



NORTHERN ENVIRONMENTAL
EDUCATION DEVELOPMENT

Analysis of the Icelandic curriculum for compulsory schools in relation to the NEED themes

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Overview

Geology is not a core subject in Icelandic compulsory schools. Nevertheless, geological goals are included in other subjects that are part of the national curriculum. Most of them are elements of natural sciences and social studies. In natural sciences, most of these topics are found in astronomy and in the context of Earth as a planet in the Solar System. Other geological objectives and goals related to the NEED project can be found in ecology, chemistry and physics. When looking at social Studies, we find that most geological topics are found in geography, but we also see objectives related to the NEED project included in the sociology and history syllabuses. Geology and NEED-related topics are also part of other subjects such as home economics, design and carpentry, physical training, religious studies, art, textiles, mathematics and life skills, to name but a few.

With this in mind, the analysis of the curriculum was quite complex. We examined every subject and every aspect of the curriculum. Instead of merely listing the goals and grouping them by age and subject, we decided to group them by common themes. We identified three themes: knowledge that encourages wise use of nature's offerings; democracy and participation in society; and national awareness and global understanding. These themes we borrowed from the ideology of sustainable development.

We also listed the goals and grouped them by students' ages; we connected them to the themes of the NEED project as well as to the study modules being developed.

Compulsory schools should teach students to be open-minded and improve their understanding of human rights and the environment in Icelandic society. Their basic education should encourage tolerance, respect for others and for the environment. General education involves co-operating with families to promote health and healthy lifestyles, raising moral awareness and encouraging a responsible approach to the environment and life in general. It should also help individuals to understand their own position in society and to apply their knowledge and abilities in their daily lives and environment.

The responsibilities of the school are partly covered by the concept of life skills and are aimed at preparing pupils, in cooperation with their families, for life and work in a democratic society and enhancing their understanding of society and the role of the individual in that society. This includes, for instance, an understanding of the society's historical background, economic pursuits, culture, nature, family responsibilities, financial responsibilities and the rights and obligations of the individual.

Examples of subjects that are connected to the project

Civic studies—geography, history and sociology—form the base of social studies in compulsory schools. The goal of social studies is for the student to be able to interpret the environment, society and culture, facilitating him in taking a stand and exerting himself in society. Social studies cover the status, role and possibilities available to people in society and the environment, both in time and in space; they also cover the units of society and the environment, from the smallest (individual, family, home) to the largest (nations, ecosystems, continents, world).

Geography is a diverse subject area that has a general educational value. It covers the place, expansion and connection between different physical and human aspects on the earth's surface and their changes in time and space. As a course within social studies, the role of geography is to provide a key to the connection between man and nature. References are made to geographical knowledge in daily life and to current topical debates, e.g. about local development and organisations, changes in tourism, or discussions on global environmental problems.

Being outdoors, in connection with sports teaching and general school work, is an important aspect that needs to be given careful consideration. It is necessary to open the eyes of students towards their local area and the possibilities that nature and the environment have to offer. Students should be given the opportunity to learn the skill of being able to do sports and physical training without the facilities of a gym. Students should also be introduced to the variety of winter sports in which they can participate in Iceland, such as skiing and skating.

Swimming teaching holds a unique status and is therefore dealt with in a special chapter entitled Sports and Physical Training. The main reason for this is that swimming has an important safety element—to be considered as being able to swim is a key aspect for all inhabitants of islands where fishing on the sea, rivers or lakes is commonly carried out. Furthermore, swimming is a cultural characteristic that is important to maintain, as Iceland was among the first nations to introduce swimming teaching in schools.

This unique tradition is closely connected with one of Iceland's resources, hot water. Natural warm pools and hot water springs can be found all around Iceland, and they have been used for bathing and swimming since the first settlers arrived. Hot springs of all kinds were frequently used to make pools or ponds that could be used for swimming lessons.

Home economics deals with man, his lifestyle and living conditions, and his physical and spiritual needs. This course is intended to promote healthy living, economy and conservation of the environment. It is important that home economics considers environmental views, gives insight into ecology, and stimulates interest in environmental protection. It is possible to connect environmental and consumer viewpoints in a very visible way through the assignments given to students. Practical teaching is mainly carried out in teaching kitchens, but it is feasible to move practical teaching out into nature (barbecue or cooking on a fire).

The subject of design and carpentry is an ideal field to activate students' consideration of their environment and encourage them to take care of it through their activities. It is natural to connect

education in design and carpentry with environmental education, e.g. by teaching about Icelandic wood and how it can be used. Schools are encouraged, wherever possible, to take pupils on field trips so that they get to know where the material comes from, and how it is possible to search for and collect material from the forest. In this way, a connection is created between the material, the environment and nature, and the student gets an overall view of wood as a material for projects.

Textile education is based on the knowledge of the nature of materials and work processes, and a strong tradition of usage and recycling. In modern society it becomes more and more urgent to prevent pollution and waste of material by reusing and recycling quality components. Such goals will not be accomplished unless the public has knowledge of these material components and their attributes and has the skills necessary to make the most of these attributes.

Knowledge that helps the wise use of nature

The role and character of natural sciences are linked to its influence on individuals' ways of life and their attitudes, as well as on their environment and society. This includes their attitudes towards the environment, nature and science.

Children must be made aware of the interplay between man and nature. One way to enhance their understanding of these matters is to discuss this interplay and look at it from the point of view of the principles of sustainable development, thereby strengthening the pupils' will to work in the spirit of those principles.

It is safe to say that outdoor teaching enriches and reinforces all study courses, and it is healthy for both body and soul. Natural science teaching in schools should provide essential practice for children who will learn about, understand and sense the environment, nature and society through real, tangible experiences. For this reason it is important for schools to integrate outdoor teaching into the curriculum so that students have the opportunity to get to know and enjoy nature and learn to respect it.

The goal of social studies is to bring together the knowledge, skills and feelings of the student so that they will gain an increasing awareness about society, the environment and history. Environmental awareness implies knowing their environment, caring for it and the ability to analyse the coherence of human activities and nature.

Democracy and participation in the society

Icelandic students live in unique environmental conditions. Harnessing natural resources offsets the disadvantages of living in a sometimes harsh climate. Iceland is a small nation that has built a complex modern society founded on democratic traditions. Students should learn to live as active individuals in society and be able to make responsible decisions about their lives and their environment.

The curriculum emphasises the need to develop international consciousness and understanding of the concept of sustainable development and thereby become aware of the importance of each individual's contribution to preventing and dealing with environmental damage. Environmental awareness embraces knowing your environment, caring for it and having the skill to analyse the correlation/connection between human enterprise/actions and nature.

Life skills is a special subject in the Icelandic curriculum. Life skills strengthen students' social skills, moral competence and respect for others and themselves. In addition, an effort is made to strengthen their courage, initiative, natural creativity and adaptability to meet the demands and challenges of everyday life.

The importance of consumer awareness in children grows rapidly. Never before have children been under so much stimulus and stress caused by advertising and the glamorising of all kinds of products. It is therefore of the utmost importance to help children develop and become conscious of what can lead to better surroundings, such as energy efficiency, less use of paper and water, recycling, and reduced use of chemicals that are harmful to nature. The concepts of reuse, recycling, pollution and nature protection are vital.

National awareness and global understanding

Natural resources are very often abused. The global population is increasing and the division of the world's wealth is uneven. In an increasing measure, people need to evaluate their usage of natural resources and environmental viewpoints, predict the development and influence of mankind on the Earth's ecological systems, and deal with matters of opinions over land usage, to name but a few.

Children have to realise that man shapes his own environment, so nature conservation is becoming vital for our survival as a species. It is also vital that children realise that environmental issues such as pollution and climate change do not stop at national boundaries and that international cooperation is necessary to halt their advance.

It is important that Icelandic children realise that Iceland has responsibilities and is bound by the declarations it has signed with the international community such as the UN's *Universal Declaration of Human Rights*, and the Rio declaration. They must understand that different lifestyles and the different conditions people live in have both cultural and economic roots.

It is also important that children learn to see more than one side of an argument. This is best done by discussing a range of controversial issues, both matters of local interest as well as global issues.

Conclusion

The National Curriculum for compulsory schools takes into consideration environmental protection, sustainable development and environmental awareness. It strives to get students to think about nature and to consider what they can contribute to the protection of the environment and nature. It also exhorts schools to use outdoor education, and by doing so strengthen the bonds between pupils and nature.

Objectives that relate to the NEED themes

All objectives have been grouped by age. The table can be used to connect each objective to a project and then to a NEED theme. Examples are shown in the following table.

The NEED themes are:

1 Geology

2 Landscape

3 Natural disaster

4 Sustainable use

5 Climate change

The subjects these goals are taken from:

L = Life skills, Í = Sports and Physical Training, Li = Arts, S = social studies, N = creativity, H = home economics, Stæ = mathematics, Sm = design and carpentry, K = Theology, Nát = nature science, Ísl = Icelandic, T = foreign languages

The NEED study modules being developed and connected to those goals include:

- A. Guðlaug Úlfarsdóttir M.Ed. project
- B. Hornafjörður elementary school developmental project
- C. Hafdís Roysdóttir outdoor walks
- D. Alli and Sigrún outdoor learning project

Classes 1. – 4.

Students should be able to:

1	2	3	4	5	Objective	Course	A	B	C	D
	x				Find and point out dangerous places in the environment	L		x		
x	x				Be able to look for information and directions in the environment, for example oral instructions or road signs	L		x		x
x	x	x			Learn to read and use directions from signs	L	x	x		x
			x		Participate in movement and sports outdoors	Í	x	x		
			x		Go for walks and enjoy the outdoors at all times during the school year	Í	x	x		X
x	x	x		x	Figure out which natural elements have shaped their environment	S	x	x		X
			x	x	Get to know the importance of nature conservation and how each individual can contribute in that area, for instance by recycling and reuse	S				X
x	x	x	x	x	Understand the importance of the environment for the settlement and survival of the nation both in the past and today	S		x		
		x			Learn about the most common natural disasters and their impact on people's lives	S				X
			x	x	Figure out various elements regarding settlements, working environment and communication and the influence of the interplay between man and nature on them.	S		x		
		x			Monitor news from the outside world, for example news of natural disasters, and connect articles for general discussions in social studies	S				
x	x	x	x		Be aware of which natural elements have shaped their environment	S	x	x		X
x	x				Know places in the immediate vicinity of their homes and know common geographical concepts	S	x	x		
			x		Have ideas about how technology, usefulness and productions of the field are displayed, and be able to discuss their influences on the area	N				
			x		Be aware of the influence the product has on the environment and be able to make suggestions about how to reduce harmful influences should it be necessary (pollution of all kinds: chemical pollution, noise pollution, visual impact, stress, waste)	N				
			x		Know the origin of common food products	H		x		
			x	x	Know what will lead to a better environment (saving energy, using less paper and water, recycling, less use of toxic substances)	H				
			x	x	Know the concepts of environmental protection, reclamation, recycling and pollution	H		x		
			x		Recycle domestic waste	H				
x					Get to know different materials in the vicinity	Nát	X	X		

Classes 5-7

	×	×			Be familiar with both urban and rural environmental values	L		×	×	
×					Be able to understand and apply types of information found in the environment, for instance on signs or product labels	L		×	×	
×	×	×			Know how nature creates continuously changing conditions	S		×	×	
			×	×	Understand how people mould their environment, the importance of nature conservation and the necessity for international co-operation in environmental matters	S			×	
×	×	×			Understand that natural forces are constantly making and moulding the land and they influence how people live	S		×	×	
			×	×	Familiarise themselves with the resources and economic life in their home towns and regions, and be capable of comparing them with the countrywide situation	S			×	
×			×		Consider whether anything in their environment needs special protection	S		×	×	
×	×		×		Get to know Iceland's nature monuments and sites of natural interest	S		×	×	
			×		Gather information about Iceland's natural resources and how they are used	S				
×			×	×	Discuss changes in their immediate environment with nature conservation in mind	S				
×	×				Get to know the landscape, nature and resources of the Nordic countries and the formation of the icecap during the ice age	S		×	×	
			×	×	Become familiar with how the population's manufacturing and consumption affects the natural world	S			×	
×					Know the most important types of energy resources that are used, where to find them and how they were formed	S				
			×	×	Understand the necessity of international co-operation in the field of environmental issues which are not confined to national borders such as pollution and climate change	S				
					Understand how technological changes have affected employment opportunities and people in their home towns in this century	N				
			×		Be able to indicate how the use of technology and automation can help reduce pollution and decrease costs	N				
	×		×		Have gained a positive attitude towards a clean environment, both outdoors and indoors	H		×	×	
×	×				Recognise the most common eco-labels	H				
			×		Be able to distinguish between what can be naturally recycled and what is only available in a limited quantity	Nát				
			×	×	Understand the importance of a healthy atmosphere, where pollution comes from, its effects and what can be done to reduce it—understand the importance of having access to clean water, where	Nát				

water contaminants come from, their effects and what can be done to reduce them										
			x		Recognise that people are part of the natural world and that the livelihoods of future generations will depend on how people treat the natural world	Nát		x	x	
x					Demonstrate responsibility for Icelandic nature and be aware of its uniqueness	Nát		x	x	
			x		Know the most well-known volcanoes and how they can affect local population centres	Nát				
x	x				Be able to apply mathematics to: map reading; processing schedules, timetables and weather reports; assessing travel costs; discussions concerning environmental issues; and similar tasks concerning how individual communicate with the community at large	Math		x	x	
x					Understand how mathematics can be used to describe the natural world—have experience using public data sources to find information about changes to natural phenomena	Math		x		
x					Understand self-sustaining development	Sm				
			x	x	Have an understanding of how to select commonly used materials from an environmental perspective	Sm				
x x					Know how environmentally friendly energy can be used	Sm				
			x	x	Understand the importance of environmentally friendly conduct	Sm			x	
x x					Be aware of people’s responsibilities relating to the use of machinery, using raw materials and their effect on the environment	Sm			x	
			x		Understand that we do not own the environment—we have it on loan	Sm		x	x	
x x					Demonstrate an understanding of the importance of environmental and nature conservation and make a habit of taking a responsible position in these matters	K		x	x	
			x		Have made a habit of taking a responsible position regarding the natural world and how it is treated	K		x	x	

Classes 8–10

				x	Develop an understanding of the concept of self-sustaining development and thereby become aware of the importance of their own contribution to preventing and combating environmental damage	L				
				x	Create opportunities to enjoy being outdoors in the natural world in Iceland	L			x	x
				x	Develop the skills to discuss a range of current issues that might emerge at any time in the local community or in the official arena	L				
				x	Understand the concept of sustainable development and its meaning for maintaining ecological equilibrium	L				
		x		x	Use their natural surroundings for physical and healthy exercise	Í			x	x
x	x			x	Understand how the land and its natural resources, on land and at sea, have moulded society and culture; also how the community has affected the land and its resources	S				x
x	x				Learn about a selected area on the Earth's surface with an emphasis on the home town, Iceland, Nordic countries, Europe, continents and the Earth itself	S			x	x
				x	x	Understand the exploitation of resources and the environment and the value of conserving them both	S			
x	x				Have knowledge of the characteristics of a number of areas from the local town to distant places with respect to the landscape, vegetation, the resources of the population and culture	S				x
				x	Be able to assess the usefulness and value of conserving resources and the environment	S				
x	x	x			Have knowledge of the external and internal forces that have been most effective in creating and moulding the Earth's surface	S			x	x
				x	Understand that the population and industry have an effect on natural resources and the environment	S				
				x	x	Understand a range of natural processes and how they relate to life	S			x
x				x	x	Know about the Earth's main energy and natural resources and how they are used	S			
				x	Know what is most predominant environmental issues and develop an understanding of local and global environmental values	S				
x				x	Learn about the most important natural processes that can cause catastrophic events in Iceland, such as volcanic eruptions, earthquakes, avalanches and storms	S				x
x				x	Understand the effects of the weather on the one hand and erosion on the other through learning about how rock wears and crumbles due to the effects of frost, sun and chemical weathering, and how erosion causes the transport of substances over long distances	S			x	x
x	x	x			Understand what effects the powers of nature have on living conditions and life in general	S				

