Common goals II

Nature & Science

Objectives

Common goals II
The purpose of the teaching of nature and science is that students achieve an insight into important phenomena and correlations and develop thoughts, language and concepts relating to nature and science, which will be valuable knowledge in everyday life.
Article 2 The teaching must be widely based on the students' own experiences, observations, studies and experiments and should contribute to the development of practical skills, creativity and the ability to co-operate. The teaching must maintain and foster the students' enjoyment of engaging in nature, science, conditions for existence, living conditions and their interest in asking questions and conducting studies, outdoors as well as indoors.
Article 3 The teaching should contribute to the students' developing and understanding of the interaction between humans and nature in the students' own society as well as in foreign societies and develop their sense of responsibility towards the environment as a basis for commitment and action. The teaching should create the foundation and interest among students for future work within the fields of biology, physics/chemistry and geography.

End goals – sixth grade

The immediate surroundings

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- describe, sort and use knowledge on materials and matter and their different qualities as well as the living and non-living elements
- describe vegetation and animals and explain their functions, living conditions and interaction with the surroundings
- describe the important functions of the body and major factors that affect the same and use knowledge about conditions that has an impact on the human health
- account for phenomena connected to the weather and seasons
- know and describe the local area by use of maps and be able to use this knowledge in other contexts.

The distant surroundings

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- detect similarities and differences between living conditions and conditions for existence for vegetation, animals and people in immediate and distant surroundings
- relate critically to information about topics evolving around nature and science as they are presented in the media
- account for the living conditions of animals, vegetation and humans and the interrelation interaction in different parts of the world.
- view the location of land and ocean, landscapes, climatic zones and vegetation structures as regional and global patterns
- describe and compare important regions and countries in our own part and in other parts of the world
- compare insight into the structure of the solar system and the movement of earth with self-experienced phenomena.
- use knowledge on the distinctive features about the development of earth and life in the task of illustrating the diversity of nature.

Human interaction with nature

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- move around in nature in an appropriate and considerate way
- know of the different views on nature and describe examples of usage of nature, nature protection and the contradicting interest relating to this
- be aquatinted with the term sustainability and be able to account for examples that the human being's use of resources and technology affects the cycle of nature and be able to give an estimate of the consequences this can have on vegetation, animals and humans
- know major elements of the history and use of technology and the impact on vegetation, animals and humans
- asses examples of local and global environmental problems based on the insights of the students

Working methods and mindsets

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- formulate relevant questions, construct hypotheses and models as a basis for both practical and theoretical studies
- plan, design and carry out observations, studies and experiments
- pick out and use equipment, instruments and tools that are suitable for the task and be able to organise the procedure for both individual or team work execution
- sort and evaluate data
- conclude from observations, studies, data research, data collection, scientific reading and interviews done on and outside school properties
- communicate the results of own and others' data in different ways
- communicate scientific information, models and theories by using the relevant terminology

End goals after fourth grade

The immediate surroundings

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- sort and describe materials such as metal, plastic, stone and trash according to technical criteria
- investigate and determine whether changes in matter are final or whether it can be regenerated – among others the generation of water into the three substance states, the dissolving of salt and the burning of candle wax
- know the origin of different materials and matters, their use, recycling cycle, disposal and be familiar with decomposition, including aerobic digestion and corrosion
- know the names of several animals and vegetation and their most important characteristics, which classes them into systematic groups
- know the different habitats and living conditions of animals and vegetation, including need for food and nourishment, air, light, water and temperature
- question the construction, anatomy and habitats of vegetation and animals by using concepts such as food chain, adaptation and living conditions
- tell about human body functions such as breathing and digestive system
- know oxygen, carbon dioxide and the nutrients protein, fat and carbohydrate
- describe simple and important guidelines for a health lifestyle
- use simple terminology in the description of weather observations, including temperature, wind speed, precipitation and visibility
- account for characteristics of the local area, including the grouping of country side, city and arterial roads use simple maps, technical signatures and corners of the world.

The distant surroundings

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- describe and give examples of animals and vegetation from different parts of the world, including how animals and vegetation get their conditions for existence such as water, light, nutrition and temperature satisfied in the different habitats
- describe and give examples of human living conditions in other cultures on different stages of development in comparison to the students' own living conditions
- know the different climatic zones and vegetation structures on thematic maps, including what characterises the four climatic zones and their vegetation structures, also including characteristic domestic animals
- know examples of human living conditions in the different climatic zones
- give examples of how the media communicates knowledge about nature, including how knowledge on weather, health and natural disasters is communicated
- know the seven continents and be able to identify them on a map
- know selected place names of regions and countries in our part of the world, including Scandinavia and Europe
- know the geographical conditions that characterises the selected regions and countries in our part of the world, including being able to read important information about nature in the given country
- know the orbit pattern of the moon around earth and earth's orbit pattern around the sun and relate this to every day phenomena, including the length of a year and day, seasons and the lunar phases
- know the main features of the development of earth and life.

Human interaction with nature

The teaching should lead to the students acquiring knowledge and skills, which will make the students able to:

- formulate relevant questions, construct hypotheses on the basis of observations, experiences and minor studies
- carry out and describe studies and experiments
- work in a suitable way with different study methods and equipment both outdoors and indoors and be able to apply scientific reading
- compare results and data from both practical and more theoretical studies by means of drawings, diagrams, tables, digital photographs or sound recordings
- communicating data from own studies and experiments by means of relevant terminology, verbally and in writing, in different ways and by means of different media