

## Framework curriculum for the optional subject of Sustainability for grades 11-12, secondary schools in Hungary

Sustainable development is a process that uses the current resources of the wider and narrower environment in a way that safeguards, rather than diminishes, the opportunities, living space and quality of life of future generations. This framework is designed in the spirit of strong sustainability, according to which all human activities are fundamentally determined by the Earth's carrying capacity. As the natural and socio-environmental economy is a system, problems should not be considered in isolation, but in the context of these interrelationships, and sustainable solutions should be sought.

On 18 November 2010, the Council of the European Union adopted a Council Conclusion on Education for Sustainable Development<sup>1</sup>. It states that the most important role of education for sustainable development is to equip individuals and groups with the knowledge, skills, abilities and attitudes and behaviours to make informed choices that will enable them to shape a world fit for life, not only for themselves but also for future generations. The Council called on member states to take appropriate measures to encourage the further development and use of education for sustainable development, so that it is integrated into education systems at all levels. The *National Framework Strategy on Sustainable Development* adopted in Hungary in 2013 aims to integrate the values and practices of sustainable development into learning and education. The UN's *Transforming our World: 2030 Framework for Sustainable Development*, adopted in 2015, includes sustainable development goals for all countries and all sectors up to 2030 to ensure a sustainable future. Goal 4 relates to quality education, the target 4.7 aims to ensure that all learners acquire the knowledge and skills necessary to promote sustainable development.

This framework curriculum sets out the competency focus areas to be developed in a one-year, two-lesson-per-week subject. The knowledge elements needed to achieve the competencies and the learning outcomes to be achieved to prepare for sustainable development can be chosen in grade 11 or 12.

Sustainability is a priority area for development in the *National Curriculum*. The curriculum states that the next generation must learn to use resources consciously, sparingly and responsibly, with due regard for their capacity to renew themselves. Institutions should also be involved in this learning process, as school settings are an appropriate means of enabling pupils to exercise their civic duties and rights in relation to the environment, to learn about the economic and social processes that bring about change and crises, and to learn about, preserve and enhance the values and diversity of their immediate and wider environment.

Curriculum processing is based on students' prior experiences, everyday knowledge and the related subject content they have learned. The framework provides a framework for developing a reflective and exploratory approach. In this framework, learning outcomes are to be achieved by flexibly adapting the curricular content to local specificities, based on the place of application, the pupils' immediate and wider environment, their prior knowledge and interests.

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1 <https://eur-lex.europa.eu/LexUriServ/LexUriServ.do?uri=OJ:C:2010:327:0011:0014:HU:PDF>

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Sustainability develops the key competences set out in the National Curriculum in the following ways:

**Learning competencies:** sustainable development is itself a continuous learning process - the study of the interrelationships between nature, economy, society and the individual, often based on everyday experience. Students will practice research methods while acquiring research attitudes and behaviours and learning criteria of credibility.

**Communication competencies:** identifying, interpreting and finding group solutions to complex problems resulting in unsustainable processes, using the methods of argumentation, discussion, exchange of views, debate and debate, develops both oral and written expression. It encourages students to learn to summarise their opinions, to support them with arguments, to consider the opinions of others, to discuss and to seek solutions together.

**Digital competencies:** the exploration of global and pervasive processes and problems relies on multiple data from around the world, but the processing of local, national or regional data, the making of forecasts, is increasingly possible with the development of computer models. The search for data and facts, the verification of their reliability, the interpretation of processes contribute to and stimulate the development of digital competences. The acquisition of competences for sustainable development requires continuous self-examination and research. This in itself encourages research, evaluation and presentation of research results by exploiting the potential of the Internet and multimedia modelling. Digital literacy has a key role to play in understanding natural processes (e.g. climate models), in the continuous observation and monitoring of environmental problems and values, and in the exchange of ideas between people, which are also key areas for sustainable development.

**Mathematical, thinking competencies:** thinking in systems, making connections and relationships, systematic and analytical thinking are developed when examining areas such as climate change, healthy eating, or ecological footprints. Most problem areas lie at the interface of many disciplines, the identification and analysis of their common set and interrelationships require a logical mathematical approach, the ability to collect, analyse and prioritise data, and to interpret global and local statistical data. Systems thinking is an important element of engineering, science and ecological thinking: recognising and understanding interrelationships, analysing complex systems, considering the relationship of parts of systems to each other and to the whole, and dealing with uncertainty. Another important element of engineering, science and ecological thinking is foresight: understanding and evaluating multiple future outcomes (possible, probable and desirable); creating one's own visions of the future; applying the precautionary principle; estimating the consequences of actions; managing risks and coping with change. Reflection and problem-solving are essential elements of engineering, science and ecological thinking: examining and reflecting on routines, routines, accepted positions, formulating questions, reflecting on one's own values, perceptions and behaviour; formulating opinions and arguments in terms of sustainability objectives.

**Personal and interpersonal competencies:** in the course of their learning, students will encounter a wide range of tasks and exercises that should be solved using small group collaboration techniques. This develops key competencies itself. Collaboration and knowledge sharing are part of the personal and professional development of the learners, as defined in the National Curriculum.

interpersonal competences. Cooperation requires the ability to listen to others, to share attention and to change perspectives. Participation in the study and discussion of sustainability issues. Learning from others; seeking to understand the needs, perspectives and actions of others (empathy). Shifting perspectives: listening patiently to the arguments of others, formulating arguments supported by facts, seeking to resolve conflicts amicably. Creative contribution to group problem-solving. The exchange of ideas, the exchange of arguments is a way to develop the competencies needed to promote sustainable development, to exercise citizenship rights, to learn non-violent verbal and written solutions.

**Competencies for creativity, inventiveness, creative work, self-expression and cultural consciousness:** the curriculum also covers the home and the built environment. The themes of the curriculum also cover the home, the built environment, the built environment, the emotional elements of attachment to the home, and the experience of the home. Creativity is essential to solving sustainability problems, but environmental problems are themselves products of human activity, which is why self-regulation of learning processes, self-examination, exploring all possible solutions, is key, bearing in mind the precautionary principle adopted by EU Member States. Self-regulation of learning processes, self-examination in this context, is the ability to reflect on our own role in the local community and (universal) society; to constantly assess and maintain our commitment to action; to deal with our feelings and control our desires.

**Employability, innovation and entrepreneurship competencies:** Understanding the economic aspects and causes of phenomena and processes is also a key issue for sustainable development. The analysis of the characteristics of change can be linked to issues of career development, career guidance, anticipation of future and present worker competencies, and preparation for sustainable production and service. Project work, understanding problems in context, is useful both for starting your own business or NGO, or for carrying out public service tasks responsibly. An essential element of sustainability is the ability to think strategically: to think responsibly about the future, to set objectives, to identify simple problems, to analyse problems, to design solutions, to find solutions, to evaluate and to modify.

## Grades 11- 12

The aim of this optional subject in grades 11 and/or 12 is to build on the knowledge gained in grades 9-10, to develop knowledge about sustainability that can be applied in everyday life decisions, to develop a commitment to the sustainable development goals, and to develop the willingness and ability to act for sustainability. To this end, promote the acquisition of knowledge, skills, attitudes and behaviours that focus on

- individual responsibility,
- the interrelationship of local-regional-universal effects,
- understanding of the interdependent processes of the natural and socio-economic environment and the interactions of the problems that result from them.

As a result of learning this subject, students will realise that a sustainable future for our planet is the responsibility of all of us, and that sustainability must be integrated into our lifestyles, behaviour, attitudes and future work.

The development of the following sub-competences is necessary to develop attitudes, behaviours and lifestyles that support sustainable development (according to the time frame of the subject):

<b>Objectives of skills and competency development, attitudes and expected outcomes for the curriculum as a whole</b>	
<b>ABILITIES, SKILLS</b>	<b>ATTITUDES</b>
<ul style="list-style-type: none"> <li>• Viewpoint change</li> <li>• Fact and data management: collection, aggregation, prioritisation, comparison</li> <li>• Data analysis: distinguishing between data and variables that are relevant and irrelevant to problem-solving and the operation of the selected system; examining the relationships and interrelationships of data and variables</li> <li>• Attention, observation</li> <li>• Logical skills: comparison (identification-discrimination), analysis, synthesis, generalisation, inference-reference, abstraction, concretisation, rule-making</li> <li>• Innovative creativity</li> <li>• Operational skills related to problem-solving: problem identification, analysis, formulation of possible solutions, planning, decision making (reasoning), implementation, evaluation, correction</li> <li>• Operational skills related to planning: goal setting, pathfinding, choosing between paths (decision), determining the way forward, planning the content of activities, scheduling</li> <li>• Plan implementation: progress in line with plans, plan modification if necessary</li> <li>• Holistic thinking in a system</li> </ul>	<ul style="list-style-type: none"> <li>• Self-examination and self-improvement Need</li> <li>• Willingness to change lifestyle</li> <li>• Willingness to help, compassion and support for those in need</li> <li>• Initiative</li> <li>• Commitment to sustainability towards</li> <li>• Open, future-focused thinking</li> <li>• Acceptance that the world must be seen in a systemic, contextual way</li> </ul>

<b>Objectives of skills and competency development, attitudes and expected outcomes for the curriculum as a whole</b>	
<b>SKILLS, ABILITIES</b>	<b>ATTITUDES</b>
<ul style="list-style-type: none"> <li>• Distinguishing between facts and personal opinion</li> <li>• Conclusion based on the data and criteria provided, with justification</li> <li>• Inductive and deductive approach to a given problem according to</li> <li>• Formulating scientific hypotheses</li> <li>• Cooperation</li> <li>• Dialogue, making claims, arguments and counter-arguments</li> <li>• Ability to ask questions, inquire, find out, solve problems</li> <li>• Time management</li> </ul>	

The main aim of this framework is to provide competency development tasks that will help students to become responsible, sustainability-conscious adults in their lives and in their future careers. To this end, it identifies the necessary knowledge elements, skills and competencies, and the links between them, which link and organise the knowledge that has hitherto been divided into subjects.

In addition to what was learned in grades 9-10, the curriculum is based on the students' prior experiences, everyday knowledge and related subject content already learned. The curriculum provides opportunities to develop a reflective, enquiring, problem-solving and problem-focused approach, responsible opinion-forming and decision-making skills, while emphasising the social, emotional and behavioural interdependence of these.

The approach of the framework curriculum, the expected way of processing the curricular content is problem-solving centric. This means that the identification and analysis of problems and the attempt to solve or alleviate them should be the main message of the transfer of knowledge. In other words, it inspires learners to actively contribute to sustainability tasks to the best of their abilities.

Learning management should build on students' ability to collect and process data and facts independently, using digital and print resources. The aim should be to enable learners to recognise the difference between facts and opinions, to distinguish between credible and non-credible sources, to be able to express their own views accurately and to be able to formulate their arguments logically and justify their claims with data.

We recommend, taking into account local conditions and opportunities, to group the topics into thematic blocks. The preferred method of teaching the subject is the learning project, which also helps to prepare for the school-leaving examination more effectively.

Since the subject is taught in the 11th and 12th grades, it is possible and very important that the teacher teaching Sustainability builds on the science (biology, physics, chemistry, geography) and, if the class has previously

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the knowledge of sustainability and environmental issues acquired in the sustainability subjects taught in grades 9-10.

**Total number of basic lessons in the subject chosen in grade 11 and/or 12: 68 hours.**

**Overview table of topics:**

<b>Topic</b>	<b>Proposed number of hours</b>
The links between economic development and sustainability	12
Global and pervasive environmental problems and their natural and social consequences	16
Poor rich and rich poor - the consumer society contradictions	16
Sustainability aspects of settlement development	14
Working together for a sustainable future	10
<b>Total number of hours:</b>	<b>68</b>

**TOPIC: The links between economic development and sustainability**

**SCHEDULE OF HOURS: 12 hours**

**LEARNING OUTCOMES**

**The learning of this topic contributes to the learner's ability, by the end of the education and training phase:**

- knows the territorial aspects of environmental pollution, the areas particularly at risk,
- recognise the links and trade-offs between changes in environmental conditions and economic development and progress,
- knows the characteristics, advantages and limitations of linear and circular economy,
- describes the characteristics of the energy economy in the 21st century, the aspects of energy use that promote and limit sustainability,
- recognises the socio-economic context and environmental impact of the use of natural resources, in particular energy sources,
- understand the increasing role of human and social resources in the socio-economic development of our times,
- can identify some of the socio-economic aspects and contradictions of environmental mainstreaming.

**As a result of learning this topic, the learner:**

- independently analyses and draws conclusions from data series and graphs related to the topic,
- compares linear and circular economy systems from a sustainability perspective, recognising them in everyday economic-production processes,
- compares the energy production processes based on the use of different energy sources (non-renewable - fossil, nuclear, renewable), and formulates the environmental consequences,
- demonstrates the
- links between economic development and energy demand, using examples,
- demonstrates, based on independently collected examples, the traditional and sustainable uses of resources (e.g. mining, raw material production, human resources) and their consequences,

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- demonstrates the role and potential of the knowledge society for socio-economic development with a sustainability perspective.

#### DEVELOPMENT TASKS AND KNOWLEDGE

- applying the knowledge acquired in history and geography to explain the links between economic development and sustainability,
- show the connections between different ecological problems and link them to current socio-economic phenomena,
- comparing sustainability and environmental problems in countries with different economic development statuses, and explaining the differences
- identify sustainability issues in local, regional and universal socio-economic processes,
- exploring the contradictions between global convergence and the quest for sustainability.

#### TERMS

economic development, environmental regulation, process of global standardisation, profit, linear production process, circular economy, natural resource, social (human) resource, predatory economy, production organisation

#### PROPOSED ACTIVITIES

- independent internet data collection on the relationship between economic development and environmental pressures, interpretation of data, drawing conclusions,
- illustrate the link between economic development and sustainability considerations,
- creating a resource recovery web of ideas,
- reflections on newspaper articles, reports current news on subject,
- classroom exchange on the relationship between economic development and sustainability,
- the use of drama pedagogical methods (situational play, role-playing, etc.), for example, on setting up a business based on circular economy, the changing need for human resources, production organisation,
- independent project task: analysis of local economic processes and events from an environmental and sustainability point of view; analysis of sustainability and environmental strategies, with comments and suggestions,
- group project: collecting, collating and presenting good and bad practices related to sustainability.

**TOPIC: Global and pervasive environmental problems and their natural and social consequences**

**SCHEDULE TIME: 16 hours**

#### LEARNING OUTCOMES

**The learning of this topic contributes to the learner's ability, by the end of the education and training phase:**



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- understands the local, regional and global context of damage to the atmosphere, water (including wetlands) and rock (especially soil), and its impact on quality of life and the economy,
- recognise the processes that threaten the balance of ecosystems and the importance of biodiversity conservation,
- define the characteristics of a healthy, liveable environment,
- identifies options to mitigate and solve environmental problems,
- articulates the socio-economic contradictions that threaten the drive towards sustainability.

**As a result of learning this topic, the learner:**

- independently analyse and draw conclusions from relevant data series and graphs,
- presents in context the processes that threaten particular environmental systems (geospheres) and their interactions,
- models and compares the solution possibilities and the environmental consequences,
- justifies the socio-economic consequences of adverse changes by using examples.

**DEVELOPMENT TASKS AND KNOWLEDGE**

- apply the knowledge acquired in physics, biology, chemistry and geography to explain the origins and consequences of global and pervasive environmental problems,
- collect and analyse data and facts related to environmental problems, and consider the likely consequences,
- recognising the subsequent detrimental effects of imprudent, rapid interventions on specific environmental processes,
- to identify cause-effect relationships and mechanisms of action for each of the environmental degradation processes,
- deepen the ability to think in systems terms.

**TERMS**

biodiversity, ecosystem services, climate change, climate refugees, water scarcity, water pollution, soil degradation, soil contamination

**PROPOSED ACTIVITIES**

- independent data collection and analysis related to environmental processes and their consequences, and preparation of a presentation based on the data,
- modelling environmental degradation processes and mitigation options, e.g. soil degradation, oil contamination,
- comparative modelling of the functioning of a self-sustaining ecosystem and a damaged ecosystem,
- drama pedagogical methods (situational games, exercises, etc.) to illustrate the social consequences of environmental problems,
- group project task: organising a school campaign *What can we do to stop global and all-encompassing climate change*; organising a school poster or photo competition *Save the future! Save the planet*,

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- a stand-alone project task: e.g. to identify and evaluate good practices for biodiversity restoration; a historical perspective on the climate crisis,
- extraordinary lessons: expert forum, e.g. with a climate researcher.

**TOPIC: Poor rich and rich poor - the contradictions of consumer society**

**SCHEDULE TIME: 16 hours**

#### LEARNING OUTCOMES

**The learning of this topic contributes to the learner's ability, by the end of the education and training phase:**

- outlines the environmental and sustainability implications of demographic trends in the 21st century,
- recognise the links and contradictions between economic development and consumption patterns,
- recognise the challenges of consumer society and their environmental consequences,
- formulate the difference between need and demand,
- understands the territorial differences in access to health and the need for international cooperation and assistance,
- recognise the interrelationships between different environmental conditions, different lifestyles and different consumption patterns.

**As a result of learning this topic, the learner:**

- explains why our planet is experiencing both famine, starvation and overproduction of food at the same time,
- compares the demographic processes of different regions of the world, and draws conclusions and forecasts based on these, taking into account the aspects of sustainability,
- articulates the relationship characteristics between global unification and the transformation of consumption patterns,
- demonstrates the importance of social responsibility by showing examples.

#### DEVELOPMENT TASKS AND KNOWLEDGE

- applying the knowledge acquired in the history study to explain changes in consumer behaviour,
- recognise the effects of global unification on today's consumer behaviour and consider the consequences,
- using geographical knowledge to illustrate with examples the impact of the natural and socio-cultural environment on consumption,
- arguing for the role of local products and fair trade in the pursuit of sustainable consumption.

#### TERMS

quantitative and qualitative hunger, overconsumption, hunger belt, consumer society, planned depopulation, poverty, social inequality, social responsibility, aid, fair trade, local products, overpopulation, aging

#### PROPOSED ACTIVITIES

- presenting the connections between demographic trends, consumption and sustainability based on independently collected data and facts,

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- use of drama pedagogical tools (role-play, situational exercises) related to the topic e.g. buying a local product at the market, concluding a commercial contract, a tourist in a restaurant, shopping in a clothes shop,
- classroom discussion, formulating and debating arguments and counter-arguments, e.g. on conscious consumer behaviour, the relationship between healthy lifestyles and sustainability, the role of aid organisations,
- group project task: organising and running a school campaign, a theme day, a quiz on the contradictions and characteristics of overconsumption and consumer society,
- individual project task: under the title *Together against poverty for the underprivileged*, presenting solutions, initiatives, actions in which social organisations or committed individuals (professionals, activists, etc.) have contributed to alleviating problems and suffering; under the title *Consequences of extreme poverty*, presenting the problems of social groups that are marginalised, the consequences of learned helplessness and the lack of patterns; in connection with the cases, looking for and presenting their own possibilities for action and connection.

### **TOPIC: Sustainability aspects of settlement development**

**SCHEDULE TIME: 14 hours**

#### **LEARNING OUTCOMES**

**The learning of this topic contributes to the learner's ability, by the end of the education and training phase:**

- recognises the different environmental and sustainability problems of rural (farm, village) and urban life,
- identifies the advantages and disadvantages of metropolitan and rural life from a sustainability perspective,
- recognise the interactions, biological, social and economic interdependencies between the city and its environment,
- understands the importance of building in a landscape, the use of natural local materials, and the characteristics of environmentally friendly construction and settlement design,
- understands the principles of the smart city.

**As a result of learning this topic, the learner:**

- describes the environmental pressures associated with large cities and outlines possible solutions,
- argues for the choice between rural and urban life, taking into account sustainability considerations,
- be able to design a community space (e.g. community park, house, schoolyard, municipal nature trail) with sustainability in mind,
- argues for the development and use of public transport.

#### **DEVELOPMENT TASKS AND KNOWLEDGE**

- geographic and historical knowledge application in explaining sustainability aspects of settlement development,
- recognising the environmental impacts and consequences of settlement development (growth),
- comparing the environmental consequences of urbanisation in different regions of the world,
- describing the connections between the quality of the services available and the environmental burden,

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- the role and potential of environmental and conservation communities in promoting sustainability to make it more widely known,
- criteria for a liveable, environmentally focused settlement development.

#### TERMS

- stress, alienation, loneliness, public safety, community life, local heritage, smart city, eco-town, settlement type, ecological corridor

#### PROPOSED ACTIVITIES

- group task: designing a sustainable school or community building,
- individual project task: creation of a local natural and/or cultural heritage inventory,
- a classroom discussion with an invited settlement development expert,
- the use of drama pedagogical methods (e.g. role-playing, situational exercises), e.g. for planning a new community space, holding a public information session, solving local social problems,
- a thematic walk around the settlement to promote environmental and sustainability aspects to analyse,
- project tasks: the potential of state and local government and social organisations to help the elderly and people in need; change of function: possible new functions of community spaces and buildings; school in a new role: school as a community organising force in the wider community; beyond the internet: students for information: building and operating information, information and fact-finding channels.

### THEME 1: WORKING TOGETHER FOR A SUSTAINABLE FUTURE

#### SCHEDULE OF HOURS: 10 hours

#### LEARNING OUTCOMES

**The learning of this topic contributes to the learner's ability, by the end of the education and training phase:**

- is familiar with some of the most important environmental and sustainability guidelines and objectives set at national and international level,
- understands the importance of bringing together different professions and different types of organisations to preserve natural and socio-cultural values,
- is familiar with national and international environmental public, intergovernmental and social organisations and initiatives and is aware of their activities,
- interpret the potential of community service in terms of sustainability.

**As a result of learning this topic, the learner:**

- the ability to analyse data series, processes, make forecasts and make recommendations that take them into account to promote sustainability;
- provides examples of the successes and failures of domestic, foreign and international partnerships,
- is committed to an active and conscious lifestyle with a sustainability perspective,
- recognises the importance of consciously planning for the future with sustainability in mind.

#### Development tasks and knowledge

- interpretation of the Sustainable Development Goals (SDGs) adopted by the United Nations in 2015; presentation of some local, regional and global actions and processes that can help to

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achieve them,

- identifying local environmental problems and related socio-economic processes and tasks, exploring cause and effect relationships, formulating possible solutions,
- exploring the links between the local-regional-the Earth-wide impact system,
- a multi-dimensional analysis and assessment of what is happening and what can be done to address threats to sustainability.

#### TERMS

sustainable future, Sustainable Development Goals (SDGs), UNEP, WHO, FAO, UNESCO, IUCN, WWF, volunteering, environmentalist

#### PROPOSED ACTIVITIES

- creating a word cloud and a mindmap on the challenges of the future,
- project task: sustainability as a profitable investment - preparation and presentation of business plans, evaluation of the plans against given criteria,
- presenting problem situations (e.g. water pollution, smog alarms, dangerous industrial dam breaches) and their prevention and solutions using drama pedagogical tools,
- planning and running a school campaign on the environment,
- learning about the work of local environmentalists - making a video report,
- participation in local environmental actions (e.g. habitat protection),
- project work: exploring the causes of a local environmental problem, analysing its social and economic aspects, proposing solutions, contributing to the implementation of solutions.