MHG Year Plan

Subject group: Science		Subject: Science		Class: 5 (MYP 1)
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**
Unit title	Water	Waterbodies	Sea	Air
Key concepts	Changes	Systems	Relations	Changes
Related concepts	Model, energy	balance, movement	transformation, function, interaction	consequence, environment
Global context	globalisation and sustainability	scientific and technical innovation	orientation in time and space	orientation in time and space
Statement of Inquiry	We can ensure global sustainability by developing sustainable energy models.	The constant movement of water ensures equilibrium in the systems of the aquatic environment, the study of which is supported by scientific and technical innovation.	The historical significance and spatial function of the Baltic Sea affect the interrelationships between people and the environment.	Changing the environmental conditions in the room significantly affects the growth of organisms (including plants).
Subject group objectives	A – Knowing and understanding B – Inquiring and designing C – Processing and evaluating	A – Knowing and understanding D – Reflecting on the impacts of science	A – Knowing and understanding D – Reflecting on the impacts of science	B – Inquiring and designing C – Processing and evaluating
ATL-approaches to learning	Thinking skills – critical thinking – interprets and evaluates data, opinions and arguments	Research skills – the ability to find and use information – create links between	Social skills – effective collaboration with others – delegates and shares responsibility	Self-management – organization, organization – plans short-term and long-term work, meets deadlines

		different sources of information		
Content, topics, knowledge, skills	substance, states, thermal expansion, surface tension, capillarity, groundwater	river, high water, waterfall, lake, reservoir, settlements	beach, salinity of water, brackish water, environmental toxins,	air, wind, ozone layer, photosynthesis, smog, weather, clouds
Summative assessment	A - written exam B – Test planning C – Conducting the test and analysing the results Taevaskoja study visit	A - written exam D – Compiling a short reference	A - written exam D - Creating a poster in pairs and its presentation	B – Plant growing planning C – Growing a plant
Resources	scientific articles; internet sources, books. . Novaator articles, https://novaator.err.ee/	scientific articles; internet sources, books. . Novaator articles, https://novaator.err.ee/	scientific articles; internet sources, books. . Novaator articles, https://novaator.err.ee/	scientific articles; internet sources, books. . Novaator articles, https://novaator.err.ee/.

Subject group: Science		**Subject: Science**		**MYP year: MYP 2**	
	UNIT 1	**UNIT 2**	**UNIT 3**	**UNIT 4**	**UNIT 5**
Unit title	Rock and soil.	Surface features, settlements	Natural resources, human impact on the environment	Forest, swamp	Garden, field, agriculture
Key concepts	Relationships	Systems	Change	Systems	Change
Related concepts	Balance and energy	Models and consequences	Balance and environment	Balance and environment	Evidence and environment
Global context	Scientific and technological	Orientation in space and time	Globalization and sustainability	Globalization and sustainability	Globalization and sustainability

	innovation				
Statement of Inquiry	The natural components are closely related and influence each other, and human activity depends on nature.	The surface can be represented by models depicted in a particular system, and understanding these models will allow us to orientate on changes in the settlements.	As a result of population growth, the impact of the use of natural resources on the environment becomes even more global, which reduces sustainability.	People must take responsibility for protecting the forest and meadow as a part of the environment.	As a result of population growth, the impact of resource use on the environment will become even more global, reducing sustainability.
Subject group objectives	A – Knowing and understanding B – Inquiring and designing C – Processing and evaluating	A – Knowing and understanding D – Reflecting on the impacts of science	D – Reflecting on the impacts of science	A – Knowing and understanding	A – Knowing and understanding B – Inquiring and designing C – Processing and evaluating
ATL-approaches to learning	Research skills – processes data and presents results – research on soil properties	Self-management skills – organization, management – preparing for summative graded assignments	Research skills – the ability to find and use information – look for information to be informed and to inform others – presentation of one of the world's national parks	Self-management skills – organization, management – plans short- and long-term work – successful time and work planning – meet deadlines	Self-management skills – organization, management – plans short- and long-term work – successful time and work planning – meet deadlines – plans and conducts an observation
Content, topics, knowledge, skills	Weathering of rocks, formation and development of soil, soil	Earth´s surface features. Settlements, cities, counties, maps.	Renewable and non-renewable natural resources, use of mineral resources,	Forest types, forest plants, and animals, deforestation, wildfires, the impact	Garden life cycle, ecosystem, vegetable garden, fruit garden, beauty garden, plants

	composition, soil horizons, soil excavation, soil organisms.		ways of obtaining energy, and nature protection.	of human activity on the forest, and the importance of forests. Formation and development of swamps, types of swamps, plants, and animals, the impact of human activities on the living community of swamps, and the importance of swamps.	grown in the fields, farm animals.
Summative assessment	Test (A) rocks and soil. Students design experiments and prepare protocol (B). Experiments are carried out together; everyone makes their summary (C). Experiment BC soil filtration and soil porosity.	Test (A) settlements. Making a brochure/presentation/poster about one of the megacities (D).	Short research and presentation about one of the world's national parks (D).	Short research and presentation about one of the forest types and include specific forests as an example (D).	During the two weeks in the spring, students observe the change of one or more plants, take pictures, and record it. They gather information about the selected plant and prepare a poster presentation about the entire work (B, C). Test (A).
Resources	Work with the articles www.novaator.ee Science textbook for 6th grade (Rein Kuresoo)	Work with the articles www.novaator.ee Science textbook for 6th grade (Rein Kuresoo)	Work with the articles www.novaator.ee Science textbook for 6th grade (Rein Kuresoo)	Work with the articles www.novaator.ee Science textbook for 6th grade (Rein Kuresoo)	Work with the articles www.novaator.ee Science textbook for 6th grade (Rein Kuresoo)

	Reading and analyzing the articles in the National Geographic journal https://www.nationalgeographic.com/	Reading and analyzing the articles in the National Geographic journal https://www.nationalgeographic.com/	Reading and analyzing the articles in the National Geographic journal https://www.nationalgeographic.com/	Reading and analyzing the articles in the National Geographic journal https://www.nationalgeographic.com/	Reading and analyzing the articles in the National Geographic journal https://www.nationalgeographic.com/

Subject group: Science		**Subject: BIOLOGY**		**Class: 7 (MYP 3)**
	Unit 1	**Unit 2**	**Unit 3**	**Unit 4**
UNIT title	Field of research in biology	Features of vertebrates	Substance and energy exchange	Reproduction and development
KEY concept	Systems	Changes	Relations	Changes
RELATED concepts	Models, evidence, interactions	Models and patterns	Energy, energy movement	Consequences, balance
GLOBAL context	Scientific and technical innovation	Orientation in time and space	Identities and relationships	Globalisation and sustainability
Statement of inquiry	The collection and measurement of models and evidence is necessary to understand the living environment around us.	Using research methods, different patterns are created to study the changes in the world that have occurred over time	All biological, physical and chemical phenomena are interrelated.	Balance in systems and predicting consequences are the basis for sustainability in a changing world.

(Subject group objectives)	A – Knowing and understanding	B – Inquiring and designing C – Processing and evaluating A – Knowing and understanding	A- Criterion test on substance and energy exchange	D – Reflecting on the impacts of science
ATL–Approaches to learning	Self-analysis	Self-management skills – successful time and work planning – meet deadlines	Research skills -- Processes data and delivers results	Research skills – the ability to find and use information – understands and uses technological tools Ways of reproduction of vertebrate animals
Content, topics, knowledge, skills	The main research methods in biology. Distribution of organisms.	Division of animals into vertebrates and invertebrates; Features of fish, amphibians, reptiles. Endangerment and protection of fish, amphibians, reptiles.	The main processes of substance and energy exchange.	Ways of reproduction of vertebrate animals

summative assessment	Biology A criterion work on various areas of research and life characteristics.	In biology A's criterion work, there is a division of organisms and a comparison of vertebrates and invertebrate animals. Knowledge check to understand the features and importance of different groups of animals. Features of different species. B and C - Criterion work - Autopsy of fish and study/association of the annual rings of scales with the characteristics of the specimen. Conducting an experiment in the course of practical work and interpreting (discussing) the results.		D – criterion poster presentation on "Problems affecting the lives of Reptiles"
Resources	Teacher's presentation at TERA, professional internet sites. Novaator.	Teacher's presentation at TERA, professional internet sites. Novaator.	Teacher's presentation at TERA, professional internet sites. Novaator.	Teacher's presentation at TERA, professional internet sites. Novaator.

Subject group: Sciences		**Subject: GEOGRAPHY**		**MYP year: MYP 3**
	UNIT 1	**UNIT 2**	**UNIT 3**	**UNIT 4**
UNIT title	Countries, maps	Geology	Relief	Population

KEY concept	Systems	Changes	Relations	Changes
RELATED concepts	Models, evidence	Models, patterns	Energy and energy transfer	Consequences and balance
GLOBAL context	Scientific and technological innovation	Orientation in time and space	Identities and relationships	Globalization and sustainability
Statement of inquiry	It is needed to collect models and evidence to understand the world	Scientific methods are needed in creation of new patterns	Energy is distributed within a system and can be transferred between a system and its environment	Balance and prediction of the consequences are important in sustainability
Subject group objectives	A – knowing and understanding	A – knowing and understanding D – reflecting on the impacts of science	B and C – investigating and communicating	
ATL–Approaches to learning	Self-management – organization, self-regulation, and dependability	Self-management – organization, self-regulation, and dependability	Research skills – to find and evaluate useful information related to a specific topic	Social and thinking – skills used to communicate and interact with each other, to process information to make decisions and create new ideas
Content, topics, knowledge, skills	Countries and people. The size and shape of the earth. The usage of maps. Locating objects	Composition of the earth and internal structure. Earthquakes and volcanoes.	The formation and changes of landforms	World population and demographics
Summative assessment	Assessment on A criterion (test about maps skills).	Assessment on D criterion – research about geological activity (earthquakes and volcanism).	Making a schoolyard plan. Statistical data collection, survey planning and data analysis (B, C).	
Resources	National Geographic School atlas	National Geographic School atlas	National Geographic School atlas	National Geographic School atlas

Subject group: Science		Subject: Science		MYP year: MYP 3
	UNIT 1	**UNIT 2**	**UNIT 3**	**UNIT 4**
Unit title	Research methods	Bodies and substances	Natural phenomena	Systems
Key concepts	Systems	Change	Relationships	Change
Related concepts	Balance and energy	Models and pattern	Energy	Consequences and balance
Global context	Scientific and technological innovation	Orientation in space and time	Identities and relationships	Globalization and sustainability
Statement of Inquiry	Collecting and measuring models and evidence are necessary to understand the living environment around us.	Using research methods, different patterns are created to study changes in the world over time.	Various natural phenomena, incl. different types of energy, are related to the formation of landforms.	Balance in systems and predicting consequences is the basis of sustainability in a changing world.
Subject group objectives	A – Knowing and understanding B – Inquiring and designing C – Processing and evaluating	D – Reflecting on the impacts of science	A – Knowing and understanding D – Reflecting on the impacts of science	B – Inquiring and designing C – Processing and evaluating

ATL-approaches to learning	Self-management skills – organization, management – preparing for summative graded assignments	Self-management skills – organization, management –preparing for summative graded assignments	Research skills – the ability to find and use information – look for information to be informed and to inform others – presentation of one of the world's national parks	Self-management skills – organization, management – plans short- and long-term work – successful time and work planning – meet deadlines
Content, topics, knowledge, skills	Scientific method and its components, science branches, experiments, observations, investigations, evidence-based conclusions, and research steps.	Properties of matter, physical and chemical properties, physical and chemical properties, properties of substances (e.g. mass, density, volume, melting and boiling point, etc.).	Physical, chemical, and biological phenomena, movement and speed, energy, types of energy, energy transfer and transformation, chemical reactions, and photosynthesis.	Carbon cycles in ecosystems, adaptations, energy consumption., material recycling, sustainable lifestyle, ecological footprint.
Summative assessment	Test (A) scientific method. Students draw up a plan in a building or the landscape, place objects on the plan, measure distances, and determine directions (BC).	Short research and presentation or concept map about the chemical elements around us (D).	Test (A) natural phenomena. Short research and presentation about photosynthesis (D).	Research and measuring ecological footprint (BC).
Resources	Work with the articles www.novaator.ee	Work with the articles www.novaator.ee	Work with the articles www.novaator.ee	Work with the articles www.novaator.ee https://www.elfond.ee/what-we-do/education-and-awareness

Subject group: Natural science		Subject: Chemistry	Class: 8 (MYP 4)
	Unit 1	**Unit 2**	**Unit 3**
Title	Basic concepts and basic skills	Chemical elements and periodic table	Basic classes
Basic concept	System	System	Changes
Related concept	Model	Model, movement	Mutual influence
Global context	scientific and technical innovation	globalization and sustainability	identities and relationships
Statement of inquiry	Knowledge of basic concepts and basic skills is necessary to explain the living environment around us.	The models can be used to explain cause and effect relationships	Connections appear in the course of change
MYP subject group Learning objective	A - Knowing and understanding B - Inquiring and designing C - Processing and evaluating D - Reflecting on the impacts of science	A - Knowing and understanding C - Processing and evaluating	A - Knowing and understanding B - Inquiring and designing C - Processing and evaluating D - Reflecting on the impacts of science
Learning competencies	Communication skills – language skills – draw conclusions and summaries	Research skills – the ability to find and use information – collects, stores and analyses data to find solutions and make informed decisions	Thinking skills – Transfer skills – Applies knowledge and skills in unfamiliar situations.
Content	Laboratory engineering, chemical and physical phenomena	Relationship between the atomic structure and the periodic table	Substances and their interrelationships

Summary activity	Basic concepts and knowledge – criterion (A) Planning and execution of the test (B, C) Compilation of a reference from a single chemical element (D)	Basic concepts and knowledge – criterion (A) Modelling phenomena using graphs – practical work on graph analysis (C)	Basic concepts and knowledge – criterion (A) The concept of main classes, practical works on the relationship between subject classes (B, C) Essential substances in everyday life (D)
Common reading material	www.novaator.ee MYP oxford chemistry book, professional internet page	www.novaator.ee MYP oxford chemistry book, professional internet page	www.novaator.ee MYP oxford chemistry book, professional internet page

Subject group: Sciences		**Subject: Biology**	**Class: 8 (MYP 4)**
	Unit 1	**Unit 2**	**Unit 3**
UNIT title	Bacteria, Protozoa and Plants (algae)	Plants (vascular plants) and Fungi,	Invertebrates Ecosystem.
KEY concept	Relationships	Systems	Changes
RELATED concepts	Balance	Energy	Patterns
GLOBAL context	Scientific and technical innovation	Orientations in time and space	Globalization and sustainability
Statement of inquiry	Establishing relationships is important to understand the impact of scientific and technological evolution to the	To achieve systematic knowledge of nature, the understanding of balance in energy is required	Patterns are important in understanding the changes taking place in a globalizing world and thus help maintain

	environment.		sustainability.
Subject group objectives	A – knowledge and understanding D – reflecting on the impact of science	A – knowledge and understanding B – inquiring and designing C – processing and evaluating	A – knowledge and understanding B – inquiring and designing C – processing and evaluating D – reflecting on the impact of science
ATL–Approaches to learning	Self-management skills – keep and organized and logical system of information files/notebooks	Research skills – collect, record and verify data	Research skills – collect, record and verify data. Communication skills – read critically for comprehension. Read variety of sources for information
Content, topics, knowledge, skills	Bacteria Plants structure and characteristics	Structure of vascular plants and fungi. Importance of fungi and algae and vascular plants	Invertebrates, Their structure and characteristics.
Summative assessment	A - Test D – Presentation about different topics of plant kingdom.	B, C - Experiment related to plants and data analysis. A - Test	A - Test B, C – Investigating different biomes and invertebrates (Bio and Geo together) D – short research
Resources	Teacher's presentations in TERA. MYP oxford biology book,	Teacher's presentations in TERA. MYP oxford biology book, professional .	Teacher's presentations in TERA. MYP oxford biology book, professional internet page.

Subject group: Science	**Subject: Biology**	**Klass: 9 (MYP 5)**

	Unit 1	Unit 2	Unit 3
Title	Human organs	Reproduction and exchange of information with the external environment	Heredity and evolution
Basic concept	Systems	Relationships	Change
Related concept	Patterns	Energy	Evidence
Global context	orientation in time and space	globalization and sustainability	scientific and technological innovations
Statement of inquiry	All organs are functionally and structurally connected and form a whole - an organism.	Sense organs and information exchange with the external environment are important for understanding the surrounding world.	The origin and historical development of life is scientifically justified by the theory of evolution.
MYP subject group Learning objective	A Knowing and understanding B Inquiring and designing C Processing and evaluating D Reflecting on the impacts of science	A Knowing and understanding D Reflecting on the impacts of science	B Inquiring and designing C Processing and evaluating
Learning competencies	Thinking skill - critical thinking - gathers and organizes relevant information to formulate an argument	Self-management skills – managing your state of mind – practices focus	research skills - the ability to find and use information - collects, stores and checks information
Content	Skin, bones and muscles, circulation, digestion and excretion, breathing	Male and female reproductive organs, fertilization, nervous system, vision, hearing, smell	DNA, genes, chromosomes, laws of heredity, hereditary and non-hereditary variability, genetic engineering, biological evolution, theories of evolution
Summary activity	Criterion A (knowledge and understanding), test on learned topics (organs); BCD– (planning and conducting an experiment; reflecting on the	Criterion A (Knowledge and Understanding). Reproductive system.	BC (observation planning and execution). Interweaving with geography. Research trip to Ida-Virumaa.

	implications of science). An experiment on the relationship between breathing rate and heart rate.	D short research paper "Disorders and diseases of the sense organs, making a video".	
Common reading material	https://novaator.err.ee/; Professional internet page	https://novaator.err.ee/; Professional internet page	https://novaator.err.ee/; Professional internet page

Subject group: Science		**Subject: Physics**	**Year 8 (MYP 4)**
	Unit 1	**Unit 2**	
Title	Optics	Mechanics	
Basic concept	Systems	Relationships	
Related concepts	Model, energy	Movement, patterns, equilibrium, energy	
Global concepts	Scientific an technical evolution	Scientific an technical evolution	
Statement of inquiry	Collecting and understanding models and evidence is necessary in order to understand and describe the environment around us.	Graphs are valuable tools for modeling phenomena.	
MYP subject group Learning objective	A - Knowing and understanding B – Investigation and planning C - Processing and evaluating D - Reflecting on the impacts of science	A - Knowing and understanding B – Investigation and planning C - Processing and evaluating D - Reflecting on the impacts of science	
Learning competencies	Critical thinking – develops the ability to compare read information with learned principles	Collaboration skills – finds practical solutions through cooperation with classmates.	

Content	Light phenomena – shadows, eclipses, reflection, properties and types of light; shadows and reflection in nature and technology. Refraction of light, laws of refraction, lenses, optical instruments. Vision.	Description of motion, forces in nature, work, energy, and power. Pressure. Laws of liquids and gases – buoyant force, pressure in liquids and gases. Mathematics needed to describe waves and oscillations. Circular motion and pendulums. Simple machines.
Summary activity	Diagrams, theory and real life applications of optics – A Practical experiments about optics – B and C Essay about an optical device - D	Explaining basic mechanics phenomena and mathematical models – A Experiment with oscillations – B and C Creative task involving mechanics - D
Ühine lugemisvara (Resources)	Physics textbooks, PHeT Colorado	

Subject group: Science		**Subject: Chemistry**	**Class: 9 (MYP 5)**
	Unit 1	**Unit 2**	**Unit 3**
Title	Basic classes of substances	Molar calculations	Organic chemistry – chemistry of carbon compounds
Basic concept	Systems	Relations	change
Related concept	Interactions	equilibrium	keskkond, energia, tasakaal
Global context	globalisation and sustainability	Scientific and technical innovation	Scientific and technical innovation
Statement of inquiry	Knowledge of the properties of a substance and the systems between classes of substances	Computational tasks are a mathematical expression of the balance of systems.	Knowledge of the properties of a substance and the systems between classes of substances

	helps to understand and explain the impact of human activity on the environment.		helps to understand and explain the impact of human activity on the environment.
MYP subject group Learning objective	A - Knowing and understanding B - Inquiring and designing C - Processing and evaluating D - Reflecting on the impacts of science	A - Knowing and understanding B - Inquiring and designing C - Processing and evaluating	A - Knowing and understanding B - Inquiring and designing C - Processing and evaluating D - Reflecting on the impacts of science
Learning competencies	Thinking skills - critical thinking: can observe situations to recognize problems	Thinking skills – transferring information: creates connections between different subjects, fields and ideas	Research skills: presents information in different ways and using different tools
Content	Compounds in everyday life and effects on the surrounding environment. Inorganic substances and the relationship between them.	The law of remaining mass of a substance. The concept of moles and its application in solving computational tasks	The transformation of substances in nature, the transformation and balance of energy.
Summary activity	Summary works and practical works on the relationship between substances. Safe test planning, reliability and analysis of test results. Basic classes of substances (A) Planning and execution of the test (B, C) Analysis of a scientific article (D)	Development of the skill of solving computational tasks. Calculations with the concept of moles (A) Graphs and analysis (B, C)	Summarize work and practical work with organic substances used in everyday life. Criterion (A) Planning and execution of the test (B, C) Analysis of a scientific article (D)
Common reading material	Work with the articles www.novaator.ee MYP oxford chemistry book, professional internet page	Work with the articles www.novaator.ee MYP oxford chemistry book, professional internet page	Work with the articles www.novaator.ee MYP oxford chemistry book, professional internet page

Subject group: Science		Subject: Geography	MYP year: 5 MYP
	Unit 1	**Unit 2**	**Unit 3**
UNIT title	European economic geography and regions	Natural resources and environmental protection	World and Europe settlement and population
KEY concept	Relationships	Systems	Relationships
RELATED concepts	Consequences, environment and interactions	Evidence, interactions	Interactions
GLOBAL context)	Scientific and technical innovations	Globalization and sustainability	Scientific and technical innovations
Statement of inquiry	Scientific and technological innovation affects the European economy as a whole and the relations between countries	Europe's and world's natural systems, the components of which affect our sustainability	Science and technology have formed the foundations for progress in society and have helped to make people's lives more materially prosperous
Subject group objectives	A Knowing and understanding B Inquiring and designing C Processing and evaluating D Reflecting on the impacts of science	A Knowing and understanding B Inquiring and designing C Processing and evaluating	A Knowing and understanding C Processing and evaluating D Reflecting on the impacts of science
ATL–Approaches to learning	Research skills – the ability to find and use	Self-management skills – practicing concentration.	Thinking skills, critical thinking skills – collects and organizes relevant

	information. Collects, stores and controls information.		information to formulate an argument.
Content, topics, knowledge, skills	Economy, energy management, agriculture and food industry, transport and tourism.	Geology, land formation and mineral resources, factors that affect climate indicators, major water bodies in Europe.	The formation of Europe, the political map. Geographic location, population and topography. Population change – birth rate, death rate and fertility. Population (gender) pyramids.
Summative assessment	A – test B and C – statistical data collection, and analysation.	D – giving an overview of Natural resources in chosen region.	A, D – investigating a country and its population. B, C - statistical data collection, and analysation.
Resources	National Geographic	National Geographic	National Geographic

Subject group: Science		**Subject: Physics**
	Unit 1	**Unit 2**
Title	Thermodynamics and introduction to nuclear physics	Electricity and magnetism
Basic concept	Global interactions	Relationships
Related concept	Environment, energy, balance	Function, evidence and consequences
Global context	Globalization and sustainability	Scientific and technical innovation
Statement of inquiry	Knowledge of thermal and nuclear energy helps understand the impact of human activities on the environment	The foundations of modern electronicsa re electric and magnetic phenomena.

MYP subject group Learning objective	A - Knowing and understanding B – Investigation and planning C - Processing and evaluating D - Reflecting on the impacts of science	A - Knowing and understanding B – Investigation and planning C - Processing and evaluating D - Reflecting on the impacts of science
Learning competencies	Social and critical thinking skills	Creative thinking skills and self-analysis skills
Content	Internal energy, heat transfer. Thermal equilibrium, heating and cooling, changes in states of matter. Isotopes and radioactivity.	Electric charge, electrification of bodies, electric current and its characteristics, work and power of electric current. Nature and applications of magnetic phenomena. Electrical safety requirements.
Summary activity	Basic concepts and knowledge – criterion (A) Planning and execution of a practical experiment (B, C) Essay on a chosen topic (thermodynamics or nuclear energy) (D)	Basic concepts and knowledge – criterion (A) Planning and execution of a practical experiment (B, C) Analysing the electrical needs/appliances of a chosen establishment (D)
Common reading material	Physics textbooks, PHeT Colorado	PHeT Colorado, physics textbooks