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Syllabuses

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Syllabuses for the compulsory school

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Contents

Introduction 5

Art 7

English 11

Home and consumer studies 15

Physical education and health 19

Mathematics 23

Modern languages (except English) 27

Mother tongue 31

Music 35

Science studies 39

– Biology 44

– Physics 48

– Chemistry 52

Social studies 56

– Geography 62

– History 66

– Religion 70

– Civics 74

Crafts 77

Swedish 81

Swedish as a second language 86

Sign language for the hearing 91

Technology 94

Introduction

Syllabuses

The basic regulations for the compulsory school are set out in the Education Act (1985:1100) and the Compulsory School Ordinance (1994:1194). The Government and Parliament through the curriculum lay down the fundamental values that are to permeate the school's activities and the goals and guidelines that are to be applied. Apart from these regulations governing the activity of the school, there are also the syllabuses. These are binding regulations containing the requirements the state imposes on education in different subjects.

The introductory text to the syllabus covers *the aim of the subject* and *its role in education*, and makes clear how the subject contributes to fulfilling the goals of the curriculum, as well as the reasons for studying the subject in order to fulfil different societal and civic needs.

Goals to aim for express the direction the subject should take in terms of developing pupils' knowledge. They clarify the quality of knowledge which is essential in the subject. These goals are the main basis for planning teaching and do not set any limits to the pupils' acquisition of knowledge.

The section on *the structure and nature of the subject* deals with the core of the subject and specific aspects, as well as essential perspectives, which can provide the basis for teaching in the subject. Since the subjects are different, they are described in different ways.

Goals to attain define the minimum knowledge to be attained by all pupils in the fifth and ninth year of school. The goals thus set out a basic level of knowledge required in the subject from both these time perspectives. Goals to attain in the ninth year of school are the basis for assessing whether a pupil should receive the "Pass" grade. The majority of pupils will advance further and should, of course, also advance further in their learning.

The syllabuses are designed to make clear what all pupils should learn, at the same time as they provide great scope for teachers and pupils to choose their own materials and working methods. The syllabuses do not lay down ways of working, organisation or methods. On the other hand, they lay down the qualitative knowledge which teaching should develop and thus provide a framework within which the choice of materials and methods are to be locally determined. At each school and in each class, the teacher must interpret the national syllabuses and together with the pupils plan and evaluate teaching on

the basis of the pupil's preconditions, experiences, interests and needs.

Common to all subjects in the compulsory school is that they should impart pleasure in being creative and a desire to continue learning. In their education pupils should develop the ability to draw conclusions and generalise, as well as explain and be able to provide the reasons for their thinking and their conclusions. Based on their own experiences and questions, pupils can develop good judgement and get a feeling of what is important.

Both the curriculum and the syllabuses should serve as the foundation for planning teaching. Fundamental values such as people's inviolability, the freedom and integrity of the individual, the equal value of all people, equality between women and men, and solidarity with the weak and vulnerable, should not only permeate all teaching in each subject, but should also influence the organisation and co-ordination of teaching in different subjects, as well as the choice of working methods. The goals in the curriculum lay down the orientation of the teaching and the guidelines set out the principles on how the work is to be carried out.

The following sections deal with the syllabuses in alphabetical order. The subjects of biology, physics and chemistry are presented under the heading *science studies* and the subjects of geography, history, religion and civics under the heading *social studies*. The common texts for science studies and social studies, and the syllabuses for individual subjects in each of these groupings together set out the national task of education in these subjects.

The division into subjects is a practical way of organising the contents of the education, but the aim is not, however, to create boundaries between them. Co-operation across subjects is necessary in order to make possible the all-round, meaningful development of knowledge in accordance with the fundamental values of the curriculum, its goals and guidelines.

Art

Aim of the subject and its role in education

Pictures have been an essential part of Man's linguistic and conceptual world throughout known history. Pictures and the visual arts thus provide unique opportunities for studying and reflecting over how people think, create and experience themselves and the surrounding world in different periods and cultures, and constitute an important part of the cultural heritage the school should impart. Pictures and working with pictures is in itself also a tool for development and learning.

The subject aims at developing not only a knowledge of art, but also a knowledge of creating, analysing and communicating visually. It should develop desire, creativity and creative abilities, provide a general education in the area of the arts and lead to pupils acquiring their own standpoint in a reality characterised by huge flows of visual information.

Pictures and different forms of artistic representation create opportunities for formulating issues, experiencing and reflecting over one's own and others' experiences, as well as stimulating the ability to critically examine and explore personal views. A knowledge of pictures and visual communication is an important prerequisite for active participation in the life of society. The development of the ability to create pictures increases the opportunities for children and youth to use their freedom of expression culturally, which covers not only the right to form their own views, but also to try to influence others. The education asserts the rights of children and youth to fully participate in artistic and cultural life, as well as guarantee them, together with the cultural institutions of society and a free cultural life, their right to cultural diversity.

The subject trains the ability to see, experience and reflect over internal and external forms of the environment, colour and function, as well as emphasises the importance of the environment in creating a sense of well-being, enjoyment in work and its impact on education. The education aims to satisfy the need for beauty and the desire to actively improve one's own environment.

Knowledge of art and creating pictures is of great importance for work in the school and for other parts of pupils' lives and activities. The language of art is one of many ways to achieve knowledge and personal development. In working with pictures, experiences are represented, knowledge is acquired and becomes visible, understandable

and possible to communicate. As a result of its aesthetic and communicative nature, the subject can contribute to promoting the school as a cultural environment, as well as cultural work, and also participation and personal creativity.

Goals to aim for

The school in its teaching of art should aim to ensure that pupils

- develop their ability so that they are able to enjoy creating their own pictures with the help of handicraft-based methods and techniques, as well as methods using computers and video technology,
- become aware of the picture as a means of communication and its role and use in different contexts and cultures, as well as develop the ability to communicate by means of their own and others' pictures,
- develop the ability to analyse and discuss pictures and also an understanding that pictures carry and create meaning, and have a content, in addition to what they actually represent,
- acquire not only a general knowledge of art and cultural history, but also knowledge of the importance of architecture and design for their own environment,
- are familiar with cultural activities in the area of art, as well as its professional practitioners.

Structure and nature of the subject

Pictures fascinate, affect, inform and influence people, consciously and unconsciously. The different functions and contexts of visual language also reflect people's conditions and relations, motives and ambitions.

Pictures are closely connected to our visual senses, to how we perceive and how we are perceived. The picture we perceive is not an objective reproduction of what the naked eye sees. The media's integration of pictures, words and sounds weaves a tapestry of meaning which influences our perceptions. The subject covers examining the way in which the media world represents class, ethnicity and gender.

Art has its own distinctive forms of expression and covers everything from children's pictures, works of art, pictures used in the media, in architecture and in design. The language of art is typified by a wealth of techniques and visual narrative forms which cover a wide area of pictorial codes. It is a language which exhibits different degrees of realism and symbolic representational forms, as well as spatial qualities and relations.

Visual representation is of growing importance in the information society. The media society of today is widely influenced by a global visual culture. Pictures occupy a prominent position in commercial

contexts and play an important role in forming public opinion. Popular culture provides the most dominant category of pictures in the life of children and young people, and has an influential role in their construction of identity, knowledge and culture. Increasing diversity in art, the growth of information technology and changes in the conditions by which pictures are produced are rapidly changing educational structures in the cultural area.

Pictures interact together with other forms of expression, such as speech, text and music within the framework of an expanding concept of text. Communication today largely takes place through combinations of different media, which impose demands on inter-disciplinary work. The same applies to areas such as architecture and design.

The subject of Art focuses on providing a knowledge of creating pictures and forms, visual communication, as well as decoding, interpreting and analysing pictures and forms that are part of the tradition of different societies and cultures in art and popular culture.

The subject of Art also covers making not only two- and three-dimensional pictures, but also animated pictures to develop different ways of perceiving and creating. Being able to give form to this, irrespective of the medium used, presupposes a knowledge of techniques and methods, as well as how pictures function both as a language and means of communication. Working with different media places demands on co-ordination, compromises and group learning processes.

The subject of Art develops the ability to observe and also creative visualisation. This may involve examining a picture's representation of reality and how this is expressed in pictures, films and on TV. This may involve fine-tuning our ability to observe a picture, but it may also involve moving away from the picture as such, and understanding the social and cultural patterns that create conventions. It can also deal with looking at the school as a physical environment, and examining it in terms of architecture, space and form, discovering new colour and design solutions and other undiscovered opportunities, as well as creating curiosity, interest and a desire for improvement.

The subject of Art bears the main responsibility for developing the pupils' visual language, at the same time as all subjects have a responsibility for creating greater awareness of the visual world, the different functions of art in school and society, as well as the importance of working with art for the pupils' learning.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to produce pictures and forms with the help of different tools and techniques,
- be able to use pictures of their own and others to relate, describe or explain,
- have basic skills in examining and interpreting pictures and forms,
- be familiar with some artists and their work.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- have the ability to look at and describe pictures and forms by using traditional and modern methods and techniques,
- be able to use pictures of their own and others for specific purposes,
- be able to analyse and critically examine works of art, advertising material and propaganda, news and information in the form of 3-D representations, still and animated pictures,
- have a familiarity with and be able to describe pictures from different periods and cultures, and be familiar with some prominent artists, as well as be oriented to current activities in the area of art.

English

Aim of the subject and its role in education

English is the mother tongue or official language of a large number of countries, covering many different cultures, and is the dominant language of communication throughout the world. The ability to use English is necessary for studies, travel in other countries and for social and professional international contacts of different kinds. The subject aims at developing an all-round communicative ability and the language skills necessary for international contacts, and an increasingly internationalised labour market, in order to take advantage of the rapid developments taking place, as a result of information and communications technologies, as well as for further studies. The subject has, in addition, the aim of broadening perspectives on an expanding English-speaking world with its multiplicity of varying cultures.

All pupils need to be prepared so that on their own they can further develop their knowledge after completing schooling. The subject thus also aims at pupils maintaining and developing their desire and ability to learn English.

Goals to aim for

The school in its teaching of English should aim to ensure that pupils

- develop their ability to use English to communicate in speech and writing,
- deepen their understanding of spoken English in different situations and contexts,
- develop their ability to actively take part in discussions and written communication, express their own thoughts in English, as well as understand the views and experiences of others,
- develop their ability to use English orally in different contexts in order to relate, describe and explain, as well as give reasons for their views,
- develop their ability to read different types of texts for pleasure and to obtain information and knowledge,
- develop their ability to express themselves with variety and confidence in writing in order to relate, describe and explain, as well as give reasons for their views,

- develop their ability to analyse, work with and improve their language in the direction of greater variation and accuracy,
- develop their ability to use aids and critically examine sources of information,
- develop their ability to reflect over ways of living and cultures in English-speaking countries and make comparisons with their own experiences,
- develop their ability to reflect over and take responsibility for their own language learning and consciously use different ways of working to support their own learning,
- develop their ability to plan, carry out and evaluate tasks on their own and in co-operation with others.

Structure and nature of the subject

The English language and other forms of culture from English-speaking countries are widely accessible in Swedish society. Pupils encounter today many variants of English outside school. They meet English in a variety of contexts: on TV, in films, in the world of music, via the Internet and computer games, in texts and via contacts with English-speaking people. The subject of English provides both a background to and a wider perspective on the cultural and social expressions surrounding pupils in today's international society. The subject covers both examining the meaning conveyed by language and making use of the richness and variety of English, which children and young people meet outside the school.

English should no more than other languages be divided up into separate parts to be learnt in a pre-determined sequence. Both younger and older pupils relate, describe, discuss and reason, even though this takes place in different ways at different language levels and within different subject areas.

The different competencies involved in all-round communicative skills have their counterparts in the structure of the subject. Amongst these is the ability to master a language's form, i.e. its vocabulary, phraseology, pronunciation, spelling and grammar. Competence is also developed in forming linguistically coherent utterances, which in terms of contents and form are increasingly adapted to the situation and audience. When their own language ability is not sufficient, pupils need to compensate for this by using strategies, such as reformulating, or using synonyms, questions and body language. The ability to reflect over similarities and differences between their own cultural experiences and cultures in English-speaking countries is developed continuously and leads eventually to an understanding of different cultures and inter-cultural competence. An additional competence is an awareness of the process involved in learning a language.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to understand the essential content of simple instructions and descriptions given in clear speech at a relaxed tempo in areas familiar to the pupils,
- be able to take part in simple discussions on everyday and familiar subjects,
- be able to orally relate something about themselves and others in a simple form,
- be able to read and assimilate the most important contents of simple instructions and descriptions,
- be able to make themselves understood in simple written form in order to convey information,
- be familiar with some aspects of everyday life in a country where English is used,
- be able to reflect over their own learning of e.g. words and phrases,
- be able to carry out short, simple oral and written tasks in co-operation with others and on their own.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- understand clear speech, even though regional in nature, in instructions, narratives and descriptions concerning familiar conditions and their own areas of interest,
- be able to actively take part in discussions on familiar subjects and with the help of different strategies communicate effectively,
- be able to orally relate and describe something which they have seen, heard, experienced or read, as well as express and give their reasons on how they understand a topic that is of personal importance,
- be able to read and assimilate the contents of relatively simple literature and other narratives, descriptions and texts putting forward argument in subjects they are familiar with,
- be able to ask for and provide information in writing, as well as relate and describe something,
- have a knowledge of everyday life, society and cultural traditions in some countries where English occupies a central position, as well as be able to make comparisons with their own cultural experiences,
- be able to reflect over and draw conclusions about their way of learning English,

- be able to choose and use aids when reading texts, writing and in other language activities,
- be able, on their own and together with others, to plan and carry out work tasks, as well as draw conclusions from their work.

Home and consumer studies

Aim of the subject and its role in education

The subject of Home and consumer studies provides knowledge about life in the home and family, as well as an understanding of the value of this knowledge for individuals, society and nature. The subject provides experiences of social community, food and meals, housing and consumer economics, as well as opportunities to experience connections and pleasure in domestic work. The aim is to provide experiences and an understanding of the consequences of daily activities and habits in terms of economics, the environment, health and well-being.

Values in daily life are expressed in different ways and conflicts can occur between thoughts, words and actions. By means of practical activities in the household, people develop an awareness of their own values and an ability to form their ethical views. The subject provides both knowledge of and experience in making different decisions and choices in a household. The subject develops the ability to evaluate and manage the increasing flow of information and advertising from a household perspective. The aim is to be able to meet changes, take responsibility and act on the basis of a knowledge of the interaction between households, society and nature.

A democratic society with gender equality presupposes that women and men have the same rights, obligations and opportunities. The subject helps boys and girls to shape their identity by giving them experiences and a knowledge of the connection between gender equality and activities in the household. The subject also provides experiences and an understanding of variations in household work over time and between cultures. The aim is to create a preparedness for living and acting together in a diverse society.

Goals to aim for

The school in its teaching of home and consumer studies should aim to ensure that pupils

- develop confidence in their own ability to independently and together with others carry out tasks in the household, as well as develop a reflective attitude to these,
- put into practice the principles of democracy and gender equality, as well as experience and understand their importance for activities in the household and relations between individuals,

- develop their understanding and a permanent interest in how activities in the household interact with health, economics and the environment, both locally and globally,
- develop skills in organising, preparing and arranging meals, as well as an understanding of the importance of meals for developing a sense of community, health, communication and culture,
- acquire knowledge of creating and taking care of the home and develop insights into the importance of the home environment from cultural, economic and health perspectives,
- learn to plan their finances on the basis of their own and the household's resources, examine and assess information and advertisements, as well as act in accordance with well-considered decisions,
- develop a knowledge of different ways of living together and the effect of historical and cultural traditions on activities in the household,
- develop their ability to be creative in household activities and their ability to adapt their actions to different situations and changing resources.

Structure and nature of the subject

Home and consumer studies focus on the various activities of the household, which cover a sense of community, food and meals, housing and consumer economics. These areas of knowledge are integrated into a meaningful whole that is managed by individuals in a household. By carrying out different tasks, pupils obtain experience of activities in the household and knowledge of different conditions, such as information, economic resources, and the division of work in the household. In the subject the different abilities needed for everyday living are developed. Pupils' practical skills are developed together with the ability to communicate and act, independently and in co-operation with others. Work in the household is covered, both as a physical activity and as a means of satisfying the senses, by creating joy and a delight in future learning.

The activities of the household are central to the individual's health and well-being and they take place in interaction with society and nature. Health and well-being have a number of different dimensions: economic, material, physiological and psychosocial. These are interwoven in different ways and deal with the responsible use of resources, strengthening pupils' confidence in their own ability to act and interact with others. Household work is carried out both for one's own personal benefit and the well-being of others. It is often carried out together with others, everyone can contribute and everyone can develop their abilities.

Resource management refers to the management of human, economic and other material resources, as well as natural resources, both locally and globally. An understanding of the interaction between the household, society and nature provides the basis for pupils to actively take part in creating a conscious lifestyle and a sustainable society.

The subject of Home and consumer studies considers the changes in society taking place in the direction of pluralism and diversity. Historical, international and cultural comparisons provide an insight into traditions, changes and variations concerning household activities and relations between people. The subject helps individual pupils to develop their ability to identify, analyse and formulate issues concerning gender equality which may occur in different groups, as well as reflect over the consequences of alternative choices.

By means of carrying out different household activities, pupils get experiences through their different senses of sight, feeling, taste and smell. In the work process, both ethical, aesthetic and creative values are developed. Language and mathematical skills are used in concrete and meaningful contexts, where feedback is grounded in the pupil's own actions and sense perceptions. The need for habits and routines is discussed in the subject and opportunities are created to experience joy, community and meaning in daily work.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to prepare food and arrange meals and understand their cultural and social values,
- be able to use different foods, methods and appliances in the household and thereby take into account health, household economy and the environment,
- be able to co-operate with others when carrying out different tasks,
- when carrying out different tasks in the household, be able to compare prices and understand the differences between information and advertising.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to plan, prepare, arrange and evaluate meals with respect to costs, health, environmental and aesthetic values,
- have a knowledge of resource management in order to choose and

use methods, appliances and technical equipment for preparing food, cleaning and washing in the household, as well as be able to handle these in ways that are appropriate from functional and safety viewpoints,

- be able to co-operate with others irrespective of differences concerning gender and ethnicity, as well as have insights into cultural variations and the relationship between household work and gender equality,
- be familiar with their rights as consumers and be able to evaluate different kinds of information when carrying out activities in the household.

Physical education and health

Aim of the subject and its role in education

Sports, outdoor life and different forms of exercise and recreation are of great importance for health. Children and youth need to acquire knowledge of how the body works, and how habits, regular physical exercise and outdoor life are related to their physical and psychological well-being. The subject aims at developing pupils' physical, psychological and social abilities, as well as providing knowledge of the importance of lifestyle for health.

For generations a variety of physical activities and outdoor life have been developed. The subject provides a knowledge of their growth, experiences of participating in and carrying out such activities. The subject should also contribute to arousing curiosity and creating interest in new activities. A basic aim of the subject is also to create conditions so that everyone can participate in different activities on their own terms, develop a sense of community and the ability to co-operate, as well as an understanding and respect for others.

Physical activities provide a common denominator for different cultures. The subject provides opportunities to strengthen the sense of comradeship between children and young persons in a multi-cultural and international society.

Goals to aim for

The school in its teaching of physical education and health should aim to ensure that pupils

- develop their physical, mental and social ability, as well as develop a positive self-image,
- develop their knowledge of what promotes good health,
- develop a keen awareness of their own bodies, and a knowledge which makes it possible to see, choose and evaluate different forms of exercise from a health perspective,
- develop a permanent interest in regular physical activity and take responsibility for their own health,
- develop and strengthen their ability and desire to exercise, as well as be encouraged to express their imagination, feelings and sense of community,
- develop the ability to play, exercise and take part in sports on

- their own and together with others,
- develop a knowledge so they can critically assess unsatisfactory conditions, which can occur in connection with different types of physical activities, as well as be able to take personal views on sports and health issues,
 - develop the ability to organise and lead activities,
 - get an insight into the history of sports and recreational activities, as well as become familiar with different types of games, dances and sports as practised in different cultures,
 - develop a knowledge of how to handle emergency situations.

Structure and nature of the subject

Physical education and health covers a wide area. The core of the subject is sports, games and all-round physical activities designed so that everyone, irrespective of physical or other conditions, should be able to participate, obtain experiences, as well as develop on their own terms. A health perspective is fundamental to both physical and mental health, as well as social well-being. The subject thus develops an outlook on sports and health, which is of importance during adolescence and later stages of life. The subject stimulates and involves all in taking personal responsibility for organising and carrying out exercise and physical training.

There is a close relationship between lifestyle, living environment, health and quality of life. The subject thus provides a knowledge of how good health and good living and working conditions can be promoted. The subject also covers training for emergency situations, as well as life-saving and first aid in the event of accidents.

The subject takes a holistic view of the human being, i.e. the human body, feelings, intellect and thoughts are dependent on each other, and in this way contributes to pupils' developing an understanding and awareness of the human body. The subject provides an opportunity to discuss in a natural context, not only health, but also ethical issues connected to sports and outdoor life. Together with a knowledge of the great variety and trends, which are linked to the modern culture of physical training, the subject provides opportunities to question the models disseminated by different media. Questions are also covered on understanding Man's different conditions in terms of physical activities from ethical perspectives. A cultural perspective in the subject reflects both traditions and ways of thinking in Sweden, as well as attitudes and different forms of physical activity in other cultures.

Developing all-round physical activities is a basic part of the subject and a repertoire of all-round physical activities can provide the basis for an active and healthy lifestyle. A positive experience of

movement and rhythm is in its turn a basis for individual and group exercises, and thus promotes not only improvisational and aesthetic, but also different motor skills. This provides opportunities for developing skills in thinking and feeling, movement and sports, as well as training stamina, strength and mobility.

The subject is linked to well-established cultural traditions existing in Sweden concerning the enjoyment of nature. Through outdoor activities and experiencing forests and nature, pupils gain awareness, knowledge and experiences which can stimulate a continuing interest in outdoor life, nature and environmental issues. The subject also helps to stimulate involvement in the importance of protecting and safeguarding nature and the environment.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to manage basic motor activities and perform movements with balance and body control, as well as be able to perform simple dances and movements to music,
- be able to swim and manage emergency situations connected with water,
- be able to orient themselves and establish their location by using simple aids,
- have a basic knowledge of outdoor life, as well as a familiarity with the principles of common rights of access,
- be familiar with and able to give viewpoints on the working environment in the school,
- have experience of some common sports activities, as well as know something about the risk of injury and how this can be avoided.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- understand the relationship between food, exercise and health, and be able to apply a knowledge of ergonomics in everyday situations,
- be able to participate in games, dance, sports and other activities, and be able to perform movements appropriate to a task,
- be able to design and carry out activities for their own exercise,
- be able to orient themselves in unknown areas by using different aids, as well as be able to plan and carry out a field trip in nature during different seasons of the year,

- have a knowledge of emergency first aid,
- have a knowledge of common physical activities and how these can be performed safely.

Mathematics

Aim of the subject and its role in education

The compulsory school has the task of providing pupils with the knowledge in mathematics needed for them to be able to make well-founded decisions when making different choices in everyday life, in order to be able to interpret and use the increasing flow of information and be able to follow and participate in decision-making processes in society. The subject should provide a sound basis for studying other subjects, for further education and lifelong learning.

Mathematics is an important part of our culture and the education should give pupils an insight into the subject's historical development, its importance and role in our society. The subject aims at developing the pupil's interest in mathematics, as well as creating opportunities for communicating in mathematical language and expressions. It should also give pupils the opportunity to discover aesthetic values in mathematical patterns, forms and relationships, as well as experience satisfaction and joy in understanding and solving problems.

The subject should give pupils the opportunity to practise and communicate mathematically in meaningful and relevant situations through actively and openly searching for understanding, new insights and solutions to different problems.

Goals to aim for

The school in its teaching of mathematics should aim to ensure that pupils

- develop an interest in mathematics, as well as confidence in their own thinking and their own ability to learn and use mathematics in different situations,
- appreciate the important role mathematics plays in different cultures and activities, and become familiar with historical contexts, where important concepts and methods in mathematics are developed and used,
- appreciate the value of and use mathematical forms of expression,
- develop their ability to understand, carry out and use logical reasoning, draw conclusions and generalise, as well as orally and in writing explain and provide the arguments for their thinking,
- develop their ability to formulate, represent and solve problems with the help of mathematics, as well as interpret, compare and

- evaluate solutions in relation to the original problem situation,
- develop their ability to use simple mathematical models, as well as critically examine the assumptions, limitations and uses of these models,
- develop their ability to make use of pocket calculators and computers.

The aim should also be that pupils develop their numerical and spatial understanding, as well as their ability to understand and use:

- basic numerical concepts and calculations with real numbers, approximate values, proportionality and percentages,
- different methods, measuring systems and instruments to compare, estimate and determine the size of important orders of magnitude,
- basic geometrical concepts, properties, relations and propositions,
- basic statistical concepts and methods for collecting and processing data and for describing and comparing important properties of statistical information,
- basic algebraic concepts, expressions, formulae, equations, and inequalities,
- properties of different functions and their corresponding graphs,
- the concept of probability in concrete random situations.

Structure and nature of the subject

Mathematics is a living human construction involving creativity, research activities and intuition. Mathematics is also one of our oldest sciences and has been considerably stimulated by the natural sciences. The subject of Mathematics is based on the concept of number and space and studies concepts with well-defined properties. All mathematics contains some degree of abstraction. Similarities between different phenomena are observed and these are described in mathematical terms. A natural number is one such abstraction.

Applications of mathematics enable problems in everyday life, societal life and in scientific activities to be formulated in mathematical models. These are studied through mathematical methods. The value of the results achieved depends on the extent to which the model describes the problem. Powerful computers have made it possible to apply more precise models and methods in areas where previously this was not practically feasible. This has also led to the development of new research areas in mathematics, which in their turn have led to the development of new applications.

Problem solving has always occupied a central place in the subject of mathematics. Many problems that are directly connected to con-

crete situations can be solved without using mathematical expressions and methods. Other problems need to be removed from their context, and be provided with a mathematical interpretation and solved with the help of mathematical concepts and methods. The results can thereafter be interpreted and evaluated in relation to the original context. Mathematics may also be used to solve problems, which are directly linked to concrete reality. In order to successfully apply mathematics, a balance is required between on the one hand creative, problem solving activities, and on the other knowledge about mathematical concepts, methods and forms of expression. This applies to all pupils, not only those who need special support, but also those who need special challenges.

Mathematics is closely connected with other school subjects. Pupils obtain experiences from the surrounding world and can thus use this as a basis for expanding their mathematical skills.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should have acquired the basic knowledge in mathematics needed to be able to describe and manage situations, and also solve concrete problems in their immediate environment.

Within this framework, pupils should

- have a basic understanding of numbers, covering natural numbers and simple numbers in fractions and decimal form,
- understand and be able to use addition, subtraction, multiplication and division, as well as be able to discover numerical patterns and determine unknown numbers in simple formulae,
- be able to calculate in natural numbers – in their head, and by using written calculation methods and pocket calculators,
- have a basic spatial understanding and be able to recognise and describe some of the important properties of geometrical figures and shapes,
- be able to compare, estimate and measure length, area, volume, angles, quantities and time, as well as be able to use drawings and maps,
- be able to read off and interpret data in tables and diagrams, as well as be able to use some elementary co-ordinates.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should have acquired the knowledge in mathematics needed to be able to describe and manage situations, as well as solve prob-

lems that occur regularly in the home and society, which is needed as a foundation for further education.

Within this framework, pupils should

- have developed their understanding of numbers to cover whole and rational numbers in fraction and decimal form,
- have good skills in and be able to make estimates and calculations of natural numbers, numbers in decimal form, as well as percentages and proportions in their head, with the help of written calculation methods and technical aids,
- be able to use methods, measuring systems and instruments to compare, estimate and determine length, area, volume, angles, quantities, points in time and time differences,
- be able to reproduce and describe important properties of some common geometrical objects, as well as be able to interpret and use drawings and maps,
- be able to interpret, compile, analyse, and evaluate data in tables and diagrams,
- be able to use the concept of probability in simple random situations,
- be able to interpret and use simple formulae, solve simple equations, as well as be able to interpret and use graphs for functions describing real relationships and events.

Modern languages (except English)

Aim of the subject and its role in education

The subject of Modern languages aims at pupils developing an all-round communicative ability. The ability to use a number of languages is important for international contacts, and for an increasingly internationalised labour market in order to take advantage of the rapid developments taking place in information and communications technologies, as well as for further studies. A knowledge of languages is needed for studies, travelling in other countries and for social and vocational contacts of different kinds.

Modern languages are used as the mother tongue in many different cultures and many of them are official languages in a number of different countries. The subject of Modern languages aims to provide a broader perspective of the surrounding world and of different cultures.

All pupils need to be prepared so that they can further develop their own knowledge after completing schooling. The subject thus aims at pupils maintaining and developing their desire and ability to learn languages.

Goals to aim for

The school in its teaching of modern languages should aim to ensure that pupils

- develop their ability to use the language to communicate in speech and writing,
- deepen their understanding of the spoken language in different situations and contexts,
- develop their ability to actively take part in discussions and written communication, express their own thoughts in the language, as well as understand the views and experiences of others,
- develop their ability to use the language orally in different contexts to relate, describe and explain, as well as give reasons for their views,
- develop their ability to read different types of texts for pleasure and to obtain information and knowledge,
- develop their ability to express themselves with variety and confidence in writing to relate, describe and explain, as well as give reasons for their views,
- develop their ability to analyse, work on and improve their lan-

- guage in the direction of greater variation and accuracy,
- develop their ability to use aids and critically examine sources of information,
- develop their ability to reflect over ways of living and cultures in the countries where the language is spoken and make comparisons with their own experiences,
- develop their ability to reflect over and take responsibility for their own language learning, and consciously use different ways of working to support their own learning,
- develop their ability to plan, carry out and evaluate tasks on their own and in co-operation with others.

Structure and nature of the subject

The subject of Modern languages provides the background for and a wider perspective on the cultural and social expressions which pupils are both a part of and surrounded by. The subject covers both making use of the language, as well as examining the meaning it conveys and the variety of language forms, which children and young people meet outside the school. Contacts with other cultures requires both knowledge of the language itself, as well as insights into its cultural, social and political conditions.

A modern language should not be divided up into different parts to be learnt in a specific sequence. Both young and older pupils relate, describe, discuss and debate different areas, even though this takes place in different ways at different language levels and within different subject areas.

The different competencies involved in all-round communicative skills have their counterparts in the structure of the subject. Amongst these is the ability to master a language's form, i.e. its vocabulary, phraseology, pronunciation, spelling and grammar. Competence is also developed in forming linguistically coherent utterances, which in terms of contents and form are progressively adapted to the situation and audience. When their own language ability is not sufficient, pupils need to compensate for this by using strategies, such as reformulating, or using synonyms, questions and body language. The ability to reflect over similarities and differences between their own cultural experiences and cultures in countries where the language is spoken is developed continuously and leads in the long term to understanding of different cultures and inter-cultural competence. An additional competence is an awareness of the process involved in learning a language.

The subject of Modern languages covers many different languages which can be studied in the compulsory school in Sweden.

In some parts of the world, French is the only common language. There have been intensive links between France and Sweden through the centuries in scientific and cultural areas. French has also been an important language in communication of different kinds, in international organisations and in diplomacy. This is reflected to a very high degree in Swedish vocabulary where there is a significant quantity of French loan words. Today Sweden also has close connections with a number of different French-speaking countries. The French language provides an enhanced perspective on the Romance culture and on other French-speaking cultures.

Spanish is spoken in many countries on a number of continents. In Latin America, Spanish is the most common language. A large number of immigrants with Spanish as their mother tongue arrived in Sweden in the 1960s. A knowledge of Spanish creates opportunities to appreciate a wealth of literature.

German is the language spoken by most people in Europe. Since the Middle Ages, the economic and cultural links between Sweden and German-speaking countries have been of great importance. New cultural expressions have often reached Sweden via these countries and through the German language. Both languages share to a great extent a common history, and Swedish vocabulary has a large number of words of German origin. A knowledge of German provides access to the literature and culture of Central Europe. Since the ability to use English is not as widespread in German-speaking countries as in Sweden, the ability to communicate in German will also be necessary in the future for both social and professional purposes.

Other modern languages included in the subject may be very different. Each language has its own distinctive character, which influences the approaches needed for pupils to attain all-round communicative skills. In certain languages, e.g. Arabic, there are great differences between everyday speech and formal, official and ceremonial language. Pupils studying such a language must learn both variants of the language.

There are differences between writing systems. Languages such as Russian have an alphabetical writing system, but their letters differ from those in the Latin alphabet, and are easier to learn than languages which have a writing system where each letter corresponds to a syllable or word. Learning to read and write a language such as Chinese, where each letter corresponds to a syllable or a word, takes a long time. Certain languages do not have extensive literary and written sources. They may be languages where writing conventions have only been worked out in modern times. Somali is, for instance, such a language.

Goals that pupils should have attained by the end of the fifth year in school, within the framework of pupils' choices

Pupils should

- be able to understand the essential content of simple instructions and descriptions, given in clear speech at a relaxed tempo in areas familiar to the pupils,
- be able to take part in simple discussions on everyday and familiar subjects,
- be able to orally relate something about themselves and others in a simple form,
- be able to read and assimilate the most important contents of simple instructions and descriptions,
- be able to make themselves understood in simple written form in order to convey information,
- be familiar with some aspects of everyday life in a country where the language is used,
- be able to reflect over their own learning of e.g. words and phrases,
- be able to carry out short, simple oral and written tasks in co-operation with others and on their own.

Goals that pupils should have attained by the end of the ninth year in school, within the framework of language choices

Pupils should

- be able to understand the essential content of simple instructions, narratives and descriptions in areas well-known to them,
- be able to take part in simple conversations on everyday subjects,
- be able to orally relate something about themselves and others,
- be able to read and assimilate simple instructions, narratives and descriptions,
- be able to communicate information, relate or describe something in very simple written forms,
- be familiar with everyday life, ways of living and traditions in some countries where the language is used,
- be able to reflect over their own learning of e.g. pronunciation and reading,
- be able to carry out short, simple oral and written tasks in co-operation with others and on their own.

Mother tongue

Aim of the subject and its role in education

Knowledge of one's own mother tongue is of vital importance for personal and cultural identity and for intellectual and emotional development. The subject of Mother tongue aims at giving pupils with a mother tongue other than Swedish, opportunities together with others to further develop a knowledge of their mother tongue. By this means they can strengthen their self-esteem and gain a clearer understanding of their own life situation.

The subject in addition aims at supporting the development of pupils into multilingual individuals with a multicultural identity. Learning is closely related to the mother tongue and developing a knowledge of one's own language is also a way of learning of Swedish. The subject thus has the important task of supporting pupils in their acquisition of knowledge.

The mother tongue is the key to and brings to life different aspects of cultural heritage. By obtaining knowledge about their cultural background and their own minority culture in Sweden, pupils studying their mother tongue can make comparisons between different cultures and thus better understand their own situation. An additional aim of the subject is to work to increase understanding between different peoples and cultures.

Goals to aim for

The school in its teaching of mother tongue should aim to ensure that pupils

- develop their ability to understand and express themselves orally and in writing in the mother tongue,
- develop their ability to be able to read with profit and understand different kinds of texts in the mother tongue,
- acquire a knowledge of the structure of the language in order to be able to make comparisons between their mother tongue and Swedish and thus develop their bilingualism,
- acquire a knowledge of the history, traditions and social life in their culture of origin and the ability to make comparisons with Swedish conditions,
- strengthen their self-esteem and identity, and acquire dual cultural affiliation,
- establish good reading habits through reading literature or assi-

- milate literature in other ways,
- learn to become familiar with parts of their cultural heritage, and be able to relate this to themselves and their own situation,
 - learn to use their mother tongue as an instrument for acquiring knowledge and thus develop a vocabulary and repertoire of concepts in different areas.

Structure and nature of the subject

Language studies based on literature and cultural knowledge are the core of the subject. Reading, writing and discussions concerning the pupils' own experiences and participation in two or more cultures forms the foundation for the development of language work in the subject. Characteristic of the subject is that the language is used for thinking and building up identity. The content chosen in the subject is related to other school work.

The subject is intended for those pupils who use their mother tongue as a means of social communication. Pupils who are not bilingual can instead choose to study the language of their own country of origin as a foreign language in accordance with the syllabus for modern languages (except English) and begin at a level that corresponds to their existing knowledge.

The subject varies since different mother tongues provide different conditions for studies. There are languages which do not have such a highly developed written culture and lack, for instance, literature for children and young people. Public language and the language used in school may differ from the mother tongue which is used in the family and everyday life. In such situations in order to participate in the literary tradition and oral culture, approaches other than reading printed texts must be exploited. There are also languages, whose alphabet differs considerably from the Latin alphabet, and in these languages it may be more difficult to learn the written language.

Language knowledge and reading of literature

Essential to the subject is that good language skills are acquired when the language is used in meaningful contexts and with meaningful contents. Language abilities are developed through actively working with the mother tongue, i.e. taking part in discussions, relating and presenting to others, reading and understanding, as well as by expressing feelings, thoughts and ideas through writing. On the basis of their own experiences, pupils build up their knowledge of how the language works in interaction between people, and opportunities are provided for developing a perspective of one's own language ability. Comparisons between the mother tongue and Swedish develop an understanding of the importance and structure of the language.

Literature and the oral tradition convey not just a major part of cultural heritage, but also impart knowledge. By working with literature, opportunities are created for getting answers to questions which can arise amongst those who share two cultures. This takes place through exposure to literature in sagas and poetry, plays and narratives in not only literature for children, but also youth and adult literature.

Assimilating and working through a text does not necessarily mean reading, but may also involve listening to tapes, looking at films and videos, as well as studying pictures and the contents of music and other modern media. A broader concept of text covers pictures, in addition to written and spoken texts.

Knowledge of culture and society

The subject deals with the culture and society of the country of origin. This covers a knowledge of history, traditions, people and the country. Current social conditions are also a part of essential knowledge. The music of one's own cultural group, its songs and ballads, rhymes and jingles are important parts of cultural heritage and are thus covered by the subject.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to take part in discussions, talk about their experiences and events, as well as be able to reproduce the contents of stories,
- be able to read and understand texts of different kinds appropriate to their age,
- be able to write short stories, letters or reports so that the audience can understand,
- be able to talk about their country of origin and life there, and compare this with Swedish conditions.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to actively take part in conversations and discussions, as well as present work orally so that the content is understood,
- be able to write clearly, correctly and vividly so that the language fulfills its purpose and is appropriate to the situation,
- be able to read and understand literature and non-fiction appropriate to their age,
- be able to make observations about and understand basic patterns

- in the language, especially in relation to Swedish,
- have a knowledge of their own culture – its history, traditions and living conditions – as well as a familiarity with its norms and values and be able to compare these with corresponding Swedish conditions.

Music

Aim of the subject and its role in education

Music is deeply rooted in Man and permeates all cultures in a rich variety of different forms. Music integrates and involves thinking and feeling in a direct and immediate way. Music influences the individual on a number of different levels of consciousness at the same time and provides an important tool for learning, recreation, working through conscious and unconscious impressions, as well as represents and conveys ideas and thoughts. The subject of Music aims at giving each pupil a desire and the opportunity of developing their musical skills and to experience that a knowledge of music is grounded in, liberates and strengthens their own identity, both socially, cognitively and emotionally.

In today's international youth culture, music and text are integrated, often in combination with pictures, into new means of expression which reflect and influence the evolving individual's outlook on life. The subject places the experience of music into a new and broader context. This enhances the ability to analyse and evaluate musical experiences, to see the connections between different subjects and cultural differences, as well as encourages active participation through singing, playing and creating music.

Music is a part of cultural heritage. The subject promotes a general awareness of music and provides a basis for participating in the cultural life of the school and society. The subject also aims at providing a historical perspective on music and allowing pupils to experience and understand that music is a social and general cultural instrument used at different levels, covering everything from daily enjoyment of music to the highest forms of artistic expression. Music is also a language that transcends boundaries and promotes understanding and tolerance, as well as facilitates integration and co-operation in school and society.

Goals to aim for

The school in its teaching of music should aim to ensure that pupils

- develop a knowledge of instruments and song as the basis for singing and playing music individually and in groups and for their further development in music,
- develop confidence in their own ability to sing and become aware of the opportunities it provides for development and its social

- importance,
- develop the ability to create their own music to communicate their thinking and ideas,
 - develop the ability of listening with full awareness as a means of experiencing and deepening their knowledge of music,
 - use their knowledge of music to play and sing together and thus develop responsibility and co-operation skills,
 - become intimate with the form, structure, and written language of music, its means of expression, as well as its functions and importance in different environments, cultures and epochs,
 - develop their skills in singing, playing and listening to music drawing on music from different epochs and genres, developing their ability to critically examine and evaluate music, as well as their understanding and respect for other people's musical preferences,
 - become familiar with the interaction between music and other areas of knowledge and develop the ability to combine music with other representational forms such as pictures, text, drama, dance and movement,
 - develop their ability to use IT as a tool both for learning, singing and playing music, as well as a tool for being creative in different ways.

Structure and nature of the subject

Vocal and instrumental music is the core of the subject. Not only playing music on one's own, but also together with others builds up a knowledge of basic concepts such as melody, metre and harmony, as well as the relationship between these. Learning in the subject involves the application of these concepts in singing and also playing and composing music. Intensive listening, regular training, as well as developing listening and recognition are important means of developing personal knowledge and musical experience.

Singing, playing and creating music in a group are the main forms of co-operation where organisation, leadership and judgement are trained. Creativity in the group is also developed, as well as the ability to see and understand relationships between parts and the whole. Individual knowledge is transformed in this way through interaction with others into new levels of awareness and knowledge of music, which enhance the experience of singing and playing music together. When singing, playing and composing music, increasing scope is given to developing a more personal and aesthetic awareness amongst the pupils. Correctness in metre and tone, as in lyrics, is relaxed to provide scope for a freer and more personal means of expression.

Music is of importance for personal development and learning.

The point of contact between music and other subjects can give pupils the opportunity to choose their own personal route to a knowledge of music. The subject can also serve as a concrete starting point and support for learning in other subjects, as well as for attaining the overall goals of the school. The close relationship with languages supports the pupils' development of independent understanding, knowledge and skills in music. Music and language both build on audio-communication and have many elements in common. Music is also closely related to mathematics, since many of the subject's concepts, covering everything from timing and rhythm to keys and chords, are mathematically defined.

The development of IT by providing new opportunities for learning, communication, singing, playing and composing music have changed the subject. This means that even pupils, who are not skilled in playing an instrument, can work independently with music by composing their own music and also learn different parts of the subject.

The interdisciplinary nature of music can provide pupils with opportunities to work together singing, playing music independently of ethnic and cultural background and transform the subject into a socially important instrument in the school. Also in this respect, IT creates new conditions for co-operation and global communication of music over networks.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to take part in choral singing and playing simple forms of melody, rhythm and chords, as well as be able to discuss their musical performance,
- individually and together with others be able to create music in elementary forms,
- understand and use concepts such as melody, chords, pulse, rhythm and timing in different forms of music,
- be aware of and be able to reflect on the functions of music and the way this has been expressed in society in the past and today.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to use their voice in choral and part-singing,
- be able to take part in performing music in a group with melody,

rhythm and chords, as well as be able to reflect over and assess the performance,

- be able to use music, texts and other means of expression to create and improvise in order to represent their thoughts and ideas,
- be able to apply central concepts of the subject when singing, playing, creating and listening to music,
- have a knowledge of different forms of expression in music, its functions and traditions in different cultures, as well as be able to reflect on these from the perspective of music in Sweden today,
- be aware of the effect of different sounds and musical environments on people as well as the importance of audiology.

Science studies

Biology, physics, chemistry

Common syllabus text

The common syllabus text, designed from a natural science perspective, makes up together with the syllabuses for the different subjects a meaningful whole, whose parts support and complement each other. The different parts together form the national task for education in science studies.

The area of science studies is linked to knowledge in the other subjects of the school.

Aim of the subjects and their role in education

The natural sciences have developed as a result of Man's need to find answers to those issues concerning his existence, life and forms of life, our role in nature and the universe. The natural sciences are thus a central part of the Western cultural tradition. The natural sciences can both stimulate Man's fascination and curiosity in nature and make it understandable. Natural science studies satisfy the desire to explore nature and provide scope for the joy of discovery. The aim of science studies is to make the results and working methods of science accessible. The education contributes to society's efforts to create sustainable development and develop concern for nature and Man. At the same time the education aims at an approach to the development of knowledge and views which resonate with the common ideals of the natural sciences and democracy on openness, respect for systematic investigation and well-founded arguments.

Goals to aim for in science studies

The school in its teaching of science studies should aim to ensure that pupils

concerning nature and Man

- believe in and develop their ability to see patterns and structures which make the world understandable, as well as strengthen this ability through oral, written and investigatory activities,

concerning scientific activity

- develop the insight that science is a specific human activity forming part of our cultural heritage,
- develop their ability to see how Man's culture influences and transforms nature,
- develop the ability to see inter-relationships between their observations and theoretical models,
- develop their knowledge of how experiments are performed on the basis of theories, and how this in its turn leads to changes in theories,

concerning use of knowledge

- develop their concern and responsibility when using nature,
- develop the ability to use scientific knowledge and experiences as a basis for examining their views,
- develop a critical and constructive attitude to reasoning of their own and others, showing respect and sensitivity to the views of others.

The structure and nature of science studies

In science studies, three aspects recur, namely knowledge about nature and Man, knowledge of scientific activity, as well as the use of this knowledge to determine personal views on values connected with, for example, environmental and health issues.

Knowledge of nature and Man

Science uses specific assumptions to make nature understandable. The world view this creates differs from those that are obtained through means other than describing nature. The sciences have often taken their starting point in everyday observations and experiences, but during the course of history have developed increasingly generalised explanatory models. Science studies deal not only with scientific interpretations of everyday life, but also the study of scientific issues and theories.

The sciences describe processes in terms of interaction within systems at different levels. For example, a distinction can be drawn between the atomic and molecular level, between single cells and the level of the whole organism, between a global level and the level of the universe. The properties and dynamics of matter, the interaction between radiation and matter and the flow of energy can be observed at different levels. Living organisms, including Man, can also be described in scientific terms. Science studies make these descriptions understandable and enrich our view of different phenomena and of technology in everyday life.

Scientific activity

During the course of history everyday observations and reflections on the interaction between thinking in terms of hypotheses and experimental activities have been developed into theoretical models. In science studies, these models provide tools to clarify and study issues and feelings arising from contact with nature, with the human body and with technology. The models also provide opportunities for asking new questions and creating hypotheses.

Scientific models are continuously subject to review and change. This way of looking at science is clarified in science studies, partly through the use of a historical perspective, and partly by comparisons with world views of other cultures. The way other cultures explain myths, sagas, and science in earlier times, is compared with our own modern conceptions. The basic assumptions about the world, which these different explanatory models are based on, is emphasized in the studies. In this way it also becomes apparent that throughout time and across cultures, there has been a common effort to understand and explain the phenomena of nature.

An important part of scientific activity is characterised by experimental methods involving the testing of hypotheses by means of observations and experiments. This way of working is characteristic of science studies.

Use of knowledge

Many tasks require each and everyone to have a knowledge of science, especially when it comes to environmental and health issues. Focusing on such issues in teaching creates opportunities for pupils to develop their ability to use scientific knowledge and reasoning as a basis for forming their views. The education thus affects pupils both as individuals and as citizens of society.

A critical and constructive attitude to one's own and others' arguments, as well as sensitivity and respect for the reasoning of others and their views are important ideals for a democracy, and are also central principles for dialogue and discussion in the sciences. Of central importance is the view that scientific knowledge is a human construction and that it provides a basis for evaluating views, decisions and measures. It is also important that the education gives prominence to a wide spectrum of arguments, covering ethical, aesthetic, cultural and economic aspects, which are of relevance in discussions concerning Man's ways of living together and using nature.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

concerning nature and Man

- have a knowledge within some scientific areas,
- have a familiarity with narratives about nature which are to be found in our own culture and that of others,

concerning scientific activity

- be able to carry out simple systematic observations and experiments, as well as compare their predictions with actual results,
- be familiar with some episodes in the history of science and through this have an insight into different ways of explaining nature,
- have an insight into different ways of understanding nature, through on the one hand science with its systematic observations, experiments and theories, as well as on the other hand by the approaches used in art, literature, myths and sagas,

concerning use of knowledge

- have a knowledge of how Man's attitude of curiosity to scientific phenomena has led to social progress,
- have a knowledge of management of resources in daily life and about practical measures for conserving resources,
- have an insight into how arguments over daily environmental and health issues can be built up through the use of personal experiences and scientific knowledge.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

concerning nature and Man

- have a knowledge of the universe, the earth, life and Man's development,
- have an insight into how matter and life is studied at different levels of organisation,
- have a knowledge of the cycles of nature and the flow of energy through different natural and technical systems on the earth,

concerning scientific activity

- have a knowledge of scientific ways of working, as well as be able to present their observations, conclusions and knowledge in written and oral form,
- have an insight into the interaction between the development of concepts, models and theories on the one hand, and experiences from investigations and experiments on the other,
- have an insight into how knowledge of nature has developed and how this has both shaped and been shaped by Man's perceptions of the world,
- have an insight into different ways of making nature understandable, through on the one hand science with its systematic observations, experiments and theories, as well as on the other hand by the approaches used in art, literature, myths and sagas,

concerning use of knowledge

- have an insight into the difference between scientific statements and statements based on values,
- be able to use their knowledge of nature, Man and his activities as arguments on issues concerning the environment, health and inter-personal relations,
- be able to provide examples of how the sciences can be used to create not only better living conditions, but also how science can be abused,
- have an insight into the consequences of different aesthetic views on environmental issues.

Biology

Aim of the subject and its role in education

The subject of Biology aims at describing and explaining nature and living organisms from a scientific perspective. At the same time the education should consolidate the fascination and joy of discovery and Man's wonder and curiosity in all that is living. The subject also aims at making knowledge and experiences usable to promote concern and respect for nature and one's fellow men.

Goals to aim for

The school in its teaching of biology should aim to ensure that pupils

concerning nature and Man

- develop their knowledge of different forms and conditions of life,
- develop their knowledge of the interaction between organisms and their environment,
- develop their knowledge of the structure of the human body and its functions,
- develop their knowledge of the effect of puberty on the individual,
- develop their knowledge of the conditions and development of life and are able to see themselves and other forms of life from an evolutionary perspective,

concerning scientific activity

- develop their knowledge of the importance of biology for Man's way of representing, using and experiencing nature,
- develop a knowledge of different working methods in biology, such as field observations and laboratory work, as well as a knowledge of how these interact with theoretical models,

concerning use of knowledge

- develop their concern and responsibility when using nature,
- develop the ability to discuss questions concerning health and inter-personal relationships on the basis of relevant biological knowledge and personal experiences.

Structure and nature of the subject

Four central dimensions characterise the approach of the subject of biology: ecosystem, biological diversity, cells and the human being.

In all these four dimensions, a knowledge of biology is useful in connection with existential issues, which concern both the individual and society as a whole.

Ecosystems

The subject of Biology introduces the concept of ecology and provides a view of the interaction between organisms and their surroundings. The subject covers, amongst other things, a knowledge of subsystems involving producers, consumers, recycling and raw materials, as well as a knowledge of dynamic processes in the ecosystem, such as the flow of energy through the system and the recycling of substances. Studies of individual organisms, populations and their societies provide the foundation for this. The subject also covers the aesthetic and ethical aspects of experiences arising from contact with nature. Questions on the preservation of natural species are dealt with by the tools of science as well as the inspiration and ideas originating from other human activities, such as outdoor life, art and literature.

Biological diversity

The subject presents the way in which the biological sciences organise and systematise the diversity of nature. Fundamental starting points are theories about the ecosystem and evolution, as well as knowledge of different species and a knowledge of the living conditions and relations between plants and animals.

Everyday experience of diversity in nature is often ethical or aesthetic and expressed, for example, in different forms of environmental involvement. One of the most important contributions biology can make to studying Man's relationship with nature is thus to show the diversity of forms of life from scientific, aesthetic and ethical perspectives.

The cell and living processes

Scientific explanations for most of the phenomena and functions, which pupils experience and observe within themselves and their surroundings, can be found in a knowledge of cells. This knowledge, and particularly knowledge about a cell's internal processes, has opened up new opportunities in e.g. genetics. These opportunities create change in Man's living conditions, which involves important ethical aspects. An understanding of this change requires a knowledge of i.a. photosynthesis, combustion and the genetic code.

Human beings

Biology looks at people as biological beings. This includes knowledge about the cell, internal organs and their function, as well as how

these work together. Questions concerning health, drugs and functional disabilities are given prominence. From the perspective of taking responsibility both for themselves and others, questions of love, sexuality and inter-personal relationships are considered.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

concerning nature and Man

- recognise and be able to name common plants, animals and other organisms in the local environment, as well as be familiar with their environmental requirements,
- be able to give examples of the life cycle of some plants and animals and their different growth processes,
- be familiar with important organs in their own bodies and their functions,
- have an insight into human reproduction, birth, puberty, ageing and death,
- have an insight into the effects of addictive substances on health,
- have a familiarity with narratives about nature which are to be found in different cultures,

concerning scientific activity

- have an insight into experimental work, as well as recurring field observations in their immediate environment,
- be familiar with some examples where discoveries in biology have influenced our culture and view of the world,

concerning use of knowledge

- be able to take part in discussions on the preservation of different types of nature and diversity of species,
- be familiar with some examples where a knowledge of biology has been used to improve our living conditions, e.g. cultivation of plants and genetics,
- have an insight into and be able to discuss the importance of habits which promote good health.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

concerning nature and Man

- have a familiarity with some of the world's ecosystems and how interrelationships between organisms can be described in ecological terms,
- have an insight into photosynthesis and combustion, as well as the importance of water for life on earth,
- be able to give examples of recycling and accumulation in an ecosystem,
- have a familiarity with how cells are built up and how they function,
- have a familiarity with genetic heredity,
- be familiar with the basic features of the development of life, as well as the conditions for and importance of biological diversity,
- have a knowledge of what conception involves,
- have a knowledge of the biology of sexual life, contraception and sexually transmitted diseases,
- have a familiarity with the organs of their own bodies, their systems and how they function together,
- have a knowledge of the effects of addictive substances on health,

concerning scientific activity

- be able to make observations in the field and carry out experiments, as well as have an insight into how they can be designed,
- be able to carry out and interpret simple measurements of environmental factors,
- be able with help from examples to show how discoveries in biology have influenced our culture and world view,

concerning use of knowledge

- be able to use not only scientific, but also aesthetic and ethical arguments in issues concerning the preservation of different types of nature and diversity of species, as well as the use of genetics,
- be able to provide historical examples describing how a knowledge of biology has contributed to the improvement of our living conditions, as well as how this has been abused,
- be able to discuss sexuality and inter-personal relationships and in this show respect for the views of others and different forms of inter-personal relationships,
- be able to take part in discussions on the importance of regular exercise and good health habits.

Physics

Aim of the subject and its role in education

The subject of Physics aims at describing and explaining nature from a scientific perspective. At the same time, the education should consolidate the fascination and joy of discovery and Man's wonder and curiosity, not only concerning everyday phenomena, but also microcosms and macrocosms. The subject also aims at providing an understanding of Man's relation to nature, especially as regards energy supply and radiation.

Goals to aim for

The school in its teaching of physics should aim to ensure that pupils

concerning nature and Man

- develop their knowledge of fundamental concepts in physics in the areas of mechanics, electricity and magnetism, optics, acoustics, heat, as well as atomic and nuclear physics,
- develop their knowledge of energy and energy forms, their transformation and properties, as well as society's supply of energy,
- develop their knowledge of different kinds of radiation and its interaction with matter and living organisms,
- develop their knowledge of the world view of physics on the basis of astronomy and cosmology,

concerning scientific activity

- develop their knowledge of the methods by which knowledge is built up in physics, especially as regards the formulation of hypotheses, as well as measurements, observations and experiments,
- develop a knowledge of the interaction between investigations and experiments on the one hand, and the development of concepts, models and theories on the other,

concerning use of knowledge

- develop their ability to make quantitative, qualitative and ethical assessments of the consequences of human activities and different technical constructions from environmental, energy and resource viewpoints,

- develop the ability to use a knowledge of physics, as well as ethical and aesthetic arguments in discussions on the consequences of the application of physics in society.

Structure and nature of the subject

Physics explains the diversity of phenomena found in nature through a limited number of concepts and theories. Amongst these concepts are e.g. energy, movement and force. Physics covers the study of objects, whose size ranges at one extreme from the largest distances in the universe to at the other the smallest particles in the atom. Physics spans a time scale, which stretches from the origins of the universe to short periods concerning events in the world, where Man has gained a knowledge of the atom.

Physics contributes to an understanding of the evolution of the earth and the occurrence and continuing existence of life and provides a background to existential issues. The subject has developed parallel with its technical applications and is as a result related to ethical issues. The subject of Physics provides arguments for forming views on issues involving values. Connected to this is experiencing beauty, which can occur not only through insights into how individual phenomena can be explained by general principles, but also experiences from viewing specific natural phenomena, such as the sight of a sunset, a rainbow, or an aurora borealis.

Studies in physics may take as their starting point everyday reality. This covers both natural phenomena as well as technical constructions. Knowledge of physics has its basis in the interaction between observations of natural phenomena and systematic experiments on the one hand, and concepts, models and theories on the other.

The subject covers mechanics, including acoustics and wave motion, thermodynamics, optics, as well as electricity, magnetism and electromagnetic radiation. In addition, it also covers astronomy, cosmology, atomic and nuclear physics. The concept of energy is common to all these areas of knowledge. At the same time attention is directed to concepts, which are used in everyday life and technology, as well as discussions on environmental and resource issues.

The nature of physics can be studied through its historical development. History shows how development has proceeded from concepts and explanations closely related to everyday experiences. During the course of history, these concepts have later been replaced by theoretical concepts and models. The historical development of physics illustrates the growth of knowledge and provides a valuable support for studies.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

concerning nature and Man

- have an insight into how the planets rotate around the sun, as well as how the earth and the moon move in relation to each other, and be able to relate the calendar and seasons of the year to these movements,
- have an insight into basic meteorological phenomena and contexts,
- have an insight into technical applications of electricity circuits and permanent magnets,
- have an insight into the fundamentals of dispersion of sound, hearing, as well as the properties of light and the functions of the eye,
- have a familiarity with narratives about nature, which are to be found in our own culture and that of others,

concerning scientific activity

- have their own experiences of systematic observations, measurements and experiments,
- be familiar with some examples where discoveries in physics have influenced our culture and view of the world,

concerning use of knowledge

- have an insight into how physics can throw light on existential issues, e.g. the origins of the universe, conditions of life on earth and other planets, as well as energy and resource issues.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

concerning nature and Man

- have a knowledge of different forms of energy and energy conversion, as well as the environmental, resource and safety aspects concerning technical applications,
- have a knowledge of pressure, heat and temperature in relation to different forms of matter,
- have an insight into how sound is created, dispersed and recorded,
- have a knowledge of the principles of electric circuits and be familiar with concepts such as electric current, voltage, electrical energy and its effects, as well as about different ways of generating electricity,

- have an insight into how light is propagated, reflected and broken down, as well as how the eye perceives light,
- have an insight into some applications of physics in, for instance, medicine, communications and information technology,
- have an insight into how matter is built up out of elementary particles and atoms,
- have an insight into the structure of the universe and how this knowledge has developed over the ages,
- have a knowledge of our solar system, as well as the stars and their development,

concerning scientific activity

- be able to make measurements, observations and experiments, as well as have an insight into how they can be designed,
- be able with the help of examples to explain how discoveries in physics have influenced our culture and world view,

concerning use of knowledge

- be able to use not only a knowledge of science, but also aesthetic and ethical arguments in issues concerning the applications of physics in society and technical constructions which exist in pupils' daily life,
- be able with historical examples to describe how a knowledge of physics has contributed to the improvement of our living conditions, as well as give examples of how this has been abused,
- have an insight into how experiments are designed and analysed through theories and models,
- be able to take part in discussions on the use of resources in private life and society.

Chemistry

Aim of the subject and its role in education

The subject of Chemistry aims at describing and explaining the surrounding world from the perspective of chemistry. At the same time, the education should consolidate the fascination and joy of discovery and Man's wonder and curiosity not only in everyday phenomena, but also in how nature is built up. The subject, in addition, aims at explaining and dealing with issues of health, the environment and the earth's resources.

Goals to aim for

The school in its teaching of chemistry should aim to ensure that pupils

concerning nature and Man

- develop their knowledge of elements, chemical compounds and chemico-technical products of importance in daily life,
- develop their knowledge of transformation in chemical reactions,
- develop their knowledge of the structure of atoms and chemical bonding as explanatory models for chemical processes,
- obtain an insight into thinking and knowledge concerning chemistry from earlier times,
- develop an understanding of the indestructibility of matter, transformation, recycling and dispersion,

concerning scientific activity

- develop their knowledge of how experiments in chemistry are based on concepts and models, and how these can be developed through experiments,
- develop their knowledge of how chemistry has influenced our material living conditions and our cultural world view,

concerning use of knowledge

- develop their knowledge of how theories and models in chemistry, as well as personal experiences can be used to handle environmental, safety and health issues,
- develop their ability to use a knowledge of chemistry, as well as ethical and aesthetic arguments in discussions on the consequences of the application of chemistry in society.

Structure and nature of the subject

The subject of Chemistry takes its starting point in everyday reality, and gives prominence in this perspective to issues concerning natural resources and health. Fundamental is the concept of the structure and properties of matter, chemical reactions, cycles and transport. An understanding of the structure and properties of matter comes from an elementary knowledge of the structure of atoms and chemical bonding. Central to the interpretation of chemical reactions is that mass remains constant, but that atomic particles when reacting are arranged into new chemical compounds, at the same time as energy is transformed. The elements' cycles, transport and dispersion can be understood from a knowledge of the properties of matter, a knowledge of chemical reactions, as well as of the role of water and air as a means of dissolution and transport. The build-up and decomposition of elements in nature are different parts of a natural recycling process. Man's activities intervene in these cycles.

A knowledge of chemistry is an important prerequisite for production, environmental work and health in a modern society. This relates to a knowledge about natural and industrial processes, about the production of different materials and their use, as well as how reuse and recycling of resources are used to achieve better management of resources. In the compulsory school, a knowledge of chemistry is developed in order to be able to understand, argue, and form views on issues concerning industrial processes, products and their use, use of energy, as well as to propose measures on issues affecting the environment and health.

Industrial processes provide many products, which have significantly improved Man's living conditions. The same processes also often lead to by-products which need to be taken care of in an environmentally conscious way. For example, large-scale combustion of refuse for energy production provides environmental advantages compared to local burning, but requires that fumes are de-polluted and ash residues are disposed of or used in a safe way. Using manure provides production advantages, but at the same time gives rise to environmental problems. Water is an effective means of transport both in technology, nature and in organisms. Pollution may be distributed by water, but water can also be cleaned through chemical and biological methods. Air can be both polluted and purified.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

concerning nature and Man

- have a knowledge of the concepts of solids, liquids, gases and boiling, evaporation, condensation and solidification,
- be familiar with different kinds of mixtures and solutions,
- be familiar with some of the factors that cause substances to be broken down, and be able to give examples of how this can be prevented,

concerning scientific activity

- have their own experiences of carrying out experiments with everyday chemical products safely,
- be able to make observations about different materials and have an insight into how these can be categorised,

concerning use of knowledge

- have an insight into how a knowledge of chemistry can be used in discussions on the use of resources and environmental issues, as well as how a knowledge of chemistry can be used to improve our living conditions,
- have an insight into the risks connected with the use of chemicals in the home, how they are labelled and should be handled.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

concerning nature and Man

- have a knowledge of some of the elements, chemical compounds and chemico-technical products,
- have a knowledge of the most important cycles in nature, and be able to describe some dispersion processes of matter by air, water and the ground,
- have a knowledge of the properties of water and be able to describe its role as a solvent, and as a means of transport over the earth and by plants,
- have a knowledge of the properties of air and its importance for chemical processes, such as corrosion and combustion,

concerning scientific activity

- be able to make measurements, observations and experiments, as well as have an insight into how these can be designed,
- be able to carry out experiments based on a hypothesis and formulate the results,
- be able through the use of examples to show how discoveries in chemistry have influenced our culture and view of the world,
- have an insight into how experiments are designed and analysed through theories and models,

concerning use of knowledge

- be able to use results from measurements and experiments in discussions about environmental issues,
- be able to use not only a knowledge of chemistry, but also aesthetic and ethical arguments on issues concerning the use of resources, pollution and recycling,
- have a knowledge of industrial applications within the area of chemistry,
- be able with the help of examples to show how a knowledge of chemistry has been used to contribute to the improvement of our living conditions, as well as how this has been abused,
- be familiar with how Man has been able to handle common chemicals and inflammable substances safely,
- be able to take part in discussions on the use of resources in private life and society.

Social studies

Geography, history, religion, civics

Common syllabus text

The common syllabus text, designed from a social study perspective, makes up with the syllabuses for the different subjects a meaningful whole, whose parts should support and complement each other. The different parts together form the national tasks for education in social studies. The common text deals with the perspectives of the different subjects in terms of their common content, the distinguishing features of the process when working with issues from a social study perspective, in order to create a foundation for the future, which is the intended outcome of the education. The text for each individual social study subject is an elaboration of the common text for studies with a social orientation based on aspects of the individual subject and its specific contents.

Different knowledge areas in social studies are linked to knowledge and activities in other school subjects.

Aim of the subjects and their role in education

Knowledge in the area of social studies provides pupils with the opportunity of seeing their surroundings in relation to themselves, and understanding themselves in relation to their surroundings, i.e. how individuals form and are formed by their world. This knowledge provides a foundation for participating, taking responsibility and acting as citizens in a democratic society and also contributes to the sustainable development of society.

The main task of social studies is to develop pupils' knowledge about Man and his activities, as well as about changes in the landscape and society in different places and during different periods.

The aim is to stimulate reflection over human thinking and actions, and over phenomena in society, to strengthen preparedness to review the life situation of one's own and others, to increase security in one's own identity, as well as provide knowledge of how our society is based on ethnic and cultural diversity.

Goals to aim for in social studies

The school in its teaching of social studies should aim to ensure that pupils

- investigate and understand societal relationships and contexts in the present and the past, as well as reflect over what this may mean for the future,
- understand central concepts, which make it possible to independently search for, develop and use a knowledge of societal issues,
- develop their ability to use different sources of information and develop a critical attitude to these,
- develop their belief in their own ability to have an influence and a will to assert democratic values, as well as become familiar with their rights and obligations as citizens in a democratic society,
- participate actively in the life of society and its development, as well as take responsibility for the living environment,
- acquire an insight into not only how natural and material conditions, but also central ideas and views of life form and have formed society,
- develop an understanding of fundamental existential and ethical outlooks and are able to use their understanding to formulate their own views,
- develop their knowledge of and ability to put themselves into different ways of living and understand the reasons for variations in time and space, as well as what is common to different cultures,
- develop respect for the views of other persons but observe and distance themselves from activities which involve oppression and violation of others,
- make it a habit in their actions to take account of the equal value and rights of everyone, independently of gender, class and ethnic affiliation,
- develop the ability to see the consequences of their own and others' views and actions,
- develop an understanding of ecological contexts and different ways of allocating and using resources,
- develop an understanding of how activities and cultures are reflected in and influenced by art, literature and music.

The structure and nature of social studies

Social studies deal with people, their surrounding world and conditions of life, as well as the relations between them. The importance of the surrounding world and its living conditions on thinking, understanding of self, quality of life and belief in the future are essential aspects. Another is Man's activity and cultural development over time

as a political, economic and cultural being, and also as a user of resources and a human being amongst other human beings.

Democracy as a form of living and a political system

Social studies give prominence to power and conflict perspectives from both the past and the present, and emphasise the value of discussion and debate between those holding different views. Fundamental democratic values constitute a starting point for decision-making and legal systems in Swedish society.

Democratic values are not given once and for all. Citizens in society must together interpret, gain acceptance for, defend and continuously develop democracy. It is important that each person develop a personal attitude and a belief in the fundamental values of democracy as a starting point for their thinking and action over political, economic and existential issues. An important element in social studies is to encourage pupils to differentiate between and work through situations involving ethical choices, arguing for and seeing the consequences of different views and approaches.

The subjects cover discussing and reflecting over concepts such as identity, sexuality, love and gender equality. Within the knowledge area, living together and human relationships, outlook on people and use of language are also treated so that advantage can be taken of the opportunity of discussing issues concerning values in this context.

The social study perspective provides an orientation on different views, but clearly takes a standpoint against those which involve the violation of other people. A basis for tolerance towards those who think differently is created by an understanding that phenomena can be understood in different ways by different people, depending on, for example, gender, class and ethnic affiliation.

Swedish legislation on the fundamental freedoms and rights, as well as international conventions on human rights, such as the UN Declaration on Human Rights and the Child Convention, shall be given due attention and provide the basis for considering and reflecting on solidarity from a national and global perspective.

Cultural patterns and cultural variation

Fundamental to social studies are descriptions and analyses of societal systems, cultural heritage, religious and ideological traditions, which are both a part of and form people's lives and frames of reference.

Social studies deal with local and regional environments as a background and explanation for variations in ways of living, habits and views of life of different groups and individuals. The studies cover

cultural diversity as a basic feature of Swedish society, where different traditions, belief systems and views of life exist side by side and influence each other. A perspective on these ways of living and familiarity with fundamental factors underlying this, can clarify the driving forces, which influence Man's life and thoughts as well as the opportunities individuals have for influencing their own lives. Fundamental aspects of these subjects are also how life and societal conditions are reflected in and influenced by literature, the arts and music.

Local and global environmental and survival issues

Social studies contribute to an understanding of how Man has used and uses the earth's resources and also the conditions of life and work in the past, today and in the future. By considering events which have taken place, as well as studying and evaluating current events, pupils' preparedness for the future is developed. In this area of knowledge, emphasis is placed on local and global distribution issues and the responsibility for achieving an equitable and peaceful world order. The efforts made in the surrounding world to find solutions and reach a balance are described and discussed.

Knowledge of the interaction between nature–technology–man–society provides opportunities for taking a responsible and informed view of Man's use of natural resources and technology, as well as how people's lives and living environment have been changed through technology.

Social studies share the responsibility for work on environmental issues with other subjects in the school. In addition to an understanding of the complicated interaction between the earth, water and air, it is important that insights are created on how changes in the landscape and in society take place as a result of struggle and compromises between different interests in conflict with each other. Such knowledge also provides preparation for a constructive approach to not only local, but also global change and survival issues.

Creating knowledge in an information society

The society of today provides a virtually unending flow of information, which can be accessed from a range of sources and channels of varying reliability. The media and their message play a major role when people form their views. In social studies, pupils become familiar with different ways of acquiring knowledge, as well as develop insights into how different media can be used and how they influence Man and society. By orienting themselves in different information environments and using different sources of information, pupils obtain an insight into the opportunities and problems which are a part of the IT society. Searching, examining, selecting, structuring, criti-

cally evaluating, integrating and presenting information in different ways – in speech, writing, pictures, art, drama, music and movement – are all central to social studies. This promotes pupils' orientation in time and space, and their ability to design their own patterns and views of the surrounding world, which can be used as tools for analysing and assessing the interpretations and views of others as well as their own.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be familiar with and able to reason on the basic concepts in a democratic system and be able to practise democracy in everyday actions,
- be familiar with events and conditions that have formed and continue to form local society and its environment,
- be able to compare their own living conditions with living conditions in other environments and other periods,
- be able to discuss important issues concerning life which affect the individual and relations between people,
- be able to search for process and summarise information in order to explain or answer questions about Man and his activities.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- understand fundamental concepts and phenomena in a democratic system, and be able to discuss problems concerning democratic attitudes in everyday life,
- be able to understand the connection between events in society, as well as differentiate between factors affecting these,
- be aware of people's living conditions, and able to examine their assumptions and compare living conditions in the past and present and in different parts of the world,
- understand and be able to reason around the opportunities and difficulties which occur in a society with cultural diversity,
- be able to discuss and work through ethical, aesthetic and existential issues, and understand how these may be dependent on time and culture,
- understand and explore ecological thinking, and show the consequences of different action alternatives on issues concerning the environment, life and society,

- be able from a societal perspective to search for information from different sources, work through, examine and value information as well as present their results and conclusions in different forms.

Geography

Aim of the subject and its role in education

The subject of Geography aims at developing a knowledge, understanding and preparedness on issues concerning Man and his surroundings. The subject strengthens pupils' perceptions of space and creates a frame of reference for knowledge of different places and areas and their location. The aim is to develop the ability to see the connection, context and an integral whole in terms of survival, use of resources and environmental influence, as well as the ability to understand opportunities and assess the consequences of different action alternatives.

The subject also aims at developing knowledge of not only the natural conditions of different regions, their social and economic characteristics, but also different living conditions of people and their mutual interdependence locally, regionally and globally. The subject contributes to a better understanding of and respect for different cultures, values and ways of living.

Questions concerning the distribution and use of resources, as well as other questions concerning Man and the environment, cover a wide range of ethical factors and views. The subject provides tools for analysing the interaction between people and nature and should lead to the taking of responsibility for the shared environment and the use of resources in order to facilitate long-term sustainable development.

Goals to aim for

The school in its teaching of geography should aim to ensure that pupils

- increase their understanding of Man's living conditions by expanding their knowledge of nature and society, and the inter-relationships between these in different parts of the world,
- develop a knowledge of natural processes, which in both the short and long term form and change the natural landscape, and understand how Man influences these processes and evaluate their consequences,
- develop their knowledge how the landscape has changed during different political and economic conditions, and their insights into how the landscape functions as a resource,
- develop their ability to reflect over and consciously take a posi-

- tion on different alternatives based on ecological thinking concerning the use of resources,
- expand their knowledge of Man's different economic, technical, political, social and cultural activities, and how these link together places and regions, as well as be able to reflect over the consequences of such relationships,
 - develop their ability to formulate and work with problems concerning local, global and environmental survival issues,
 - develop their ability to draw conclusions and make generalisations, as well as explain and give the reasons for their thinking and conclusions.

Structure and nature of the subject

In the school the subject of Geography covers three aspects of the relationship between Man and his environment. The descriptive aspects of the subject mean that pupils progressively learn to know their world and become familiar with similarities and differences concerning living conditions and the environment in different areas. The analytical aspect involves explaining and understanding conditions and changes. Focusing on consequences means that pupils can use these two aspects as a foundation to better understand and assess the possible consequences of Man's influence on nature and spatial relationships. Connected to this is the ability to assess the consequences of different action alternatives on people and the environment in order to make well-grounded decisions in a democratic society.

A central concept is the landscape in its widest sense in terms of both nature and the cultural landscape. Other terms are place, location and dispersion. The interaction between Man and his environment is studied in different landscapes. This is gradually developed and supplemented in terms of knowledge of not only one's own country, but also the world as a whole, and also by the differences and similarities between different parts. This is a necessary basis for understanding the different living conditions of people and how different cultures have evolved. The globe is a model of the world within which all types of landscapes have their place. Maps are necessary aids in the subject.

A knowledge of different regions and areas provides a basis for studying main features and structures, such as the identification of climatic and vegetation zones, agricultural districts and industrial regions. Concepts such as distance, space, localisation and flows are central to the theoretical and analytical methods of the subject. They are necessary aids for insights which are not just related to a unique place and time, but also generally useful for the future in new situations and areas. Models of different kinds are similar aids for explain-

ing and understanding. Recycling principles play an important role in the analysis of relationships in nature and between Man and nature.

Questions concerning natural and cultural landscapes, their growth and change are central to the subject, as are questions on changes in population and the driving forces and consequences of urbanisation. The background to these changes are usually regional differences in the geographical distribution of i.a. population and activities.

An analysis of changes also covers factors such as an understanding of the world, view of Man, power relationships, opportunities provided by technology, economic restrictions, attitudes and values. These factors give rise to flows such as migration, trade and other contacts between different areas and thus create spatial interrelationships. In order to analyse such complex problem areas, there has to be co-ordination between geography and other subjects. Fundamental to the subject of Geography is working with a holistic view of the surrounding world, where central concepts and facts are interwoven into larger contexts.

The subject provides opportunities for acquiring knowledge and experiences through observing, testing, researching, investigating and creating. Teaching in geography also provides an opportunity to train arguments for developing personal standpoints in speech and writing. In a dialogue with others established patterns of thinking, attitudes and prejudices can be challenged.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- have acquired a basic knowledge in geography needed to be able to reflect on how Man's actions affect the environment,
- understand what a map is and how it can be used, be familiar with the globe and know the location of different places and areas in relation to each other, as well as be able to estimate distance,
- be familiar with some of the forces that have formed the earth's surface and are changing the landscape, and on the basis of this and their own observations and experiences from their immediate environment, be able to give examples of such changes,
- be familiar with some of the fundamental characteristics of different types of Swedish landscapes and describe how people in the past and the present live and work in different environments,
- by means of their own observations and measurements, understand the meaning of concepts such as weather, climate, seasons of the year and have a familiarity with and be able show how such conditions vary between different areas.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- have a knowledge of the world map and be familiar with important names, location and size relations, be able to locate these on the globe, and by comparing maps be able to draw conclusions about nature, the cultural landscape and people's living conditions,
- understand what are resources in nature, be able to see the connection between natural resources and Man's activities, give examples of how Man's actions affect the environment and show different alternative solutions to environmental issues,
- have a familiarity with how people live and work in different environments in the world, the factors influencing their conditions, as well as be able to reflect over the scope for change,
- have a knowledge of some of the most important natural processes forming and changing the natural landscape, and be familiar with the main factors determining climate and vegetation zones in the world,
- be able to illustrate how important changes in society, such as industrialisation, urbanisation and globalisation of communications, production and trade have influenced and influence the landscape and Man's living conditions, as well as reflect on and formulate the issues concerning this,
- be able to describe, compare, analyse and present areas and conditions by means of working with geographical information, make measurements and observations, as well as draw maps, pictures and diagrams and also write texts.

History

Aim of the subject and its role in education

History is an important part of all knowledge. Not only from a long-term perspective, but also from the present, all human activity and all development of knowledge has a historical dimension. History develops a knowledge which makes it possible to see oneself and events in the present and also as part of a historical process. The aim of the subject is to develop critical thinking and an analytical approach as a tool for understanding and explaining society and its culture.

The subject should stimulate pupils' curiosity and their desire to extend the time dimension of the world around them, and enable them to enter into the life of earlier ages and be familiar with the conditions that have existed for men, women, and children from different cultures and social classes. This should help to provide an understanding of the present and serve as a basis for developing a perspective for the future. The subject contributes to developing not only an inter-cultural perspective, but also cultural identity on the basis of the cultural heritage, which is transferred from generation to generation.

Goals to aim for

The school in its teaching of history should aim to ensure that pupils

- acquire a sense of history, which makes easier the interpretation of current events and developments, and creates a preparedness for the future,
- develop an understanding of the background to historical phenomena and events, and their relationships and that these can be understood, explained and interpreted from different perspectives,
- acquire a broad and in-depth knowledge of their cultural heritage, as well as that developed by different national minority groups, and also develop an insight into the identity this provides,
- develop the ability to differentiate between historical structures, development trends and processes of change,
- acquire a knowledge of important historical figures, events and periods,
- develop their ability to use history as an instrument for understanding other subjects,

- become aware that historically determined societal and cultural forms are conditioned by time, and that people from different periods should be viewed in terms of the conditions prevailing at that time,
- acquire an ability to assess different texts, media and other sources, which interpret and explain historical processes.

Structure and nature of the subject

History covers elements from political, economic and social history, as well as cultural history. The subject takes as its starting point the forces that have shaped personal and collective historical identity. Essential parts of the subject are thus Swedish and Nordic culture, including Sami and European culture.

In the subject, time and historical awareness are principal concepts. By means of a knowledge about the main features of historical development, a view can be gained of the world along a time dimension. Continuity and change are important in this context. The map of history over different periods provides an awareness of continuously developing processes from a historical perspective. History is one means of looking at the present from a "then-now-later" perspective, and thus also a tool for understanding other subjects and areas.

History is marked by achievements and events, conflicts and tensions, which have affected development in different respects. The subject provides a multifaceted picture of events and processes. This includes social, economic, technical and cultural progress, as well as conflicts, tensions and shifts of power within and between countries. This applies not least to the dark and destructive forces of history operating through ethnic, religious and political persecution. All pupils should have a knowledge of modern history, covering progress and the striving for peace, as well as genocide, especially the Holocaust, revolutions and war.

History is being created each day, both in narrow and wider contexts. Pupils together with their family, their relatives, their home district and their country have their own history. Knowledge of this provides an understanding of people and their living conditions at different periods, and as a result terms of reference for understanding current events and expectations of the future. By studying history and linking together generations of experience, a deeper cultural identity can be developed. A common framework covers a knowledge of one's own history, the history of one's home district and the basic parts of Swedish and Nordic history. Important periods, events and personalities are put into their historical context, and related to people's lives and everyday reality. The subject studies how condi-

tions for women, men and children – as well as for different social classes and ethnic groups – have been influenced by historical events.

An inter-cultural perspective in history can highlight differences and similarities between various cultures and promote an understanding of cultural diversity. Insights into the historical background of other countries and their development, enable comparisons to be made from a knowledge of one's own cultural environment and also gain an understanding of what is similar and what differs. This also applies to studies of the many different cultures and the position of national minorities in Sweden.

The volume of historical fact is almost infinite and the subject thus requires an ability to select data carefully. The facts which pupils meet in school, the immediate environment and society are given a historical background and put into an overall context. The subject provides pupils with the opportunity of working with historical material, as well as helping them to orient themselves to today's sources of information. Assessment and evaluation of the reliability of sources is an important element.

Every age sees facts in the light of its own experiences, prospects and conditions. By becoming aware of what has influenced development during different periods, and the relationships between different factors, a preparedness for the future is developed. Shifts in perspective constantly occur and these are reflected in the subject. This means that central issues concerning society, such as the environment and migration, are covered in the subject. In this way, actual events are put into a historical context.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be familiar with the history of their home district and how this has shaped its culture,
- be familiar with the main features of selected parts of Swedish and Nordic history, and be able to make comparisons with some other countries,
- be able to relate and compare how men, women and children lived and thought in different environments and periods in Sweden, and in some other places around the world.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to present important events and be familiar with the personalities, ideas and changes in the historical development of Sweden, the Nordic area and Europe, as well as be able to make comparisons with other countries,
- be familiar with historical developments in some of the world's leading powers during different periods,
- have an insight into how major social upheavals have altered Man's living conditions,
- be able to identify and reflect on some of the different historical events and developments of significance for our own age,
- be aware of and able to give examples of historical events and conditions that can be looked at from different points of view,
- be able to reflect over how information and propaganda have been used before and are used today as a means of exerting influence.

Religion

Aim of the subject and its role in education

The subject of Religion contributes to developing the ability to understand and reflect over oneself, one's life and surroundings and develop a preparedness for acting with responsibility. Working through existential and religious issues and considering existence from an ethical perspective, is part of a personal development process. Every individual reflects over such issues and needs to acquire concepts from traditions, language and symbols to find meaning in those issues they face in life.

One aim of the subject is to promote an open discussion on issues concerning religious belief and outlook on life, as well as creating curiosity and an interest in religion. A deeper knowledge of religion and outlooks on life makes this possible. In an international society based on ethnic and cultural diversity, how people think, act and shape their lives is of growing importance. The subject contributes to an understanding of traditions and cultures, and thus provides a foundation for confronting xenophobia, as well as developing pupils' respect for tolerance.

The subject also contributes to deepening our knowledge of and awareness of the problems surrounding fundamental democratic values, such as the intrinsic value of each person, equal value of people and support for the weak. One aim of the subject is to increase the ethical awareness of pupils and thus create a preparedness for action with regard to democratic, environmental, gender equality and peace issues. A knowledge of religion also aims at providing an increased understanding of the relationship between society and religion over different periods and in different places. An understanding of Swedish society and its values is deepened through a knowledge of the Christian traditions which have been dominant in Sweden. Such knowledge also provides opportunities for understanding Western arts, music and literature.

Goals to aim for

The school in its teaching of Religion should aim to ensure that pupils

- reflect over ethical, existential and religious issues affecting their lives,

- deepen their knowledge of religion and other outlooks on life from our own time and historically,
- develop an understanding of the interdependence between society and religion, both from the present and from a historical perspective,
- develop an understanding of how Christianity has influenced Swedish society,
- develop their knowledge of the influence of different religions on Swedish society,
- become conscious of similarities and differences between established religions, other outlooks on life and new religious movements and phenomena,
- develop an understanding of views on religious and ethical issues, as well as a fundamental ethical attitude as the basis for their own views and actions,
- experience different types of aesthetic expressions such as music, dance and the arts, and have the opportunity to express their knowledge in the subject through such forms of expression.

Structure and nature of the subject

Throughout the course of history people have tried to find their way through life and reflect over its conditions. This is expressed through symbols and rites, religions and outlooks on life. The surrounding world is undergoing constant change and is influenced by different outlooks on life and views on religion.

Religion has both an individual and a societal perspective. The individual perspective provides opportunities for reflecting on personal life issues. From a societal perspective, the subject contributes to an understanding of religion as one of a number of multi-faceted phenomena in society. The subject studies the different forms and functions of religion. Religion should be understood in a broad sense. In many cultures, religion is an all-embracing system, which determines how Man views the whole of his existence. From a historical perspective, it is clear how religion has shaped the way in which individuals and their cultures express themselves.

Issues concerning life and its interpretation

The subject takes as its starting point Man's questions concerning life and existence, irrespective of whether these are expressed in religious terms or not. Consciously and methodically working through life issues is the core of the subject. Each person makes more or less explicit efforts to find context in and interpret and clarify their existence. This is expressed in traditions, rites, narratives and myths.

Ethics

Being able to look at existence from an ethical perspective is part of a personal, lifelong process. Ethical issues have an impact on every human being, since they confront questions arising from their concrete experiences concerning good and evil, right and wrong. Everyday ethical issues are a starting point for reflection and discussions in the subject. Discussion on ethical issues may be deepened through familiarity with ethical principles, thinking and systems from different religions and outlooks on life.

Belief and tradition

The concept of belief is fundamental to different religions. This is expressed in texts, cults, symbols, arts and ethical views. The traditions pupils bring with them from different cultures are a part of the subject. Comparisons between religions from different periods and parts of the world provide an important contribution to intercultural and historical understanding. The subject provides opportunities for greater understanding of one's own religion and others' religions, outlooks on life, traditions and cultures.

There are similarities and differences between religions. Similarities can create a sense of community between religions, whilst differences can create antagonism, which sometimes results in conflicts. A foundation stone in a multicultural, democratic society is that people are of equal value despite their differences. Given this background, the subject considers both similarities as well as differences.

The three religions of Christianity, Judaism and Islam have a common origin. The subject provides a deeper knowledge of these religions, which have been and continue to be important for people and society. Western culture and the development of society have over a long period been influenced and are influenced by Christianity and its values. Swedish society is strongly influenced by the values and standards of Christianity, legislation and the legal system, culture and traditions. An important basis for this understanding is a knowledge of the Bible and the ecclesiastical year. Hymns, songs, ethical principles and customs have been a means of expressing Christian belief throughout the ages. Other religions and outlooks on life have similar means of expression. Both established religions and new religious movements and phenomena are studied. Also covered is a study of how cultures and traditions vary amongst different minority groups in Sweden.

The subject covers inter-personal relationships and gender equality from a religious and philosophical perspective. This also includes looking at the consequences of how views on religious issues affect life decisions and relationships between people.

Aesthetic expressions and symbols constitute an important part of religion and are included in the subject. Interpretation and experience of music, art, rites and ceremonial occasions are a complement to more theoretical knowledge. The dimensions of experience and emotions in the subject provide opportunities for gaining deeper insights and personal involvement.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to discuss and make personal reflections on issues concerning life on the basis of everyday situations or with the help of pictures, songs and texts from e.g. child and youth literature,
- be able to discuss ethical problems and provide the reasons for their views,
- be able to reproduce and bring to life some of the basic narratives of the Bible, as well as narratives from some other religious traditions, and be familiar with what this means for their followers.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to reflect over and formulate issues that are of personal importance concerning life,
- be able to reason ethically and see the consequences of different ethical views,
- have a knowledge of the influence of Christianity on Swedish society, its basic values, traditions, art and literature,
- have a knowledge of symbols, rites, basic narratives and beliefs in some world religions, as well as about the fundamental concepts and forms of expression in some other systems,
- have a knowledge of how aesthetic means of expression, such as the arts, music and dance are represented in different religious contexts.

Civics

Aim of the subject and its role in education

The subject of civics should provide basic knowledge about different societies, impart democratic values and stimulate participation in democratic processes. The subject of civics brings alive and explains how people form and are formed by their society, and how they organise themselves in order to achieve common goals. It aims at developing a knowledge where pupils will be able to determine their views on issues occurring in a society characterised by mutual interdependence and cultural diversity.

The subject contributes to pupils' ability to understand their own and others' conditions and values, and thus also be able to distance themselves from and actively counteract different forms of repression and racism. The education should be open to different ideas and encourage their expression, as well as promote respect for each person's intrinsic value, irrespective of gender, class and ethnic background. The equal rights and opportunities of boys and girls, women and men should be actively and consciously clarified.

In a complex society with a vast flow of information and a rapid rate of change, the ability to acquire new knowledge is essential. The subject provides an opportunity to make observations and to use different sources of information. The aim is to develop the ability to search for, examine, structure and evaluate facts, as well as integrate, present and give expression to new knowledge. Analysing, drawing conclusions and determining personal views on the basis of information provides a foundation for critically examining society.

Goals to aim for

The school in its teaching of civics should aim to ensure that pupils

- understand and practise the fundamental values of democracy,
- develop knowledge of changing conditions in society and their relationship to democratic principles,
- develop their knowledge of rights and obligations in a democratic society,
- understand how different interests, ideologies and traditions affect ways of looking at the individual and society, as well as how society's norms and values influence and are influenced by individuals,
- develop their knowledge of and an understanding of a society

- with ethnic and cultural diversity, and the importance of this for relations between people,
- develop a knowledge of conditions in other countries, and thus the ability to reflect over international relations and international co-operation,
 - acquire knowledge to be able to discuss local and global issues, which are important for a sustainable society,
 - develop their ability to critically examine social conditions and be able to see the consequences of various alternatives,
 - develop their ability to reason and express their standpoint, as well as a belief in their own ability to actively take part in society and influence its development.

Structure and nature of the subject

The subject of civics is in its structure and nature interdisciplinary and covers many disciplines. This adds to the opportunities of providing an overview and context in the societal issues covered by the subject. The knowledge areas of the subject come from a number of scientific disciplines, such as e.g. political science, economics, cultural geography and sociology. Since the world is continuously changing, the contents of the subject must reflect this.

Swedish society is founded on democracy. The subject has a special responsibility for taking up and analysing democratic values, and in this context developing the ability to examine, evaluate and determine views on societal issues and also promote a desire to participate and exercise influence. An ethical perspective permeates the education, and particular importance is attached to this when it comes to issues concerning democracy, human rights, as well as power and oppression in different forms. The subject provides an awareness of and an insight into such issues and provides opportunities for reflection on personal responsibility. An important aspect is a knowledge of national minorities and the role of immigrants in society.

Globalisation involves the interweaving of both economies and cultures thereby creating increasing interdependence between countries. The subject takes up a number of vital issues of concern not only to the individual, but also the whole of the international community. The subject of civics deals with issues concerning fair distribution and a sustainable society and thus provides a knowledge of the global context. In this way the studies deal with international understanding and how co-operation can contribute to solving worldwide problems. The breadth and diversity of the subject makes it possible to analyse and study global development issues from a holistic perspective and thus lead to discussions on values.

Civics focuses on contemporary aspects. By means of expanding

understanding of what takes place in both the local and global community, the subject contributes knowledge, which each individual needs, in order to be able to assess and influence both their own and society's future. Having a historical perspective helps to explain events and conditions in the present and enables reflection over the future.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be familiar with the fundamental democratic principles, which society is based on, and be able to take part in democratic decision-making processes,
- be familiar with conditions and different ways of living in local society and the most important rights and obligations applicable to each individual,
- have a familiarity with the living conditions of people in different cultures,
- understand how their own actions affect the environment,
- be able to read, write and formulate their thoughts on society drawing on different sources of information.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be familiar with fundamental human rights and their obligations,
- be able to reflect over Man's conditions and how these vary on the basis of gender, social and cultural background,
- understand the common and fundamental democratic values on which our society is based, as well as be able to apply democratic ways of working and making decisions,
- have a basic knowledge of the growth of the Swedish system of Government, the organisation and development of society, as well as understand the contents of the basic norms and legal system in Sweden,
- have a knowledge of international relations, as well as be able to discuss relations and co-operation from a global perspective,
- have a familiarity with the economy, household and private finances, and be able to discuss possible routes towards a sustainable society, both locally and globally,
- be able to use different sources of knowledge, as well as be able to compile, process, examine and evaluate information and views from different sources and leaders of public opinion, as well as present their results.

Crafts

Aim of the subject and its role in education

The subject of Crafts helps the pupils' all-round development by training their creative, manual and communicative abilities.

Crafts involve a combination of manual and intellectual work that develops creativity, curiosity, taking responsibility, independence and the ability to solve problems. A typical process starts from an idea and results in a finished product. Working with textiles, wood and metal aims at strengthening pupils' confidence in their own ability and developing their knowledge to provide preparation for managing tasks in daily life.

The ability to evaluate and assess design and function is a recurring need in daily life. The subject aims at creating an awareness of aesthetic values and developing an understanding of how choices over material, processing and construction influence a product's function and durability. The subject also aims at providing a knowledge of environmental and safety issues, and creating an awareness of the importance of resource management.

The subject lays a foundation for innovation and creativity. By developing familiarity with earlier and contemporary crafts traditions, the subject provides insights into everyday history and gender equality issues. From a wider perspective the subject also aims at creating an awareness of crafts traditions in different cultures.

Goals to aim for

The school in its teaching of crafts should aim to ensure that pupils

- build up their self-esteem and confidence in their own ability to practise crafts,
- develop a knowledge and desire to be creative on the basis of their own experiences and interests,
- develop their ability to independently plan their work and solve tasks constructively,
- acquire practical experience of different methods of working, tools, instruments and information technology when working with different materials in crafts,
- develop the ability to take responsibility for their own learning and planning the craft process on the basis of their own conditions, such as time and resource availability,

- develop the ability to reflect over and assess work processes and products,
- build up their preparedness for the needs of daily life, taking into account factors such as gender equality, economics and the environment,
- develop an interest in and an understanding of creative and manual work through a familiarity with cultural heritage and craft traditions from a historical and cultural perspective,
- develop the ability to acquire and use new knowledge, as well as transfer and master knowledge from other areas and cultures in their creative work,
- develop the ability to determine and give reasons for their personal views concerning aesthetic, ethical and functional values,
- acquire knowledge of what constitutes a good working environment.

Structure and nature of the subject

Characteristic of the subject of Crafts is the pupils' participation in a production process ranging from an original idea to a final product. This overall perspective creates an understanding of a production process from many different aspects, where choice of material and different processing and treatment methods mean that issues concerning the use of resources and the environment are dealt with in a natural context.

In the craft process, where pupils using their own initiative and ideas, participate in and influence the work, interaction between thinking, action, product is a natural part of the process. The subject provides pupils with the opportunity of working with a high degree of independence, and there is a natural progression from experimenting, solving problems to making conscious choices.

Work begins with an idea which is visualised, processed, and given form in different ways. Pupils can experiment with developing imaginative, unconventional solutions and try new ways of working, which strengthen and develop their creativity and ability to form concepts. Having one's own ideas, being able to choose different alternatives, and influence and participate in the process from the beginning is of great importance for the pupils' involvement and all-round development.

A craft project requires planning and conscious choices, where factors such as function, appearance, durability, costs and environmental impact are of importance. By choosing material and methods to carry out a project, pupils develop their ability to reflect and think constructively in order to find solutions.

During implementation of a project, pupils develop their ability to work manually and become familiar with different working methods

in crafts. The subject also provides a knowledge about how tools, instruments and machines operate, as well as how drawings, patterns and instructions are interpreted.

Evaluation is an important part of the craft process. Pupils report on how inspiration, ideas, design and different views have influenced the result. By this means they develop their ability to assess, evaluate and draw conclusions from their work.

The subject helps in forming and developing concepts, in both crafts and other school subjects. For instance, the use of mathematics provides a foundation for understanding dimensions and geometry. The reading and writing of pupils is developed by receiving instructions, giving presentations, documenting and evaluating their work.

Crafts are also a means by which parts of our cultural heritage are maintained. The starting point for this may be local traditions or the different cultural backgrounds of pupils. The subject enables perspectives and understanding of different cultures to be broadened.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to propose ideas for crafts and with help be able to plan, choose working methods and carry out a task,
- under supervision be able to choose colour, form and materials, as well as give the reasons for their choice,
- be able to handle appropriate tools and instruments, as well as carry out work in textiles, wood and metal,
- be able to follow instructions and take responsibility for their work,
- be able to describe their work and comment on processes in the crafts.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able through words and pictures to present ideas, as well as plan their tasks in crafts,
- be able to choose material, colour and form, taking into account cost, environmental and functional aspects,
- be able to work in accordance with different instructions, choose appropriate working methods, as well as handle tools and instruments in a functionally effective manner when carrying out their work,
- be able to take initiative and personal responsibility in the craft process,

- be able to describe the craft process and give the reasons for the choices that they make during the course of the work from initial idea to finished product, as well as be able to evaluate their work and how this has affected the result.

Swedish

Aim of the subject and its role in education

The subject of Swedish provides pupils with opportunities to use and develop their ability to speak, listen, see, read and write, as well as experience and learn from literature, films and the theatre. Language skills are of great importance for all work in school and the future life and activities of the pupils. This is why one of the school's most important tasks is to create good opportunities for pupils' language development. The subject should also provide experiences in reading, films and the theatre, and also the opportunity to exchange experiences over this.

Language and literature are of great importance in developing a sense of personal identity. The subject of Swedish aims to promote pupils' ability to speak and write well, and to respect with understanding different ways of expressing oneself in speech and writing.

Language occupies a key position in school work. Communication takes place by means of language and through co-operation with others. Knowledge is acquired through language and through language it is made explicit and useful. The subject of Swedish aims together with other subjects in school to develop the pupils' communicative ability, thinking and creativity.

The written word is of immense importance and society imposes demands on the ability to cope with, assimilate and evaluate texts. The development of information and communications technology creates opportunities for the development of language, and at the same time expectations that everyone will have such abilities.

Culture and language are inseparably connected with each other. A language expresses a country's history and cultural identity. Language also reflects the diversity of cultures which enrich and form society. Literature, films and the theatre are a part of cultural heritage and impart knowledge and values. Based on the pupils' own cultural creativity, and linked to their experiences from reading, films and the theatre, the task of the school is to encourage the exchange of different experiences, views and values. The subject of Swedish aims at strengthening the pupils' identity and their understanding of people from different cultural backgrounds.

Goals to aim for

The school in its teaching of Swedish should aim to ensure that pupils

- develop their imagination and desire to learn through reading literature, as well as reading on their own for personal enjoyment,
- develop their imagination and desire to create using language, both individually and in co-operation with others,
- develop correctness in their spoken and written language, and have the courage, desire and ability to express themselves in many different contexts, and by means of writing acquire an instrument for thinking, learning, communicating and exercising influence,
- develop their ability to develop texts they have written based on their own critical reflection and advice from others,
- develop their ability in a dialogue with others to express feelings and thoughts, arising from texts with a variety of purposes, as well as be stimulated into reflecting and evaluating these,
- develop their ability to read, understand, interpret and experience texts of different kinds and adapt their reading and work on texts to its purpose and character,
- have the opportunity of understanding cultural diversity through exposure to literature and authors from different times and in different forms from Sweden, the Nordic area and other parts of the world,
- acquire a knowledge of the Swedish language, its ongoing development, structure, origins and history, as well as develop their understanding of why people write and speak differently,
- by means of their own writing, deepen their insight into basic patterns and grammatical structures in the language, as well as develop their ability to apply the standards of written language in different contexts,
- gain experience of languages in the neighbouring Nordic countries, as well as an orientation to the Sami language and other minority languages in Sweden,
- develop their ability to write legibly and use computers as an aid,
- develop the ability to use different opportunities to obtain information, acquire knowledge of the language and functions of the media, as well as develop their ability to interpret, critically examine, and evaluate different sources and their contents,
- are encouraged to be personally creative and search on their own for meaningful reading, as well as take part in cultural activities,
- acquire an insight into their learning, and reflect over their own development, and learn both on their own and together with others to use their experiences, thinking and language skills to form and maintain their knowledge.

Structure and nature of the subject

In the subject of Swedish, language and literature are treated as a whole. For this reason, Swedish cannot be divided up into pre-determined parts building on each other in a given sequence. It is not possible to identify a steady process of development through different sequences during schooling, whereby children when they are small relate and describe, and as they grow older see context, explore and formulate their arguments. At an early age, the small child is using arguments and taking part in discussions, whilst teenagers have not stopped telling stories and using their imagination, but they each do it in different ways. At an early stage, the small child is able to take part in discussions about literary experiences and the specific characteristics of literature.

Language development means that the pupils' conceptual world is expanded. All teachers have a common responsibility and must be aware of the importance of language for learning. The subject of Swedish bears the principal responsibility for the pupils' language development, which means greater confidence in using the language imaginatively and clearly, in both speech and writing, as well as increasing their ability to understand, experience, and appreciate literature. A central feature of the subject is to take account of the gender perspective, so that the conditions for developing language in both speech and writing become more favourable for both sexes.

Work with language and literature creates opportunities for satisfying pupils' needs to express what they feel and think. It provides common experiences to reflect over and discuss. It provides knowledge of the Swedish language, of different cultural heritages and our surrounding world. Assimilating and working through a text does not necessarily imply reading, it may involve listening, drama, role plays, films, videos and looking at pictures. The subject develops pupils' ability to understand, experience and interpret texts. A broader concept of text covers pictures, in addition to written and spoken texts.

Language and literature form the main contents of the subject and are a source of knowledge about the world around us.

Language

Language, both spoken and written, is of fundamental importance for learning. With the help of language, it is possible to acquire new concepts and learn to understand contexts, think logically, examine critically and evaluate. Pupils' ability to reflect and understand the surrounding world grows.

Language is developed in social interaction with others. As early as the age of four, the child has great practical experience of the complex system that language forms. Children can, for example, at an

early age understand that words have different connotations and different degrees of appropriateness in different contexts. They are able to understand such complicated notions as how the present, past and future are expressed in language. To further develop their language, pupils must on the basis of their experiences be given opportunities to discover the knowledge they themselves possess about language, and with the help of the teacher and together with others learn about the structure of the language and its system. On the basis of their different experiences, they can also jointly build up knowledge about how language works in interaction between people, and thereby acquire a perspective on their own language skills.

When pupils use their language – speaking, listening, reading, writing and thinking – in meaningful contexts, they are able to develop good language skills. By using language pupils learn to manage situations that impose different demands on their language in terms of feeling, fullness and formal correctness.

Knowledge of the structure of a language, how it is built up and how it has developed historically provides deeper understanding. A knowledge of a language is built up through using it, by understanding how it is used, and acquiring new knowledge of the language.

Literature, films and the theatre

Literature, films and the theatre open new worlds and communicate experiences of excitement, humour, tragedy and joy. Literature, films and the theatre help people to understand themselves and the world, and contribute to the development of an identity. Literature, films and the theatre provide opportunities for developing empathy and understanding of others, and for what is different, as well as for reviewing values and attitudes. By this means alternative views can be formed of, for example, racism, extremism, stereotyped gender roles and undemocratic conditions. When young people meet literature, films and the theatre, there are opportunities for them to assimilate literary models and expressions.

Literature provides a knowledge about the living conditions of children, women and men over different periods and in different countries. Literature also provides perspectives on everyday life and what we are familiar with. Exchanging experiences with others, and also individual experiences gained from working with literature, helps to give answers to the major existential questions of life.

In working with literature, films and the theatre in the subject, different cultural experiences can be encountered and pupils are provided with opportunities to develop their own attitudes to culture and cultural values.

Goals that pupils should have attained by the end of the fifth year in school

Pupils should

- be able to read with fluency, both aloud and to themselves, and understand events and meaning in books and non-fiction written for children and young persons, and be able to discuss their experiences from reading, as well as reflect over texts,
- be able to produce texts for different purposes as a tool for learning and communication,
- be able to orally relate and present something so that the contents are understandable and brought to life,
- be able to apply the most common rules of the written language and the most common rules of spelling, as well as be able to use dictionaries.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to actively take part in conversations and discussions, as well as be able to share the thoughts of others, and be able to present work orally so that the contents are clear and understandable,
- be able to read literature appropriate to their age from Sweden, the Nordic area, and other countries, and also read non-fiction and newspaper articles on general subjects, as well as be able to reproduce the contents coherently and also reflect over this,
- be able to read, reflect over and put into a context some literary works and authors that have been influential in affecting how people live and think,
- be able to appreciate and reflect over and evaluate the contents and means of expression used in pictures, films and the theatre,
- be able to write different kinds of texts so that the contents are clear, and in doing this apply the standards of the written language, when writing by hand and using computers,
- have a knowledge of the language which makes it possible to carry out observations of both one's own and others' use of language.

Swedish as a second language

Aim of the subject and its role in education

The aim of the subject of Swedish as a second language is that pupils should acquire a functional mastery of the Swedish language consistent with that of pupils who have Swedish as a mother tongue. Ultimately, the aim is that pupils should attain a first language level in Swedish. Achieving this will enable them to live and work in Sweden on the same conditions as pupils with Swedish as their mother tongue.

The ability to use Swedish in speech and writing is a prerequisite for pupils in their future lives and activities. Through the subject of Swedish as a second language, the school should provide pupils with opportunities to develop their ability to speak and listen, and also read and write in different situations.

The Swedish language occupies a key position in school work. Communication takes place by means of language and through co-operation with others. Language can make knowledge explicit and useful. The subject aims at pupils with a mother tongue other than Swedish acquiring a mastery of the language that will enable them to fully assimilate other subjects, and have active social relationships and be a part of Swedish society.

The written word is of immense importance and society imposes demands on the ability to cope with, assimilate and evaluate texts. The development of information and communications technology creates opportunities for the development of language, and at the same time expectations that everyone will have such abilities.

Goals to aim for

The school in its teaching of Swedish as a second language should aim to ensure that pupils

- develop their imagination and desire to learn through reading literature, as well as reading on their own for personal enjoyment,
- develop their imagination and desire to create using language, both individually and in co-operation with others,
- develop correctness in their spoken and written language, and the desire and courage to express themselves in many different contexts, as well as through writing acquire an instrument for thinking and learning, communicating and influencing,

- develop their ability to develop texts they have written, based on their own critical reflection and advice from others,
- in a dialogue with others express feelings and thoughts prompted by texts with different purposes and for different audiences, and be encouraged to reflect over and evaluate these,
- develop their ability to read and understand, interpret and experience texts of different kinds and with different degrees of difficulty, as well as adapt their reading and work on texts to the nature and purpose of their reading,
- have the opportunity to understand Swedish literature and Swedish culture, and become familiar with the fundamental values on which Swedish society rests, and also become acquainted with literature from other parts of the world,
- acquire a knowledge of the Swedish language, its specific nature in relation to other languages, its ongoing development, origins and history, as well as develop their understanding of why people write and speak differently,
- acquire a rich vocabulary and understand and use basic patterns and grammatical structures in the Swedish language, as well as develop their ability to apply the standards of the written language,
- develop their ability to write legibly and to use word-processing programmes,
- develop the ability to take advantage of different opportunities to obtain information, as well as interpret, critically examine and evaluate the content of different sources,
- acquire a knowledge of the language and functions of the media, as well as develop their ability to understand cultural values specific to the media,
- are encouraged into being culturally creative and to take part in the range of cultural activities available,
- learn how their own learning in a second language takes place, and learn to use their experiences, thinking and language skills to obtain and consolidate their knowledge.

Structure and nature of the subject

The subject of Swedish as a second language faces conditions that differ from those faced by other subjects in school. In all school years in the compulsory school, pupils with a mother tongue other than Swedish and with a different cultural background begin school. There is a wide spectrum of language skills. Pupils, who arrived recently in Sweden, often lack a knowledge of Swedish. Also pupils with a mother tongue other than Swedish, who were born in Sweden, may experience difficulties in understanding and taking part in schooling and presenting their knowledge. Abstract concepts are, for example,

often expressed in concrete and simplified language and differences in language skills may be great. A central aim of the subject is to take account of the gender perspective in teaching, so that the conditions for developing spoken and written Swedish become more favourable for both sexes.

The development of language also involves development of thinking and is thus of critical importance for learning. In the school the language of instruction is Swedish for the majority of the pupils. The new language must be used as an instrument for thinking in school, even if during the initial stages it doesn't always function correctly and fully.

All teachers have a common responsibility and must be aware of the importance of language for learning. The subject of Swedish as a second language, however, takes primary responsibility for the pupils' language development.

In contrast to learning a foreign language, learning Swedish takes place amongst pupils with a different mother tongue, both in school and in the pupils' normal surroundings. Understanding the surrounding world and its culture, and comparing it with one's own experiences is central to the subject.

Language development – development of knowledge

Language development does not take place in a vacuum, but is always connected to content. In order to consolidate and develop a language, it must be used in different contexts with meaningful content.

Creating, amongst other things, preconditions enabling pupils to verbally describe knowledge acquired earlier about the surrounding world and in various subjects helps develop a foundation for studying subjects in the future. This is a major focus of the subject in the introductory phase. Characteristic of the subject is that it both provides tools for acquiring knowledge in other subjects, and assistance in formulating and presenting knowledge in the new language. This develops both the thinking and language skills of the pupils. In addition to what is typical of the subject, opportunities are also provided for thinking and communicating at a conceptual and knowledge level, which is often higher than the pupils' level in Swedish. In this context, interaction with the mother tongue and other subjects is critical. Of importance in the subject of Swedish as a second language, is the creation of conditions for expressing complex thoughts in speech and in writing without imposing requirements for formal correctness at too early a stage.

The subject covers components such as pronunciation, grammar, vocabulary, structure of dialogues and texts, as well as supports the special learning process, which is involved in learning a second language.

Language and culture

Language and culture are intimately connected to each other. Pupils with a mother tongue different from Swedish are more or less participating in two cultures. Culture in a broad sense refers to a complicated network of invisible norms, rules and attitudes. Central to the subject of Swedish as a second language is clarification of the similarities and differences in terms of views and values between the original culture and Swedish society so that pupils understand the fundamental values that the Swedish school and Swedish society are built on.

Pupils who study Swedish as a second language have obtained their first language experiences and knowledge in a mother tongue other than Swedish. The fact that they have knowledge that differs from pupils with Swedish as a mother tongue is characteristic of the subject, and conditions are thus created for developing their second language to as high a level as is possible. As a result development towards active bilingualism is also supported.

Teaching a second language and reading literature

Literature is an important area of knowledge in the subject and at the same time a means of understanding the world and oneself. Literature formulates and conveys knowledge and values, as well as makes cultural frames of reference explicit. Reading literature helps pupils to formulate thoughts and feelings which they recognise, but for which they lack a means of expressing in the new language. They should also get opportunities to formulate new thoughts stimulated through literature.

For pupils with a different mother tongue and cultural background, reading literature in Swedish has a number of different dimensions. In addition to the experience of reading, literature provides support for pupils to gain an understanding of Swedish or Western frames of reference and compare these with their own. Reading literature expands their knowledge of the surrounding world and forms a foundation for learning words and concepts in meaningful contexts. Working with carefully selected literary texts provides opportunities for all-round training in the language.

Assimilating and working through a text does not necessarily imply reading, but may involve listening, looking at films, video and pictures. A broader concept of text covers pictures, in addition, to written and spoken texts.

Goals that pupils should have attained by the end of the fifth year in school or after the first part of the education

Pupils should

- in a way corresponding to their maturity and previous knowledge, be able to actively take part in discussions, as well as be able to orally relate and present contents which are understandable to the listener,
- be able to write different kinds of texts in the contexts needed for work,
- be able with the help of discussions and intensive study of texts, to read and understand literature corresponding to their maturity in terms of age, and non-fiction which corresponds to their maturity in terms of knowledge.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to understand and use the Swedish language in speech and writing in the different situations they encounter,
- be able, actively and with clear pronunciation, to take part in conversations and discussions, be able to relate coherently something which they have heard, read, seen or experienced, as well as be able to present a task so that the contents are clear and understandable,
- be able to read and assimilate literature appropriate to their age and understand factual texts of the kind needed for school work,
- be able to appreciate and reflect over and evaluate the contents and means of expression used in pictures and films,
- be able to read, reflect over and put into a context some literary works and authors that have been influential in affecting how people live and think,
- be able to write different kinds of texts so that the contents are clear, and in doing this apply standards appropriate to the purpose, when writing by hand and using computers,
- be able to understand variations, emotive connotations and subtleties of the Swedish language.

Sign language for the hearing

Aim of the subject and its role in education

The subject of Sign language aims at providing hearing pupils with a knowledge of using sign language in contacts with the deaf and other sign language users. It is essential to develop these skills so that pupils have the desire and confidence to have a conversation in sign language. The subject provides an understanding of what is valuable in communicating with people using sign language. In addition, the subject aims to provide knowledge of the cultural features, which sign language has, as well as promote interest in and knowledge about the position of the deaf in society.

Goals to aim for

The school in its teaching of sign language should aim to ensure that pupils

- develop their knowledge of communicating in sign language,
- take advantage of the opportunity to use the language in communication with other users of sign language,
- develop their knowledge of the bilingual situation of the deaf and appreciate the consequences of this,
- understand the living conditions and culture of the deaf, nationally and internationally.

Structure and nature of the subject

Sign language is the mother tongue of around ten thousand persons in Sweden, who have been deaf from birth or early childhood. Other groups in society are also increasingly using sign language as a means of communication.

The ability to communicate is central to the learning of all languages. Sign language is a language with its own system of grammar, its own vocabulary and its own cultural features. It is a visual language, which is produced by the hand, the face and the body. Those studying sign language learn at the same time a new way of communicating, since the rules for taking turns and responding, differ from those in spoken languages.

A further difference compared with other languages is that sign language does not have a system of writing. This means that the opportunities for self-studies are limited.

Sign language texts on videos are limited in numbers, compared to the huge range of printed material available.

Sign language also covers a knowledge of the basic conditions for communicating with users of sign language. In the subject, it is natural to give attention to the more formal aspects of the language, and give increased knowledge of grammatical structures, as well as provide pupils with the opportunity to train their ability to vary their language.

Specific to sign language is that it focuses on dialogue, but training is needed in decoding and analysing the grammatical structure of sign language texts to promote language development. Studies in sign language also cover gaining a mastery of spelling and decoding spelt words. Developing non-manual signals is yet another aspect of learning, as is an understanding of grammatical phenomena.

Pupils by using sign language to express their thoughts, or to share the thoughts of others, develop their language skills. As when learning other languages, social interaction between pupils plays an important role.

Even a limited knowledge of sign language can be important for pupils' self-confidence. There are benefits for pupils in being able to find ways of understanding or making themselves understood in situations where their own language skills have not yet been sufficiently developed. Covered in the subject is knowledge about and an understanding of the position of the deaf and their conditions, nationally and internationally.

Goals that pupils should have attained by the end of the fifth year in school, within the framework of pupils' choices

Pupils should

- understand the main contents of simple and clear sign language concerning areas they are familiar with,
- be able to answer and ask questions about familiar subjects,
- in simple and clear sign language be able to relate something about themselves and their own circumstances,
- be able to spell clearly in sign language,
- have a familiarity with the position of the deaf in Sweden.

Goals that pupils should have attained by the end of the ninth year in school, within the framework of language choices

Pupils should

- understand simple and clear sign language in areas they are familiar with,
- be able to take part in conversations on everyday subjects,

- be able in simple sign language to describe an event and retell a story,
- be able to spell and decode clearly spelt sign language,
- have a knowledge of the position of the deaf in Sweden.

Technology

Aim of the subject and its role in education

Human beings have always strived to safeguard and improve their living conditions by changing their physical environment in various ways. The methods used are technological in the broadest sense. The subject of Technology develops a familiarity with the essential features of technology. The aim is to increase understanding of how conditions of production, society and the physical environment, and thus our living conditions are changing. Technological activities have a substantial impact on Man, society and nature. This becomes particularly evident when technology is undergoing rapid development.

Society and our ways of living are increasingly influenced by the use of technical components, which in their turn are often included in larger technical systems. Making everyday technology as far as possible understandable is thus an additional aim. This covers everything from the simplest domestic devices in the home to modern equipment and complicated transport systems. Technical knowledge is increasingly becoming a prerequisite for mastering and using the technology surrounding us. Citizens in a modern society need basic competence in technology, and this competence must, in addition, be continuously expanded and adapted. This competence covers not only a knowledge about the role of technological development from a historical perspective, but some experience in reflecting over and solving technical problems in practical terms. In addition, it is necessary to be able to analyse and evaluate the interaction between people, technology and the conditions under which we will exist in the future. Exploitation of technology raises a number of intricate issues, which affect fundamental values, for example, the impact of technology on the environment. In addition, many other aspects of existence, such as working life, housing and recreation, are influenced by technology. Opportunities for the group and individuals to exercise influence and power are largely dependent on how technology is designed and used in society.

The attitudes of girls and boys to technology differ somewhat – as do traditional views on the role of girls as opposed to boys in technological contexts. One aim is that everyone is given the opportunity to consciously acquire all-round knowledge in the subject.

Goals to aim for

The school in its teaching of technology should aim to ensure that pupils

- develop their insights into the traditions of knowledge and the development of the culture of technology and how technology in the past and the present influences people, society and nature,
- develop a familiarity in the home and workplaces with commonplace devices and working methods of different kinds, as well as knowledge of the technology which is a part of our surroundings,
- develop the ability to reflect over, assess and evaluate the consequences of different technological choices,
- develop the ability to incorporate their technical knowledge into their own personal views of the world and practical actions,
- develop an interest in technology and their ability and their judgement when handling technical issues.

Structure and nature of the subject

Man's technical abilities have over thousands of years been nurtured and developed by women and men in practical activities. This process rests on tradition and praxis, the ability to observe, curiosity, a wealth of ideas, initiative, influence from other cultures – and learning from failures. Simple and often ingenious technologies are important features of our lives, and thus make up an important part of the teaching in technology. An increasingly larger part of the new technology is the result of scientific research and systematic development work.

The culture of technology is largely based on the traditions of knowledge found in practical work. These have been developed in the home and households, handicrafts and industry, as well as in a number of other contexts. By following the historical development of technology, the subject increases the scope for understanding today's complicated technological phenomena and contexts. In practical activities being able to test, observe and design is a productive way of becoming more familiar with the primary questions concerning the goals and opportunities provided by technology, and acquiring an understanding which is difficult to achieve in any other way.

Such activities also provide an emotional dimension, which link to other forms of creative activity.

To understand technology and its importance, it must be related to knowledge from other areas, such as the natural and social sciences. However, there are clear differences between these areas. The driving force of the scientist is curiosity in nature, and for the social scientist

curiosity in society, whilst the challenge for technology is the set of unsolved practical problems people confront. The history of technology enables us not only to gain a deeper understanding of the conditions of technology, sometimes very clearly, but also an understanding of many events in other areas of history. Technology is developed in interaction with the fine arts. In general, technology is a meeting place for ideas and knowledge of the most varying origins, and this has characterised its development since the very earliest times.

Practical and investigatory work provides illustrations both of the development process of technology, its identification of problems, ideas, planning, construction, testing and modification, and also shows how the technology which surrounds us is linked to different and often interdependent systems.

Some of the central issues and perspectives in the subject focus on what is specific to technology.

Development

Technological development has a number of different driving forces. Changes in nature, such as e.g. droughts and floods, and the often unpredictable effects of technology have often confronted Man with challenges to surmount. In the same way, societal transformations and needs of different kinds have influenced technological development. This may apply e.g. to changes in the population structure, values, economics, politics and environmental requirements. But technological development is driven not only by the effort to innovate, but also by Man's curiosity and creativity.

What technology does

Technological problems and solutions can be categorised in different ways. How this is done depends on what one wants to accomplish. The following fundamental functions can be identified: transforming, storing, transporting and controlling. By means of clarifying and systematisation, pupils acquire their own tools enabling them to analyse the role and function of technology.

Examples of the transformation functions of technology are the processing of stone into axes, fibres into materials, erection of brick buildings, and the encoding of secret messages. Early examples of ways of storing were earthenware jars with hieroglyphics; significantly later comes the refrigerator and hard disks for computers. The technology of transport can be illustrated by vehicles, as well as by power cables and fibre optics. Locks, pacemakers and thermostats are examples of how technology can be used for different kinds of control processes.

Construction and operation

The subject covers a study of different technologies and their solutions in order to build up a technological repertoire, both practically and conceptually. Some examples of fundamental and common solutions in central areas are materials and design, moving parts, electricity and control, which are given special attention.

Components and systems

Objects with technical functions linked to each other in different ways are almost always components in larger systems. Examples of large systems are networks transporting goods, energy or information, whilst carriages, power cables and computers are components in these systems. Sometimes it is also meaningful to define sub-systems, i.e. intermediate levels in a hierarchical system. By studying individual technological solutions and their incorporation into larger systems, pupils can obtain important insights into the special character and conditions of technology.

Technology, nature and society

In order to understand the role and importance of technology, the interplay between human needs and technology must be considered. This perspective highlights the consequences and effects on the individual, society and nature of using different technologies. The subject also takes up issues concerning values, conflicts of interest, changing life conditions and economic consequences, which can arise in connection with different types of technological applications.

Goals that pupils should have attained by the end of the fifth year in school

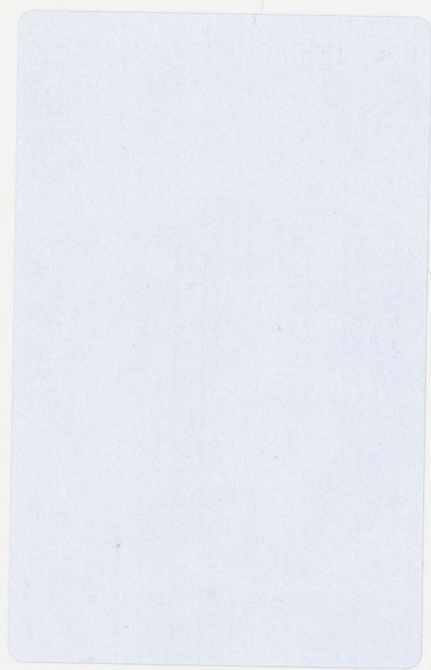
Pupils should

- be able to describe in some areas of technology they are familiar with, important aspects of the development and importance of technology for nature, society and the individual,
- be able to use common devices and technical aids and describe their functions,
- be able with assistance to plan and build simple constructions.

Goals that pupils should have attained by the end of the ninth year in school

Pupils should

- be able to describe important factors in technological development, both in the past and present, and give some of the possible driving forces behind this,
- be able to analyse the advantages and disadvantages of the impact of technology on nature, society and the living conditions of individuals,
- be able to build a technical construction using their own sketches, drawings or similar support, and describe how the construction is built up and operates,
- be able to identify, investigate and in their own words explain some technical systems by describing the functions of the components forming it and their relationships.



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