and how much one knows.

Feedback to the student, as a very important way of evaluation, i.e. formative assessment, has an important impact on student motivation, self-esteem and knowledge of their own learning process. It is extremely important to assess, record and confirm the level of achievement of learning outcomes for key competencies.

Being aware of the importance of assessment for individuals and the quality of teaching and learning, many countries have identified key principles to consider when assessing key competencies. This can be summarized as follows:

* + **Assessment should be fair**: assessment methods should be linked to set learning goals and outcomes, and its purpose should be clearly defined. The assessment of key competencies should primarily relate to student progress.
  + **Assessment should be student-centred**: it should provide credible information to students, their parents, teachers and the school on how to improve teaching and learning practices, making it an integral part of the teaching and learning process.
  + If it is decided to check the summative achievement of the prescribed learning outcomes for key competences, the **assessment should be reliable and valid** so that several independent tests using the same methods come to the same conclusions.

National tests can be only one part of the assessment of the achievement of key competencies. A study on the evaluation of key competences in the 27 EU countries [[4]](#footnote-4) showed that formative evaluation (learning evaluation) during everyday learning (such as **self-evaluation, portfolios, peer feedback and teacher feedback**) is much more important and useful for the learning process and learning outcomes. In addition to the benefits that students have for directing and assessing their development and confirming it, evaluation should also be used to improve the quality of teaching, i.e. teachers should be assisted in planning and implementing activities aimed at developing key competencies.

The use of assessment as a continuous process of guiding and supporting student progress throughout education (and beyond) should be the main goal of assessment. Tasks should include all knowledge, skills and attitudes for the necessary key competencies for the future life of students at an appropriate level for a particular age. Real-life problems can be simple and interdisciplinary structured to test one or more key competencies at the same time.

Assessment should not focus primarily on the outcome, but on the thought processes: what, how and why the students thought during their work on the task. Assessment should be designed to encourage learners to justify their decisions when solving problems and tasks. For example, the thinking process can be explicitly assessed during a presentation based on previously defined criteria.

During the assessment, it should underlined that its most important purpose is to help students reach their full potential with awareness of what is expected of them, what are their strengths and weaknesses in this regard and motivate them for further learning, self-improvement, self-confidence , self-esteem and self-efficacy, and taking responsibility for one's own learning process. Basically, equity also means that every student has equal opportunities to demonstrate their learning, including key competencies. From this perspective, Suskie (2000) made the following practical suggestions for teachers:

1. Clearly state learning outcomes and share them with your students.
2. Align evaluation with what you teach and vice versa.
3. Use as many different ways as possible during the evaluation.
4. Help students learn how to objectively self-evaluate their work and results.
5. Engage and encourage your students.
6. Assess the results accordingly.
7. Evaluate the results of your work and student assessment.

As already mentioned, **formative assessment with appropriate feedback is the most powerful instrument for improving student achievement** (Hattie & Temperly, 2007).

Formative evaluation helps teachers to:

1. determine the current state of students' competencies;
2. change the teaching so that it is adapted to the students, so that they would be as successful as possible;
3. select the most appropriate learning strategies, activities and ways of grouping students;
4. inform students about their progress and areas for improvement to help them set their own goals (Ainsworth and Viegut, 2006, p. 23)

Teachers can use the results of formative assessment to adapt learning and teaching strategies, appropriate materials and learning conditions to their students. The information obtained during the formative assessment can help the teacher to determine:

1. how to group students,
2. what alternative materials could help,
3. how much time to set aside for certain learning activities,
4. which concepts should be presented to some students in a different way, and
5. which students are ready to progress.

There are **five ways** to formatively evaluate learning (evaluation FOR learning):

1. **Questioning** allows the student to find out at the level of success with the help of the teacher.
2. The teacher provides each student with **feedback** on how to improve their own learning.
3. The **student is acquainted in advance with the quality criteria** for each task he performs.
4. The student becomes **increasingly independent in his learning**, participates in **peer evaluation and self-evaluation**.
5. Summative evaluation (e.g. exams or portfolios) can be formative if students are given **feedback and an opportunity to improve their results**.

Formative assessment is key to improving student learning and removing disparities between actual knowledge levels and potential student opportunities. In most cases, formative assessment is **without grades and contains a description of the progress and development of key competencies in students as well as suggestions for improvement.** (Lines & Mason, 2005, p. 10).

|  |  |
| --- | --- |
| The active feedback loop includes:  (1) identifying missing gaps,  (2) feedback on that,  (3) progress in learning and  (4) self-assessment and preparation of students for the next round of improvement. |  |
|  | **Picture 5. Active feedback loop** |

## **Key methods of formative assessment**

### **Questioning**

**Questioning** is a quick and important way to determine what a student understands about a topic and to what extent he or she has developed overlooked key competencies. This information can be used to prepare more effective teaching, both in terms of topic and key competencies.

On average, teachers wait only 0.9 seconds after asking questions before giving up waiting for answers from students. It is desirable to extend the "waiting time" to one minute, depending on the complexity, because this can improve the quality of the answer and students can be given time to think, decide that they want to answer and give an answer.

One way to extend the "waiting time" and ensure that the whole class is actively involved is to ask students to write an answer to a question on a piece of paper, tablet, etc. and show it. It gives you instant feedback on who understands and who doesn’t, as well as what the next steps in learning might be.

A good strategy, if a student answers incorrectly, is to turn it into a positive event. The teacher might say, *"I'm glad you thought and tried to answer. I guess the other students have a dilemma about that, too, and we need to talk about it further to get the right answer."*

In the classroom, discovering what students don’t know is just as valuable as discovering what they know. This information will help the teacher prepare the materials that students need and select the most appropriate learning strategies to help them achieve what they need.

**Closed questions require a short answer**, and in most cases the answer is yes or no. The answer is usually correct or incorrect. For example, a geography teacher might ask, *"What is the capital of Sweden?"*

**Open-ended questions need longer answers** and often require student thinking. For example. a physics teacher may ask, *“What will happen to the flow of water through a pipe if a smaller nozzle is placed on it? Explain how this relates to the study of voltage, current, and resistance in a simple electrical circuit.”*

Open-ended questions like this allow all students to try to answer the question and be part of the discussion. Questions can then be asked to develop a discussion, such as *"Tell me a little more about the basic laws of hydraulics. Compare them with the basic electrical laws."*

### **Think, share in pairs, share with everyone**

This method is based on **asking students questions** and giving them a few minutes to **think** for their own answers. The student then **talks to their couple** about their ideas before the conversation is open to the whole class.

This strategy encourages all students to get involved in classroom participation. This gives them time to formulate their own ideas, as well as an opportunity to share their opinion with at least one student. Furthermore, it encourages students to listen to each other’s ideas and helps them understand different points of view.

The teacher can use this activity after the class asks any open-ended questions. For example, after individually reading a chapter of a book, the teacher asks all students to quietly think about the question for a minute or two. During this time, students write down their own ideas on paper. The teacher then instructs them to address their neighbour or a small group of neighbours and discuss the issue for a few minutes. This time they write down the thoughts of their couple / group. The teacher then invites several couples / groups to tell the class what their ideas are.

This develops the key literacy competence, i.e. reading comprehension and summarization of reading, key competence to learn how to learn, social competence that includes communication and cooperation with others, and creativity and presentation of ideas.

### **Feedback**

Expressing and accepting feedback is a process in which students talk to their teachers about where they are in learning and developing key competencies, where they want to be and how they will get there. This usually involves reviewing the task performed and achieving key competencies. Feedback can be described as a ‘bridge’ between teaching and learning and help to raise awareness as well as to plan the necessary activities for improvement.

Both the teacher and the student need to clearly understand the goals and tasks of any task. The teacher can help by agreeing and agreeing on ‘success criteria’ before students start working.

Feedback may include evaluation. However, in this case the student can only remember the grade and do nothing to improve his work. In the classroom, the teacher gives feedback on the work of his students. If the teacher wants to add a grade, it is recommended that he / she do so later so that students can read the comments before receiving the grade. Effective feedback is that which is related to task completion, the learning process, and the development of key competencies.

Here’s an example of person-centred feedback: *“Great job, Mark, you’re the best in the class.”* This type of feedback can lead excellent students to be complacent thinking they have nothing to do to improve. They could also give up trying something that is difficult for them not to lose the achieved position. On the other hand, students who would be characterized by feedback as weak may feel as if they can do nothing to improve.

The teacher should strive to provide feedback to each student by making him aware of what he is doing well and what he has mastered in relation to the task, activity or key competence, but he should also be helped to discover aspects that can and should improve his work and learning. For example: *"You wrote a good introduction to your story. Can you think about how you can describe the main character more impressively?"*

### **Teacher’s feedback in the form of written comment**

When reviewing students ’homework, the teacher writes constructive comments instead of just writing a grade. Teachers are encouraged to select at least one written paper per month to which they will give students detailed written feedback. Feedback should also include information on the achievement of learning outcomes related to key competences and should be based on criteria that students are familiar with in advance. It would also be good to include affirmative remarks confirming the student's progress and praise about the aspects of the work that the student has done well and the learning outcomes of the key competencies he has achieved, but also to encourage improvements. Feedback can also be given orally, but then students can forget suggestions for improvement. Whenever possible, the teacher should motivate the student for additional work, encourage their for improvements and provide support, opportunity and time to improve their work, key competencies, results, and even assessment.

### **Student’s feedback to teacher: scoreboard**

A “scoreboard” is a quick way for a teacher to find out how students feel about adopting a new concept or skill and the key competencies covered by the lesson. In this way, students' ability to assess their own learning and achieve planned goals, think about the learning process and its improvement is encouraged, which improves the key competence Learn how to learn and personal competence. The teacher can give each student 3 cards with red, yellow and green emoticons, with which he can express how he assesses his achievement of goals for a certain activity and key activity.



|  |  |  |
| --- | --- | --- |
| **I do not understand. I didn't achieve my goals.** | **I understood, but I couldn’t pass it on to anyone else. I only partially achieved my goals.** | **I understood everything. I can explain to a friend what this is all about. I completely achieved my goals.** |

Another way to do this is a “weather forecast” where students mark a **+** when leaving class (cloud with thunder, semi-cloudy, sunny), according to how they felt in class or about a specific topic, concept or key competencies.

### **Peer feedback**

Student feedback to a student, or peer assessment, is the process by which students evaluate each other's work and give each other feedback. Feedback is based on an understanding of what quality is and is given affirmatively, even when opportunities for improvement are listed. The teacher is vital for this process, because he gives instructions and determines the way in which feedback is expressed, knows his students and can help them to develop their skills of critical and reflective thinking.

Giving independence to students is a great way to take responsibility for their own learning. Peer feedback also helps students develop emotional intelligence and their social skills and use critical and analytical thinking skills.

Peer review and giving feedback require students to think like teachers about each other. Each student will apply the success criteria to the work of another student and based on them make a value judgment about his work. In this way, he will better clarify the goals and the level of quality that needs to be achieved. The student who received the feedback should think about the received information about their work and on the basis of it improve their future work and results.

**Example: Peer review and feedback on this**

This activity introduces students to the peer feedback process. Students give each other feedback on the task they have just completed.

First, feedback is given on what has been successful.

Students read each other's solved tasks and record the extent to which each success criterion has been met. Then in pairs, students give each other written and / or verbal feedback, based on the success criteria.

While students give each other feedback, the teacher can move around the class to follow the feedback each pair gives and join discussions to add an opinion if students need help giving feedback.

Finally, students can talk about their experience. The teacher should motivate and support students to express feedback with an explanation of how the process requires time and practice to be as effective as possible.

Due to the crucial role of feedback in the classroom and school, in regular classes, and extracurricular activities, Annex 4.c contains additional suggestions for working with students, so that students receive feedback on their work and development of key competencies, but also teachers on the applied way of working and learning strategies, all with the aim of improving the work and results and key competencies of students.

### **Self-assessment**

**„*Students need to learn for themselves how to improve their learning and learning outcomes. Teachers cannot do it for them.” (Mary James, 1998)***

By self-assessment, students evaluate their own work and think about their own learning and develop a significant number of key competencies, primarily learning how to learn and personal competence, but also entrepreneurial because they take responsibility for their own development. Through affirmative and objective self-assessment, students develop self-confidence and continuity of their own personal and professional development for a lifetime. This helps them understand what the teacher is teaching, connects the new material with the previous learning and uses what they have learned so far for the new learning. Ultimately, self-assessment allows students to set their own learning goals and be responsible for their own learning. However, it should be borne in mind that students cannot overnight become persons who are able to objectively self-assess their work and results. Developing these skills takes time and practice, and the role of the teacher is crucial in the process. “Students need to learn for themselves how to move on to the next level."

**Example:** Students should review their own work based on the teacher's instructions and details of expectations for each of the achievement levels and be graded accordingly. The teacher's feedback descriptive assessment of the student's work as well as his self-assessment helps the student to become more and more objective in self-assessment and more motivated for his own development.

When students are introduced to self-assessment, they should be carefully guided through the process. For starters, give students a list of questions that can help them self-assess and create their own learning portfolio - portfolios, such as:

"What made sense and what didn't?"

"How does this subject fit into what I already know?"

"What did I do well and what could I improve?"

The teacher can talk to each of the students individually to help them feel comfortable and safe in the self-assessment process. In the next phase, students need to be able to set goals for themselves to improve their work.

### **Formative use of school tests and exams**

Students often need to take summative school tests, such as year-end exams or final exams. After an exam or test, the teacher should find out which questions most students answered poorly. This will provide him with important information on what to do with students in addition, and he can focus on explaining the areas of the curriculum that have created problems for most students.

Students need to be explained in detail what they answered incorrectly, get them to think about it and motivate them to make an extra effort to master what they have not mastered before. In other words, it is necessary to give students the opportunity to take responsibility for improving their own results and provide them with support in doing so. Students may also practice and solve exam questions in the classroom in pairs or groups as a peer learning activity before the next individual exam or test.

Whenever possible, the student should be given the opportunity to further learn, practice, and master what he or she has failed to do before. With this procedure, the student also develops a number of key competencies, because it is a powerful tool for their improvement.

# Conclusion

In order for education and upbringing for key competencies to be effective, the teacher should take into account the following:

* At the centre is the learning process, ie. how much the student has thought, what he has learned and to what extent he can apply what he has learned (and not what the teacher has taught)
* Learning is focused on skills, attitudes and values ​​while developing problem-solving skills, critical thinking and creativity
* The flexibility of teaching in accordance with the student's learning styles, needs, interests, innate inclinations and developed intelligences is improved (shift from a unified school to adaptation in accordance with students' abilities and predispositions)
* Learning is placed as much as possible in situations similar to real situations in everyday life
* It takes into account not only *what is learned*, but also *how well, when and why something is learned*, and emphasizes the *benefits and applicability of content*, principles and concepts learned in school

**The role of teachers** in the process of developing key competencies is crucial. The teacher's roles can also be that he acts as a researcher in the implementation and realization of innovative practices, for mutual training and teaching (peer coaching) and advising other teachers. A teacher who adapts his work to students, their learning styles and multiple intelligences, creates a supportive and stimulating environment and continuously monitors students' work and progress and gives them affirmative feedback, significantly influences his students and increases the possibility of developing their key competencies. Of course, every teacher who puts the welfare and development of students first, cooperates with other teachers and plans to cover and schedule the development of all planned learning outcomes according to the Montenegrin Framework Program of Key Competences, either regular teaching or interdisciplinary teaching, or extracurricular activities. It should also be emphasized that the development of key competencies is first achieved by a consistent example, so in this regard the role of teachers is irreplaceable.

We hope that this Handbook will be motivating and supportive for teachers, in order to include key competencies in their work to a greater extent than before:

* to improve the quality of everyday teaching in classrooms, especially for key competences
* to assist in the selection and application - rather than acceptance - of curricular materials and programs
* to help use all available sources of information and other resources such as music, movies, videos, simulations, quizzes, relevant scientific texts and more
* to help develop a different approach to their continuous personal and professional development (without personal development there is no significant professional development), which differs from the conventional way of training
* to strengthen the network of teachers who would support each other in the long run and exchange experience and materials, and help each other avoid burnout at work
* to help articulate their needs
* to help find creative ways not only to survive but also to maintain their beliefs and integrity to improve the school climate
* to encourage resourcefulness and innovation of teachers, as well as for the ability to notice, reflect, draw conclusions and evaluate their work

As already mentioned in the introduction, many teachers in this Handbook will not find anything particularly new, because the development of key competencies requires what many teachers already use in their work with students, and that is caring for student growth and development, studious preparation of teaching and teaching materials and selecting strategies for active student learning, giving feedback to the student on their progress, designing interesting and stimulating extracurricular activities, and providing a stimulating, supportive and safe environment for student learning.

As a confirmation of the thesis that training students for key competencies is nothing new, it confirms **what Confucius (576 BC) proposed to work with students more than 2,500 years ago:**

* **Combine the best of the new with the best of the old**
* **Learn by doing**
* **Use the whole world as a classroom**
* **Use music and poetry to learn and teach**
* **Combine academic and physical**
* **Learn how to learn, not just facts**
* **Adapt teaching to different learning styles**
* **Build the right values and behaviours**

**ANNEXES**

# Annex 1: Learning outcomes of key competences for ISCED levels 1, 2 and 3

## **Learning outcomes of key competencies in primary school teaching – ISCED 1**

At the end of the learning process in the first five grades of primary school, the student:

1. **Literacy competence**

1.1.1. Applies basic language standards in reading and writing (reads age-appropriate literary and non-literary texts with an understanding of written information; writes texts based on the model)

1.1.2. Uses learned rules of grammar and spelling, and vocabulary appropriate to the context in writing and speaking

1.1.3. Participates actively in interpersonal communication

1.1.4. He distinguishes between types of literary and non-literary texts, and basic language styles

1.1.5. Communicates orally and in writing using appropriate vocabulary

1.1.6. Compares concepts and data from different sources

1.1.7. Highlights key terms and related data that classifies, compares, complements, remembers and uses in new situations

1.1.8. Interpreters images, characters, folders, and simple charts and tables and other types of non-continuous text

1.1.9. Separates the essential from the irrelevant after listening to or reading and analysing texts

1.1.10. Demonstrates interest and openness to participate in constructive dialogue by communicating arguments and responding adequately to the arguments of others, accepting or refuting them

1.1.11. Take care not to hurt the emotions of others

1. **Multilingual competence**

1.2.1. Uses vocabulary, basic grammatical norms of the first foreign language (as a rule of English), at level A1 of the Common European Framework of Reference for Languages

1.2.2. Listens, reads, speaks and writes one foreign (usually English) language at level A1 of the Common European Framework of Reference for Languages

1.2.3. Recognizes the specifics of a foreign language and typical differences in relation to the mother tongue (e.g. transcription, capitalization, Persian, etc.)

1.2.3. Uses appropriate situations and resources to learn foreign languages (eg cartoons, picture books, video games, etc.)

1.2.4. It respects the linguistic and cultural identity of each individual and respects differences

1. **Competence in mathematics, science, technology and engineering**

1.3.1. Uses basic arithmetic operations with natural numbers, mathematical procedures and measures to solve problems in everyday life situations

1.3.2. Recognizes that many natural phenomena and processes can be described by scientific laws, models, and theories

1.3.3. Recognizes the role of scientific knowledge in the construction of all machines and devices, as well as the role of human curiosity and the need to explain the world in driving science and innovation

1.3.4. It connects the application of scientific achievements and technological solutions with the well-being of humanity, recognizing the possibility of their abuse

1.3.5. It assesses and measures basic physical quantities by choosing appropriate units of measurement and instruments for their measurement

1.3.6. Recognizes the logic of mathematical procedures and uses logic to argue his ideas and explanations

1.3.7. Reads, compares and displays data in tables and graphs using digital tools as needed

1.3.8. He independently performs simple experiments, describing and interpreting the results of the performed experiment and drawing conclusions

1.3.9. Recognizes and uses simple tools and machines

1.3.10. He accepts mathematical statements noticing that they can describe natural phenomena and natural laws

1.3.11. Demonstrates systematicity, precision and perseverance in work and learns from mistakes

1.3.12. He distinguishes between what is a natural given and what is a convention, an agreement in science

1.3.13. Recognizes the need for moderate, rational and purposeful use of natural resources in its environment

1. **Digital competence**

1.4.1. Explores the different possibilities of using digital technologies in everyday life, noticing the effects and limitations of their application

1.4.2. Distinguishes the purpose of different digital devices and applications by connecting their connectivity and operating principles

1.4.3. Uses a variety of information and data sources in a digital environment

1.4.4. Recognizes the dangers and ways to react in cases of cyber violence, ways to protect personal data and privacy in the digital environment, as well as the protection of devices, digital content, and the impact of digital technologies and their use on the environment

1.4.5. Uses digital technologies to communicate in an appropriate context

1.4.6. Creates and edits simple digital content using a variety of digital tools

1.4.7. Searches, stores and uses information and content in digital form

1.4.8. Uses digital devices and simple applications to communicate, save and process text, photos and videos

1.4.9. Shows openness and curiosity towards the use of digital communication technologies and innovations

1.4.10. Takes care of the proper use of digital and communication technologies in relation to behavior in the digital environment, protection of data and devices

1. **Personal, social and learning to learn competence**

1.5.1. Applies rules of conduct and appropriate communication recognizing the importance of establishing rules and the reasons for their introduction

1.5.2. Distinguishes the components of a healthy mind, body and lifestyle from unhealthy habits

1.5.3. Manages his own supported learning process, choosing the learning approach and learning strategies that are most appropriate for him

1.5.4. Recognizes different ways to develop competencies

1.5.5. Recognizes his abilities and interests and uses them for learning, personal growth and development with support

1.5.6. Focuses on solving simple problems in learning, personal and social development, with support

1.5.7. He finds evidence for his claims

1.5.8. Adapts to independent learning, learning with others and learning with support

1.5.9. Shows curiosity, desire and perseverance in learning by monitoring their results and their progress during learning with a review of progress

1.5.10. Maps of personal development

1.5.11. Adapts to changed learning and living conditions without significant effort, with support

1.5.12. Communicates with others while expressing and understanding different points of view

1.5.13. Supports personal, social and physical well-being and cooperation

1.5.14. Acts in accordance with the principles of justice and equal opportunities, expressing readiness to overcome prejudices

1.5.15. Respects the diversity of others and their needs by building their own integrity and relationships with others on the principle of respect and empathy

1.5.16. Builds motivation to achieve goals in learning and life, builds self-confidence, shows readiness to solve problems and openness to change

1.5.17. It builds a relationship towards overcoming problems and finding answers to challenges

1.5.18. It shows curiosity and curiosity to learn

1. **Civic competence**

1.6.1. Distinguishes basic concepts, phenomena and roles related to the individual, family, social groups, school, organizations and institutions

1.6.2. Recognizes basic values ​​in the family, school and society related to respect for oneself and others, justice, solidarity, non-discrimination and respect for children's rights

1.6.3. Identifies significant contemporary and past events that have influenced society

1.6.4. Recognizes the values ​​of social groups from their environment (eg family, class, school, children's union, environmentalists, Gorani, scouts, etc.)

1.6.5. Recognizes the importance of natural resources and environmental protection in preserving the quality of life

1.6.6. Recognizes individual and cultural differences among people

1.6.7. Recognizes the importance of nurturing the tradition of one's own cultural and national identity by recognizing and supporting similarities and differences between people

1.6.8. Notices socioeconomic differences in stories and the environment, advocating social justice

1.6.9. Participates in socially useful activities at the class and school level

1.6.10. Expresses his opinion and views on problem solving, respecting the opinions of others

1.6.11. Participates in the work of class and school bodies

1.6.12. Uses available media in an age-appropriate way and compares media content with teachers, parents, relatives and peers

1.6.13. Demonstrates a positive attitude towards the rights of the child to growth, learning, development of their own abilities and talents, growing up in a family, safety and protection

6/1/14 Demonstrates a willingness to participate in democratic decision-making at the family, school, and peer groups

1.6.15. Accepts cultural and gender differences by building behaviors based on respect and nonviolence

1.6.16. Emphasizes the importance of a responsible attitude towards the environment

1.6.17. Shows interest in the events in his environment by supporting differences

1. **Entrepreneurial competence**

1.7.1. Transforms a problem/opportunity from one's own immediate environment into an idea / activity, with support, predicting the outcome of the action taken

1.7.2. Makes a simple project proposal effectively, using available resources

1.7.3. Understands (explains) simple economic and financial concepts (eg money, supply and demand, market price, trade, bank, etc.)

1.7.4. Makes a simple home budget

1.7.5. Recognize the impact of their choices and behaviours on the community and the environment

1.7.6. Identifies problems relevant to themselves and their environment and develops ideas that solve them logically, creatively and critically defining the goals of simple activities, with the support of

1.7.7. Collaborates with others to turn ideas into activities

1.7.8. Calculates the cost of turning an idea into an activity

1.7.9. Communicates his ideas clearly with others

1.7.10. Overcomes simple unfavourable circumstances and is not afraid of mistakes while trying new things

1.7.11. Demonstrates commitment, perseverance, and initiative to address issues that affect the community

1.7.12. Expresses empathy for others, initiative and expressed interest in the well-being of people and the environment, and convinces others by referring to certain arguments

1. **Competence in cultural awareness and expression**

1.8.1. Recognizes the expressions of his own and other cultures in various forms, expressing his thoughts and experiences in an imaginative and spontaneous way

1.8.2. Connects different roles and experiences in cultural and artistic achievements (writer-reader, composer-performer-listener, actor-audience, painter-audience, architect-builder-environment, etc.)

1.8.3. Names the heritage of his own and other cultures

1.8.4. Expresses his ideas and feelings in the creative process through painting, drawing, composition, sculpture, music and other artistic and cultural forms

1.8.5. Involves in creative activities in school and community (eg participates in folklore, choir, draws and paints cultural products, plays roles in plays, attends cultural events - exhibitions, theater performances for children, performances, folklore games, events in virtual / digital space, etc.)

1.8.6. Respects freedom in cultural and other creative experiences and expressions

1.8.7. Shows interest in different cultural forms

## **Learning outcomes of key competencies in subject teaching in primary school – ISCED 2**

At the end of the learning process at ISCED 2 level in primary school (sixth to ninth grade), the student:

**1. Literacy competence**

2.1.1. Applies language standards in reading and writing (reads literary and non-literary texts with an understanding of written information; writes texts based on given data)

2.1.2. Applies functional grammar and spelling in writing and speaking

2.1.3. Increases the number of words in the vocabulary including terms from different areas

2.1.4. Identifies and interprets concepts, feelings, facts, opinions and attitudes orally and in writing

2.1.5. Adapts verbal interaction, different styles and language registers to the context

2.1.6. Communicates orally and in writing in various situations, adapting their own communication to the needs of the situation and using appropriate vocabulary and digital technologies

2.1.7. Finds, evaluates, processes and presents different types of data and information using different types of data and information sources

2.1.8. Uses information and data to argue its claims using digital technologies for word processing, presentation, and search and processing of data and information

2.1.9. He critically expresses an opinion, distinguishes facts from subjective opinion, and recognizes false news

2.1.10. Participates critically in constructive dialogue, respecting the qualities of good speech (eg vocabulary appropriate to the situation, appropriate speech that includes purposefulness, precision, clarity of speech, etc.) and showing interest in interacting with others

2.1.11. Expresses awareness of the impact of language on others by respecting one's own and others' emotions, refraining from verbally attacking others and hurting others

**2. Multilingual competence**

2.2.1. Uses vocabulary, grammatical norms, basic types of verbal interaction and registers of the first foreign language (as a rule of English) at level A2 of the Common European Framework of Reference for Languages

2.2.2. Uses vocabulary, basic grammatical norms of another foreign language, at level A1 of the Common European Framework of Reference for Languages

2.2.3. Analyzes the specifics of foreign languages, including social conventions

2.2.4. Listens, reads, speaks and writes the first foreign (usually English) language at level A2 of the Common European Framework of Reference for Languages

2.2.5. Listens, reads, speaks and writes another foreign language at level A1 of the Common European Framework of Reference for Languages

2.2.6. Uses different communication situations and resources for learning different languages ​​(eg Internet, online courses and e-tests, movies, music, communication via social networks, etc.)

2.2.7. Expresses a positive attitude towards other languages ​​and cultures

2.2.8. He is interested in studying other languages ​​and cultures

2.2.9. Notices the role of the official language (s) as a common framework for interaction

**3. Competence in mathematics science, technology and engineering**

2.3.1. Uses mathematical operations with real numbers, basic mathematical concepts and concepts representing objects, ideas and procedures with words, drawings, diagrams, graphs, numbers and symbols

2.3.2. Uses basic principles of maintenance and mathematical equality to describe processes and laws in the real world by recognizing the application of science in technology

2.3.3. Compares explanations of natural phenomena throughout history, assessing the importance of scientific discoveries on the development of technology, medicine and society

2.3.4. Analyses the structure and properties of living and non-living nature and their connection

2.3.5. Assesses the advantages and disadvantages of generally accepted technologies, recognizing the importance of moral issues for their application and development

2.3.6. Applies proportionality, scale and percentage calculation in everyday life situations

2.3.7. Analyses the essential properties of objects, phenomena and processes and presents them as variables, to which it assigns numerical values ​​and monitors the interdependence of relevant variables

2.3.8. Checks simple mathematical statements and conclusions by evaluating the logical statements on which they are based

2.3.9. Collects, classifies and organizes empirical data according to the required criteria

2.3.10. Distinguishes scientific knowledge from lay belief

2.3.11. Performs simple experiments and reports on flow, results and conclusions using and adjusting measuring instruments and taking care that measurements always have errors

2.3.12. Explains the characteristics of technological processes and the development of medicine that have significantly influenced the development of mankind

2.3.13. Adopts scientific truth by deriving evidence of natural laws

2.3.14. Understands the need for observations and experiments to be performed under controlled conditions that allow the method of work and results to be verified

2.3.15. Compares the possible benefits and harms of using different machines and natural resources, contributing to its activities for human safety and environmental protection

**4. Digital competence**

2.4.1. Connects the application of digital technologies with the development of communications, creativity and innovation by analysing the possibilities, limitations, effects and risks of digital technologies

2.4.2. Selects digital devices, tools and software applying the general principles, mechanisms and logic of their functions

2.4.3. Analyses and compares the validity and reliability of defined data sources, information and digital content

2.4.4. Applies different ways to protect and share their personal data and privacy in the digital environment, protecting themselves and others from danger

2.4.5. Uses various forms of digital communication, including social networks, in order to achieve personal and social goals

2.4.6. Creates and shares digital content and materials (eg text, tables, graphics, images, presentations, audio and video material ...) using services and applications and digital data storage technology

2.4.7. Advanced searches, stores and uses information and content in digital form using simple protection

2.4.8. Uses digital devices, applications and simple software to create, process, adapt and save text, images, videos and other digital content

2.4.9. Embraces digital communication technologies and innovations and their use in a constructive and thoughtful way

2.4.10. Behaves in accordance with the rules of desirable behaviour in the Internet community (netiquette), rules relating to the use and security of digital devices, applications and software

**5. Personal, social and learning to learn competence**

2.5.1. Applies a code of conduct and rules of effective communication adapted to the situation, expressing a positive value system that directs their own decisions and behavior in a consistent manner

2.5.2. Take care of your own physical and mental health and the health of others

2.5.3. Manage your own learning process with occasional support, improving your learning by changing your learning plan or approach

2.5.4. Recognizes the importance of competencies for learning progress and personal growth

2.5.5. Analyses available opportunities for education, training and career

2.5.6. Uses self-awareness for learning, personal growth and support with support

2.5.7. Focuses on solving problems in learning, personal and social development

2.5.8. Argues the expressed opinion and attitudes

2.5.9. She plans to learn independently, learn with others and seek support when appropriate and effective

2.5.10. Demonstrates a willingness to make an effort to achieve learning outcomes

2.5.11. Self-evaluates the learning process and the results achieved and assesses the progress made

2.5.12. He shares knowledge and his own experience with others

2.5.13. Selects the first steps of a career path - analyses different occupations and possibilities of one's own career path by planning the choice of profession and continuing education

2.5.14. Assesses the changed conditions of learning and life and adapts to them, with reflection and counselling

2.5.15. Communicates constructively and cooperates with others, expressing flexibility in communication, the ability to find compromises, self-confidence and a sense of empathy

2.5.16. Adopt positive values ​​about personal, social and physical well-being and cooperation

5/2/17 Promotes physical and emotional well-being by showing a positive attitude towards cooperation, assertiveness and integrity

2.5.18. They are motivated and develop resilience and self-confidence for their success in learning

2.5.19. Promotes the values ​​of overcoming problems and finding answers to challenges and accomplishments towards change

2.5.20. Develops a desire to apply prior learning and life experiences

**6. Civic competence**

2.6.1. Assess the concepts, phenomena, role and importance of individuals, social groups, organizations and institutions on social processes

2.6.2. Compares the values ​​in the society in which he lives with the values ​​of the European Union related to democracy, equality, respect for the prescribed rules in society, the rights of persons belonging to minorities and more

2.6.3. Assesses current events in relation to key events in national, European and world history

2.6.4. Examines the development of social and political movements, their goals and values

2.6.5. Distinguishes the causes and consequences of climate change, biodiversity change and demographic change at the local and global levels

2.6.6. Notices the importance of European integration and accession to the European Union, respecting the differences and cultural identities of others

2.6.7. Compares the basic characteristics of its own and other cultures, respecting the multicultural dimension of European societies

2.6.8. Critically judges the socio-economic dimensions of society at the national and regional levels

2.6.9. Engages voluntarily in activities of public and common interest at the school and community level

2.6.10. Explains his views and solves problems by establishing criteria for evaluating different opinions

2.6.11. Actively participates in the work of class and school bodies and student associations

2.6. 12. Evaluates various media as sources of information and critically and responsibly expresses his views on available traditional media and social networks

2.6.13. Affirms human rights by respecting different identities, equality and freedom

2.6.14. Expresses a positive attitude towards democratic decision-making at the school and community level, freely expressing his opinions

2.6.15. Expresses the right attitude towards cultural, social and gender differences by accepting a culture of respect and non-violence

2.6.16. It expresses an attitude about a responsible attitude towards the environment by adapting to changes in it

2.6.17. Shows interest in social events, humanities and intercultural communication, excluding prejudice and affirming compromise and social justice

**7. Entrepreneurial competence**

2.7.1. Understands (explains) the concept of tax (how taxes finance the activities of the state and its participation in the provision of public goods and services), the concept of cost-benefit analysis, and the concept of credit and indebtedness, and distinguishes different forms of value-creating activities (business, public enterprise, non-profit organization, etc.)

2.7.2. Compiles a budget for value-creating activities

2.7.3. Adapts its activities to ethical aspects and principles of sustainable development

2.7.4. Improves value-creating ideas by experimenting with your skills and competencies and different techniques of collecting alternative options to solve the problem critically and constructively, and in the best way

2.7.5. He works independently and with different teams on mobilizing human and other resources in order to maintain the planned activities

2.7.6. Plans spending by assessing the advantages and disadvantages of basic financial services

2.7.7. Communicates effectively your own or team values ​​and ideas with stakeholders from different spheres creating stories and scenarios that will motivate, inspire and guide people

2.7.8. Actively searches for and compares different sources of information to reduce ambiguities, uncertainties and risks in the decision-making process

2.7.9. Faces challenges and problems actively, courageously and persistently, recognizing opportunities and accepting risk

2.7.10. Motivates others by his own examples and actively treats the emotions of others by developing responsibility, ethics and care for people and the world

**8. Competence in cultural awareness and expression**

2.8.1. Analyses the products and expressions of national, regional and European cultures (languages, heritage, rituals, traditions), presents the acquired knowledge in different forms by examining the influence of culture on the ideas of the individual and the mutual influence of different cultures

2.8.2. Conveys his ideas and feelings through the creative process using different media, e.g. textual / written, digital, visual, sculptural modelling, etc.

2.8.3. Respects the heritage of its own and other cultures and cultural forms

2.8.4. Generates its own ideas and feelings on a given topic, e.g. in relation to the poem, the image, the object, the problem situation

2.8.5. Creates and participates in organized collective cultural and other processes in the school and community

2.8.6. Shows openness to different cultural forms, respecting the differences of cultural expression

2.8.7. Also shows curiosity to explore different cultural and artistic forms and forms

## **Learning outcomes of key competences for secondary education (ISCED 3)**

At the end of the learning process in secondary education, the student:

**1. Literacy competence**

3.1.1. Applies rich vocabulary, including professional terms, according to situations

3.1.2. Creates literary texts expressing concepts, feelings, facts, opinions and attitudes

3.1.3. Applies functional literacy in everyday life situations, learning and work

3.1.4. Develops the skill of participating in public, mass and intercultural communication using visual, audio / audio and digital material in disciplines and contexts

3.1.5. Communicates using various communication channels (oral, written, digital,

media, etc.) effectively connecting with others, in an appropriate and creative way

3.1.6. Collects, records / stores, organizes and evaluates information and data by checking

source reliability

3.1.7. Presents, interprets and compares information and data from multiple sources using

charts and diagrams

3.1.8. Critically analyses arguments and claims, presenting them through participation in discussions and debates

3.1.9. Initiates and participates in dialogue in an argumentative, critical, and constructive manner

3.1.10. Actively listens to and respects the opinions, attitudes and emotions of others using language in a positive and socially responsible way

**2. Multilingual competence**

3.2.1. Applies vocabulary and functional grammar of the main types of verbal interaction and registers of the first foreign language (as a rule of English), at the level of B1 / B2 of the Common European Framework of Reference for Languages

3.2.2. Uses vocabulary, grammatical norms of the basic type of verbal interaction and registers of another foreign language at least at the level of A1 of the Common European Framework of Reference for Languages

3.2.3 Respects social conventions, cultural aspects and the variability of foreign languages ​​in communication

3.2.4. Listens, reads, speaks and writes the first foreign language (usually English) at B1 / B2 level of the Common European Framework of Reference for Languages

3.2.5. Listens, reads, speaks and writes a second foreign language at least at level A1 of the Common European Framework of Reference for Languages

3.2.6. Finds and uses different communication situations and resources for learning different languages ​​(e.g. professional and other literature, films, music, communication via social networks, digital tutorials and tutorials, online courses, exchange opportunities, study and other trips, courses and schools language, etc.)

3.2.7. By its behaviour and actions, demonstrates respect for cultural differences, interest and curiosity about different languages ​​and intercultural communication.

3.2.8. Respects the official language(s) as a common framework for interaction

**3. Competence in mathematics, science, technology and engineering**

3.3.1. Presents and describes objects and phenomena with abstract mathematical structures and relations, recognizing which questions mathematics can answer

3.3.2. Checks data and claims aware that science and technology are evolving through impartial data collection and continuous testing of theoretical assumptions

3.3.3. Recognizes that the development of technology and medicine owes its success to the consistent application of scientific results

3.3.4. Evaluates the motives that lead to innovation and development of technology by analysing the profit that would be achieved by their use, the general well-being and their essential impact on raising the quality of life of all people

3.3.5. Interprets the connections between phenomena in nature or society using simple mathematical modelling techniques

3.3.6. Analyses a complex problem, divides it into steps and solves it through an algorithm

3.3.7. Uses a series of logical arguments to infer, prove, generalize, and identify special cases

3.3.8. Uses the methodology of data collection, processing and analysis (observes, measures, experimentally records, analyzes and verifies results, presents data using descriptive statistics, tables and graphs)

3.3.9. Critically uses all elements of the scientific method for research of unknown phenomena and independent learning, deriving reliable and evidence-based research conclusions

3.3.10. Interprets, applies and creates technical instructions and technical documentation for everyday use

3.3.11. Makes a technical drawing and uses tools, appropriate materials and techniques to make models, models and prototypes

3.3.12. Affirms the scientific truth, significance and relevance of scientific research

3.3.13. Writes and discusses essays through research work, using scientific concepts and verifiable sources of information

3.3.14. Recognizes the importance of ethical issues related to health, safety and environmental sustainability in terms of scientific and technological progress

**4. Digital competence**

3.4.1. Applies digital technologies for communication, knowledge creation and process and product innovation taking into account the possibilities, limitations, effects and risks of using digital tools and technologies

3.4.2. Uses various digital devices, software and networks, connecting them into logical units to perform everyday tasks, and especially to create knowledge and innovate processes and products.

3.4.3. Critically evaluates the credibility, reliability, and impact of different sources of information and data by tailoring a search strategy to find the most relevant data, information, and content in a digital environment

3.4.4. Respects the concept of copyright in the digital environment and selects the most appropriate ways to protect and share personal data and privacy in the digital environment, while protecting yourself and others from harm

3.4.5. Develops communication strategy and establishes interactions through digital technologies to empower oneself and to participate in society as a citizen, sharing information and content and engaging in social activities using digital technology

3.4.6. Creates, edits and shares digital content in various formats, executes algorithm instructions and writes the appropriate program

3.4.7. Manages digital data, information, content and digital identity

3.4.8. Uses advanced software, a variety of digital devices, and simple robots and digital tools that include artificial intelligence

3.4.9. Affirms the use of digital communication technologies and innovations in a thoughtful, critical and responsible way

3.4.10. Adopts a value system of ethical, safe and responsible approach in the digital environment

**5. Personal, social and learning to learn competence**

3.5.1. Creates and implements a code of ethics and a framework for constructive communication for successful interpersonal relationships and social participation

3.5.2. Applies healthy lifestyles, develops mind and body and treats the future responsibly

3.5.3. Manages learning processes independently and proactively using effectively different learning strategies

3.5.4. Finds ways to lifelong skills acquisition, self-management and further education (formal, informal, nonformal)

3.5.5. Takes responsibility for his decisions, learning, results achieved and personal and professional development

3.5.6. Focuses on solving complex problems in learning, personal and social development

3.5.7. Critically reviews decisions taking into account different pieces of evidence

3.5.8. Assess the effects of self-directed learning, learning with others, and learning support

3.5.8. Self-evaluates the efficiency of learning and its progress during learning

3.5.9. Shares knowledge, experiences and ideas and motivates others to action

3.5.10. Takes responsibility for personal and professional growth, writes your CV, writes a cover letter and develops techniques for appearing for a job interview or admission to an organization

3.5.11. Develops resilience and the ability to cope with insecurity and stress

3.5.12. Assertively communicates using different techniques of verbal and nonverbal communication and successfully resolving communication problems and conflicts in different situations

3.5.13. Uses negotiation techniques in communication to achieve goals by building positive interdependence and interaction with others

3.5.14. Promotes a positive value system about personal, social and physical well-being and cooperation

3.5.15. Adopts a system of values ​​of cooperation, assertiveness, integrity, respect for the diversity of others and their needs and a willingness to overcome prejudices and make compromises

3.5.16. Adopts a value system of a positive attitude towards learning and applying one's own life experiences and the experiences of others

3.5.17. Supports itself and others in developing and overcoming obstacles by affirming change and curiosity to learn

3.5.18. Forms decision-making criteria and develops its own integrity

**6. Civic competence**

3.6.1. Assess the role, importance, and impact of the individual, different social groups, schools, economics, culture, and different organizations locally and globally

3.6.2. Promotes the common European values ​​of respect for human dignity, freedom, democracy, equality, the rule of law, human rights, the rights of persons belonging to minorities, as well as dignity, freedom, equality, citizens' rights and justice

3.6.3. Is critical of current events, linking them to key events in national, European and world history.

3.6.4. Is critical of the goals, values ​​and policies of social and political movements, comparing their historical development and impact on the processes in society

3.6.5. Judges the importance of a responsible attitude towards environmental and demographic problems of modern society by promoting the principles of sustainable development

3.6.6. Assesses the idea of ​​European integration, positively valuing the differences and cultural identities in Europe and the world

3.6.7. Analyses the multicultural dimensions of European societies and the contribution of national cultural identity to European identity

3.6.8. Assesses the socio-economic dimensions of European societies

3.6.9. Initiates and actively participates in humanitarian, artistic, entrepreneurial, environmental and other activities at the local, regional and international level

3.6.10. Thinks critically and solves problems constructively, giving his own and accepting the arguments of others

3.6.11. Involves in the work of youth and other non-governmental organizations, and publicly advocates for positive changes in school, community and society

3.6.12. Critically evaluates information from various media, recognizing their importance in democratic societies and creates simple media content in which he responsibly expresses his opinions and views

3.6.13. Expresses a responsible and constructive attitude towards respect for human rights as the basis of democracy

3.6.14. Affirms the principles of democratic decision-making at all levels, public advocacy and social justice

3.6.15. Positively values ​​social and cultural diversity, gender equality, respecting the privacy of others and affirming social cohesion, peace and non-violence

3.6.16. It represents the values ​​of preserving the environment and a sustainable way of life

3.6.17. Demonstrates an affinity for politics and social movements by affirming the values ​​of compromise, rejection of prejudice, social justice and fairness

**7. Entrepreneurial competence**

3.7.1. Turns ideas from real life into action, in different contexts, creatively and innovatively, with predictions of consequences, results and deadlines of undertaken activities

3.7.2. Develops a project implementation plan based on the assessment of strengths and weaknesses, research results and analysis of resources and risks, participating individually or as a team in the project implementation phases

3.7.3. Compiles simple financial statements (balance sheets) and financial plans assessing the available sources of funding for starting or expanding value-added activities, and tax aspects

3.7.4. Affirms an approach in which value creation ideas are based on ethical values ​​relating to gender equality, justice, social justice and environmental sustainability.

3.7.5. Initiates new solutions during the implementation of the plan by reshaping open problems to suit their own skills

3.7.6. Forms a team of people who can work together by establishing new relationships to gain emotional support to turn an idea into action

3.7.7. Manages finances so that value-creating activity can last longer

3.7.8. Defines a communication strategy to mobilize people when it comes to their own or team activity and negotiates support for value creation ideas

3.7.9. Resolves conflicts and faces competition in a positive way

3.7.10. Develop strategies to overcome standard adverse circumstances by redefining priorities and plans to adapt to changed circumstances and assessing risk to make a decision

3.7.11. Acts proactively, motivated and decisively on new ideas and opportunities, maintaining effort and interest, despite obstacles

3.7.12. Inspires others by showing the skill of empathy (to put oneself emotionally in the position of another), accepting responsibility for one's own actions, caring for people and the world, and promoting an ethical relationship in the process of turning ideas into action

**8. Competence in cultural awareness and expression**

3.8.1. Evaluates the mutual influences of local, national, regional, European and global cultures and their influences on the ideas of individuals, accepting different influences and interpreting them in different forms and through different media

3.8.2. Explores ways of communication between creator and audience by presenting a given topic in various creative forms and media: acting, dance, games, art and design, music, rituals and architecture, as well as hybrid forms

3.8.3. Researches the patterns of origin of his own and other cultures and cultural forms and interprets their influence on modern man

3.8.4. Interpreters figurative and abstract ideas and transposes / incorporates his ideas, feelings and emotions into a creative work (e.g. interprets or adapts works of art and other cultural forms, composes an original story, song, composition, poster, painting, dance choreography, etc.)

3.8.5. Creates and participates in events of exchange of cultural and other creative experiences in school, community and wider social framework

3.8.6. Affirms different cultural experiences, ways of cultural expression and artistic freedom, and respect for intellectual and cultural property

3.8.7. Demonstrates curiosity and openness to participate in cultural experiences, including innovative cultural and artistic forms

# Annex 2: Quality indicators for teaching

**Criteria for monitoring and evaluating the teaching of extracurricular activities that include key competencies**

**Procedures that ensure successful work with students: Planning**

1. The lesson is a part of a detailed curriculum
2. The lesson has a clear structure and is purposeful
3. The lesson includes the development of learning skills and is designed to suit individual learning styles
4. The lesson includes the development of **key competencies in accordance with the selected outcome / learning outcomes of key competencies**
5. The lesson includes the development of psychomotor skills, whenever possible
6. Resources / space for teaching are planned and organized in advance; for example. if possible, the place, room or layout of the room shall be arranged in an appropriate manner; all necessary equipment is in place and can be used; all relevant aids / resources are at hand
7. Problems related to safety and health at work have been identified and preventive measures have been taken
8. Where possible, the needs of students have been taken into account and considered, and everything necessary has been done to adapt the lesson to their needs.
9. The purpose, methods and goals as well as the **learning outcomes for the key competencies** of the lesson were explained to the students.
10. Formal and informal evaluation methods are planned, and the evaluation process is explained in detail in advance
11. It is clear to students what **key competencies**, skills, knowledge and attitudes they will acquire
12. Previously acquired knowledge and experience are identified and taken into account, and the content of the lesson is adapted to the composition of the group and the interests, needs, learning goals and ability levels of students

13. The syllabus also contains individual learning objectives wherever relevant and possible

14. Teaching / learning are placed in the context of “real life” wherever possible

**Procedures that ensure successful work with students: Mentoring students**

1. Measures have been taken to prevent absenteeism
2. Positive attitude and effective communication (tone, speed, style) of teachers and students, as well as the teacher's consistency and support in working with students, contribute to their progress and development of key competencies
3. The teacher provides students with support and relevant mentoring, especially for the development of key competencies
4. It is clear to students what they need to do and achieve as well as what key competencies to develop
5. Tasks and activities are characterized by an appropriate pace, variety and a good choice of time
6. Support is provided to each individual student in order to match individual requirements and learning abilities
7. Students are encouraged to take responsibility for their learning and the development of key competencies and to actively participate in lessons
8. By example, students are promoted equality and respect for diversity, and prejudices are avoided

**Procedures that ensure successful work with students: Management of teaching methods and forms of work**

1. learning strategies are designed to help students achieve learning goals, including the **outcomes of key competencies**
2. different abilities and needs of students are recognized and respected
3. applied learning and teaching strategies encourage active student participation
4. applied learning and teaching strategies encourage the application of collaborative learning
5. applied learning and teaching strategies enable gradual achievement of success
6. applied learning and teaching strategies enable the **development of key competencies**
7. applied learning and teaching strategies encourage productivity, involvement, focus and application of students' knowledge
8. applied learning and teaching strategies encourage independent learning, student-centred learning, group learning and learning in different contexts
9. the range of selected and applied learning and teaching strategies is tailored to individual learning styles and student needs
10. the use of various aids enhances learning, and the materials used are diverse, clear, legible and further clarify the data
11. the data, facts and ideas presented are clear, accurate, relevant and their understanding is confirmed and the questions are clearly asked
12. students are encouraged to ask questions
13. homework has been successfully used and serves to identify and expand the teaching material and develop **their own key competencies**

**Procedures that ensure successful work with students: Assessment and feedback**

1. relevant and frequent knowledge tests are conducted, and formative evaluation is appropriate, consistent, fair and encourages students to make additional efforts
2. all acquired knowledge is valued, regardless of the method of acquisition, through formal, informal and nonformal means
3. assessment and assessment procedures are explained and students understand them without difficulty
4. formative evaluation enables the determination and measurement of the progress of each individual student
5. oral / written feedback on the achievement of key competencies and feedback on written work are timely and constructive, and enable the student to make further progress
6. students are involved in evaluating and providing feedback on their progress
7. students are provided with different types of evaluation procedures that are in line with their needs
8. evaluation results are used as a basis for further planning

**Procedures that ensure successful work with students: Motivating students and respecting individual needs**

1. students are challenged and are interested and motivated throughout the lesson / activities or activities aimed at achieving learning outcomes
2. students actively participate in the learning process
3. students' knowledge, skills, attitudes, values and **key competencies are developed**
4. students take responsibility for their own learning and do not hesitate to ask for help when they need it
5. students use their time efficiently
6. students understand evaluation methods and criteria
7. students know and understand **learning outcomes for key competencies**
8. the individual needs and abilities of the students are taken into account
9. students are able to connect newly acquired knowledge with previously acquired knowledge and establish links between them
10. students are aware of what needs to be done to make progress

**Procedures that ensure successful work with students: Achievements**

1. the standard of work of students is related to their own learning goals, prescribed course outcomes as well as defined outcomes for key competencies
2. the standard of work of students has been improved in relation to their previous achievements
3. students achieve the goals that pose a challenge to them, and the goals of the lesson / activity are achieved, including **the outcomes of key competencies**
4. skills, knowledge and attitudes of students are developed according to a standard that is harmonized with their level of education
5. students develop the ability to critically judge / evaluate, research and analyse at the appropriate level for a particular level of education
6. students are able to organize and perform tasks on time and according to the standard that is reasonable to expect from students at a certain level of education
7. it is obvious that all students have made progress during the lesson / activity

**Procedures that ensure successful work with students: Self-critical review of teachers according to the attached table with indicators for determining the level of success in teaching**

1. the teacher is well versed in the material and is familiar with the novelties in their field of expertise
2. the teacher collects feedback for the purpose of their own training and evaluation
3. the teacher correctly and correctly fills in and signs the relevant documentation and records
4. the teacher critically judges the lesson (e.g. using didactic and methodological analysis) and correctly identifies areas where additional work is needed
5. the teacher updates their own professional competencies in accordance with the requirements of continuous professional development

**Indicators for determining the level of teaching success**

| **Teaching monitoring criteria** | **Very good**  **4** | **Good**  **3** | **Satisfactory**  **2** | **Unsatisfactory**  **1** |
| --- | --- | --- | --- | --- |
| Teaching plan | an extensive, well-worked out plan; includes short-term / long-term goals of the program, outcomes of key competencies of teaching activities organized in a logical sequence, methods, resources and planned evaluation; detailed information that provides insight into planned learning and progress | a good plan that clearly identifies teaching activities methods and resources, and planned evaluation; provides a clear insight into the planned structure of learning and progress | a concise plan that lacks certain details, but which contains enough data to show a planned overview of teaching activities, resources and evaluation | very concise or no plan; just a little more than a list of major topics |
| Lesson plan | Extremely detailed in terms of time structure and methods; an excellent range of planned activities that take into account different learning styles / needs; excellent links to the curriculum | good, clear structure, identified resources and activities adapted to different learning styles / needs; clear contextual links to the curriculum | an acceptable overview of teaching methods, activities and student achievements; there are certain links to the curriculum | austere, with a minimum number of details; insufficient number of teaching activities or weak link with the curriculum and outcomes for key competencies |
| The environment in which the teaching takes place | professional and supportive teaching environment, relevant, purposeful, easily accessible and excellently equipped and safe | good space, purposeful, well decorated and equipped, accessible and safe in terms of equipment | satisfactory space, fairly simply furnished but safe; does not interfere with learning | unsuitable for teaching purposes and / or unsafe; noise, temperature, interference, insufficient resources, unavailable; interferes with or prevents learning |
| Introduction, short-term and long-term goals | Detailed introduction; short-term and long-term goals explained, conveyed and presented; students show a clear understanding of the purpose of teaching | clear short-term and long-term goals exposed to students; the purpose of teaching is clear to the students | a brief, general introduction; short-term and long-term goals are simple but realistic in the context of the lesson; students generally know what they are going to do | very little or no introduction; no clear short-term and long-term goals are stated or presented to students; students are insecure, confused, or do not know what to do |
| *Pace and structure of learning* | the tempo is obviously in line with the level of material and students; activities are very well structured and timed in order to maintain the interests and encourage learning of all students; "liveliness" is noticeable | the pace corresponds to the material and the level and needs of most students; most activities are well timed and structured | the pace is in principle adapted to a certain level of learning and interest; some activities are not sufficiently adapted to the students and the level of the material | activities lack pace, the working atmosphere is unsatisfactory, and neither is conducive to learning; students lose interest and concentration at certain times; many students have to put in too much effort, are too challenged, are confused, or have difficulty understanding |
| *Recognizing the individual needs of students and providing support* | effective recognition of individual learning needs of students thanks to the application of learning style analysis and techniques of initial and diagnostic evaluation; excellent support provided through a variety of resources and activities; additional work, structured group work or individual work, providing support in the classroom tailored to individual needs | good recognition of individual learning needs of students thanks to the analysis of learning style and techniques of initial and diagnostic evaluation; good individual support that is manifested through the development and application of resources, activities and support during the lesson | a certain degree of recognition of students' individual learning needs thanks to the analysis of learning style and initial evaluation; a certain level of individual support that is manifested through the application of resources, activities and support during the lesson | insufficient level or lack of recognition of individual learning needs of students; insufficient evidence of the application of learning style analysis or initial evaluation; insufficient or no support for individual students in learning during class; resources and activities underdeveloped or tailored to different needs or levels of students; insufficient support in the classroom despite the obvious need |
| ***Key competencies*** | **very effective identification and application of key competencies in planning, activities and resources; passed on to students; evidence used very effectively in portfolios and in preparation for tests** | **effective identification and application of key competencies in planning, activities and resources; passed on to students; evidence used in portfolios and in preparation for tests** | **a certain level of identification and application of key competencies in planning, activities and resources; to some extent transmitted to students; some evidence used in portfolios and in preparation for tests** | **insufficient or no level of identification and application of key skills for other purposes; students are unfamiliar and missed the opportunity to learn about evidence of key competencies that could be used in portfolios or in preparation for tests** |
| *Teaching methods* | an excellent range of teaching methods and a creative approach applied with the aim of achieving the highest possible level of learning and involving students in teaching; very suitable material and level | a good range of teaching methods applied with the aim of involving students in teaching and promoting learning | limited range of teaching methods, but efforts have been made to use a more diverse approach and to involve students in teaching | too much emphasis on “chalks and stories”; insufficient diversity of teaching methods and involvement of students in teaching; students are passive and disinterested; no or weak attempt to harmonize teaching methods with the material or needs of students |
| *Tests of acquired knowledge and testing skills* | highly effective and clearly targeted testing skills applied to test the understanding, knowledge and progress of all students | good testing skills applied to improve and verify learning outcomes | the questions serve to recapitulate and confirm the acquired knowledge; but a number of opportunities were missed during class | ineffective, insufficient or no examination for the purpose of verifying the acquired knowledge |
| *Connecting acquired knowledge* | constant reference to previously acquired knowledge and experience; very clear links highlighted with the aim of identifying / promoting the acquired knowledge, especially in terms of linking theoretical and applicable knowledge | previously acquired experience and knowledge related to and used for the introduction of new material; emphasis on the links between theoretical and practical knowledge | Some efforts have been made to link new material to previously acquired knowledge or experience and to link theoretical and practical knowledge. | few or no attempts to connect acquired knowledge; previously acquired knowledge has not been tested or examined or referred to, and insufficient attention is paid to the links between theoretical and practical knowledge |
| *Teaching materials and resources* | excellent range; high quality and creative materials; clearly interpreted and well used to promote learning; very efficient use of teaching technology and a high level of service use | good range of materials and resources; used effectively to support lesson content and promote learning; good service of teaching technology | satisfactory resources and teaching materials that are conducive to learning but are common (workbooks, etc.); a certain level of service to teaching technology | insufficient and inadequate resources to support learning; low or no level of use of teaching technology |
| *Inclusive teaching methods* | all teaching and learning materials promote inclusiveness through the extremely effective use of various examples; teachers implement best practice using languages, attitudes and terminology that support inclusion | all teaching and learning materials promote inclusiveness through the use of various examples; teachers implement good practice using languages, attitudes and terminology that support inclusion | teaching and teaching materials show that the teacher is familiar with the inclusion-based approach by using a number of different examples; teachers use appropriate language and terminology and show a relevant attitude | little or no knowledge and awareness of the principles of inclusive learning; teachers use inappropriate or offensive language and terminology and have inappropriate attitudes; the means used contain stereotypes and inaccurate or offensive examples |
| *Manner of presentation and communication skills of teachers* | extremely inspired when it comes to interpreting material; outstanding oral presentation skills that attract students' attention and help maintain motivation and focus; positive verbal and non-verbal communication, strong voice, fluent speech, direct face-to-face contact, enthusiastic attitude and open body language and approach | an inspiring interpretation of teaching indicates a good level of commitment and energy and retains students' attention; good presentation skills conducive to motivation and focus; effective verbal and nonverbal communication skills | moderate enthusiasm for the material; interpretation clear but lacking “liveliness”; satisfactory oral presentation; appropriate verbal and nonverbal communication skills | ineffective or uninspiring interpretation of material that does not attract students' attention; certain verbal and nonverbal communication skills are ineffective or inappropriate; students are bored, not interested or not participating |
| *Teacher knowledge* | extremely knowledgeable and familiar with the novelties in the material in question; a very effective link to examples that stimulate students' interest, raise awareness and provide real-world examples based on their own experience | apparently referred to the material in question; it uses relevant examples from its own experience which has a good effect | mostly familiar with the material in question, but professional training would improve the interest and quality of the presentation | it is obvious that he is unrelated, inaccurate or inappropriately referred to certain types of material, and that he does not have his own experiences from the real world of work |
| *Teaching management* | very effective group and individual management; clear instructions; the importance of safety and health care is emphasized throughout the class; relevant behavior and standards; a high level of mutual respect is evident | good management of group activities; clear instructions; good emphasis on safety and health; appropriate context; teachers and students obviously respect each other | satisfactory group leadership; adequate safety and health care; instructions mostly clear, overall adequate employment | inefficient / inappropriate management of group or individual activities; instructions are unclear, no order has been introduced; unacceptable working atmosphere; students do not listen or respond; lack of respect, inefficient management of safety and health care |
| *Teaching summary* | extremely effective periodic review of classes; very clear and creative summary during which the link with short-term and long-term goals and the next lesson is highlighted | good occasional review of classes; a clear review of the course at the end of the lesson with a summary of the next lesson | a certain level of review of teaching and a brief overview at the end, and a brief summary of the next lesson | insufficient or no review of teaching, no review or summary of what follows |
| *Involvement and participation of students in teaching* | all students are actively involved, involved and extremely motivated and interested; ask questions well and offer answers; high level of cooperation and interaction; students take the initiative and responsibility for learning | good involvement and participation of students; good level of attention and concentration; a number of examples of effective collaboration, interaction and initiative | satisfactory student involvement and participation; most of the time they are dedicated to assigned tasks; they answer questions and do what is required of them, but no more than that | insufficient or no student involvement; students are told what they have to do and when they have to do it; they are relatively passive; limited concentration and interest, some students are bored and show it |
| *Attendance and accuracy* | students show a commitment to learning through an excellent class attendance rate (90% and above) and exemplary accuracy | good attendance rate (85%) and accuracy data (almost all students arrive on time) | satisfactory class attendance rate (75%) and accuracy (most students arrive on time) | unsatisfactory attendance rate (less than 75%, with a general tendency to poor attendance) and accuracy (less than two thirds of students present at the beginning of the class) |
| Learning standard | outstanding labor standards; all students show excellent skills, knowledge and understanding, which indicates an above-average level of standards for a certain level of education | good standards of work; students show a good level of skills and knowledge by working at an average level of standards for the respective level and level of education, and some of them above the standard | satisfactory standards of work; most students work at a level that is appropriate to the standard and level of education | unsatisfactory or inappropriate labor standards; the level of skills and knowledge is below the level and level of education; individual students are unlikely to gain a qualification based on demonstrated knowledge and skills |
| Self-critical review | very effective awareness of the lesson and self-critical review of it; success and alternative opportunities are properly identified, and appropriate solutions are offered; regular feedback from students and others was collected and analyzed; the teacher attended continuous professional development during the last quarter | good awareness of the lesson and self-critical review of it; identified most of the advantages and problems and some solutions; a certain amount of feedback was collected from students and others; the teacher has attended continuous professional development in the last 6 months | Satisfactory self-critical review of the lesson; not all problems have been identified; feedback collected from others but not from students; low level of feedback analysis; the teacher has attended continuous professional development over the past year | Unsatisfactory or no self-critical review of the lesson; problems not identified; teaching goals have not been achieved; no feedback was collected; the teacher last attended continuing professional development more than a year ago |

# Annex 3: Suggestions for examples of forms for preparation for classes, for self-evaluation, peer review, questionnaire for students, evaluation

# 3.a. Example of minimum requirements for the preparation of scenarios for regular and extracurricular teaching

**RL – Curricular planning**

|  |  |
| --- | --- |
| **Subject(s), Extracurricular Activities:** |  |
| **Topic:** |  |
| **The goal**  **a) general**  **b) specific** |  |
| **Learning outcomes** |  |
| **Learning outcomes for key competencies** |  |
| **Target group** |  |
| **Number of hours and time/period of realization** |  |
| **Scenario and learning strategies** |  |
| **Teaching and learning materials** |  |
| **Required material resources**  **(including cost estimate, if necessary, to provide financial resources)** |  |
| **Expected results** |  |
| **Description of the assessment system** |  |
| **Evaluation** |  |

1. The goal

- general (long-term, general statements, principles, concepts)

- specific (medium-term or short-term, more precisely expressed, focused on student success)

1. Learning outcomes

2a. Learning outcomes for key competencies

1. Target group
2. Duration (how many hours and in what time/period)
3. Scenario and learning strategies

6. Teaching and learning materials (manuals, worksheets, scripts, PPP, etc.)

7. Required material resources (space, media equipment, lighting, laboratory accessories, etc.)

8. Learning strategies (in what way, by what methods)

9. Expected results (seminar paper, research, database, developed project, mind map)

10. Description of the assessment system (in order to motivate students, develop self-assessment and the possibility of creating their own learning plan in the context of training for key competencies and lifelong learning)

11. Evaluation (conducting an assessment of the achievement of expected results and objectives of the curriculum and the applicability of the acquired knowledge, according to the defined elements and criteria for these elements)

## **3.b. Form for teacher self-evaluation, peer review, critical review of implementation and suggestions for improvement**

*Teaching and evaluation criteria, which are examples only, should be* ***agreed in advance and clearly presented to all teachers.***

Place: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date : \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Teacher: \_\_ Students: \_\_\_\_\_\_\_\_\_\_

A person who attends classes: \_\_ Workplace: \_\_\_\_\_\_\_\_\_\_

Subject(s)/Extracur. activities \_\_\_\_\_\_\_\_ Level/year: \_\_\_\_\_\_\_\_\_\_

Teaching time: \_\_\_\_\_\_\_\_ Absent students: \_\_\_\_\_\_\_\_\_\_

Learning outcome: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Outcome for KC:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |
| --- |
| *Teaching follow-up notes and overall remarks* (Please comment on planning, type of student group, difficulties, subject, key competencies) |

|  |  |  |
| --- | --- | --- |
| **Equality and diversity** | **Individual needs of students**  (e.g. how needs are taken into account) | **Review of realization**  (e.g. what success the students have achieved) |

|  |
| --- |
| List of methods / materials / visual aidsPlease provide examples of materials / strategies used during the lesson. |
| 🞏 filled list of attendees 🞏 other completed forms |

|  |  |  |
| --- | --- | --- |
| Advantages | Areas that need further work | |
|  |  | |
| Action plan | | Activity performed:  *enter the date* |
|  |

|  |
| --- |
| **Teacher's remarks:** |

|  |  |
| --- | --- |
| **Teacher's signature** | **Signature of the person who attended**  **the classes** |

**Instructions for completion**

**• Place:** it is a space where classes take place; e.g. in a classroom, laboratory, computer room, park, school hall, in a practical workshop at school or at the employer's workplace

• **Date**: the date of the class monitoring

• **Teacher**: name of the teacher whose classes are being attended

• **Students**: number of students present during the monitoring of classes

• **A person who attends classes**: the name of the teaching person

• **Workplace**: the position of the person accompanying the teaching (external or within the institution), e.g. another teacher from any subject or an expert in the same field (peer reviewer), principal, quality coordinator, internal evaluator, asset manager, professor advisor, professor mentor

• **Subject**: from the list of subjects / Activity from the list of extracurricular activities

• **Level / year**: curriculum level and year of class or group of students

• **Subject(s)/Extracur. activities**: the name of the class / activity in which the teaching is monitored

• **Learning outcome**: stated learning outcomes foreseen for the class

• **KC learning outcome**: stated outcomes of key competencies envisaged for the class

• **Absent students**: the number of students who are not present at that class

• **Teaching follow-up** notes and overall comments: general teaching follow-up notes; [special remarks regarding advantages and disadvantages can be written in the appropriate box on the back]; all specialties related to the lesson or observed students, e.g. special behaviou ral problems, special needs, individual papers, or portfolios reviewed by the observer

• **Equality and diversity**: refers to all performance descriptors related to equal opportunities, national minorities, gender equality, religious beliefs, special needs, abuse, harassment, etc .; teachers have a great responsibility to promote equality and diversity and are obliged to treat all students equally and provide them with equal opportunities to achieve success (fairness), and to meet the needs of individual students (diversity); the person accompanying the teaching should in particular record examples of good practice in promoting equality and diversity, or any problems encountered by the teacher with regard to issues related to equality and diversity.

• **Individual needs of students**: enter here all examples of good practice in which the teacher has met the individual needs of students and their ways / goals of learning; record any problems

• **Review and self-critical review**: write here to what extent, according to the court of the teacher who conducted the class, the students achieved the planned learning outcomes; then whether the planned teaching has really taken place, and how it is possible to improve the class

• **List of strategies / materials / visual aids**: list here the materials used by the teacher during the monitoring of the lesson

• **Advantages and areas for further work**: this is the main outcome of teaching monitoring that the person accompanying the teaching should discuss in detail with the teacher after class, during the provision of feedback. It is also important to keep in mind that the teaching monitoring in question does not necessarily represent the overall work of teachers in certain areas, and this should be discussed, preferably relying on previous teaching monitoring, to ensure that the areas to be worked on are really result in change. We consider as advantages everything that the teacher has done extremely well and that is above the standard and prescribed. What could be further improved, i.e. areas where further work is needed, should be transferred to the action plan. An annual analysis of all forms on the monitoring of classes will determine the overall advantages and disadvantages of the school in relation to the learning process.

• **Action plan**: “areas for further work” should be turned into tasks, e.g. goals that teachers should be able to achieve within a certain time frame. Such tasks need to be subsequently monitored and their execution monitored. Teachers assigned a grade of 1 will need additional guidance and training before they are able to achieve their goals.

• **Signatures**: the attendance form is signed after the completion of the attendance and after the person accompanying has provided feedback. The signatures indicate that the person who monitored the teaching and the teacher agree with the outcomes of monitoring the teaching and that they are committed to the implementation of the action plan.

• **Criteria for monitoring teaching and evaluation**: these criteria are examples that serve as guidelines; indicate the type and level of performance of duties expected of teachers. Of course, it is impossible to follow all the criteria within one lesson. The criteria that can be followed will largely depend on the type of lesson, whether it is an introduction to a new subject, a repetition of a previous lesson, preparation for an exam, or the demonstration of a new skill.

Teacher classes need to be monitored more than once during the year, and the person attending classes is required to ensure that all criteria are met over a period of one year. The person attending the class must agree with the teacher on the type of class to be attended.

The teaching of part-time and / or very experienced teachers can be followed less frequently; in which case the person attending the course must ensure that different criteria are met each year.

**Examples from the completed teaching monitoring form (peer review)**

* if the furniture is attached to the floor, it is clear that the teacher does not have many options for modifications; but creative teachers know how to make the best use of space
* the teacher should assemble all the necessary equipment before the start of the class and check if there are any problems related to safety at work; the teacher could also consider and anticipate alternative solutions to the lesson plan in case of equipment malfunction
* working materials, models, books, etc. which are required during the lesson should be pre-arranged
* the teacher should make sure that all students are comfortable and that everyone can see and hear him; the teacher should also check this during the lesson, e.g. are all students able to read what is written on the board / screen, etc.
* in some cases it is not useful to explain the goals of a particular lesson, especially if students will "embark on a research campaign" and have to solve certain problems on their own; however, the teacher should give a brief overview and objectives of the lesson, emphasizing which key competencies will be developed.
* if at the end of the class there will be some form of assessment (eg skills exam, written exam), or if this activity will take up most of the class, students must know what is expected of them
* all participants should be aware of equality issues at all times; this applies not only to students with special needs or members of national minorities, but also to any prejudices that the teacher or students may have towards certain religious beliefs, genders, etc.
* the teacher must determine how familiar the students are with the material; an excellent teacher will use this prior knowledge to encourage students to participate in teaching
* at the beginning of the school year, the teacher should create a social picture of the class or the respective group of students and individual learning styles, the results of which should be reflected in the curriculum
* it is often possible to discuss individual learning goals with a group of students; this, of course, will not form part of every lesson
* during the preparation of the curriculum and individual lessons, the teacher should consider the ways in which the material can be divided into key elements, which will enable the gradual achievement of achievements (e.g. didactic analysis)
* students should participate in the learning experience and the necessary steps should be taken to ensure that they participate in it in some way throughout the lesson.
* the teacher should use various strategies - independent work, work in pairs, group work
* the teacher should facilitate and guide the teaching process, which includes dealing with students who interfere with teaching, especially those who are late for classes
* the way teachers communicate should be adapted to the abilities, level and styles of students; also, teachers should ensure a positive distribution of time between themselves and students; for example, that the teacher teaches 25% of the time and the students 75% (which is a total of approximately 11 minutes of teacher presentation within 45 minutes of the lesson, and therefore the information must be clear and concise)
* written communication (paper, projectors, blackboard) must be clear and legible
* students must be allowed to make mistakes, they must not be afraid to ask questions and admit that they do not understand something; an excellent teacher will use these opportunities for further interpretation or clarification
* if some students still do not understand a certain part of the material and need further clarification, the teacher should find an appropriate way to answer these additional questions without causing boredom in the rest of the group; this may also apply to additional information related to the material in question that students may have at their disposal
* constructive feedback is an important means of motivation; Shorter feedback can be provided during each class, while progress feedback should only be provided at important curriculum milestones.
* students should be encouraged to self-evaluate whenever possible; constructive feedback always begins with student self-esteem
* the teacher should provide the opportunity for a short formative assessment during or at the end of each lesson; a more formal form of formative assessment will follow only at certain important milestones in the curriculum
* a good lesson plan leaves the possibility of clarifying all controversial issues before the end of the lesson, or turns these controversial issues into a subject of independent research of students and monitoring during the next lesson
* teachers will not be able to show all their knowledge during classes; it is not, in fact, the purpose of student-centred learning; however, the expertise of teachers should be evident from the way they process the material and answer the questions; while the person accompanying the class provides them with feedback, teachers may want to give examples of recent professional development they have attended.
* teachers should ask for feedback from students at the end of each lesson and use this information for further training; for example, students could regularly fill out feedback forms on certain important milestones in the curriculum
* teachers must fulfil all administrative duties, e.g. enrolling students in the class directory, compiling lists of those present at classes

## **3.c. – Guidelines for teaching preparation, monitoring and evaluation (checklist)**

Not all criteria can be considered during one lesson.

The following questions are **for guidance only**. They can be helpful in preparing for a class / block of classes / activity and monitoring classes, and in providing feedback on peer review.

|  |  |  |
| --- | --- | --- |
| Has the teacher: | YES | NO |
| 1. Arranged the room / furniture arrangement appropriately, where possible? 2. Put all appropriate equipment in place and is it usable? 3. All the appropriate aids / tools at hand? 4. Considered special needs, where possible? 5. Clearly explained the purpose, methods and goals of the lesson / activity? 6. Clearly explained the purpose and learning strategies for achieving key competencies? 7. Exactly explained the evaluation procedure? 8. Avoided bias and promote equal opportunities for all in front of students? 9. Identified and considered previously acquired knowledge and experience? 10. Taken into account the composition / needs / abilities of the group / students? 11. Adapted the lesson to the needs of the students? 12. Set individual learning objectives where applicable? 13. Enabled gradual success? 14. Encouraged student productivity, participation, focus and effort? 15. Encouraged independent learning, student-centred learning, group learning and learning in different contexts? 16. Used a range of strategies tailored to individual learning styles and student needs? 17. Communicated effectively (tone, speed, style) with students taking into account their different needs? 18. Set out clear, accurate and relevant data, facts and ideas? 19. Confirmed that the students understood it, and was the examination clearly worded? 20. Made sure that the materials were clear and legible and that they contributed to the clarity of the information? 21. Chose a variety of teaching materials and tools that will take into account the needs of students? 22. Encouraged students to ask questions? 23. Encouraged students to participate in classes throughout the class? 24. Answered additional questions from students by providing accurate additional information? 25. Explained the goals and expected outcomes of the exercises and activities? 26. Provided constructive feedback on teaching and progress in a timely manner? 27. Involved students in evaluating and providing feedback on their progress? 28. Enabled regular formative evaluation that is appropriate, rigorous, fair and correct? 29. Allowed students different types of assessment according to their needs? 30. Encouraged students to take responsibility for their own learning? 31. Devoted sufficient time to discussing further issues, concerns or needs? 32. Effectively used homework to reinforce and expand learning? 33. Achieved short-term and long-term goals of the lesson? 34. Achieved planned learning outcomes for key competencies. 35. Was well versed in the material and is he familiar with novelties in his field of expertise? 36. Collected feedback for the purpose of self-improvement and evaluation? 37. Correctly completed and signed the relevant documentation and records? | \_\_\_ \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_ | \_\_\_ \_\_­­\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_  \_\_\_ |

## **3.d. Form for self-evaluation, evaluation of conducted classes / activities for key competencies for students**

School year:

Subject:

The theme:

Key competency (s):

Class:

**Student Evaluation of the implemented activity:**

1. Assess the lesson/hours/activity with a grade from 1 to 5.
2. What did you gain from this activity on a personal level?
3. What skills have you improved?
4. What key competencies have you improved?
5. Is it necessary to introduce active learning strategies in teaching (yes, no, why?)?
6. What have you learned for yourself, as something that needs to be improved?
7. How do you assess the achievement of the outcomes related to the topic and the outcomes related to the key competencies that you have acquired in this way?
8. What do you think was the best?
9. What would you improve if you could?
10. Rate your engagement on a scale of 1 to 5.
11. How has the approach applied helped in the acquisition of key competencies?
12. What was unclear or what could be improved?
13. What would you change if you were a teacher?
14. Message or question to the teacher

# Annex 4. Suggestions for learning strategies, instruments, organization and formal evaluation

## **4a: Suggestions for different teaching and learning strategies**

**Suggestions for:**

4.a1 active learning strategies that may be applicable to education for key competences,

4.a2 learning and teaching strategies to achieve student participation at any time

4.a3 ways for peer review of individual work

4.a4 types of groups

4.a5 ways of dividing students into teams,

4.a6 ways to determine team roles

### **4.a.1** **Active learning strategies**

**1. Role play**

|  |
| --- |
| = simulation of the situation by engaging students in activities and positions that are not known to them. Such a simulation helps students understand some unfamiliar situation, views, and perceptions of other people who have different opinions, views, responsibilities, interests, concerns, and motivations. |

**Advantages:**

* increases adaptability
* improves interpersonal relationships
* develops critical thinking
* develops effective communication
* stimulates empathy

**Steps:**

* set tasks, the topic of the Role Play / problem that will be illustrated in the Role Play / people involved, ie. their roles
* prepare role description cards
* Divide roles / identify observers
* organize a role play: simultaneous, small groups / large group
* decide how the Role Play will take place:
* Narrative - where the narrator talks about events and different characters who play
* as a short drama in which the characters interact with each other and invent dialogues during the activities
* as a court process respecting general legal procedures
* Prepare the group to accept the Role Play
* Analyse the situation and prepare roles, including arranging furniture in the room if necessary
* perform a Role Play
* Analyse the game through the learning experience you have gained
* Evaluate activity with actors and spectators.

**Useful questions:**

* State your feelings about the role / situation you performed
* Did the acting match the situation?
* Is the problem solved? If so, how? If not, why not?
* What could have been different? Could it have ended differently?
* What did you learn from this experience?

**Advices:**

* As long as the Role Play simulates the real situation, questions arise that do not have simple answers (e.g. about the right / wrong behaviour of the characters.) It is important to prepare members in advance to have more than one answer to some questions. They should not impose their own opinions in controversial situations. It is extremely important that students / participants accept different opinions as something that is natural and normal. You can summarize the points where the majority agreed and leave open the issues that can still be discussed.
* When using a role play, take into account ethnic, social and individual differences in the group so that no one feels side-lined or negatively represented

**2. Brainstorming**

|  |
| --- |
| = a way of gathering as many ideas as possible - no matter how strange and unrealistic these ideas seemed in response to a given situation, question or stimulus. |

**Advanteges:**

* active participation of all members
* develops the ability to experience certain situations, their analysis, decision-making in order to find the best solution
* encouraging members to freely express their own personality
* liberation from prejudice
* practicing creativity and open attitudes at the group level
* developing interpersonal relationships so that everyone's ideas are used in the best possible way (and therefore understand the qualities of others)
* develops a fresh creative atmosphere

**Steps:**

* select a topic and task
* seek quick creation of ideas (ideas should be formulated as short clear sentences, uncensored even if they seem strange, unusual or absurd; students can mention previous ideas, no criticism of any idea. No one should comment negatively on any idea.)
* Write down all the ideas on a flipchart or a whiteboard
* take a short break to give ideas a little "rest" (15 minutes to a day)
* Review and group ideas by category, symbols, keywords, what they represent, and the like
* Critically analyse, evaluate, argue for or against at the level of the whole group or smaller groups
* select original ideas and possible solutions to problems, discuss risks and contradictions openly in this stage of the activity
* display results in different, original ways: words, sentences, pictures, drawings, songs, role plays and the like

**Advices:**

* Select a topic and task
* Encourage students to express ideas freely
* Do not allow negative intrusions
* shorten procedures if necessary, bearing in mind that the main goal is the free expression of ideas and opinions
* Motivate your students/members by starting a new topic or lesson with this activity

**3. Enriched lecture**

A short, focused, motivating lecture precedes activities such as e.g. "Thoughts / discussions in pairs / shares". The lecture is divided into sections of approximately 15 to 20 minutes as research shows that attention declines dramatically after longer periods. Attention is then emphasized by repeating the same or introducing a similar response technique before proceeding with a new section of the lecture. The exercise culminates in another response activity such as e.g. free writing.

**4. Think / discuss in pairs / share**

This is a quickly feasible cooperative learning activity that invites students / members to think about the topic while assisting the partner in shaping shared feedback. The teacher prepares the question in advance, usually of an open form. For example, if the topic is related to minority cultures, the teacher might ask a question like, "Imagine traveling to a foreign country. Someone asks you what culture you belong to and asks you to give two examples of your cultural heritage. What would you say?" The teacher asked the members to write short answers to the question individually. After that, the participants in pairs exchange experiences trying to come up with a common answer that contains the ideas of both members of the pair. Finally, the teacher invites two or three couples to present a summary of their discussion in about thirty seconds.

**5. Lecture**

Lecture has long been a highly valued teaching method, but is there a place for it in an active learning environment? If used too long and too often, the lecture will never lead to learning, but there are times when it can be effective. For this to happen, the teacher should first arouse interest, increase understanding and retention of attention, involve students during the lesson, and determine what is presented. Here are a few options that make this possible.

**Awakening of the profession**

**1. Introductory story or interesting visual materials:** prepare a relevant anecdote, fictional story, drawing, comic or graphic that will draw students' attention to what you are going to present.

2. **Introductory problem case**: present the problem around which the lecture will be structured

3. **Test-question**: ask students a question (even if they have little prior knowledge of the topic) so that they would be motivated to listen to the lecture in order to come up with an answer.

**Increase understanding and retention of attention**

4. **Headings**: Reduce the basic points of the lesson to keywords that will play the role of verbal subheadings or help with memory

5**. Examples and analogies**: paint the lecture with real life situations of ideas from the presentation and, if possible, compare your material with the knowledge and experiences that students already have

6. **Visual support**: use flip charts, graph paper, short leaflets and demonstrations that will allow students to not only listen but also watch the things you are lecturing about.

**Involving students during lectures**

7. **Challenge points**: occasionally interrupt the lecture and challenge students to find examples of concepts presented up to that point. You can also do a couple of short quiz questions.

8. **Exercises that illuminate**: Throughout the lecture, insert short activities that illuminate your claims

**Determining the lesson**

9. **Application problem**: offer students to solve a question or problem based on the information presented during the lecture

10. **Student repetition**: Ask students to repeat the contents of the lecture to each other (in pairs, groups), or give them a repetition test that they will correct themselves.

**6. Debate on a topic under review**

**Steps**:

* formulate a statement (in which it is possible to take opposing views)
* prepare a discussion:
* Ask for brainstorming ideas for and against claims
* Prepare arguments for and against in each group
* select pros and cons groups as well as observers
* discuss:
* The first member of the first group formulates a common position, presents arguments and examples or evidence
* The second group prepares a response by agreement
* The first member of the second group gives the answer
* The first group prepares for the answer
* The second member of the first group builds on and revises the original argument that was previously refuted
* and so on until all 5 members of the group are presented and presented
* feedback (self-assessment, from colleagues, facilitators, observers,)

**How to build an argument:**

We insist that .... + explanation: ...... for the following reasons (specify at least 3) ... + conclusion: therefore, ...... (paraphrase the statement)

**How to build a counterargument:**

Repeat the opponent's argument: "Our colleagues claim that…’’, express disagreement and reasons and paraphrase: ‘’We do not agree for these and those reasons, so we claim that…’’

**How to upgrade an argument:**

Repeat the original argument, i.e.. re-phrase, re-phrase the opponent's claim, and reinforce one's own claim.

**7. Project**

|  |
| --- |
| **=** a creative activity that helps to freely apply the acquired knowledge in a new and relevant context. |

**Properties:**

* the activity that is most focused on the student
* contextualizes learning, giving it meaning
* it is both a process and a product
* it is something and not about something (examples of project activity products: brochures, advertisements, case studies, poems, exhibitions, festivals, films, etc.)
* personalized activity - students decide not only on the content but also on how to present the content and results
* cross-curricular / integrated / transdisciplinary activity - offers a good opportunity to combine what has been gained with answering the basic question: What can I do with what I have learned?

**Steps:**

* topic selection
* encourage initiative (students / participants discuss the main issues of the topic)
* defining the task and criteria for assessment and evaluation
* presentation of the task
* search / research and study / creation
* material processing
* product completion
* feedback (teacher, colleagues, self-assessment)

**Guidelines for assessment (making scales in the form of a table, etc.):**

* methodology
* use of literature
* technical precision
* product aesthetics
* quality of generalization and concept organization
* presentation quality

**Tips:**

* suggest / choose a topic that is interesting enough, for which there are sources, that motivates and can lead to original products
* Remember to make assessment benchmarks transparent at the outset - everyone needs to know what will be assessed to know how it will work and what to look for
* Set clear tasks for each stage of the project
* suggest different activities
* Set clear time limits for each activity and stick to the template
* allow students to decide on the layout / profile / way of expressing and presenting the project
* prepare each stage of the project
* Make good use of constructive noise
* Don't give up!!

|  |  |
| --- | --- |
| **Mode of expression to choose from** | **Product** |
| Singing | An original song  Processing of a famous song  Rhythm  Rapp and the like |
| Acting | A short play  Pantomime  Improvisation  Role play and the like |
| Movement / sport | Modern dance  Famous or fictional game  Classical ballet and the like |
| Writing | Short story  Fairy tale  Romance  Newspaper news  A song and the like |
| Mathematical language | Logical scheme  Mathematical problem  Algorithm and the like |
| Conversation | Debate  TV show  Radio or television interview |

TABLE1: Suggestions for ways of expression (Participants decide according to personal preferences and are grouped)

|  |  |  |  |
| --- | --- | --- | --- |
| **Criteria** | **Very achieved** | **Achieved** | **Acceptable** |
| The product shows / reveals the main processes | 3 | 2 | 1 |
| The presentation is adequate (corresponds to the topic and the chosen way of expression) | 3 | 2 | 1 |
| All members of the group are included | 3 | 2 | 1 |
| Authenticity | 3 | 2 | 1 |

TABLE 2: Headings for self - assessment and external evaluation - Maximum number of points: 12

**7a. Project teaching (plan)**

Project type:

Project holders:

Time frame:

Subject(s) / extracurricular activity

Key competency(ies):

Project topic:

Project objectives - subject learning outcomes and learning outcomes of key competencies:

Methods and forms of work

Means of work:

Venue:

Schedule:

* 1. phase:
  2. phase
  3. phase
  4. phase
  5. phase:
  6. phase:
  7. phase:

Project implementation:

Project presentation:

Self-reflection and reflection:

**8. Active debate**

|  |
| --- |
| Debate can be a valuable method of promoting opinion and thinking, especially if students are expected to take a position that may be totally contrary to theirs. It is a discussion strategy that actively involves every student in the class - not just those who actually participate in the discussion |

**Steps:**

1. Make a statement that can provoke conflicting thoughts and attitudes (eg "The media do not report, but actually create news")
2. Divide the class into two debate teams. Randomly determine who is for and who is against
3. Create two or four subgroups within each debate team. In a class of 24 students, for example, they could make three “for” subgroups and three “against” subgroups, each with 4 students. Ask each subgroup to develop arguments for the given position, or provide a long list of arguments they could discuss. At the end of their discussion, have the subgroups choose one spokesperson each.
4. Set up two or four chairs (according to the number of subgroups formed for each side) for the “for” side spokespersons, and face them with the same number of chairs for the “against” side spokespersons. Place other students behind their debate teams. The layout should look like this:

X X

X pro con X

X pro con X

X pro con X

X X

X X

Start a “debate” by having spokespersons present their views. We call this process

"initial arguments".

1. After everyone has heard the initial arguments, stop the debate and re-form the original subgroups. Ask them to develop a strategy to counter the initial arguments of the opposing party. Have each subgroup re-select its speaker, preferably a new person.
2. Continue the “debate”. Let the spokespersons sitting facing each other give their “counter-arguments”. As the debate continues, (watch for proper discussion and fair presentation by both teams) encourage other students to add suggestion slips to their spokespersons. You also encourage them to cheer or applaud the argument of the representatives of your debate team.
3. The moment you think it is appropriate, end the debate. Instead of declaring a winner, invite the whole class to create a circle. It would be good to arrange the students so that the opponents in the debate sit next to each other. Hold a class-wide discussion about what students have learned about the problem from the experience of participating in the debate. Also, ask students to identify the facts they think are the best and strongest arguments on both sides.

**Variants**:

1. Add one or more vacant chairs to the debate teams. Have students who actively want to express their opinion in the debate sit in those chairs. let the students take turns

2. Start the activity immediately after the initial arguments of the debate. Continue with the conventional debate, but often replace speakers.

**9. Counterpoint [[5]](#footnote-5)**

|  |
| --- |
| This activity is a great technique for stimulating discussion and developing a deeper understanding of complex issues. The form is similar to a debate but is faster and less formal. |

**Steps:**

1. Select a problem that has two or more sides

2. Divide the class into groups according to the number of statements or sides of the problem you have posed. Ask each group to prepare arguments to support their opinion. Have them work in pairs or small groups within one group

3. Arrange the whole class, but have the members of each group sit together with the empty space between the subgroups

4. Explain that each member can start a debate. Once a member has had one opportunity to present one argument in support of their default position, allow a different argument or counter-argument by other groups. Continue the discussion by moving between groups or from one to the other.

5. Conclude the activity by comparing the facts as you see them as a facilitator or teacher. Allow continuation for reaction and discussion

**Variants**:

1. instead of a group-response-group debate, organize pairs of members from different groups to discuss with each other

2. Arrange the “opposing” groups of faces. As one person concludes his argument, have him throw a ball or something similar to a member of the other group. The person retrieving the item should respond to the previous person's argument.

**10. Cube [[6]](#footnote-6)**

|  |
| --- |
| A method for exploring topics / situations from different perspectives. |

**Advantages**

* complex and integrative approach to the topic / situation
* the value of multiple perspectives
* practicing different mental processes (Bloom's taxonomy)

**Steps:**

* write: DESCRIBE, COMPARE, ANALYZE, ASSOCIATE, APPLY, ARGUMENT on each side of the big cube
* select a topic
* divide the group into 6 teams:
* Each team rolls the dice. Whichever word they turn to, the team will explore a common theme from that particular perspective

***Example:***

* ***Describe:*** *colors, shapes, appearance, elements of the situation, etc.*
* ***Compare****: similarities and differences*
* ***Analyze****: list and arrange the components, steps, main ideas in order*
* ***Associate****: What do you mean when ....?*
* ***Apply****: What can you do with ....? How can you use / apply?*
* ***Argue****: for / against, list the arguments that support your point of view*
* Teams share knowledge with the whole group
* Post the results of the whole discussion on the walls

**11. Snowball**

|  |
| --- |
| A method that reduces the number of elements, aspects of a topic / situation to focus on the basic elements. |

**Advantages:**

* choosing one topic / situation that is more interesting / or more relevant than a wider range
* reaching agreement within the group on a specific topic / idea

**Steps:**

* Divide the group into teams of 6 -7 people
* set a task / specify a topic
* Each member writes down their idea on a sticky note and puts it in the middle of the table
* Each member reads all the ideas and compiles a list from 1 to 7 according to some of their own criteria. Only the first 2-3 ideas will pass the first round.
* teams agree and select the first 2-3 ideas for the whole team.
* A large group reunites and the Steps are repeated until only 2-3 ideas are obtained that everyone has agreed on. They are the most relevant.

**12. Problem solving**

|  |
| --- |
| Finding a solution to a real or imagined problem from life whether it is a theoretical or practical problem. The solution will be found as a result of independent research conducted by the group. |

**Advantages:**

* Cognitive structure strengthens
* Research spirit is encouraged
* Active work style is developed
* autonomy developed
* The courage to express one's own opinion is encouraged
* all foreign personalities develop (intellectuality, emotionality, will)

**Steps**:

* define the beginning and purpose of the activity
* identify the problem (understanding the situation, selection and organization of information)
* process information (introduction, inference, intuition, analogy) to determine possible solutions
* decide by determining the best solution (you can apply the snowball method to reach an agreement)
* present / accept solutions and achieved results

It is especially important to clearly define the difference between exercise and actual problem solving. The exercise involves only reviewing the algorithm and verifying procedures that are previously known and recognized. Problem solving means facing something new that distinguishes two realities: a previous experience and a new one. This difference encourages research, study, intuitive processes, the relationship between the new and the unknown. A simple question can become a problem if it stimulates curiosity and a desire to explore. The hardest thing is to create, to create a problem situation: it actually means to create a PROBLEM.

**13. Mosaic**

|  |
| --- |
| Learning by cooperation among group members based on materials prepared by the teacher / facilitator. |

**Advantages:**

* formative character
* encourages members' self-confidence
* develops communication skills and group relationships
* develops independent thinking
* Participants study the topic at their own pace
* Personal perception is enriched by collective perception

**Steps:**

* divide the group into a heterogeneous group of 4 members, where each is determined by a number from 1 to 4
* each member receives a learning slip - part of the article (the article is divided into as many parts as there are group members)
* All people with the same number create a special group of experts for the part of the article they will study.
* The task is to organize the information from the section they received and summarize it. Everyone needs to learn their part well in order to be able to present well. The presentation strategy is left to each group to choose from.
* then the groups are reorganized to have members numbered 1,2,3 and 4 in each group. Each person teaches the others their part.
* The large group can first be divided into two groups A and B; the alternative is to give half another task. The group of "experts" for one part should not exceed 4.
* The teacher will ask that the topic be presented to the other participants in a logical sequence and according to the basic structure - so the article will have to be retold in a logical sequence.
* During the learning process, the teacher will observe the activity ensuring correct behavior, understanding and presentation.

**14. GRAPHIC ORGANIZER (GO)[[7]](#footnote-7)**

|  |
| --- |
| Provides a synthetic presentation of material presented orally or in writing using a visual / graphic representation. |

**Advantages:**

GO eliminates repetition in information presentation: graphical presentation allows for analytical synthesis, relevant information will be taken into account in evaluation and decision-making, or unnecessary elements in problem solving will be discarded.

**GO helps:**

* participants in correlating what they already know with what they are learning
* leaders in setting section goals, creating awareness of what needs to be learned, in assessing members' strengths and weaknesses

**GO can be used for structured presentation of information in 5 ways:**

**1. GO comparative structuring:**

What is required are differences / similarities between concepts, ideas, ways of presentation

|  |  |  |
| --- | --- | --- |
| **Similar/same** | **Opposite** | **Synthesis** |
|  |  |  |
|  |  |  |

**2. GO descriptive structuring:**

A list of essentials is sought

|  |
| --- |
| 1. **....................................................** 2. **....................................................** 3. **....................................................** |

3. **GO sequential structuring - concepts, notes are organized chronologically**

**Introductory event/beginning**

|  |
| --- |
| **Event 1** |

|  |
| --- |
| **Event 2** |

**Final result/the end**

|  |
| --- |
| **Event 3** |

4**. GO cause** - structuring of consequences.

The connection between the cause and effect of an action, phenomenon and the like is sought.

**cause 1 detail cause 2 detail**

**Reselt\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**cause 3 detail cause 4 detail**

**5. GO problem – solution structuring**

It is required to identify the problem with all aspects while giving a possible solution.

**Problem:**

|  |
| --- |
| **Who?**  **What?**  **Where?**  **When?**  **Why?**  **How?** |

|  |
| --- |
| **Tried**  **solutions Results**   1. **1.** 2. **2.** |

**Solution:**

|  |
| --- |
| **Final results**  **Why?**  **How?** |

**15. Swap places**

|  |
| --- |
| This learning strategy allows students to get to know each other, exchange opinions, think about new ideas, values or solutions to problems. It is a good way to promote self-discovery and active exchange of opinions |

**Steps:**

1. Distribute one or more sheets of Post-it sticky paper to students. Decide if the activity will be better if students write one or more notes.

2. Ask students to write the following facts on the slips of paper:

* The value they respect
* Experience they had recently
* A creative idea or solution to a problem they had or offered
* Question they have about the lecture / lesson
* Opinions they have about the topic you have chosen
* A fact about yourself or the subject of the class or about the topic you have chosen

3. Students should stick information slips on their clothes, circle the room and read the slips that others are wearing.

4. They then select a person to negotiate and exchange notes with each other. Replacement should be based on a desire to possess a particular value, experience, idea, question, opinion, or fact. Set a rule that all replacements should be bidirectional. Let students make as many substitutes as they want.

5. After the activity, ask students to share with everyone what substitutions they have made and why. (eg "I traded for Sanja's note because she recently travelled to Hungary. My grandmother is from Hungary and I would love to travel there.")

**Variations:**

1. Have students form groups according to an arrangement instead of replacing notes. Let them discuss the contents of the slips

2. Have students display their notes on the board and then discuss the observed similarities or differences.

**16. Who’s in the class?**

|  |
| --- |
| This popular icebreaker is like a game of searching for objects, but this time it's about people. The search can be done in many ways as well as for a different number of students. Improves team building and introduces physical activity in the right way at the very beginning of the lecture or lesson. |

**Steps:**

**1.** Identify 6 to 10 descriptive statements that will complete the phrase: Find someone who …… ..

Include statements that determine personal information and / or lesson content. Use some of these beginnings:

Find someone who…

* loves \_\_\_\_\_\_\_\_\_\_\_\_
* knows what \_\_\_\_\_\_\_\_\_\_ is
* thinks that\_\_\_\_\_\_
* is good at \_\_\_\_\_\_\_
* already has \_\_\_\_\_\_\_\_\_\_\_
* is motivated\_\_\_\_\_\_\_\_
* believes that\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_
* recently read a book about\_\_\_\_\_\_\_\_\_\_\_\_
* has experience with\_\_\_\_\_\_\_
* does not like \_\_\_\_\_\_\_\_\_\_\_\_\_\_
* previously learned \_\_\_\_\_\_\_\_\_\_
* has wonderful ideas for\_\_\_\_\_\_\_\_\_\_\_
* owns\_\_\_\_\_\_\_\_\_\_\_
* wants or does not want \_\_\_\_\_\_\_\_\_\_\_\_\_

2. Distribute a statement list to students with the following instructions: This activity is a search for people. When we say “now,” go around the room looking for people who match the claims. You can find one person for just one claim, even if he / she is responsible for multiple claims. When you find a person, write the name.

3. When most students have finished, stop searching and have everyone return to their seats

4. The person who completed the search first can get some small reward. The most important thing is to discuss each claim. Encourage brief discussions about some of the statements that might interest those present or relate them to the topic of the lecture or lesson.

**Variations:**

1. Completely avoid bidding by allowing enough time for everyone to complete the task (as much as possible)

2. Have students talk and find out how many claims can be tied to each person.

**17. Denial**

|  |
| --- |
| This is a great way to help students get to know each other. It is also an interesting experiment on thinking at first impression. |

**Steps:**

1. make subgroups of 3 to 4 students (who mostly don't know each other)

2. Tell students that their task is to predict how each person in their group will answer certain questions you have prepared. Here are some options you can use in a variety of conditions:

* What kind of music do you like?
* What are some of your favorite leisure activities to relax?
* How many hours do you usually sleep at night?
* How many siblings do you have and who are you?
* Where did you grow up?
* What did you look like when you were little?
* Were your parents strict or lenient?
* What jobs have you worked in so far?

3. Have the subgroups begin the activity by selecting one person as their first “subject”. Have group members be as specific as possible in predicting the facts about that person. Tell them not to be afraid of brave attempts to guess. As they guess, ask the "subject" not to reveal the accuracy of the predictions that others are trying to make. When others have completed their predictions about the “subject,” that person should discover the right answers to every question that is addressed to them.

4. Let each member of the group be a “subject” of research once.

**Variations:**

1. Invent questions that require students to make predictions about views and beliefs (rather than factual information). For example, ask, "What is the most important trait a friend should have?"

2. Instead of anticipating, ask students to answer the questions immediately one by one. Then ask subgroup members to reveal the facts that surprised other people the most (based on first impressions)

**18. TV ad**

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| This is a great start for students who already know each other well. It can lead to a very fast team building. |

**Steps:**

1. Divide students into teams of up to 6 members

2. Have students invent and create a 30-minute television commercial that advertises something related to the topic of the lecture or lesson - for example, emphasizing the value that the class values, that is related to celebrities, etc.

3. The advertisement should contain a slogan, e.g. "Better life despite chemistry" and some visual aids as a well-known chemical product.

4. Explain that the general concept and look of the ad is enough, but if the team wants to act out the whole ad, that's fine too

5. Before each team starts planning their advertisement, discuss the characteristics of some very famous contemporary advertisements to stimulate creativity (e.g. celebrity participation, humor, comparison with competitors, eroticism, etc.)

6. Ask each team to present their ideas. Praise the creativity of everyone individually.

**Variations:**

1. Have teams create a print version of the ad instead of the TV ad. Or, if possible, have them create their own ad as a recording on an audio cassette.

2. Have teams advertise their talents or their school rather than some topic that concerns the whole class.

**19. The company you hang out with**

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| This activity introduces physical movement right from the start and helps students get to know each other. It goes fast and is a lot of fun. |

**Steps**

1. Make a list of categories that you think would be appropriate for the dating activity in the class you are teaching. Categories for all applications include:

* Month of birth
* People who like / dislike (specify areas such as poetry, computers, science)
* Favourite… (specify something, say a book, a song, a colour)
* The hand with which you write
* The colour of the shoes you are just wearing
* Agreeing or disagreeing with any statement related to the current problem (e.g. health insurance should be free for everyone worldwide)
* You can also use categories that are directly related to the topic you are teaching, for example:
* Favourite author
* People who agree or disagree (identify a problem related to topics)
* People who know / do not know who or what is (specify a person or concept related to a particular topic)

2. Free up space in the classroom so that students can move freely

3. Specify categories. Instruct students to discover as quickly as possible all the people who might be associated with a given category. For example, leftists and rightists would separate into two groups, or those who agree with a statement would separate from those who disagree with that same statement. If the category contains more than two choices (e.g. student's month of birth), ask students to join those who have a birthday in the same month - so more groups will be formed

4. When students have formed a number of groups, ask them to shake hands with their “companions”. Let everyone observe approximately how many people are in different groups.

5. Proceed immediately to the next category. Have students move from group to group as you announce the new categories.

6. Let everyone return to their seats. Discuss the differences and similarities that the students discovered during the exercise.

**Variations:**

1. Ask students to discover someone who is different. For example, you can ask students to find someone whose eyes are a different colour. Whenever there are not the same number of students in different categories, allow more than one person from one group to socialize with someone from another group.

2. Have students determine the categories themselves.

**20. True acquaintance**

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| Most dating activities are limited opportunities to meet others. The alternative is to prepare a deep experience during which pairs of students will get to know each other really well. |

**Steps:**

1. Have students make pairs. It can be according to their wishes or in one of the ways in which groups are formed. Criteria for pairing may include:

* Two students who have never studied together before
* Two students who have never sat together before
* Two students coming from families of different sizes
* Two students who do not like the same music
* Two students of different backgrounds

2. Ask couples who have formed to spend about 30 to 60 minutes getting to know each other really well. Suggest they walk together, drink juice together, or if possible, visit each other.

3. Prepare some questions that students may ask when getting to know each other

4. When all students have returned to the classroom, give the pairs a task to solve together and allow them to start learning together (see "10 tasks you can give to the pairs in their learning").

5. Consider whether it is possible to turn couples formed in this way into couples who will continue to learn together in the long run.

**Variations:**

1. If possible, form groups of 4 students

2. Have students introduce their couple to the entire class

**21. Team sanctuary**

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| Active learning often enriches the creation of teams that will work and learn together in the long run, design projects and engage in other forms and activities of cooperative learning. If this is exactly what you are planning, it will help you to do some introductory team building activities to ensure a good and solid start. This is one of the best and easiest team building activities. |

**Steps:**

1. Each team receives a certain number of cards of different colors and sizes.

2. Each team should, as a group, construct a three-dimensional model of "shelter" from the cardboard they have. It is allowed to bend and tear the cartons, but nothing else may be used. Advise teams to plan first how they will make their “refuge”. Give teams markers so they can draw what they want on cardboard or decorate them as they please.

3. Set aside exactly 15 minutes to make. Don’t rush teams. It is very important that everyone feels success in this business.

4. When the buildings are finished, invite the class to a tour of the buildings. Visit each building and ask a team representative to show and explain everything to you. Let him boast of his building. Applaud each team on the success. Do not allow any comparisons that are of a competitive nature.

**Variations:**

1. Ask the teams to build the highest possible tower or other structure instead of a "refuge".

2. After touring the buildings, gather students and ask them to reflect on the experience they had during the activity.

3. Have answers to questions such as:

- What helped? What were the useful activities we did as a team, which individually when working together? What activities took place?

**22. Reconnect**

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| In any classroom that meets for a long time, it is sometimes helpful to spend a few minutes reconnecting with students after a certain amount of time has passed since the last meeting. This activity reveals several ways to reconnect. |

**Steps:**

1. Welcome students back to school and your classroom / classroom. Suggest a few minutes to reconnect before starting the next lecture / lesson.

2. Ask students one or more of the following questions:

* What do you remember from the last lecture? What could you single out?
* Did you read / think / do something as the cause of the last lecture?
* What interesting experiences did you gain between our two meetings?
* What are you thinking about right now (what worries you) that could hinder your ability to pay full attention to today's lesson?
* How do you feel today? (It's fun to use metaphors like "I feel like a crushed banana")
* (Invent your own questions)

3. Provide answers by forming small groups or by having students call out the next speaker and the like.

4. Move to the current topic.

**Variations:**

1. Instead of talking, organize a joint recollection of the last lecture

2. Present two questions, concepts or information that you presented during the last lecture. Ask students to vote - have them choose what they would like to discuss with the whole class and repeat. Do it together.

**23. Wind blows**

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| This is a fast icebreaker that moves the students and makes them laugh. It’s a good way to build a team and allows students to get to know each other better. |

**Steps**:

1. Place the chairs in a circle. Have each student sit in a chair. There should be exactly as many students as there are chairs.

2. Tell students that if they agree with your next statement, get up and sit in another chair.

3. Stand in the middle of the circle and say, "My name is\_\_\_\_\_\_\_ and A STRONG WIND BLOWS for all those who ………" and complete the sentence with a statement that most in the class will agree with, say, "… love chocolate ice cream!"

4. At that point, everyone who likes chocolate ice cream should get up and head for another empty chair. As soon as they get up, sit down on one free chair. When you do, one student will be left without a place and will replace you as a centre leader.

5. A person left without a chair should say a new sentence: “My name is\_\_\_\_\_\_\_\_ and the STRONG WIND BLOWS for all those who…” (the ending can be funny but also serious)

6. The game will speed up so that there will be a nice confusion

7. Play this game whenever you think it's convenient - you can use it as an interesting way to get to know each other again, repeat material and the like.

**Variants:**

1. This game can be played in the form of a story. Everyone sitting in a circle should imagine fruit. Then tell the players in turn their fruits: apples, pears, plums, bananas, strawberries, cherries… but not too many types because they need to be repeated - the number depends on the number of players. The person in the centre begins the story, for example, "I went to the market yesterday morning to buy bananas." At that point, all the bananas should swap places, and the person telling the story should sit in any empty space. The next person left without a chair should continue the story.

2. Consider appropriate sentence endings. They may relate to lesson-related material or to students' life experiences or opinions, such as "who thinks testing is stressful."

3. In the middle, one can find a pair that should jointly devise the appropriate end of a sentence.

**24. Repetition of basic rules[[8]](#footnote-8)**

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| This is a voting method that allows students or participants to set their own rules of conduct. When participants are part of the team building process, they are more likely to support the norms they have established. |

**Steps:**

1. Identify a small number of volunteers (according to class size) who will be examiners

2. For 10 to 15 minutes, have the examiners tour the class examining as many people as possible. Encourage them to ask members / students questions such as, "What behavior do you think will help the work of this community?" (Prepare examples of answers so that you can unobtrusively suggest them and thus guide examiners and respondents in the desired direction)

3. At the end of the pre-determined time, ask the examiners to present the results of their questions to the whole class. Write them on a large block or board.

4. It is usually enough to just hear the collected thoughts of the students in order to be able to make rules for behaviour in a certain group. However, it is possible to jointly analyze the results, review whether there are repetitions of ideas, and jointly make a list of say 5 basic rules of the group.

**Variations:**

1. Prepare a list of several possible basic rules. Ask students to select three from that list. Display the results in tabular form. The following rules might be helpful for your list:

- We're on time

- Let's respect confidentiality

- Everyone should participate in working in small groups or teams

- We pay attention to the beginning of classes / activities / lectures

- Let's meet people who are different from us

- Let others complete what they did or said without interruption and interference

- We must not belittle each other

- We must not disturb each other

- We need to listen to each other

- We only speak for ourselves

- Let's be brief and stick to the given topic

- We use language that does not offend the sexes

- Let's be ready for work / class

- We don't sit in the same place every time

- We agree to disagree

- Everyone should be given a chance to speak

- Let's continue to develop other people's ideas before we start criticizing them.

2. As a class, do the rule collection using the "brainstorming" method. You can then use a method called multiple voting. It is a method of reducing any list by half. Each student can vote for as many things as they want; half of the facts listed that have the most votes remain on the list. You can repeat the process as often as you want; each vote reduces the list by half.

**4.a2 Learning and teaching strategies to achieve student participation at any time [[9]](#footnote-9)**

Active learning cannot take place without the participation of students. There are different ways to structure a discussion and get answers from students at any point in the lesson or lecture. Some are particularly suitable when time is limited, or participation is to be achieved by flattery. You can consider a combination of these methods - for example, encourage sub-discussions and then invite a spokesperson from each group and create a panel discussion.

1. **Open discussion**: Ask an open question to the whole group without prior structuring. The direct quality of open discussion is attractive. If you are afraid that the discussion might drag on, before you ask a question you can say, “I would like four or five students to share with us the experience / thoughts about ...” TO encourage students to respond, ask, “How much can you offer? the answer to my question? " Then call the students who raised their hands for discussion.
2. **Answer Cards**: Distribute cards to students and ask them to answer your questions anonymously. Have the cards circle in a group or give each student one card. Use answer cards whenever you want to save time or ensure anonymity for people who are afraid to express their own opinion. Another advantage of this method lies in the fact that it requires a concise summary of the idea in response to a question.
3. **Voting**: Make a short survey to be filled in and analyzed on the spot, or ask students to vote verbally. Use this method to get the data you want quickly and in quantitative form. If you use a written survey, try to give feedback to students or participants as soon as possible. If you use an oral survey, have students raise their hands or show answer cards.
4. **Decisions in sub-groups**: Divide students into sub-groups of three or more people who will share (and write down) certain information. Use this type of discussion when you have enough time to process questions and problems. This is one of the key methods of keeping everyone's attention.
5. **Learning Partners**: Have students work on an assignment or discuss key issues with the people sitting next to them. Use this method when you want to include everything but do not have enough time to discuss in small groups. The pair is a good group configuration for developing support relationships and / or for working on complex activities that do not match large group configurations.
6. **"Whipping":** Visit the group and get quick and short answers to key questions. Use this method whenever you want to get something very quickly from each student or member. Sentence beginnings are useful when using this method, for example: "One change I would definitely make in my school is ...". Explain to students that they can skip their answer line whenever they want. Suffice it to say, "Go on!" To avoid repetition (especially if there are a small number of students) you can ask each student to always make a whole new contribution to the process.
7. **Discussion panel**: Invite a small number of students to present their opinions to the whole class. An informal panel discussion can be created this way and ask for the opinion of a certain number of students who stay in their seats. Use this method whenever you have time to target serious answers to your questions. Change the members on the panel list to achieve the equal participation of as many students as possible.
8. **Fishbowl:** Ask part of the class to make a circle to discuss and the rest to make a circle of listeners sitting behind the discussion circle. Bring new groups into the inner circle to continue the discussion. Use this method to help focus attention on large group discussions. Although time consuming, this is the best method for combining discussion values ​​in large and small groups. As a variant of concentric circles, have students stay seated at tables or benches, and invite different tables / benches or parts of a large conference table to actively participate in the discussion while others will be active listeners.
9. **Games**: Use funny and interesting exercises or quizzes to gather students' ideas, knowledge or skills. Quizzes can resemble popular television quizzes. They can be used as the basis of an attention-grabbing game. Use games to boost energy and involvement. Games are also an aid to achieving dramatic climaxes that students will not forget so easily.
10. **Calling out the next speaker**: Ask students to raise their hands when they want to express their opinion and instruct them that a student who shares their thoughts with others immediately calls out another speaker (this method is better than when the teacher calls out). Use this technique when you are sure that there is a great interest in the discussion or activity and you want to promote interaction in the classroom.

**4.a3. Task suggestions for learning partners [[10]](#footnote-10)**

Learning partners deserve special attention. One of the most effective and efficient ways to promote active learning is to divide classes into pairs and create learning partners. It’s hard to be left out in pairs. It’s also hard to hide and do nothing in pairs. Partnerships can be short-term or long-term. Learning partners can create a wide range of quick tasks or those that require longer preparation and crafting time.

1. **Discuss** a short written document together

2. **Interview** each other taking into account the couple's reaction to a given reading, lesson, video or other educational activity

3. **Make constructive judgments** or edit your partner's written work

4. **Ask** your partner about some default text to read

5. **Repeat** the lesson or lecture together

6. **Prepare** common questions to ask the teacher

7. **Analyse** a common problem, exercise, or experiment

8. **Test** each other

9. **Answer** the questions asked by the teacher

10. **Compare** the notes made during the lesson

**4.a.4 Suggestions of different types of groups**

**Contact groups**

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| They are usually organized at the beginning of any training section. The purpose is to create a sense of belonging to the workplace as well as to get to know colleagues better. |

**Tasks:**

* Find out how the environment affects the learning process of students (in whatever way you want).
* Walk around the classroom and find as many facts as possible about the hobbies of your classmates and find those who share your hobby. (The group that finds the most information about the largest number of members will receive a reward.)
* Organize the room to offer the best possible layout for communication
* Stand in a circle, side by side, completely silent for a few minutes. Then look for a partner to talk to about how you felt. "

These activities can be applied as icebreakers.

**Hierarchical groups**

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| This way of working of groups requires great experience and ability of leaders since groups have different tasks that need to be clearly set and they are extremely difficult to control. |

**Steps:**

* divide a large group into 4 groups (S1, S2, S3, S4)
* S1 is composed of 4 people preparing a task for S2
* S2 is composed of 6-10 people who will perform the task set by S1
* S3 is composed of 3-5 people who will observe S2 at work and carry S1 messages based on which they will decide on further activities.
* S4 is composed of 3-6 people who observe everything and finally give a report at the end of the activity.

In order to give everyone the opportunity to try different roles, the tasks of the group or the role can be change during the activity.

**Important**: no matter what the subgroup organization is, it is extremely important that the experiences of small groups are shared to the whole group of members at the end of the activity.

**Buzzing groups**

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| A method of work used in the formal teaching of a large group. Promotes active participation of persons. It gives participants the opportunity to freely exchange ideas, information in a less stressful environment. The free flow and exchange of information will result in the “buzzing” of groups. |

**Steps:**

* Present a problem or topic that needs to be addressed or researched
* The facilitator prepares a list of open-ended questions that will intrigue members, include their prior knowledge or opinion. These should be questions for which there is no one right answer
* Ask the groups to appoint a recorder to record everything and finally summarize. The roles of "timer", "reporter" can also be defined.
* In a time-limited (5-20 minutes) conversation, small groups discuss their answers to the prepared questions.
* Groups summarize their responses - including any agreement and disagreement, and prepare reports
* Feedback can be obtained by oral report or by displaying the results on the walls

**Size:** triads or quintets

**Advantages:** Since these groups can interest and create enthusiasm for a subject or topic, they are useful in introducing a new topic and assessing students' previous knowledge and beliefs about a topic. They can serve as an introduction to assignments outside the classroom.

**Tips for success:**

|  |  |
| --- | --- |
| For student | For teacher |
| * Participate but do not “monopolize” time * Learn by listening and thinking * Additional ideas help a discussion that becomes boring * If there are more than five subgroups, do not report orally | * Carefully consider whether there are groups to which the task needs to be further explained * As soon as the "buzzing" starts, move away * Let the topic / task correspond to the goals / results * Plan time for summarizing and don't forget to reach an agreement and agree on the results! |

**4.a5 Suggestions for ways to divide students into teams**

**1. Maps:** Determine how many students are in the class and how many different groups you want to have at a particular stage of the work. For example, in a class of 20 students, one activity may require four groups of five students, another five group of four students, and some third activity six groups of three students and two bystanders. Label these groups using coloured dots (red, green, blue, and yellow for the four groups), decorative stickers (five different stickers on a common theme for the five groups — e.g., lions, monkeys, tigers, giraffes, elephants), and numbers (1 to 6 for six groups). Randomly place a number, coloured dot, or animal on the card for each student and place that card in the materials you will distribute to the students. When you are ready to form groups, determine the label to use and instruct students to join their groups at a specific location. Students will be able to quickly join their groups without wasting time and creating crowds. To make the process better, you can determine where each group will meet by placing a marked map in that location.

2. **Puzzles**: get children's puzzles or make your own by cutting out a picture from a magazine, pasting it on cardboard and cutting it into the desired shapes, sizes and quantities. Select the number of puzzle pieces according to the number of groups you want to create. Separate the puzzles, mix the pieces and give each student one piece of the puzzle. When you are ready to form groups, instruct students to look for those that have other pieces of the puzzle. The task is completed when all the puzzles - but also the groups - are put together

3. **Search for famous fictional families and friends**: make a list of famous fictional family members or friends in groups of three or four (e.g. Peter Pan, Captain Hook, Bell, Wendi; Alice, Cheshire Cat, Queen of Hearts, Crazy Hatter…) Choose the same the number of fictional heroes corresponding to the number of students. Write fictional characters on the cards, one name on each card, to make a group (family or friends). Shuffle all the cards and give each student a card with the name of the fictional character. When you need to form groups, ask students to find other members of their family or friends. When everyone gets together, they can find a place to work on their own.

4. **Name cards**: Use cards of different sizes and colours to identify different groups

5. **Birthdays**: Ask students to sort by birthdays and then arrange them into as many groups as you need for a particular activity. In large classes, form groups by month of birth. For example, 60 students can be divided into three groups of approximately equal size by merging groups of those born in (1) January, February, March, and April; (2) May, June, July and August, and (3) September, October, November and December

6. **Playing Cards**: Take a deck of playing cards to determine the groups. For example, take boys, ladies, kings, and aces to create four groups of four and add more cards according to the number of students. Shuffle the cards and give each student one card. Students need to find all the same maps and make a group.

7. **Draw numbers**: determine the number and size of the groups you want to make, put the numbers on individual pieces of paper, and put everything in a box. Students draw numbers from the box. For example, if you want four groups of four students, you need to have 16 papers with four times written numbers from 1 to 4

8. **Candies**: Distribute candies of different flavours (without sugar) to the students and make groups of cherries, strawberries, lemons, peppermint

9**. Choose similar items**: choose toys on a common theme and use them to define groups. For example, you can use transportation and take cars, planes, ships, trains. Each student pulls a toy out of the box and looks for group members who have the same toy.

10. **Student accessories**: you can mark student accessories with coloured staples, stickers, texts on coloured papers to identify groups.

**4.a6 Ways to determine team roles**

One way to facilitate the introduction of active learning in small groups is to assign roles to some group members. According to the tasks, appoint: **a leader, assistant, timekeeper, recorder, presenter, observer or a person in charge of distributing the material**. You can often simply ask for volunteers to come forward, but sometimes it is interesting and effective to use a creative selection strategy.

**1. Alphabetical determination:** determine the tasks and arrange them alphabetically according to the first letter of the student's name or surname. In groups that will work together for a long time, rotate jobs this way.

2. **Birthday determination**: divide the roles in chronological order according to the students' birthdays (in a calendar year). In long-term groups, rotate debts this way.

3. **Lottery with numbers**: ask group members to count aloud from 1 to…. Put cards in a hat or box with the number written on one side and the debit on the other. Draw numbers and divide assignments by reading: number 2 is leader… etc.

4. **Colour lotto**: select a colour for each task or role. A person wearing a garment of a certain colour will be given that task.

5. **Garments**: Divide tasks according to garments: e.g. golden chain - leader; glasses - X; pullover -Y.

6. **Voting**: Ask group members to vote to determine which job should belong to a particular member. One of the popular methods is pointing - the person with the most fingers pointed at will be given a specific task.

7. **Random Selection**: Ask each member to calculate and discover the sum of the last four digits of their phone number. For example. The highest sum is 36. Say the role and some number from 1 to 36. The person whose sum is closest to what is said will get the role.

8. **Animal Lover**: Assign a specific role to the person who has the most pets, or towards the animal he loves e.g. dog lover - leader

9. **Family size**: determine the role according to family size - e.g. the leader is the person with the most siblings

10. **Prize**: Before the lecture, put a sticker by designating one member per group. Methods include a sticker on the name card, on a chair, on a desk, one for the papers you are handing out, and the like. The person receiving the sticker receives a “reward” in the form of a special job. To give more than one job as a reward, use stickers in different colours.

## **4b: Instruments for student self-detection of learning styles and multiple intelligences, as a basis for the most successful development of key competencies**

**4b1: Learning styles - an example of a questionnaire for students in secondary education**

**Learning styles[[11]](#footnote-11)**

We all have different ways of learning. Over time, we develop the way of learning that suits us best. It may not be a conscious decision, and we may not opt for the learning style that dominates in formal education. This test is a way to discover your favorite learning style, and perhaps teaching.

You have approximately 15 minutes to respond. Answer as spontaneously as you can to each of the proposed claims.

If you agree, type OK [√].

If you do not agree, enter a minus sign [-]

|  |  |  |  |
| --- | --- | --- | --- |
| 1. | I have strong beliefs in good and bad. |  |  |
| 2. | I often act without thinking about the possible consequences. |  |  |
| 3. | I solve problems systematically. |  |  |
| 4. | I believe the rules are limiting. |  |  |
| 5. | People say to me that I always say what I think. |  |  |
| 6. | I believe that action based on feelings is just as good as that based on careful analysis. |  |  |
| 7. | I prefer a way of working that includes good preparation and plenty of time to get the job done. |  |  |
| 8. | I often question the basic assumptions of others. |  |  |
| 9. | I think the most important thing is whether something works in practice. |  |  |
| 10. | I am actively looking for new experiences. |  |  |
| 11. | When I hear about a new idea or way of working, I always start thinking about how I can put it into practice. |  |  |
| 12. | I care about maintaining self-discipline (keeping a diet, keeping certain procedures, etc.). |  |  |
| 13. | I am proud to do a good job. |  |  |
| 14. | I feel best in the company of people prone to logical analysis and I don’t like being in the company of spontaneous and irrational people. |  |  |
| 15. | I interpret all the data carefully and avoid making hasty decisions. |  |  |
| 16. | I prefer to make decisions after considering all the possibilities. |  |  |
| 17. | New and unusual ideas attract me more than practical ones. |  |  |
| 18. | I don’t like clutter and I prefer things to fit into harmonious patterns. |  |  |
| 19. | I accept procedures as long as I consider them an effective way of doing some work. |  |  |
| 20. | I like to associate my actions with general principles. |  |  |
| 21. | In discussions, I immediately move on to the essentials. |  |  |
| 22. | I usually keep a certain distance from my colleagues. |  |  |
| 23. | I like to deal with new and different things. |  |  |
| 24. | I like to be with spontaneous people who like to joke the most. |  |  |
| 25. | Before making a decision, I pay close attention to detail. |  |  |
| 26. | I rarely get ideas from impulses. |  |  |
| 27. | I believe it is right to get to the point right away. |  |  |
| 28. | I take great care not to draw premature conclusions. |  |  |
| 29. | I like to have as much data as possible - the more data to think about, the better. |  |  |
| 30. | Students and colleagues who don’t take things seriously usually irritate me. |  |  |
| 31. | Before making my statements, I listen to other people’s views. |  |  |
| 32. | I’m usually open when it comes to my feelings. |  |  |
| 33. | In discussions, I like to observe the moves of others. |  |  |
| 34. | I like to accept things as they happen rather than plan ahead. |  |  |
| 35. | Techniques are important to me. These can be analyzes, flow diagrams, tests, etc. |  |  |
| 36. | I’m nervous and worried if I have to rush with something to get close to the deadline. |  |  |
| 37. | I often evaluate the ideas of others in the light of their practical results. |  |  |
| 38. | I feel uncomfortable in the company of quiet and thoughtful people. |  |  |
| 39. | People who are in a hurry with everything often make me nervous. |  |  |
| 40. | It is more important to enjoy the present moment than to think about the past and the future. |  |  |
| 41. | I believe that decisions made based on analysis of available data are better than decisions made based on intuition. |  |  |
| 42. | I'm a perfectionist. |  |  |
| 43. | In the discussions, I present many spontaneous ideas. |  |  |
| 44. | At the meetings, I present practical and realistic ideas. |  |  |
| 45. | Most rules exist to be broken. |  |  |
| 46. | I like to keep a certain distance and consider different perspectives. |  |  |
| 47. | I often see inconsistencies and weaknesses in other people’s arguments. |  |  |
| 48. | I speak more than I listen. |  |  |
| 49. | I often see other and better ways to do something. |  |  |
| 50. | Reports must be short and accurate. |  |  |
| 51. | Rational and logical thinking always wins in the end. |  |  |
| 52. | I prefer to work on specific issues than to participate in social discussions. |  |  |
| 53. | I prefer people with a realistic approach than those with a theoretical approach. |  |  |
| 54. | I become impatient if the business deviates from the right path, if there are too many unimportant activities. |  |  |
| 55. | If I have to make a report, I usually make many versions before I complete the final one. |  |  |
| 56. | I want things to work in practice. |  |  |
| 57. | I try to come up with an answer with a logical approach. |  |  |
| 58. | I like to be a person who talks a lot. |  |  |
| 59. | In debates, I often feel like a realist keeping others on the right track. |  |  |
| 60. | Before making a decision, I like to consider the possibilities. |  |  |
| 61. | In discussions with others, I often feel like the most objective and “most down to earth” person. |  |  |
| 62. | In discussions, I like to stay aside rather than take the lead and talk a lot. |  |  |
| 63. | I like to associate real situations with a longer-term perspective. |  |  |
| 64. | When things go wrong, I don’t pay attention to it but look at everything as an experience. |  |  |
| 65. | I tend to reject spontaneous ideas as impractical and impractical in practice. |  |  |
| 66. | I think carefully before doing anything. |  |  |
| 67. | All in all, I listen more than I speak. |  |  |
| 68. | I find it difficult to understand people who do not use a logical approach. |  |  |
| 69. | Sometimes the goal justifies the means. |  |  |
| 70. | Sometimes it may be necessary to hurt someone’s feelings in order for something to be done. |  |  |
| 71. | I think it’s hard to have specific goals. |  |  |
| 72. | I am often a person who raises the atmosphere in society. |  |  |
| 73. | I do what I can to do the job. |  |  |
| 74. | Boring and methodical work quickly bored me. |  |  |
| 75. | Usually in the background of events I try to see the basic assumptions, principles and theories. |  |  |
| 76. | I’m always trying to find out what people think. |  |  |
| 77. | I like classes and meetings with a stable structure and agenda the most. |  |  |
| 78. | I avoid contradictory and subjective questions. |  |  |
| 79. | I enjoy the drama and excitement when a crisis situation arises. |  |  |
| 80. | Students and colleagues sometimes feel that I don’t care about their feelings. |  |  |

**List of points**

You will receive one point for each statement marked with a [v] sign. You do not receive points for statements marked with a "minus" sign.

State the statements marked with [v] in the table below:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | 2 | 7 | 1 | 5 |
|  | 4 | 13 | 3 | 9 |
|  | 6 | 15 | 8 | 11 |
|  | 10 | 16 | 12 | 19 |
|  | 17 | 25 | 14 | 21 |
|  | 23 | 28 | 18 | 27 |
|  | 24 | 29 | 20 | 35 |
|  | 32 | 31 | 22 | 37 |
|  | 34 | 33 | 26 | 44 |
|  | 38 | 36 | 30 | 49 |
|  | 40 | 39 | 42 | 50 |
|  | 43 | 41 | 47 | 53 |
|  | 45 | 46 | 51 | 54 |
|  | 48 | 52 | 57 | 56 |
|  | 58 | 55 | 61 | 59 |
|  | 64 | 60 | 63 | 65 |
|  | 71 | 62 | 68 | 69 |
|  | 72 | 66 | 75 | 70 |
|  | 74 | 67 | 77 | 73 |
|  | 79 | 76 | 78 | 80 |
| **Total** |  |  |  |  |
|  | **Activist** | **Analyst** | **Theorist** | **Pragmatic** |

Compare your points for each column with the corresponding column in the following Table.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Activist** | **Analyst** | **Theorist** | **Pragmatic** |  |
| 20  19  18  17  16  15  14  13 | 20  19  18 | 20  19  18  17  16 | 20  19  18  17 | Very great inclination |
| 12  11 | 17  16  15 | 15  14 | 16  15 | Great inclination |
| 10  9  8  7  6  5  4 | 14  13  12  11  10  9 | 13  12  11  10  9  8 | 14  13  12  11  10  9 | Moderate or slight tendency |
| 3  2  1  0 | 8  7  6  5  4  3  2  1  0 | 7  6  5  4  3  2  1  0 | 8  7  6  5  4  3  2  1  0 | A small inclination |

**Different types of learning**

**Activists**

Activists are fully involved in new experiences. They enjoy the present moment.

They are not skeptics, but open and enthusiastic about everything new. Their philosophy is: "Let me try!" and are prone to action before considering the consequences. Their days are filled with activities. They use brainstorming to solve problems.

They are driven by the challenge of a new experience, but find implementation boring.

They are constantly connecting with other people, but at the same time trying to gather activities around themselves.

**Analysts**

Analysts prefer to keep their distance and think about their observations from different perspectives. Their philosophy is caution.

They collect data and like to think carefully before making decisions. In fact, they are more involved in data collection and analysis than decision making, and they like to delay conclusions.

They prefer to stay aside in discussions and meetings. They like to watch others. They listen, and only then do they act.

**Theorists**

Observation theorists adapt and integrate into complex and logical theories. They solve problems by thinking, step by step.

They are prone to perfectionism and don’t feel good until things fit into a rational schedule. They like to analyze and do syntheses. They are interested in basic assumptions, principles, theories, models. Rational, logical, and analytical questions attract them more than subjective and contradictory ones.

**Pragmatist**

Pragmatists like to try new ideas and techniques to see if they work in practice. They test new ideas and use the first opportunity to experiment.

In open debates, they are prone to impatience and unsystematic. These are practical people who like practical decisions and problem solving. They see problems as challenges. Their philosophy is, "There has to be a better way."

**4b2. Multiple intelligences**

In 1905, French psychologist Alfred Binet and his colleagues developed the first intelligence test to help identify students with learning disabilities. These tests checked exactly what was important for the schools of that time, and that was linguistic and mathematical-logical intelligence.

The richness of human possibilities was reduced only to linguistic and mathematical-logical intelligence, which was considered to be a unique factor of intelligence. This one factor severely discriminated against both the specific talents and the specific difficulties of individual students.

**Multiple intelligence** was theoretically elaborated by Howard Gardner in his book Frames of Mind.

According to his model of intelligence can be:

1. **Linguistic** (effective use of words either verbally or in writing, rich vocabulary, expressiveness of speech, richness of linguistic meaning of expression, use of words in solving practical problems).

2. **Logical-mathematical** (efficient use of numbers, good logical reasoning, easy observation of logical structure and relationships and cause-and-effect relationships, ability to categorize, classify, conclude, generalize, calculate and test hypotheses).

3. **Spatial** (accurate perception and navigation in space, the ability to spatial design, a sense of colors, lines and shapes, the ability to visualize, the ability to graphically present ideas).

4. **Body-kinaesthetic** (ability to serve the whole body in expressing thoughts and feelings, the ability to use hands when making objects or works of art, good coordination, balance).

5. **Musical** (sense of music, distinguishing music, musical creativity, musical expression, sense of rhythm, dynamics, melody, colour of voice or instrument).

6. **Interpersonal** (perceiving and distinguishing the moods, intentions, motivations and feelings of other people, the ability to express non-verbal and recognize non-verbal signs, the use of non-verbal expression for practical purposes).

7. **Intrapersonal** (self-knowledge and the ability to act accordingly, accurate knowledge of their strengths and weaknesses, opportunities and limitations, awareness of their own moods, intentions, motives, temperament and desires, self-discipline, self-understanding, self-esteem).

**Tabular display of multiple intelligences**

|  |  |
| --- | --- |
| A kind of intelligence | Characteristics |
| 1. Linguistic intelligence | Linguistic intelligence means the ability to adopt a rich vocabulary, skillful use of words in writing and speech, use of words in memory and practical problem solving. Poets, writers and speakers have an extremely pronounced linguistic intelligence. This intelligence is also important for journalists, lawyers and other professions in which it is important to be proficient in linguistic expression in speech and writing. |
| 2. Logical-mathematical intelligence | Logical-mathematical intelligence allows us to use and evaluate abstract relationships, easy observation of logical structure and relationships and cause-and-effect relationships, the ability to detect patterns, the ability to categorize, classify, infer, generalize, calculate and test hypotheses. This type of intelligence is expressed in mathematicians, computer programmers, accounting and financial professionals, engineers, scientists and many other professions. |
| 3. Spatial intelligence | Spatial intelligence refers to the ability to perceive visual and spatial information, the ability to transform and shape it, and the ability to visualize without the help of external visual stimuli. This intelligence does not depend on the visual senses, so it can also be developed in blind people. The key abilities for this type of intelligence are imagining images in three dimensions and the ability to move and rotate them. It is expressed in fine artists, designers, hairdressers, geographers, surgeons, navigators and other professions. |
| 4. Musical intelligence | Musical intelligence refers to the ease in processing musical elements: pitch, rhythm and tone colour. It allows us to create, transmit and understand the meaning of tones. This intelligence is clearly visible in composers, conductors, musicians, audio engineers and acousticians. |
| 5. Body-kinaesthetic intelligence | Body-kinaesthetic intelligence involves the use of all or only some parts of the body in problem solving or product design. The key actions associated with this intelligence are the control of fine and complex motor movements and the ability to handle external objects. We see this type of intelligence mostly in athletes (dancers, sports climbers, gymnasts, basketball players), but also in painters, sculptors, car mechanics - occupations that use fine motor skills and coordination of arms and legs. |
| 6. Interpersonal intelligence | Interpersonal intelligence is the ability to understand other people’s feelings, thoughts, beliefs, and intentions. Ability to recognize nonverbal cues. |
| 7. Intrapersonal intelligence | Intrapersonal intelligence is the ability to understand our own feelings, recognize our own intentions and motives. It is important to know our own abilities so that we can use them to the best of our ability. |
| additional 8. Naturalistic intelligence | Naturalistic intelligence is the ability to distinguish species in nature and was important for survival in nature. Gardner believes that this same intelligence helps us today to distinguish the different products we use and buy. |

***Table: Characteristics of multiple intelligences according to Gardner***

Partial brain damage causes disturbances in some abilities while others remain unchanged, which is evidence for multiple intelligences. For example. damage to the left anterior lobe causes speech and writing problems (linguistic intelligence). Injuries to the right temporal lobe can cause a decrease in musical abilities and the like.

**Implications** of multiple intelligence theory on school learning:

• All people have a certain level of development of all seven types of intelligence.

• Most people can develop any intelligence to a certain level of competence.

• Intelligences are interconnected, and their combination makes a person's personality.

• There are many ways we can be intelligent within each category.

• Not everyone benefits greatly if there are activities in teaching that encourage only some intelligence

• (e.g. linguistic or mathematical-logical).

• Children can learn in different ways, at different speeds and for different reasons.

**Benefits for students**

• Evaluating and nurturing individual differences.

• Authentic learning assessment.

• Developmental, diverse and integrated curriculum.

• Significant progress in academic achievement - thinking, problem solving and memory.

• Improving self-confidence due to the possibility of using different types of intelligence.

• Preparing for life, work and lifelong learning in the 21st century.

• Equalizing opportunities for success for all students.

• Spotting differences between students regarding learning methods, not with regard to their shortcomings.

**Benefits for teachers**

• Work in a positive teaching environment that enables the development of all members

• Improved and expanded repertoire of teaching strategies

• Focus on the needs and abilities of the child instead of the program and the shortcomings of the students

• Increased cooperation with parents

• Planned and continuous professional development of teachers

• Increased teacher involvement in school decision-making

• Reviving a sense of professionalism.

Changes in teaching

• Enabling students to independently perceive their abilities in a particular type of intelligence.

• The organization of teaching so that different activities and contents are used that enable the development of certain intelligences.

• Thematic planning that includes all types of intelligence.

• Application of different teaching strategies.

• Arranging the classroom so as to enable the encouragement of all types of intelligence (thematic boxes, billboards, etc.).

**Seven types of learning styles, consistent with seven types of intelligence**

|  |  |  |  |
| --- | --- | --- | --- |
| **Intelligence** | **Opinion** | **What they like** | **What they need** |
| Linguistic | in words | reading, writing, talking  story, playing games  words, etc. | books, e-books, writing utensils, diaries, conversations (dialogues, discussions, debates), stories, etc. |
| Logical and mathematical | by reasoning | experiment,  ask a question,  solve problems,  count, etc. | accessories and materials for experimentation  and thinking, visiting observatories,  scientific museums, etc. |
| Spacious | in pictures | drawing, scrabbling,  shaping, imagining  the painting | works of art, LEGO cubes, movies, slides, imaginative  games, puzzles, picture books, illustrated books, visits to museums and galleries |
| Body-kinesthetic | through the bodily  feelings | dancing, running,  jumping, building,  gesticulation, etc. | role-playing games, dramatization, movement, building objects, sports games, tactile experience, making learning |
| Music | through rhythm and  melody | sing, whistle, tap and  clap in rhythm, listen | music during work, going to concerts, musical games at school and at home, musical instruments |
| Interpersonal | through the ideas of others | leading, organizing entertainment, relationships, mediation | friends, board games, social gatherings, meetings, clubs, mentors |
| Intrapersonal | deep inside | set goals,  plan, meditate,  to dream, to be in silence | hidden places, time for solitude, self-guided projects, choice |

**Identification of multiple intelligences in students is achieved by the following activities:**

* team monitoring of students by several teachers and school associates;
* conversations with parents;
* questions addressed to students about their strongest intelligences through questionnaires, diaries, autobiographies, art activities, group discussions, projects, interviews, using questionnaires filled out by the teacher; observing student behaviour (what prevails and what does not); keeping records of student achievement; leisure behaviour (choice and manner of engaging in a particular type of activity).

Proposals for learning strategies related to the improvement of multiple intelligences, the development of which enhances the development of key competencies

1. **Linguistic intelligence**: storytelling, storm of ideas, use of reproduction and recording of sound and images, keeping diaries, publishing students' written works.

2. **Logical-mathematical intelligence**: calculation and quantification, classification and categorization, Socrates' method of conversation, heuristic method, scientific thinking.

3. Spatial intelligence: visualization, use of different colours of coloured pencils, pictorial metaphors, drawing ideas, graphic symbols.

4. **Body-kinaesthetic** **intelligence**: body responses, dance, class theatre, kinaesthetic concept (pantomime), object manipulation, body maps.

5. **Musical intelligence**: rhythm, music, tail, singing, music collections, background music, musical concepts, expressing mood with music.

6. **Interpersonal intelligence**: pair work, human sculptures, collaborative groups, board games, simulations.

7. **Intrapersonal intelligence**: a minute to think, personal connections (“What does this have to do with my life?”), time for choice, emotional moments, learning planning.

**Centres of interest**

|  |  |
| --- | --- |
| **Linguistic centers** | reading corner, language lab (headphones, audio stories), writing corner (computer, papers and pens) |
| **Logic-mathematical centers** | mathematics laboratory (computers, handouts for mathematics), science centre (experimental equipment, recorded cassettes with scientific shows) |
| **Spa centers** | art space (colours, collage papers), visual media centre (video clips, slides, computer graphics), visual thinking space (maps, charts, puzzles, picture collection, three-dimensional building material). |
| **Body-kinesthetic centers** | open space for creative movement (gymnastic equipment and juggling items), handicraft center (clay and plasticine, carpentry tools, building blocks), tactile learning space (relief maps, examples of different textures, sand letters), drama center stage, puppet theater, shadow theater). |
| **Music centers** | music laboratory (cassette player, headphones, music tapes), musical instruments (percussion, cassette player, metronome), listening laboratory ("sound" bottles, stethoscope, walkie-talkie). |
| **Interpersonal centers** | round tables for group discussions, pairs for learning,  social space (board games, comfortable furniture for social gatherings). |
| **Intrapersonal centres** | boxes for individual learning, hiding places (boxes and partitions for hiding and isolation), computer centers for independent work. |

**Questionnaire for multiple intelligences**

**Read each sentence and if it describes you well as a person, then write number one (1) on the line.**

**If not, leave the field blank. Count the units for the marked traits for each type of intelligence and colour the corresponding number of fields in the table.**

1.

\_\_\_\_\_\_ Books are very important to me and I read them often

\_\_\_\_\_\_ I can hear more words in my head before I read, pronounce or write them.

\_\_\_\_\_\_ I learn more by listening to the radio than on television.

\_\_\_\_\_\_ I enjoy word games (puzzles, crosswords, anagrams, etc.)

\_\_\_\_\_\_ Other people sometimes interrupt me and ask for the meaning of a word I have said or

written by.

\_\_\_\_\_\_ Mother tongue and history were subjects I mastered with ease.

\_\_\_\_\_\_ As I walk through the city I pay more attention to the words written on posters and shop windows

than buildings and the environment.

\_\_\_\_\_\_ In my speech I use the terms and sayings I have read.

\_\_\_\_\_\_ I easily and quickly find the necessary and relevant information in various media (books, newspapers,

\_\_\_\_\_\_ I recently wrote something that I am especially proud of or have received

recognition from others.

2.

\_\_\_\_\_\_ I count easily by heart.

\_\_\_\_\_\_ Mathematics, physics and chemistry were my favourite subjects.

\_\_\_\_\_\_ I enjoy playing games and solving puzzles that require logical reasoning.

\_\_\_\_\_\_ I like to ask myself questions like "what if ...?"

\_\_\_\_\_\_ Very often I try to discover the regularity or logical connection between things.

\_\_\_\_\_\_ I am interested in new scientific discoveries.

\_\_\_\_\_\_ I think we can explain almost everything rationally.

\_\_\_\_\_\_ Sometimes I think completely abstractly, without words or pictures.

\_\_\_\_\_\_ I like to discover illogicality in other people’s speech and actions.

\_\_\_\_\_\_ I feel more comfortable when I can measure, categorize, analyse, or count something.

3.

\_\_\_\_\_\_ I often see clear images when I close my eyes.

\_\_\_\_\_\_ I have a developed sense of color.

\_\_\_\_\_\_ Very often I use a phonograph camera or a camera to record things around me.

\_\_\_\_\_\_ I enjoy putting together puzzles.

\_\_\_\_\_\_ I often have vivid dreams.

\_\_\_\_\_\_ They can easily cope in an unknown space (city, nature, etc.)

\_\_\_\_\_\_ I like to draw and paint

\_\_\_\_\_\_ I can imagine what things would look like if I looked at it from a different perspective (e.g. a bird's eye view).

\_\_\_\_\_\_ I like to read texts that are richly illustrated.

\_\_\_\_\_\_I remember well if the information display is in the form of an image.

4.

\_\_\_\_\_\_ I do at least one sport or physical activity regularly.

\_\_\_\_\_\_I find it hard to sit in one place for a long time.

\_\_\_\_\_\_ I like to make items by hand.

\_\_\_\_\_\_ The best ideas come to me when I walk, run or do some other physical activity.

\_\_\_\_\_\_ I like to spend my free time outside the house.

\_\_\_\_\_\_ I use gestures very often when talking to other people.

\_\_\_\_\_\_ I need to touch things to get to know them better.

\_\_\_\_\_\_ I enjoy stunts.

\_\_\_\_\_\_ I have good coordination of movements.

\_\_\_\_\_\_ I prefer to try a new skill than read about it or watch it on TV or video

5.

\_\_\_\_\_\_ I sing beautifully.

\_\_\_\_\_\_ I notice when a melody is not well played or sung.

\_\_\_\_\_\_ I listen to music very often.

\_\_\_\_\_\_ I play at least one instrument.

\_\_\_\_\_\_ My life would be poorer without music.

\_\_\_\_\_\_ I often hear some music in my head.

\_\_\_\_\_\_ I often waste my time tapping my fingers in a rhythm.

\_\_\_\_\_\_ I know the melodies of many songs.

\_\_\_\_\_\_ When I hear a melody, I can repeat it only once or twice.

\_\_\_\_\_\_ I often sing while working or studying.

6.

\_\_\_\_\_\_ Others often ask me for advice.

\_\_\_\_\_\_ I prefer team sports.

\_\_\_\_\_\_ When I have a problem I prefer to find someone I can help than deal with

own problem.

\_\_\_\_\_\_ I have at least three close friends.

\_\_\_\_\_\_ I love board games.

\_\_\_\_\_\_ I like teaching other people.

\_\_\_\_\_\_ I think I have leadership qualities (or others think of me).

\_\_\_\_\_\_I feel good in the crowd.

\_\_\_\_\_\_ I like to do social work that is related to my job or community.

\_\_\_\_\_\_ I prefer to spend the afternoon at a party than at home.

7.

\_\_\_\_\_\_ I regularly spend time alone meditating or thinking about important life issues.

\_\_\_\_\_\_ I like to participate in seminars, lectures or workshops where I can learn more about

to himself / herself.

\_\_\_\_\_\_ I recover easily from trauma.

\_\_\_\_\_\_ I often think about myself.

\_\_\_\_\_\_ I try to make life meaningful.

\_\_\_\_\_\_ I have a realistic view of my pros and cons.

\_\_\_\_\_\_ I would rather spend the weekend in a secluded hut in the woods than in a posh restaurant

with a lot of people.

\_\_\_\_\_\_ I think I have a strong will and that I am independent.

\_\_\_\_\_\_ I keep my personal diary.

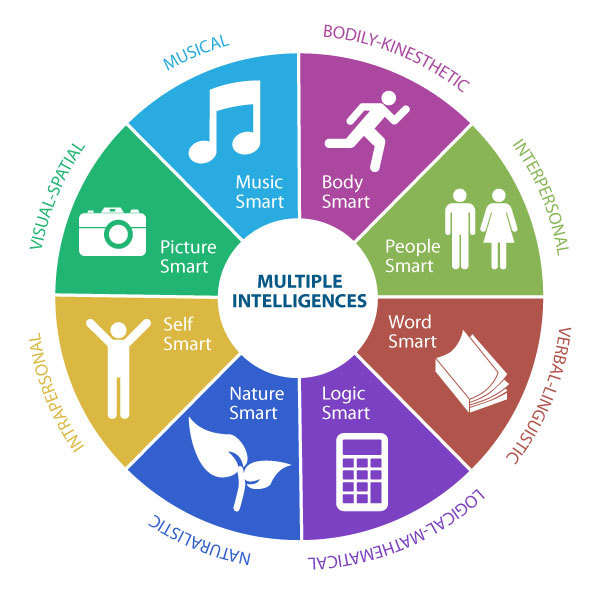
\_\_\_\_\_\_ I like to find jobs to do on my own.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Type of intelligence | 1. | 2. | 3. | 4. | 5. | 6. | 7 | 8. | 9. | 10. | total |
| I. Linguistic |  |  |  |  |  |  |  |  |  |  |  |
| II. Logically mathematical |  |  |  |  |  |  |  |  |  |  |  |
| III. Spacious |  |  |  |  |  |  |  |  |  |  |  |
| IV. Physically - kinesthetic |  |  |  |  |  |  |  |  |  |  |  |
| V. Music |  |  |  |  |  |  |  |  |  |  |  |
| YOU. Interpersonal |  |  |  |  |  |  |  |  |  |  |  |
| VII. Intrapersonal |  |  |  |  |  |  |  |  |  |  |  |

**Emotional intelligence [[12]](#footnote-12)**

The concept of intelligence is not unambiguous and there are many theories and definitions that try to clarify it. Intelligence is most often defined as the ability to cope successfully in new situations, and the most well-known measure of intelligence is IQ - IQ. This measure tells us how much our intelligence is measured by intelligence tests and according to it we can achieve below-average, average and above-average results. It is to some extent related to success in school, but it cannot fully explain an individual’s success in school, or later in life. IQ tests are not good indicators because they cover only two types of intelligence - linguistic and logical-mathematical intelligence.

Gardner's model of multiple intelligences is one of the frameworks for observing student talents and potentials. According to the theory of Howard Gardner, an American professor of psychology at Harvard, there are different types of independent intelligences. He defines intelligence as "the ability to solve problems or design products that are important in a particular cultural environment or community." In its original form, this model had seven types of intelligence, and today eight of them are known: linguistic (skillful with words), logical-mathematical (skilled with numbers and logical reasoning), spatial, musical (skilled with pictures or graphics). representations), body-kinesthetic (skilled in movement, sports), interpersonal (you are OK), intrapersonal (I am OK) and naturalistic (in accordance with nature). The development of key competencies is more successful if students become acquainted with the above model of multiple intelligences and learn which of the intelligences are their strengths and which are their weaker side. Teachers can help students in this process. This concept is explained in more detail in Annex 4.axx. A questionnaire has also been proposed to help students discover the development of their own intelligences.



Picture 6. Gardner's model of multiple intelligences

**Application of the Gardner model in education**

There are schools that have organized their teaching and knowledge testing according to Gardner's theory of multiple intelligences. In the classroom, there are centers for individual intelligence with associated activities and tasks. When a topic is covered, teachers allow students to try out the same topic through different centres, and so when they test their knowledge, students have the opportunity to present what they have learned through the intelligence that is most developed for them.

*Example: If students are working on the history of Podgorica, a student with linguistic and musical intelligence can design a song about Podgorica, while a student with physical-kinesthetic and visual can visit a museum and report back*.

What is important for the application of Gardner's tory is to offer students several homework options within the teaching unit, which they can choose depending on their preferences.

*Every person is unique*

Because intelligences are independent of each other, each of us has our own unique profile, different intelligences represented to varying degrees alongside some that are dominant. Gardner's theory allows us to approach each individual individually and has therefore found its widest application in educational systems. It is especially important for the development of key competencies of each student.

It is the most important thing for the student:

* offer them various contents, activities and tasks
* give them the freedom to explore and discover what they are good at and what they like, and what they are not and what they do not like
* in areas where they are good and who like to provide them with additional incentives and the opportunity to develop

**Emotional intelligence**

In addition to the 8 intelligences according to Gardner's model, it is necessary to list Emotional Intelligence, as an extremely important intelligence for the overall development of a person and especially his key competencies.

Emotional intelligence refers to the ability to perceive, control, and evaluate emotions. Some scientists believe that emotional intelligence can be learned and strengthened, while others argue that it is an innate trait.

In 1990, Peter Salovey and John D. Mayer, leading scientists in the field of emotional intelligence, in their influential article “Emotional Intelligence” defined this ability as:

* ability to perceive, assess and express emotions,
* the ability to access and / or evoke feelings when they facilitate thinking,
* ability to understand emotions and emotional cognitions,
* the ability to regulate emotions for the purpose of aiding emotional and intellectual development.

**Four main areas of emotional intelligence**

Salovey and Mayer proposed a model that identifies four different factors of emotional intelligence:

1. **Perception of emotions** - the first step in understanding emotions is to perceive them accurately. In many cases, this could include understanding nonverbal cues, such as body language and facial expressions.

2. **Ability to use emotions rationally** - The next step involves using emotions so that they promote thinking and cognitive activities. Emotions can help us choose the priorities we will pay attention to and the way we will react.

3. **Understanding emotions** - The emotions we see can have a wide range of meanings. If someone is expressing angry emotions, the observer must interpret the cause of the anger and what those emotions might mean. For example, if your colleague is behaving angrily, it could mean that he is dissatisfied with his or your work, or it could be because he was fined for speeding on the way to work, quarreled with his wife, etc. Understanding emotions is very important for proper emotion management.

4. **Emotion Management** - The ability to manage emotions is a key part of emotional intelligence. Regulation of emotions, reacting appropriately and the ability to react to other people's emotions are very important aspects of emotional engagement and this ability depends on a person's overall activity and the success associated with those activities.

Emotional intelligence includes several important components:

* knowledge of one's own emotions,
* control of the intensity of emotions,
* motivating oneself,
* recognizing emotions in other people (empathy),
* establishing and maintaining healthy relationships with other people.

The scientific journal *Social Research: A journal for general social issues* brings a study that highlights the connection between positive psychology and the concept of emotional intelligence. Namely, positive psychology is a branch of psychology that emphasizes the optimism and positive aspects of human functioning, which in today's psychological profession is quite neglected due to the appearance of numerous psychopathological characteristics and difficulties in mental health.

There is evidence that emotional intelligence is associated with positive psychology and that it is extremely important to encourage and discover the positive characteristics of people. In other words, instead of criticizing a student or colleague for doing something in their own way rather than the way they were told, one can try to find out if there is something good in his way of working and praise him for what is good, but emphasize to think a second time about the proposal of a colleague, teacher, parent. A person is not told that he is "bad" or "good" but whether his behavior is "good" or "bad." It is an example of the simplest form of encouraging the development of emotional intelligence that is permeated through the everyday way of communicating and interacting with other people, especially in rdau with students. A more optimistic view of the world relieves you of additional stress and numerous negative emotions, and at the same time it can be useful in understanding your own and other people's emotions.

People with high emotional intelligence generally manage their emotions well, speak clearly and directly about them, and know how to explain their emotions. As a result, people with high emotional intelligence never allow themselves to be overwhelmed by negative emotions (fear, anger, rage, sadness, guilt) because they are able to understand the causes of such emotions and use them for positive action. People who have more developed emotional intelligence are more successful in many areas of life, especially in business ones. The scientific journal *Ekonomski pogled* brings a study that emphasizes the connection between emotional intelligence and successful business management. In relationships with other people, people with high emotional intelligence get along great. One of the reasons is precisely the fact that they correctly interpret and, more importantly, react correctly to other people’s emotions, which is an important trait in interacting with other people.

In contrast, people with low emotional intelligence tend not to speak and analyze their feelings, to feel guilty about wrong moves for a long time, avoid accepting responsibility for their actions, are insecure, pessimistic and tend to shift the blame to other people. In general, people with low levels of emotional intelligence have problems in different areas of life. They are generally not successful in the business world and do not have a quality social life. Those who manage to establish a close relationship and enter into a relationship or marriage usually break off the relationship after a short time due to a lack of a mature emotional aspect. People with low emotional intelligence often have a very small circle of close friends due to reduced empathy, i.e. lack of sensitivity to other people's feelings, and due to difficult acceptance of new things and phenomena.

**Developing emotional intelligence**

Emotional intelligence is something that can be developed during life thanks to the work and experience of an individual. In addition to the existence of specialized concepts and programs for the development of emotional abilities and skills for different groups of people, there are also numerous efforts to improve the education of professionals about the importance of positive traits of individuals.

In addition, emotional intelligence can be observed in all aspects of human life, and its development is most contributed by the development of key competencies during growing up and formal education, from kindergarten to its completion.

In recent years, there has been a marked increase in interest in the development of social and emotional skills such as problem solving, decision making, emotion regulation, emotion recognition, behavior management, and so on. which are also parts of the qualifications for all key competencies.

What scientists especially emphasize in the development of emotional intelligence is precisely that it is necessary to constantly invest effort over time to increase the level of emotional intelligence.

We can harmonize, connect and combine the teaching contents with the teaching contents of other subjects, revealing the connections between them.

One teaching topic can be treated as a teaching unity, ie the embodiment of two or more components, such as art, music and literature. If such unification is achieved on the basis of a common goal, then we can speak of integrated teaching

In such an inseparable teaching unit, students alternately and sometimes simultaneously listen, for example, to a patriotic literary text, a patriotic composition, observe patriotic works of art with the task of exploring and finding similarities, similarities and differences in these three artistic media.

Such a comparative approach will result in a methodological unity in which there will be no clear artistic-literary-musical triad, nor will any part of the teaching process be torn apart as an independent unit, independent of others, without disturbing or destroying the teaching unit.

COLLABORATIVE RELATIONSHIP in an integrated mode helps the student to discover the connection of phenomena in life… learns by watching, listening; by research and analysis.

Performing this way of teaching requires much more preparation; appropriate conditions.

The atmosphere should be such that students and other participants in the process feel safe and relaxed. A prerequisite for ACTIVE learning is that the content to be adopted is fun, interesting, motivating. It is the obligation of teachers to creatively design teaching work with an emphasis on a cheerful atmosphere. The presentation of teaching contents takes place in a fun and interesting way, which is achieved by changing activities and tasks. It is very important to prepare students, explain their goals and tasks, give them clear and appropriate instructions on what is expected of them.

Mutual communication - verbal and non-verbal is very important.

Spoken expression is full of tolerance, respect for the right to diversity, there is no coercion, no prohibition, everyone has the right to express their opinion. Such communication is a prerequisite for non-violence, tolerance and results in a quality relationship between students and the student-teacher relationship. The role of the teacher is to instruct ACTIVE listening (listen while others speak; give a signal when you want to speak; adjust your voice)

A comfortable and appropriate working environment is a basic prerequisite for the success of an integrated day.

Teaching situations change, so it is necessary to adjust the layout of the benches; there should be free space in the middle for working in a circle and carrying out other forms of work: mutual agreements; conversations; games; watching screenings, listening to music…

The success of the integrated day was questioned without the necessary accessories and materials to work with.

Teachers, students and parents participate in collecting the necessary accessories and various materials (student maps, audio and video cassettes, magazines and educational stories, newspapers, picture books, TV, DVD, computer, dolls).

Teacher preparation requires the use of many sources of knowledge and careful selection of content, methods and forms of work in accordance with the set goals and objectives of the day. The preparation of an integrated day is more comprehensive than the preparation of any other teaching day.

The connection with other subjects should be constantly present in the educational process, and it is especially evident in integrated topics when the curricula are intertwined between subjects. An integral part of the day in which a certain topic is covered in all subjects is singing, drawing, games, relaxation and stretching exercises, listening to music, expressive reading and re-quoting, watching movies, working on a computer, making posters, picture books…

Successful people are distinguished from unsuccessful people by the following individual emotional competencies:

* SELF-AWARENESS (emotional awareness, accurate self-assessment, self-confidence)
* SELF-CONTROL (self-control, credibility, conscientiousness, adaptability, innovation)
* MOTIVATION (striving for achievement, commitment, initiative, optimism)
* and social emotional competencies:
* EMPATHY understanding of others, support, customer orientation, reliance on diversity, political awareness
* SOCIAL SKILLS influence, communication, conflict resolution, leadership, encouraging change, making connections, cooperation, ability to work in a team

Emotional memory is our reservoir of wisdom and judgment. That ability is at the core of self-awareness. Emotional awareness is an understanding of how emotions affect our work and the ability of our values ​​to guide our decisions. Realistic and objective self-assessment is a sincere sense of our own personal strengths and limitations, a clear vision of what we want to improve, and the ability to learn from experience. What we all have in common is the pursuit of denial, an emotionally pleasurable strategy that protects us from the shocks that come with acknowledging an unpleasant truth. The defence takes many forms such as underestimation of facts, omission of crucial information, rationalization, and “good apologies.

Self-confidence is courage that comes from being confident in your abilities, values ​​and goals and a strong sense of your real value and competence. People with this ability confidently represent themselves and have a "presence", can express unpopular views and sacrifice for what is right, are determined and able to make strong decisions despite insecurities and pressures. Highly confident people radiate charisma, instil confidence and inspiration. In addition to self-confidence, we also develop self-efficacy, confidence in what we can do with the skills we have».

Self-control is emotional self-control is not the same as excessive control, suffocation of all feelings and spontaneity. There is a physical and mental cost to excessive self-control. When we are under stress, the emotional brain interferes with self-protection intended for survival. Cortisol, a stress hormone, has a role to play in implementing a primitive survival strategy and sharpening the senses while dulling the mind. The brain initiates the activity for which it is best trained. Self-awareness is a crucial skill when it comes to stress. Simply becoming aware of heated feelings can have beneficial consequences. The more accurately we manage to track our emotional distress, the sooner we will recover from the trouble. In some cultures, they encourage a model of concealing negative feelings, which can maintain a calm relationship but harm the individual.

Credibility springs from honesty. Credible people show their values ​​and principles, intentions and feelings, and act in accordance with them with confidence. They do not hide their mistakes and warn others of their mistakes. What matters is the ability to react flexibly, the willingness to accept new, even painfully uncomfortable situations without escaping into a defensive position, and the strength to act quickly. Conscientiousness is the foundation of success in all areas, but when it takes the form of insensitive fulfilment of expectations, it can become a hindrance to creativity.

Change is the only constant in the world of work today. People who lack adaptability are ruled by fear, anxiety and deep personal discomfort due to change. When things go wrong, we panic, go back to the old way of solving problems, and resist adaptability. Flexibility, which is key to maintenance, depends on emotional strength. Innovative people quickly understand which issues are most important and simplify problems that seem overly complex. People without this ability do not see the bigger picture and get entangled in small things, thus solving complex problems very slowly and with effort. For fear of risk they shy away from new Great work and learning begin with great emotions. And when we are engaged in an extremely demanding task, our brain still operates at the lowest level of energy consumption.

People with the ability to strive for achievement set challenging goals and take calculated risks. People with initiative act before external incentives force them to do so.

Commitment is emotional, we feel a strong connection to the goals of our group when they match our own goals. Students need a clear sense of belonging to the school. Then they are extremely committed to doing their school assignments and much more motivated to work and get better results.

## **4c: Suggestions for classroom seating arrangements**

**1. U- shape** – this is an all-purpose form. Students have a reading / writing area, can see what you are showing them and can look into each other's eyes. It is also easy to gather students in pairs, especially if there are two chairs next to one bench. This layout is ideal for quick division of material because you can enter the U-shape and approach all students equally. You can place benches, chairs with writing handles or tables in a U-shape.

Make sure there is enough space so that subgroups of three or more members can pull away from the benches or tables and sit facing each other.

You can also move chairs, benches or long tables to a U-shape by making a semicircle.

**2. Team work - fishbone:** A group of tables in the middle of the classroom allows you to promote team interaction. You can place chairs around the tables for a completely intimate atmosphere. If you do so, some students will need to turn their chairs when needed - to see the teacher as he explains something, to be able to read something from a board, projection, or large block.

Also, you can arrange the chairs half-turned so that no student is facing the back of the board or you.

Teacher’s table

**3. Conference table:** It is best when the table is rectangular in shape. This schedule diminishes the value of the teacher and enhances the value of the students. A rectangular desk can create a sense of formality if the teacher is placed at the head of the desk.

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If the teacher sits in the middle of the longer side, the students sitting at the ends will again feel somehow excluded.

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You can make a conference table by assembling a few smaller tables and leaving the middle empty.

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**4. Circle:** Simply placing chairs in a circle, without benches or tables promotes the most direct face-to-face interaction. The circle is ideal for whole group discussions. Assuming we have enough space, we can ask students to arrange their chairs very quickly into small groups.

If you want your students to have a writing surface, you can place the tables at the end or the edge of the circle. When you want a discussion, have students just turn the chairs toward the center.

**5. Group to group:**  This arrangement allows for the development of discussions or the setting of a role play, debate, or observation of group activities. The most typical design consists of two concentric circles of chairs. Or you can place a large table in the middle and surround it with two circles of chairs.

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1. **Working stations:** This arrangement contributes to an active environment that is more of a laboratory type, where each student sits at their “station” and solves a specific task (e.g., working on a computer, with laboratory equipment, etc.) immediately after some content is demonstrated. A wonderful way to encourage a learning partnership is to place two students on the same “station”.

**7. "Dispersed" groups:** If you have a large classroom or you can use another space, (in advance) place benches and / or chairs in the far corners of the room. Subgroups will go there to perform their team-based learning activities. Keep such “boxes” far enough apart so that students can work smoothly. Of course, you should also think about the fact that the teacher should monitor the situation, and students should not be without any contact - so far enough but not too far.

**8. Letter V upside down:** The traditional layout of classrooms (rows of benches) in no way promotes active learning. When there are over 30 students in the classroom and we only have rectangular benches, sometimes we just need to arrange them in a classic way, in a “classroom style”. Still, something can be done! With a V-shaped layout, we get less distance between students, better frontal visibility, and more opportunities for other students to be visible than when the layout is classic, and students look at each other in the back of the head. With such a layout, it is best to leave space for passage further away from the centre.

**9. Traditional classroom:** If there is no other way you can arrange the benches, try to gather the chairs in pairs so that you can use the learning partners in the classroom. Try to arrange an equal number of rows and enough space in between so that pairs of students in odd rows can turn their chairs to create a quartet with the couple sitting right behind them in the next row.

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**10. Auditoria:** Although the audience is actually an environment that limits active learning, there is still hope. If the seats can be arranged, place them in an arch so as to create greater closeness and allow students and the teacher better visibility and visibility.

If the chairs are attached, ask students to sit as close to the centre as possible. Be persistent and clear in your request; even consider separating auditorium sections with empty rows or chairs. Remember: no matter the size of the audience and the size of the audience, you can always pair students to use learning activities that involve partner learning.

## **4d: Proposals for formative evaluation procedures**

Each lesson or planned activity in working with students, requires checking the achievement of planned goals and / or learning outcomes. It is a fundamental principle of the quality cycle in education, as well as evaluation being an integral part of the curriculum. Teaching / activity that includes education for key competencies should be checked and their achievement. In this way, the teacher receives feedback on student performance, which is able to predict future activities and work with students, and students can become aware of how successful they are in achieving certain key competencies.

The attached suggestions for formative evaluation show that all common ways of checking student achievement can be formative, if the student is provided with oral and / or written feedback and the student is **motivated for additional work and improvement of results achieved so far and for key competencies, but and for all other goals of teaching and other activities in working with students**.

The following are suggestions for various forms of formative evaluation that can be used in working with students, of course with the provision of feedback on everything the student does in accordance with the given task, and in accordance with pre-defined and known quality criteria.

1. **Homework**: refers to tasks that teachers have given to students and that need to be done outside of class. Common homework assignments may include learning / thinking / practicing to achieve key competencies according to a particular chosen outcome (s) for one or more key competencies such as taking notes, writing, problem solving, creating a school / extracurricular project, or practicing certain skills.

2. **Group work**: a form of cooperative learning. Its aim is to emphasize individual strengths, develop students ’knowledge and their transversal skills (e.g. communication skills, collaborative skills, critical thinking skills) and attitudes.

3. **Quiz**: asking short and informal questions that are usually asked in class.

3a. **Partner Quiz**: Pair students together and ask an open-ended question to solve. Once the couple has answered the question, each student can work independently on a question related to the same concept. Collect answers, present them, and give oral feedback on the answers given.

3.b. It is also possible to **use online tools** (e.g. such as Quiz Maker and Hot Potatoes), in a way to prepare questions in advance from which a short quiz can be formed for the student to check what he has learned but also to give the teacher feedback on student achievement in relation to what is planned to be achieved

4. **Oral presentation**: a performance that requires the student to use their oral skills to verbalize their knowledge.

5. **Debate**: An activity that one student or group of students versus another student or team of students with logical argumentation of the problem.

6. **Oral examination**: a focused process that asks students to answer questions.

7. **Observation and monitoring**: This is usually an informal way of monitoring student work when the teacher gathers information by observing how students communicate with each other, talk, work, play, etc. Through observation, the teacher can collect data on behaviours that are difficult to assess by other methods (attitude towards problem solving, ability to work effectively in a group, persistence, concentration and completion of tasks).

8. **Dance / movement**: an activity that requires the student to move rhythmically to the music using prescribed or improvised steps and gestures.

9. **Gymnastics / athletic competition**: an activity that requires the student to participate in sports. A list of criteria for assessment and assessment, scoring sections and a description of progress can be used (including the engagement and relative progress of each student from the beginning to the time of the assessment).

10. **Dramatic reading**: an activity that requires the student to combine verbalization, oral, and eloquence (voice production) skills in reading a passage of written text.

11. **Role play**: an activity that requires the student to act. For example, students can dramatize their understanding of fictional characters or historical figures, acting as a role that shows ideological positions and their character characteristics.

12. **Interview**: a process in which a student is expected to answer questions concerning their learning.

13. **Music recital**: an activity that requires the student to perform music in front of an audience (e.g. singing, rapping, beating rhythm, playing an instrument, selecting and combining music, etc).

14. **Flowchart**: A response construction technique that requires students to provide a visual schematic representation of a series of operations.

15. **Graph / table**: a technique that requires students to provide a visual representation of numerical relationships.

16. **Illustration**: a technique in which a student uses a visual representation to clarify or explain things (objects, people, events, or relationships).

17. **Story / play**: a technique that requires students to write part of a play.

18. **Poem**: An activity that expects students to write a composition in verse, not prose.

19. **A student portfolio** is a systematically collected set of evidence (written assignments, sketches, works of art and presentations, notes on books read, movies watched, projects implemented, etc.), which the student has collected during the learning and research process in a given period to raise awareness and showed what he did and achieved, (facts, understanding, application and synthesis of principles, concepts, etc). The student's portfolio should also include a review of their own work, developed competencies and achieved results. The teacher reviews the portfolio and gives the student feedback on the development of his competencies, his progress and objectivity in self-assessment.

20. **Model making**: an activity that requires the student to prepare a model, usually on a reduced scale relative to the actual, usually larger object.

21. **Exhibition of works**: the student creates a work by which he expresses his artistic ability and which he prepares for public presentation.

22. **Scientific project**: an activity that requires the student to plan, implement and represent a scientific research venture.

23. **Matrix**: a technique that links the matching of two or more data sets. Elements of one sequence correspond (e.g., scientists, famous people, and important events) to elements of another sequence (areas of work, time/period). The student should select one or more data from the first list and link them to the data from the second list.

24. **Performance assessment tasks**: Performance assessment tasks consist of three parts: the task, the form in which the student should solve the tasks and the pre-defined scoring system. Students can complete the task in front of the committee or use a written questionnaire. The student then scores himself by comparing his problem solving with the prescribed criteria and compares his assessment with the commission's assessment, draws conclusions and creates a plan for improvement.

25. **Video / audio performance**: an activity that requires students to produce a video and / or audio recording, focusing on mastering skills, applicable in real life.

26. **Conference**: an activity that involves a student meeting with a teacher and / or other students to express and exchange opinions.

27. **Process description**: a technique that requires the student to explain something he is doing while doing it. For example, a student may describe a procedure he uses to subtract two numbers. This technique is most commonly used in the first cycle of education (ISCED1) as an informal, less structured evaluation to provide teacher and student feedback on student achievement.

28. **Thinking Aloud**: An approach to exploring the mental processes involved in a task or other activity in which students are expected to describe thought processes while performing a task or thinking about something that interests them. It is a process that requires students to talk about what they think while trying to solve a problem. It is usually used as an informal and less structured evaluation to give the teacher and student an insight into what has been achieved.

29. **Learning diary**: a procedure based on a student's written record of what he has learned about a subject, skill topic, principles, concepts, or the like. It is usually used as an informal but valuable formal evaluation activity to provide teacher and student feedback on achievement.

30. **A text completion test is an exercise**, test, or evaluation that consists of filling in a text with words removed from the text. This task involves the ability to understand context and vocabulary in order to identify the correct words or types of words that belong to deleted parts of the text. This exercise is typically used to assess key literacy or multilingual competencies.

31. **Assembling parts of the project as a whole**: each member of the group is asked to complete some part of the task; when each member completes the task, the parts need to be put together into a meaningful whole thus completing the project.

32. **Summary of the book**: students are given different books appropriate to their age and they are asked to tell what they have read from the book, talk about what they have learned from the book, etc.

33. **Definitions** and their applications - In groups, for selected definitions, students list the associations and applications of terms related to them.

34. **Crossword** - Make a crossword puzzle as an exercise for students to complete terms, definitions, or terms at the end of class or in preparation before a test.

35. **Trial** - Divide the class into different groups and assign them roles (including witnesses, jurors, judges, lawyers, defendants, prosecutors, and the audience) to discuss the controversial topic.

36. **Concept map**: a graphical representation of the relationship between concepts (phrases or sentences). In other words, it is a diagram of nodes containing concept labels that are associated with labelled directional lines. Conceptual nodes are arranged in hierarchical levels ranging from general to specific concepts. Students are expected to explore the connections between two or more related concepts.

37. **Four corners**: Gather the students in the middle of the room and read aloud the multiple choice questions and their possible answers. The students then move to an angle that represents what they believe to be the correct answer. The upper left corner can be option A, the lower left can be B and so on.

38. **Three abstracts**: Test your understanding of a new topic by asking students to write three abstracts that best characterize the topic covered. The first should have 10 to 15 words, the second 30 to 50 words, and the third 75 to 100 words.

39. **Answer, submit, evaluate a randomly selected answer**: ask a question with an objective answer that can be explained in a few sentences. Students respond to papers on which they should not write their names. When you collect the papers, pass them on to the students at random. Explain the correct answer and ask students to rate the paper they received.

40. **Marking**: Each student reads the same passage or source and marks sentences that seem important or interesting. Divide the class into groups. Based on what has been highlighted, each group should be able to determine the main idea or theme of the text, providing an explanation so that you can determine the general level of understanding achieved.

41. **Stop / Go**: The teacher allows the students to give him feedback during the lesson, about his understanding with the “stop and go” cards. These are double-sided cards - one green and one red. Students should have the green side facing the teacher if they understand everything. Red indicates that the student is no longer following, so it is necessary to stop and clarify vaguely.

42. **Metacognition scheme**: At the end of the lesson, unit or activity, as well as before the test or summative evaluation, gaps in students' abilities can be identified so that students answer certain questions on a given topic. Sheets of paper are distributed in response to the following: (a) “Summarize the topic”; (b) "How and where can you apply what you have learned?" and (c) "What other questions do you have about this topic?"

43. **Tickets and exits**: Teachers should give students five minutes to write a ticket or exit ticket, related to the previous and immediate future topic. In this way, it is easy to see how well the students have mastered the intended.

44. **Two roses and a thorn**: this is a feedback exercise to help determine the topic and way of working for the next class / activity class. Each student should record two topics or concepts that they enjoyed during class, and one that they have not fully mastered or is still unclear to. If students share the same problems, this may indicate the need to re-examine the topic or change the approach to their learning.

45. **Countdown**: this activity can be carried out if the previous one does not give the teacher clear enough feedback. Students should list: (a) three ideas or concepts they have learned, (b) two ideas or concepts that surprised them, and (c) one thing they want to do based on what they have learned. The answers should show whether the students have mastered the anticipated to a sufficient extent or it is necessary to stick to it.

46. ​​**Projects**

Students can design a large number of projects to show the level of key competencies achieved. For evaluation purposes, projects do not need to be large or complex. It can take a day, half a day or even an hour. Here are some ideas for student evaluation projects:

* Make a poster or collage illustrating the learning outcome achieved for the key competence
* Record a rehearsed video, video, song, discussing key competencies
* Design your own short tests to test each other
* Design and present papers prepared by students on the topic of key competencies

# Anexx 5: Examples of activities for developing key competencies

## **Scientific and technological revolutions**

Type of activity: thematic planning

Key competencies:

Subjects: natural and social sciences

Age: primary and secondary school

In today's school, there is not one big and important topic that is probably the key to the development of the thoughts of an independent and informed person: there is no history of science. How human thought and knowledge about the world around us developed is the most important experience of civilization. If humanity were to preserve a few of the most precious sentences from its history, it would very likely be some knowledge from the history of science. Popular science books very often use the history of science as inspiration for thinking about us, about the world around us and the way we discover that world. Stories from the history of science tell us a lot about the way of life, about people's motivation, their priorities, about people's virtues, but also about their shortcomings. Some general places of today's civilization, e.g. the assumption that the Earth is round, that the Earth revolves around the Sun, or that microbes cause disease was not a harmless social phenomenon. The change of the scientific view of the world entailed great social changes, sometimes due to technological innovations, and sometimes due to a paradigm shift. Even very justified changes in behavior found it difficult to cope with culture, social hierarchy and tradition. A typical example of such a change is the story of Ignaz Semelweiss and the painstaking persuasion of doctors to wash their hands because they may be carriers of the infection. Nor was it as simple as any other innovation that encroaches on the established pattern of behavior. Because of their views of the world, many thinkers ended up in dungeons, sanatoriums, bonfires, or, at best, were excluded from the scientific and social establishment.

Although it would be logical for the history of science to find its place both in the subjects of natural sciences and in history, this happens very rarely. History is full of rulers and wars, and the teaching of natural sciences is full of professional terms and formulas. The history of science as presented in Karl Sagan's "Cosmos", Milutin Milanković's "Through the Universe and the Ages" or Juval Noah Harari's book "Sapiens" is always an inspiration for learning science and science. Human stories about discoveries, about their delusions, mistakes, hopes and disappointments are a kind of demystification of science. Most of the key competencies in the fields of natural sciences, technology, engineering and mathematics can be developed through conversations about how we learned something. All these competencies were already a problem for someone, which they more or less successfully solved. If the class discusses the dilemmas of scientists who made the nuclear bomb, or the rivalry between Darwin and Wallace, or why Rosalyn Franklin did not win the Nobel Prize for discovering the structure of DNA, it is all exceptional material for developing views on the relationship between science and technology , ethics and value systems. Similarly, lectures, talks or independent papers on the discovery of penicillin or fertilizers can analyse in detail and show the impact of scientific discoveries on the quality of life of ordinary people, on global demographic change and the development of civilization as a whole.

  
 **Picture 7. The trial of Galileo Galilei**

## **Organization of a school science festival**

Type of activity: extracurricular activity

Key competencies:

Subjects: natural sciences, civic education, entrepreneurship

Age:

Science festivals in cities, colleges and schools are extremely popular in Europe. The opportunity to see demonstrations of scientific principles and their applications in combination with attractive lectures, well-designed exhibits and stage performances opens the possibility for active engagement and teamwork of a large number of pupils and students.

Science, especially science at school, is not particularly attractive to most students. That is why the organization of a science festival is a special challenge. It is necessary to make science attractive while maintaining objectivity and impartiality in the interpretation of natural phenomena. The teams that organize science festivals are mostly made up of students and teachers, but they need the support of sponsors and professional associates. Therefore, the list of activities that need to be carried out for a science festival to be successful is quite long: gathering and training a team of participants who would be demonstrators at the festival, finding adequate space, finding collaborating institutions that could borrow or rent equipment needed for the festival, finding attractive lecturers who would give lectures during the festival, finding sponsors for current expenses starting from repro-material, marketing activities in terms of attracting audiences, organizing festival visits, charging for advertising space and maybe tickets, etc. Certainly, the team that organizes the festival must be diverse. Working in such a team develops many different competencies from entrepreneurship, teamwork, business model making, event management and other social competencies to discovering phenomena and processes in the natural sciences, as well as recognizing the essence of the scientific method.

It is not only the natural sciences that are interesting for the festival. Social processes are equally attractive for presentation at the festival, e.g. modelling traffic jams, stock market operations, spreading fake news, etc.

## **Writing compositions from the native language in a word processor**

Type of activity: thematic planning

Key competencies:

Subjects: Mother Tongue, Foreign Languages

Age:

The written task in the mother tongue is traditionally taken by writing the composition with a ballpoint pen in an A4 format exercise book. Although the purpose of this task is to examine the writing skills of the composition, the style of writing and the ability to present ideas on a certain topic, the form of the task is very rigid. In most cases, the use of only a blue ballpoint pen or pen and a specific paper size is allowed.

Without going into literary forms and compositional topics that often do not correspond to what the challenges of writing are for most people today, insisting on a paper-pencil test is certainly not appropriate to reality. Writers always write their CVs, scientists write their CVs, journalists write their CVs, engineers write their CVs, lawyers write their CVs on a computer using a word processor such as MS Word, Google Document, etc. Writing skills in a word processor are significantly different from writing skills on paper. Here it is important to use the appropriate keyboard, format the text, separate words and paragraphs, save the text in a certain format, use the spell checker, etc. These are all elements of key competencies that someone will assess in real life. These can be employers who read the cover letter, editors who have to decide whether to publish the text, investors who decide whether to invest their money in the project, etc. In those situations, something that no one taught us at school is suddenly evaluated. It doesn't have to be that way.

If one written assignment each year (not everyone had to) was on the computer and if the teacher reviewed and commented on the assignment using the same word processor, students would receive very meaningful feedback. Even if this written assignment is for (summative) assessment, comments and "track-changes" notes are very important feedback that encourages further learning.

By using a word processor for written assignments, we simultaneously develop numerous elements of language and digital competence while formative assessment becomes an integral part of the assignment. Moreover, the job of formative assessment does not have to be entirely on the teacher. If you use the "spell-checker" capabilities of a word processor, the computer will always give very useful spelling feedback.

## **Coin tossing and random processes**

Type of activity: experiments in mathematics

Key competencies:

Subjects: mathematics

Age: all grades of primary and secondary school

Understanding graphic representation of numbers is a skill that we develop experientially long before it becomes a topic in school. Card games, such as a board, involve "pulling the rails", which graphically represents the number of events that change and update as long as the game lasts. In school, graphical presentation of data is practically not done until the concept of histogram is introduced. There is no need for a special theoretical framework of graphic representation where we would then cite keeping graphic notes as an example. Historically, the retreat of rivers is the basis of prehistoric records of trade or recording data on the slave in these parts of our country. The use value of this method of recording data is still significant today. Data on random processes, such as radioactive decays, can still be seen in the laboratory diaries of nuclear physicists today as rivers. This graphic representation is close to us and intuitively clear for several reasons. That is why it should be used more.

[](https://balgarskaetnografia.com/images/VII.7._Рабош_ИЕФЕМ.JPG)**Picture 8.   
Raboš**

One example in which writing rivers would be the best way to record is the study of random events and their distribution. When we toss a coin, sometimes it is a "head" and sometimes a "letter". If we repeat the throw enough times, the number of one outcome will be approximately the same as for the other outcome. How that happens is always interesting to watch. Moreover, it is an activity that is fun for students. In particular, let each student roll a coin ten times and record the outcome after each toss. Discussion of why they generally have different results and thinking about what would happen if we repeated it a thousand times develop a probabilistic way of thinking, skills of graphical presentation and interpretation of data, understanding of random processes, etc.

A slightly more complex variant, suitable for high school students, is the example with throwing two dice. With one dice, all outcomes, any number from 1 to 6, are equally likely. When we roll two dice, the sum of the outcomes on both dice has a distribution that is not uniform. It is much more likely that the sum of the two dice will be 7 than 12. The exercise in which students roll the dice and draw the lines for the appropriate sum connects not only the previously mentioned graphical representation of data and probabilistic way of thinking, but also combinatorics and complex processes.

## **What if…**

ype of activity: thematic planning

Key competencies:

Subjects:

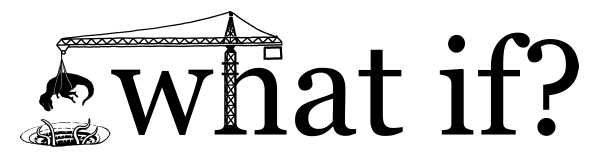
Age:

The tasks that are solved in school are always solvable. Also, the models studied in school are linear. When students leave school, they have the impression that everything is mechanistically computable. Changing an independent variable always causes a proportional change of the dependent variable. Problems in the real world, however, are very often not linear. A small change in an independent variable can have completely unpredictable consequences. Slightly higher throttle while driving can cause the car to slip and overturn. A slightly lower minimum wage in France could provoke months of protests and hundreds of injured in clashes between protesters and police. The effects or consequences of a change are not always easy to assess. We do not always know the limits of dependence as we expect. A car that pulls another car with a cable can accelerate. The faster the towing car moves, the faster the towing car will move. Of course, only until the cable breaks. We can't know exactly when that will happen. Therefore, one of the basic engineering competencies is to perform a thought experiment "what would happen if it happened". It is a hypothetical question to which we do not know a reliable answer, but we can assume roughly what would happen. Based on the knowledge of the system we observe, based on experience from similar situations and based on general natural and social laws, we can make estimates of what would happen if the state doubled the tax or if the world sea temperature rose by two degrees.

"What if" is not a simple mental exercise. It requires a lot of knowledge and willingness to analyse phenomena about which we do not have enough information. Students often feel uncomfortable in a situation when they are not on safe ground and need to solve hypothetical problems. However, it is through such activities that various competencies related to the scientific issue, to cause-and-effect relationships, to complex phenomena, decision-making in the absence of reliable information, sustainability of solutions, etc. are developed.

This activity is primarily intended for advanced and motivated students. Each teacher can make their own collection of SHBBKBB questions. If the problems are simple enough, they can also serve as icebreakers and thus arouse interest in learning about complex systems.

The book “What If? Serious Scientific Answers to Absurd Hypothetical Questions “Randall Munro is an excellent collection of such questions with detailed scenarios. The same material exists both as a website and as a YouTube channel.

[](https://what-if.xkcd.com/)

## **Fermi's questions**

## Type of activity: thematic planning

## Key competencies:

## Subjects: Natural Sciences, Mathematics, Economics

## Age: senior high school and college students

## The skill of scientists and engineers to estimate some quantities without a detailed calculation is a crucial quality for research planning and experiment design. Knowledge of matter, ie data and laws related to a phenomenon is a great advantage in their synthesis, ie planning further research, building models or designing innovations. Scientists, economists and engineers regularly use appraisal to check the feasibility of their ideas and projects.

## Fermi's questions (or Fermi's problems) were named after the famous Italian physicist, Enrico Fermi, who often asked his students questions that required judgment, common sense and the ability to calculate quantities that are very difficult to measure. He deliberately asked questions with a lack of information to get students to ask and ask for what they were missing. In these questions, the process is much more important, that is, the demonstrated argumentation and the course of thinking, than the result itself.

## Some examples of Fermi's questions are:

## How many ping-pong balls are needed to fill the classroom?

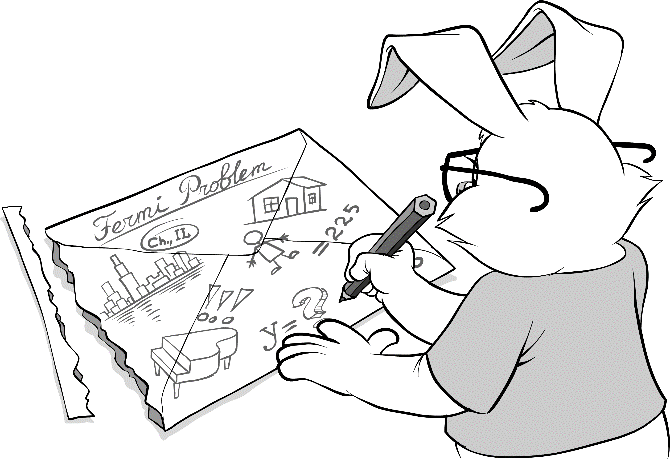
## How many litters of water does your school use in a month?

## How long would it take you to count to a million?

## How many blades of grass are there on the football field?

## As feedback, Fermi always gave students a demonstration of how making adequate assumptions, reasonable estimates, and simple calculations can lead to unexpectedly accurate results.

## Fermi's questions encourage creative thinking, probabilistic reasoning, curiosity, questioning skills and various problem-solving strategies.

[](https://accu.org/index.php/journals/2341)Teamwork to solve Fermi's questions is mostly quite fun. They think aloud about assumptions, discuss different approaches, criticize the assessments and thinking of others on the team, and correct their assumptions. A very important outcome of Fermi's questions is the development of the attitude that errors in assessment are a normal occurrence and that the ability to correct a mistake is more important than a mistake.

## **Photo**

Activity type: ...

Key competencies: ...

Subjects: ...

Age: ...

Photography is at the same time a scientific tool, and art, and commercial activity and practical activity of hundreds of millions of people who take pictures of everything around them every day and post pictures on Instagram, Facebook and other social networks. The number of photos we take per day far exceeds all other forms of expression except short written messages. Paradoxically, no one in school teaches us how to take photos, how to evaluate them, whether there are rules about what should be photographed and what should not, and what should be shared on social networks and what should not be.

An interesting and historical story about photography that is not mentioned in school because no one develops or fixes a film or makes pictures in a darkroom anymore. Nevertheless, many important scientific discoveries were made thanks to photographs: e.g. X-rays, asteroids and comets, elementary particles, just like technology: e.g. film, X-ray, ultrasound, etc. Today, we use CCD technology to detect photons on electronic cells, which is not taught in school. There is no mention of exposure, aperture, sharpness, contrast, depth… and yet we all take photos. If time were devoted to it, it would pay off many times over because it improves the skills of using the instrument with an inexhaustible range of possible applications and universal accessibility unprecedented in history. The cameras and video cameras that are available to everyone today can be a valuable teaching tool that can find its place in every school subject. In physical education classes, slow-motion video sequences can show why running techniques are not good, in biology classes, time-lapse sequences can show the flowering of plants, in history history classes, there can be testimonies about events that need to be described, etc.

School competitions or photo exhibitions on a specific topic are activities that engage students as researchers. Good photography requires researching the topic, the characteristics that need to be emphasized, looking for the situation in the conditions for a quality shot, etc. The organization of such activities generally does not require much more than what students and teachers already have. It is only a matter of good will to take action.

## **Data design**

Type of activity: thematic planning

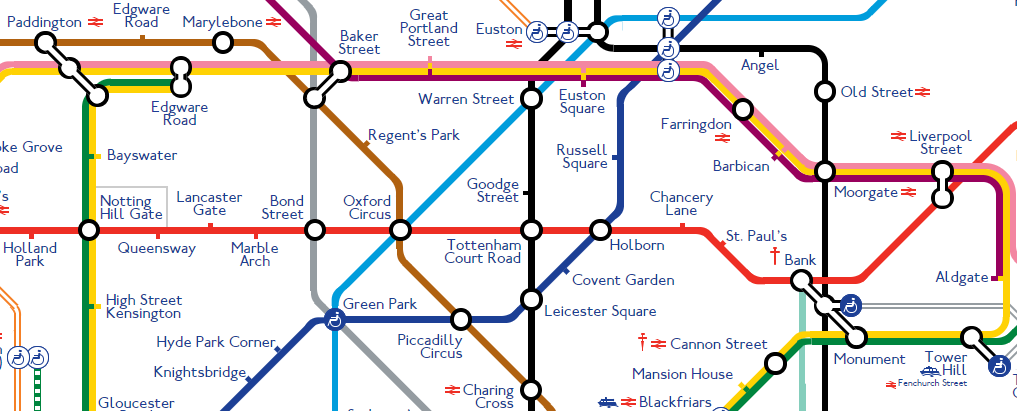
Key competencies:

Subjects: Mathematics, Art Education

Age:

There is an insurmountable gap between art education and mathematics in the curriculum. However, more and more artists are doing applied art, dealing more with the function of what they create than with aesthetics. In the era of social networks, large amounts of data and artificial intelligence, there is a growing need for graphical presentation of data, i.e. visualization. Few people at school do that. Some graphics are drawn in mathematics and physics classes, but perception and aesthetics are not mentioned anywhere. In art classes, drawing and painting are done, but never the topics are quantitative or qualitative data. In the industry, these extremes are encountered, for example in the field of design. It is interesting how data visualization can be a masterpiece of scientific research and visual communication at the same time. Examples from Edward Tafti's exhibitions are just that.

An excellent example of data design is the London Tube, i.e. a display of a map of the London Underground in which the most important data are displayed, cleaned of any unnecessary noise and at the same time reach a level of simplicity that everyone can understand.



## **Gaining immunity to fake news**

Activity type: ...

Key competencies: ...

Subjects: Civic Education, Mother Tongue, Foreign Languages, Psychology

Age: all ages

Spreading misinformation and hate speech is faster and more pervasive than spreading reliable and relevant information. This has been shown by numerous studies[[13]](#footnote-13), and we can say that we are witnessing this phenomenon every day. The consequences of the penetration of misinformation are most visible in critical periods such as the COVID-19 pandemic. At a time when we need rational behavior based on scientific research the most, social networks and the media are flooded with conspiracy theories, spreading fear of vaccination and resistance to technological innovations such as 5G mobile telephony. Scientific arguments are not enough to deny false news because the majority of the population, unfortunately, does not understand the logic and significance of science. That is why scientists are no longer authorities and their influence on the attitudes of citizens and public opinion does not have any special weight. People who build their influence on social networks on spreading false news have many more followers than those who try to be rational and impartial.

Research shows that there are great similarities between the spread of misinformation and the spread of the virus in the population. Fake news is transmitted from person to person through personal communication, social networks and media. Personal communication is the most critical because people give it the greatest importance. One should be careful and keep one's distance here, just like in an epidemic. In the 1960s, during the Cold War and the fierce American propaganda, on the one hand, and the Soviet propaganda, on the other hand, psychologists suggested that the fight against gullibility and delusions be conducted preventively. This means that we are not waiting for an "infection" with false news, so that people are explained that this is not true, but that people are preparing for false news, to learn how to recognize them and how to react to them. The idea is that resistance to false news is created through students' reactions to small, harmless misinformation. That, conditionally speaking, would be a kind of vaccination against false news.

Nobody likes to be told what is a lie and what is true, and such an approach always provokes resistance. Therefore, pedagogues advise that students be given a proactive role, to defend themselves from misinformation by learning to recognize them in time. With a superbly processed photo, for example, it is difficult to say whether it is real or not. That’s why it’s important for students to see poorly processed photos that someone has claimed are authentic. When students become aware that fake photos are not uncommon, then they will be more resistant to scams from Instagram or YouTube. Sometimes it is very difficult to distinguish what is authentic and what is not. That is why it is necessary for students to learn to take information from the media with reservations, to distinguish between sources according to their reputation and the credibility of the information they publish.

The number of topics where there is a possibility of spreading large-scale misinformation is huge and we cannot know which topic will be critical in the coming period. That is why we cannot prevent the prevention of "infection with false news" by topics. It is much more expedient to dismantle the mechanism of spreading false news and to shed light on the motivation of people to deal with it. Researchers from Cambridge who have researched this phenomenon suggest a "role-playing game" in which the focus is on strategies for making and spreading fake news. Through this game, students learn six different techniques for creating fake news: false representation, emotional exploitation, polarization, conspiracy, discrediting interlocutors, and "trolling." A simpler variant of this game that has shown significant results is [Bad News](https://www.getbadnews.com/#intro)[[14]](#footnote-14).

Understanding the mechanism of false news makes students less gullible and more cautious in accepting interpretations for various phenomena and events.

**Maturing scientific issues**

The whole of science is nothing more than a refinement of everyday thinking.

Albert Einstein

Type of activity:

Key competencies:

Subjects:

Age:

Scientific questions are the fruit of human curiosity and critical thinking. Not everything we are interested in is a topic that science would deal with. Not because some questions are not valuable enough for science to deal with them, but because they cannot be answered objectively and impartially. Many questions have to undergo numerous refinements in order to be sufficiently precise and carefully formulated so that we can answer them by observation, experiment, or experiment. In short, scientific questions are those that we can answer through research. Scientific questions are actually the same as research questions.

An activity that significantly develops scientific competence is an exercise in asking scientific questions. Asking good questions is a skill that develops in practice and that is what scientists are especially good at. We expect students to notice the differences between the questions that science could answer and those that it definitely cannot, implying that there are many nuances between that is not entirely clear. For a start, it is always good to give some historical examples of research, pointing out wrong questions, mistakes, corrections, re-attempts and, finally, scientific discoveries. Scientific questions, as well as those who ask them, mature over time.

The discovery of America was undoubtedly preceded by a question that Christopher Columbus asked himself, which we could formulate as: "If the Earth is round, it means that sailing west I will finally reach India, right?" can be answered by exploring and sailing across the ocean. The question also contains the assumption on which the expectation is based (the Earth is round) and a clearly defined hypothesis, ie. the expected outcome of the research (I will get to India) and, finally, the way in which this hypothesis could be tested (long voyage to the west). The most important elements of the scientific path are here. Columbus organized an expedition with the goal of testing his hypothesis, and we all know how it ended - he discovered America. Is that why his question is bad? She's not here. A negative result of good research is always better than if there was no experiment. We learn more from such research than that we have not even begun research. Columbus's question was just too simple a model to assume that there was nothing between Europe and India but a vast ocean. That was a wrong assumption, but it did not ruin the research. On the contrary. She motivated the research from which we learned a lot. Science works by testing bold ideas. Sometimes the hypothesis is confirmed, sometimes it is refuted. In any case, after that we know more and new questions open up for future research. Finally, this Columbus question has another very important property - verifiability. Whatever the result of his research, anyone else could verify by organizing an independent expedition. This is exactly what Amerigo Vespucci did, who determined that the land on the other side of the ocean was not India, but a completely new continent, which was later named after him. Columbus was wrong about the issue, but his unexpected result became a very important discovery. If he had had another chance, Columbus might have asked his question more carefully and precisely, but that is not so important. Science works by discovering nature step by step, by asking simple questions that can be answered by research. They are followed by new, more subtle and refined questions.

One of the most important outcomes of learning science is recognizing the domain of science, that is, the characteristics of the questions that science could answer. Science cannot answer questions concerning subjective experience, properties with insufficiently clear criteria, or events that cannot be observed. Science cannot answer whether a rose or an orchid is more beautiful, whether the world would be better if explosives were never discovered, or what happened before the creation of the universe.

A scientific question is a question that is verifiable. Questions about objects, organisms and events in the world around us are verifiable. They can be answered by experiment, observation or data collection by analysing measurable data and findings. Verifiable questions are those based on scientific ideas, not on opinions, attitudes and subjective judgment. The answer to a scientific question must be objective and impartial. Finally, the answer to a good scientific question always inspires the researcher to ask new, more precise scientific questions.

**Museum of Cognitive Experiences**

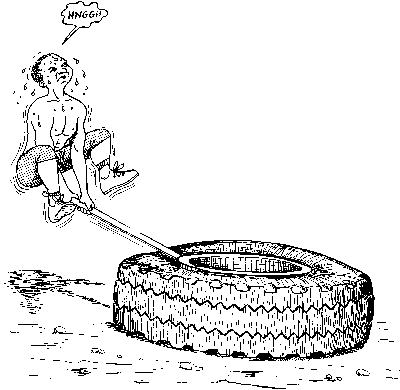
Type of activity:….

Key competencies:

Subjects: ...

Age: ...

Today's children no longer have many everyday and quite ordinary experiences with the application of basic physical principles. Pumping water in the yard, changing a tire on a bicycle, loading walnuts with pliers, measuring a watermelon on a scale or pouring brine with the help of a rubber hose were all ordinary actions that taught us basic physical principles through direct experience. Anyone who has ever poured liquid with the help of a hose does not have to be explained the principle of connected vessels. However, if there is no such experience, then even such simple things for students become an abstraction. On the one hand, it is good that we all have water in the house and we do not have to go to the pump in the yard. It is a civilizational achievement that makes our lives easier. On the other hand, this lack of direct cognitive experiences makes learning science much more difficult and students do not see what connection what they are learning has to do with the real world around them. Although we know that this connection is essential and that without the application of these principles no tool or machine would ever have been created, it is not obvious to the students.



Learning science in school is usually reduced to the reproduction of factual knowledge and solving applied mathematical problems. Such scientific knowledge is not enough to understand scientific concepts. No one has mastered these concepts just by reading books. This requires much more: observation of phenomena, examination of cause-and-effect relationships, performance of experiments, comparison of quantities, their measurement, systematization, interpretation of results, etc. Many of these activities can be done even by children in kindergarten, but there is usually no time for these activities either at school or at home. The experience gained by playing with magnets, pumps, gears, cranes and other "science toys" is key to motivating and understanding technology. In that way, the tendency towards independent discovery of natural laws and the possibilities of their practical application develops. Most often, those who miss the opportunity to make a windmill, a kite or an electric motor cannot see the practical meaning of theories, formulas and equations in those areas. Even less can they be inspired by science and creative in using their scientific knowledge.

There is no easy way to make up for everything that students have not experienced through play and self-discovery of nature. Although the problem of lack of "research and invention experience" is more pronounced in older classes, it is not realistic to expect that extracurricular activities in that period will make up for what was missed. However, creating an environment in which contact with science toys is a daily occurrence and where cognitive experiences are expected may help. Establishing a museum or science park would be a great initiative, but it requires large investments. In the absence of a museum or science park, each school could have small, cheap exhibits in the yard or hall of the school intended primarily for younger students with whom they could play on vacation, in the living room or even in certain classes and so with their own hands. and with their eyes they feel how physical principles work.

The list of scientific toys that could be found in such an environment is inexhaustible. Here, in addition to those mentioned earlier in the text, we can suggest a seesaw that does not always have to be centred, a robust winch that lifts a heavier load (e.g. a sandbag), a "telephone" consisting of a tight wire and two plastic cups of sour milk at the ends, different rod-shaped magnet structures, etc. For more ideas, check out the great books listed in the footnotes [[15]](#footnote-15) and [[16]](#footnote-16).

**Second pendulum**

Type of activity:….

Key competencies:

Subjects: ...

Age: ...

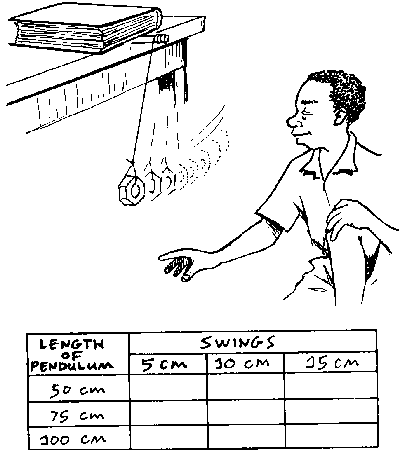
The skill of measuring combines many scientific and technical competencies, starting from factual knowledge to the ethics of working with data. Activities through which the skill of measurement is developed have very positive effects on the understanding of science and motivation for the application of science. However, measurements in school conditions require time, teacher commitment, measuring instruments and equipment that are not available in every school. These are all deficit categories due to which the annual plan generally remains unfulfilled.

Despite the fact that measurements can be fun and can be realized through group work, activities related to measurement are usually reduced to one detailed exercise, with rigid instructions on what, how and in what order should be done within one or two school hours. . Finally, this activity turns into a report for which students receive a grade without much feedback. It’s a great way to kill students ’enthusiasm and desire to discover nature.

The standard exercise for physics in high school is to determine the gravitational acceleration (g) with the help of a mathematical pendulum. This exercise boils down to measuring the period of oscillation for several pendulum lengths, drawing a graph and calculating a number that should be around 9.8 m / s². Whoever follows the recipe can't go wrong. It’s not very inspiring for students.

It is much more fun and probably more effective to make a competition between 5-6 teams in the department who will make the pendulum by making 60 oscillations in exactly one minute. In that way, they will use the equation that connects the length of the pendulum and the period, try to find the exact value of g, to see how it bothers them if the support point is not stable, to make a smaller deviation, to take heavier pendulums that will better tighten the thread. as heavier pendulums have higher inertia and last longer, etc. At the end of the class, a competition can be organized where each team is measured time for 60 oscillations and the winning team that is closest to one minute is sought. In this way, students see a practical application of abstraction known as the "mathematical pendulum".

Alternatively, they can make pendulums that make 30 oscillations per minute, that is, make one half-period - the pendulum crosses the path from the extreme left position to the extreme right in one second, as well as in the opposite direction from the extreme right to the extreme left. The practical reason for this change is that this pendulum is longer, so it is easier to adjust, as well as the fact that the period of oscillations is measured more precisely. In addition, there is an important historical reason for this variant: the first definition of the second was the time for which a meter-long pendulum made one half of the oscillation. The historical story on this topic is certainly very interesting[[17]](#footnote-17), if told at the end of the exercise. If the group is more motivated, at the beginning of the exercise you can ask them why π² is almost the same as the value of g. It is the same story with the second defined over a pendulum one meter long.



The mathematical pendulum is convenient for examining other laws as well. Many important characteristics of the pendulum cannot be noticed by the students because they are not found anywhere in the instructions for the laboratory exercise, and they are equally important for the development of scientific competencies. For example, the period of oscillation does not depend on the mass of the pendulum or on how much deflection of the pendulum we make at the beginning. Would students be able to show that the period of oscillation does not depend on the mass of the pendulum? How would you design that experiment?

# Annex 6: Examples of classes held (preparation for classes, evaluation, evidence of success for different levels of education)

*This Annex will provide a variety of examples for individual key competences or combinations thereof for different subjects, group of subjects or extracurricular activities, at different levels of education. Examples are collected from the teachers being trained.*

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METODOLOŠKO UPUTSTVO ZA REALIZACIJU MEĐUPREDMETNE OBLASTI PREDUZETNIČKO UČENJE

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TIMSS. PIRLS, PISA questions (lake CHAD)

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