

Subject field: Technology

1.1. Technology Competence

The objective of teaching subjects of the technology field in basic school is to develop students' age-appropriate technology competence: ability to navigate the world of technology, understand technological development trends and connections with scientific achievements; to acquire technological literacy for age-appropriate, creative and innovative use of technology, integrating mental work with manual activities; to analyse the opportunities and threats of applying technology; to comply with intellectual property protection requirements; to solve problems, integrating mental work with manual activities, and to purposefully put ideas into practice; to cope with housework and to eat healthy

In developing these competencies basic school graduates will be expected to possess the capability to be able to:

- 1) cope in the world of technology and use technological opportunities sensibly and creatively;
- 2) see and understand connections between scientific achievements and technological development and express their opinions on technological development and changes in the world of labour; and discuss how work has changed in human history;
- 3) perceive manual activities and thinking as a way of diversifying their daily lives and solving real problems;
- 4) choose and analyse technical solutions and the associated impacts and risks;
- 5) can read and compile simple drawings and manuals, are able to present a problem and justify their opinions;
- 6) take into account the connection between functionality, aesthetic features and cultural traditions in the process of product design;
- 7) choose suitable materials, means and methods of labour and place a high value on safe use of tools and economical use of materials;
- 8) communicate and cooperate with other students in the course the work process;
- 9) apply the basic principles of healthy nutrition when preparing and analysing menus and can prepare simple healthy dishes;
- 10) cope with household chores; and
- 11) have an overview of the past and present occupations and professions associated with the field, are aware of further education opportunities in the field manufacturing and processing.

1.2. Subjects and Volume of the Subject Field

The subject field of technology includes three subjects:

- 1) craft is taught in grades 1-3;
- 2) technology studies is taught in grades 4-9;
- 3) handicraft and home economics in grades 4-9.

The design of required learning outcomes and contents, as presented in subject syllabi, is based on estimated division of weekly lessons by subjects.

1st stage of study – craft 4.5 lessons

2nd stage of study – technology studies and handicraft and home economics – 5 lessons

3rd stage of study – technology studies and handicraft and home economics – 5 lessons

The distribution of weekly lessons in a subject within a study stage is specified in the school curriculum, taking into account the need to ensure achievement of required learning outcomes and educational objectives.

The subject teacher selects the contents of education for presentation in consideration of achievability of the learning outcomes, subject field competences and general competences specified for study levels.

Craft study deals with the basics of handicraft, home economics and technology studies and develops primary constituent skills, field-specific and general competencies.

At the 2nd stage of study the students are divided into study groups based on their wishes and interests, selecting either handicraft and home economics or technology studies. The division into study groups is not gender-based and the school curriculum can include provisions for teaching the subjects of the technology field in combined classes at the 2nd and 3rd stages of study to contribute to the promotion of gender equality and to provide both boys and girls with necessary knowledge and skills in technology studies, handicraft and home economics.

The students switch between the study groups for at least 10% of the duration of these studies so that technology studies is replaced by home economics, and handicraft and home economics by technology studies.

Technology studies contributes to the development of five constituent skills: technology in our daily lives, design and drawing, materials and their processing, home economics, and project work. The first three constituents comprise approximately 65% of the total duration; home economics 10%; and project work 25%.

Handicraft and home economics contributes to the development of four constituent skills: handicraft; home economics; technology studies (when the study groups are switched) and project work. Handicraft and home economics comprises approximately 65% of the subject, and at least one third of this is home economics. Approximately 25% of the subject volume is dedicated to project work and 10% to technology studies.

The teacher decides how to arrange these parts during the school year in cooperation with the teacher of technology studies.

The development of constituent skills and the sequence of topics during a school year is planned in cooperation between the teachers of handicraft and home economics and technology studies. The syllabuses for handicraft and home economics and technology studies contain a project study section that

lasts for a quarter of the school year and takes place in a single instalment: the students can then select either of the two study groups depending on their interests, irrespective of whether they are studying technology or handicraft and home economics. Project work activities can be mutually integrated and also integrated with projects in other subjects and inter-class projects, as well as with events that encompass the whole school and longer-term events between schools. Project work is chosen in keeping with local traditions, novel and conventional processing modes and interest in covering a certain topic in-depth. The project work is independent and the students are not required to apply previously acquired skills and knowledge.

1.3. Description of the Subject Field and Integration within the Subject Field

The subjects in the field of technology support the development of knowledge, skills and values based on both traditional and modern technology. The learning environment and study arrangements ensure a better understanding of the objective world and development of cultural traditions and the world of technology.

The subjects in this field teach how to see the connection between the topics discussed and the surrounding living environment and facilitate application of education in different subjects and spheres of life. Students learn to understand the choices faced during product development, and identify, combine and analyse different environmentally friendly methods of implementation. Our society attaches great importance to technological literacy. The students research and analyse phenomena and situations, use various information sources and combine creative thinking and manual activities, which is important for human physiological and mental development.

Studies encourage students to propose new ideas in an environment where items are designed, modelled and made, and the students also learn to present them. In joint discussions, students learn how to analyse the product design process, to visualise, experience and evaluate different technical and creative solutions, and to assess the product of their work.

The learning environment is positively inclined, with student diligence and development receiving the utmost recognition, supporting initiative, enterprising spirit and creativity, and creating appreciation of Estonian and global cultural creations and heritage.

These studies develop skills of independent work and cooperation, critical thinking, analysis and assessment. By analysing various applied activities the students can make easier career choices and find pleasant hobbies.

In technology studies the stress is on a modern technological mindset and development of ideals and values required for employment. Taking into account sustainable development, the students acquire the skills of coping with today's rapidly changing world of technology. They learn to understand and analyse the essence of technics and technology and their role in social development. The studies direct the students to make connections between mental and manual activities and understand how what they learn at school is connected with the living environment. Subject studies can be diversified by making use of local opportunities. The contents of learning are combined with the solving of practical problems; the process of planning and manufacturing a product in a class covers the entire development cycle, from idea generation to product presentation.

The students taking **handicraft lessons** learn different handicrafts, four of which are compulsory: sewing, knitting, crocheting and embroidery. The cross-curricular topics of design, work organisation, the basics of folk art and study of materials are connected with both the compulsory subjects and various elective topics and projects. Several subjects can be combined when making an item during practical work.

2nd stage of study primarily emphasises the acquisition of the main work methods and technologies and the development of the skill of working in accordance with a manual or using auxiliary materials. Practical work is performed every year, facilitating creative application of the technological methods learned.

3rd stage of study is focused more on creative work and informed work organisation. The subject is taught in compliance with the product development cycle of a handicraft item: from information-gathering, idea development, design, work scheduling and technological planning to actual performance and presentation of the results.

The students in home economics classes acquire the skills and knowledge to cope with daily life tasks. In addition to practical cooking classes, the students learn the basics of healthy eating and how to create balanced diets. The students develop their housekeeping skills, assess consumers who act in an environmentally friendly manner and know their rights and obligations, analyse consumer behaviour and try to find connections and contradictions between health awareness and actual behaviour. Studying home economics offers good opportunities to apply the knowledge acquired in theoretical subjects such as biology, chemistry and mathematics.

1.4. Options of Forming General Competencies

For the purpose of forming general competences, the subjects of the technology field provide an opportunity for joint discussion on how to respond to everyday situations, complete group assignments and various tasks and projects. A professional teacher plays a crucial role in shaping the four interconnected components of competences – knowledge, skills, values and attitudes – with the teacher's values and self-assertion skills creating a suitable learning environment and influencing students' values and behaviour.

Cultural and value competence. Creativity-developing activities and projects teach the students to take into account the multiplicity of opinions and ideas. Joint discussions and assignments and analyses of the results help the students shape and substantiate their opinions, experience the joy of work and assume the responsibility for finishing what they have started. Discussion topics and practical activities contribute to increased valuing of creativity and development of a sense of beauty, appreciation of local cultural heritage and that of other countries and nations, and valuing technological achievements.

Social and citizenship competence. Different forms of cooperation in technology subjects guide students towards cooperation, facilitating development of tolerance and readiness for accepting the diversity of human beings and for considering it in communication. Students are guided to analyse their behaviour and its impact on their peers and solution of problems.

Self-awareness competence. Practical activities and analysis of those activities contribute to the development of students' ability to understand and assess themselves, their strengths and weaknesses, and to make decisions about their development and future employment. The knowledge of healthy nutrition and eating disorders, acquired in home economics, teaches students to value a healthy lifestyle and create preconditions for practicing this lifestyle.

Learning to learn competence. The students learn to see and analyse connections between technology and different knowledge and they experience the practical necessity of what they have already learned in other subjects. Independent organisation of work – from information-gathering and selection of materials and their processing methods to performance and analysis of results – develops the students' ability to notice and solve problems, assess and develop abilities and guide their own learning.

Communication competence. Joint tasks and projects allow the students to learn how to take other people into account, help them when necessary and experience the advantages of collective work. Solving of research problems and creation of presentations contributes to the development of the skill to read and understand informative and functional texts and to write different types of text.

Mathematics and natural sciences and technology competence. Specific problem solution methods used in technology subjects require calculation and measurement skills, the skill to use logic and mathematical symbols. Education includes activities that facilitate development of reasoning abilities, requiring formulation of problems, identification of suitable solutions strategies, justification of choices, and analysis of results. Students learn how to use, create and critically assess various technologies and technological tools. They learn to understand the role of science in technological development and vice versa.

Entrepreneurial competence. Entrepreneurship competence. The technology subjects attach importance to openness to creative ideas and original viewpoints. The students make items throughout the product development cycle: from coming up with an idea to presenting the completed item. Various projects in the subject enable students to test implementation of their ideas through different business models, for instance, running a temporary cafeteria as a team at school, designing a functioning product that requires extensive work, or organising the work process in the classroom.

1.5. Integration with other Field Competences and Subject Fields

The subject field of technology relies on knowledge acquired in other subjects, offering opportunities to achieve, through practical activities, an understanding that all knowledge is connected and applicable to everyday situations. Abstract analysis is supplemented with possibilities of seeing, touching and testing that lead to a visible result. Subject projects enable connections to be made between subject fields, within the subject field and with other subjects.

Language and literature, including foreign languages. Education develops students' ability of clear and relevant spoken and written self-expression. As the students gather information, they develop their functional literacy and supplement their technological vocabulary. Students are guided to use appropriate linguistic resources and observe correct grammar. Presenting their work and substantiating their choices, the students gain public performance experience and develop skills in self-expression. Students' attention is directed to correct formatting of written projects (e.g., manuals, summary essays). Searching for and researching the materials and information needed to perform assignments and complete projects expedites the process of learning foreign languages.

Math. The students studying technology subjects use logical thinking and mathematical knowledge. Student-performed calculations and measurements have practical repercussions, as mistakes (and their consequences) are noticed immediately, and it is inevitable that these should be analysed and better solutions found.

Natural sciences. Working with various natural and artificial materials presupposes familiarity with the properties of these materials. As part of technology studies and handicraft and home economics lessons, the students come into direct contact with many chemical and physical processes.

Social subjects. Knowing how technics and technology have evolved and understanding the reasons behind this evolution and likely future trends enhances the students' perception of the development of the human race. The students work together to learn how to take other people into account, adhere to the rules of proper behaviour and defend their personal opinions. Familiarity with the cultural traditions of different countries fosters sensible attitudes.

Art subjects. The students enjoy many opportunities for creative self-expression as they design and make various items. The students learn to assess novel and individual solutions and note item design functionality and connections with art and cultural background.

Physical education. Practical tasks reinforce health awareness and corresponding behaviour as the students take into account the principles of ergonomics and value healthy diets and sporting lifestyles.

1.6. Options for Implementing Cross Curricular Topics

The subject field of technology is associated with all cross-curricular topics. Cross curricular topics are considered when establishing objectives, planning learning outcomes and contents for the field, based on the study stage and the specific nature of the particular subject.

Lifelong learning and career planning. Education develops independent acting skills as a crucial foundation of lifelong learning habits and attitudes. Different forms of study are used to develop students' communication and cooperation skills, which are important for future employment. Familiarity with technological development and changes in the human role in the work process helps students realise the need for life-long learning. Selection of technological options to implement their own ideas, work planning and both individual and collective work help the students develop and analyse their working abilities, interests and cooperation skills. Study activities facilitate direct contacts with the world of employment (e.g., study visits to enterprises): students learn about occupations, professions, jobs and further education opportunities associated with the subject field. Study activities provide students with an understanding that different jobs can have different requirements and working conditions and guide students to analyse whether their health status and physiological attributes are suitable for the jobs they are interested in. It is explained to students, why it is important to follow occupational safety regulations and how medical conditions can restrict the ability to work in certain fields.

Environment and sustainable development. Information environment. It is important to use both natural and artificial materials thriftily when making a product. Attention is given to shaping and encouraging the shaping of environmentally friendly consumer habits. Sorting of waste and economy of energy and resources during lessons facilitate reinforcement of ecological knowledge.

Citizens' initiative and entrepreneurship. Initiative, enterprise and cooperation are closely connected with the content of technology subjects. Implementation of the students' own ideas and the skill of work organisation are among the primary goals of the subject in this field. Enterprise is supported by capably completed projects that allow the students to test their abilities.

Cultural identity. Familiarity with objective culture, traditions and dietary customs allows the students to see cultural diversity in different regions of the world and become aware of their own place in our multicultural world. The students learn to see and use folk elements in item design.

Information environment. Planning their work and gathering information for subject-specific projects, the students learn to use different information channels and assess the degree of reliability of the information gathered. As the students use the Internet, they can keep themselves up-to-date on technological innovation and become familiar with the creations of designers and artisans from around the world.

Technology and innovation. Various materials and processing methods are used in lessons. By solving problems and presenting results, students learn how to use computer software and identify possibilities for using the digital environment in the learning process. Familiarity with computer-controlled and fully automated equipment and, if possible, the operations of such equipment enhances perception of contemporary technological possibilities.

Health and safety. Education provides information on occupational safety requirements in different lines of work and students learn to follow safety requirements. Familiarity with various natural and synthetic materials and their properties helps the students make healthy choices in the objective environment. Acquisition of the basic tenets of healthy eating and cooking healthy food serves as the basis for health awareness and corresponding behaviour.

Values and morality. Values and morality. The technology subjects mould respect for work and those who perform it. Working in groups allows the students to gain valuable experience in mutual consideration, organisational skill development and resolution of potential conflict. The etiquette topics studied in home economics shape the practical skills of behaviour in various situations as the students learn to understand the reasons behind behavioural choices and their likely consequences.

1.7. Planning and Organizing Study Activities

The planning and organisation of education in craft study, handicraft and home economics, and technology studies should be based on the following principles:

- 1) the basis consists of the fundamental values and general competences stipulated in the curriculum, the general goals of the subject, the content of studies and the expected learning outcomes, with support given to integration with other subjects and cross-curricular topics;
- 2) the students can study individually or with others (independent and pair or group work) as this supports their development as active and independent learners;
- 3) differentiated learning tasks are given and their content and levels of difficulty support an individual approach and enhance motivation to learn;
- 4) the contents of studies in other subjects are taken into account when compiling a school syllabus and the teacher's work schedule, and integration with other subjects is used if possible. For this reason, general education principles are applied in craft study. Technology studies are closely integrated with mathematics and nature subjects. The topics of home economics provide opportunities for integration with civics and citizenship education, personal, social and health education, biology and chemistry, while health-conscious behaviour skills can be practiced through practical assignments in the classroom, and studies are organised through teachers' cooperation in the school;

- 5) the study activities in all subjects of the fields are designed with practical application in mind. It is also taken into account that the theoretical and practical parts are alternating depending on the students' abilities and progress. The practice of product design facilitates acquisition of useful knowledge, skills and attitudes. Activities are selected depending on the development, progress and abilities of students;
- 6) the teacher makes sure that learning is varied so that the students can study different types of work and topics, try processing various materials and become familiar with their properties through manual work and creativity;
- 7) students are encouraged to express their opinions, to engage in group reflection on topics related to the studies, and attention is paid to provision of value education;
- 8) a business-like and pleasant working environment is ensured in the classroom and student creativity and initiative are supported; and
- 9) local opportunities are used to diversify subject studies.

In handicraft and home economics and technology studies:

- 1) learning environments, teaching materials and means are used which are based on modern information and communication technology;
- 2) the learning environment is expanded: library, computer/multimedia classroom, the natural environment, companies school yard, exhibitions, museums, etc.;
- 3) different contemporary methods of teaching are used, including active learning (creative thinking, practical and research activities, project studies, experiments, e.g., properties of different materials and substances, organisation of events and exhibitions, use of online environments for presenting and displaying one's ideas and work, role-play, discussions, debates, etc.);
- 4) the main emphasis is on a creative design process (design, testing, product improvement, etc.), preservation of national work traditions (national products, folk art motifs used to adorn products etc.) and modern technology;
- 5) safety issues are addressed before use of any new processing methods or equipment, incl. work instructions and demonstration of safe techniques;
- 6) the time allocation of learning contents – the number and sequence of lessons – is planned while keeping in mind the recommendation to select two main techniques of work in handicraft, which can be linked to recurrent topics within the subject (design, folk art, organisation of work, and materials);
- 7) study is organised according to a project-based format (incl. projects that connect different subjects and areas of life, cooperation with businesses, and cooperation between boys and girls in home economics, handicraft and technology studies), which facilitates greater emphasis on local traditions, presentation of and experimentation with various techniques, guiding students towards individual and collective creative problem solutions and organisation of events related to the subject;
- 8) when preparing food in home economics or performing other practical assignments, a class is divided into smaller groups (1-5 students);
- 9) it is kept in mind that technology study is primarily based on the product/other development cycle;
- 10) the students' workload (including homework) should be moderate and evenly distributed throughout the school year, leaving them sufficient time for rest and recreational activities;
- 11) the aim is to ensure that home assignments in handicrafts and technology studies are linked with finding the necessary information, independent planning and organisation of work, and also with product design in case of handicraft, avoiding excessive supervision;

- 12) the students go through the phases of searching for information, designing the product, making the product and presenting it to fellow students;
- 13) adaptation of the contents and outcomes of learning to the ability of students.

1.8. Basis for Assessment

The aim of assessment with regard to the subjects of the technology field is to support students' development, motivate purposeful learning, guide the development of students' self-esteem, create and increase a lifelong interest in handicrafts and technology, guide and support students in the choice of their future education path. Assessment supports development of students' technology competence, technological literacy and provides feedback on students' individual development, constituting the basis for the planning of subsequent studies.

Assessment is regulated according to the respective provisions of the national curriculum for basic schools and both formative assessment and summarising grading are used, depending on the established learning objective and the contents and goals of the curriculum. Important in student assessment are the verbal appraisal provided by the teacher, the numerical grade and the student's self-assessment. In the subjects of the technology field, assessment also takes into account students' participation in subject olympiads, contests, competitions and other such events. In the 9th Form, a final paper can be used for summarising grading of students' knowledge and skills.

In technology studies, assessment covers students' work culture, technological literacy and the ability to design and manufacture a product:

- 1) attitude towards learning, diligence, studiousness, persistence, attentiveness;
- 2) cooperation skills, helpfulness, independence in the performance of work;
- 3) compliance with the rules of conduct in study premises;
- 4) planning (originality, independence, possibility for idea/design implementation expediency) the choice of materials and means, product-making method, technical correctness of the working drawings etc.;
- 5) the skill of making and substantiating choices (idea, processing method, material etc.) and describing connections;
- 6) production process (cooperation skill, working independently, the skill of using materials, means, written and information technology resources, theoretical knowledge and skill in its application, adherence to occupational safety requirements etc.); and
- 7) work results (implementation of the idea, product finishing, aesthetic value, timely completion of work, product quality etc.), including performance of separate tasks and skills in product presentation.

When assessing written assignments, teachers primarily take into account the content but also correct spelling mistakes, which are not taken into account in assessment.

1.9. Physical Learning Environment

The school conducts the majority of the technology studies course in rooms where:

- 1) the equipment required for teaching the subject corresponds to the practical work activities chosen by the school, is modern and enables safe and contemporary organisation of learning activities;
- 2) there is at least one fixed item of equipment and workstation (e.g., a drill press) per study group and there are two sets of electrical manual tools per study group;

- 3) there is a functioning ventilation system for extracting wood chips and dust in technology studies, the rooms and learning aids, including tools, are compliant with occupational health and safety and ergonomic requirements;
- 4) there are rooms for changing clothes and washing hands, for the teacher and for storing materials and the results of practical work;
- 5) there are individual means of protection for each student and the teacher.

The school provides the materials necessary for the subject of technology studies as well as primary tools and equipment, the list of which is specified in the school curriculum.

2. Syllabuses

2.1. Craft

2.1.1. Learning and Educational Objectives of Craft

The aim of teaching craft is that the student would:

- 1) experience the joy and satisfaction derived from work performance;
- 2) work under teacher supervision using suitable materials and simple processing methods;
- 3) can use a work manual and proceed accordingly alone or with others;
- 4) find creative solutions in performing their task and be able to implement them easily;
- 5) follow basic safety requirements;
- 6) maintain cleanliness at home and school and comply with personal hygiene requirements;
- 7) know the necessity of healthy eating;
- 8) assess and recognise their own and others' work;
- 9) learn to observe, know and assess the objective environment; and
- 10) care about the cultural traditions of their home area and Estonia.

2.1.2. Description of the Subject

Achievement of learning outcomes in craft studies created preconditions for acquisition of the contents of technological education at subsequent stages of study.

The main emphasis in craft studies is on the development of five constituent skills:

- 1) item design;
- 2) knowledge and use of different materials, comparison of properties of materials;
- 3) development of work habits, handling of simple tools and application of correct basic techniques;
- 4) creative application of different work methods, incl. development of the skills of independent and team work;
- 5) development of sustainable and informed consumption habits.

Craft studies is characterised by creative manual activities that are important for the physiological and mental development of the students. Work assignments are selected in accordance with the goal of developing the mental and physical abilities of the children: motor functions, attention, eye precision, spatial perception, imagination etc.

It is important that students develop the skill of planning their own work, and they must be encouraged to make independent decisions and develop their inventive intuition.

The teacher plans work assignments so that various solutions are allowed and expected and the students can use their imagination. Attention is given to the aesthetic side of work and the presented results. New and exciting ideas are discussed and the students are inspired to derive joy from creative activities. Each school year the students perform collective work or subject-specific projects. During these activities the students learn to work with others, help each other, take into account the opinions of others and substantiate their own opinions. As the main content of craft lessons comprises creative practical activities, this subject provides emotional balance in school studies.

2.1.3. Learning and Educational Objectives of Craft

After completing the 3rd grade of study, students:

- 1) design simple items;
- 2) differentiate between natural and artificial materials (paper, textiles, leather, plastic, styrofoam, wood, wire, tin etc.);
- 3) compare the general properties of the materials;
- 4) can combine and apply materials;
- 5) model and make items from different materials;
- 6) note folk elements in items;
- 7) have the courage to suggest different options for executing an idea and to select the most suitable option;
- 8) describe, present and assess their ideas;
- 9) use materials in an economical manner;
- 10) choose different methods and means of processing materials;
- 11) handle common tools in a correct and safe manner;
- 12) discuss safety requirements and maintenance of workplace order;
- 13) work under oral supervision with the aid of a simple work manual;
- 14) provide subject-related examples from their daily lives;
- 15) maintain proper order and cleanliness;
- 16) act as sustainable consumer;
- 17) know the need for personal hygiene and look after their clothes and appearance; and
- 18) take fellow students into account when working together; and adhere to the rules of politeness.

Learning Content

Design. Observing the items around us and their past and present-day design.

Folk patterns and motifs. Searching for and selecting ideas and using auxiliary materials and information. Sketching ideas on paper. Idea presentation. Designing simple items and environments.

Materials. Natural and artificial materials (paper, cardboard, plasterboard, textiles, leather, plastic, styrofoam, wood, wire, tin etc.). Material origins, properties, purpose and use.

Experiments with different materials and comparison of their properties. Finding ideas to re-use materials.

Working. Working under oral supervision. Familiarity with a written work manual and understanding it. Implementation of own ideas based on acquired skills and independent experiments. Workplace order maintenance and its influence on work results and safety.

Group work tasks, joint idea generation, consideration for mutual opinions and helping fellow students. Assessment of novelty, application and aesthetic features of work results.

Work Methods. Simple methods of material processing incl. measuring, marking, tearing, folding, cutting, crocheting (first loop and loop chain), joining of elements, sewing, gluing, nailing, braiding, embellishing, painting and finishing, yarning, sawing (in subject classroom).

Frequently used tools (scissors, knife, needle, crochet needle, awl, hammer, saw (running stitch and back stitch), screwdriver, pliers, tongs etc.) and their proper, expedient and safe use and maintenance.

Selection of processing methods depending on a particular idea and material. Making of feasible items.

Home Economics. Discussion of a cosy home as an important family value. Maintenance of order in rooms and their adornment. Proper care for clothes and footwear. Personal hygiene.

Healthy food choices. Simple cooking. Laying a table, decorating it for a meal and cleaning it afterwards.

Polite behaviour. Economical consumption.

2.2. Handicraft and Home Economics

2.2.1. Learning and Educational Objectives of Handicraft and Home Economics

The aim of teaching handicraft and home economics is that by the end of the basic school, the students would:

- 1) feel satisfied through practical self-realisation and assess work and those who perform it;
- 2) understand technological development and see corresponding changes in work and their influence on the environment;
- 3) be aware of and develop their creative potential, design and implement their ideas and complete assumed tasks in a creative manner;
- 4) compare and use different materials;
- 5) know the principles of work safety and adhere to them;
- 6) perform teamwork and perceive their abilities in collective work;
- 7) choose and cook food based on the principles of healthy eating;
- 8) cope with household chores and a family budget and act as informed consumers; and
- 9) connect acquired theoretical knowledge with everyday practical skills;
- 10) use different sources of information to integrate creative thought processes and manual activities; and
- 11) value and preserve national culture and realise their place in the multicultural world.

2.2.2. Subject Description of Handicraft and Home Economics

Handicraft and home economics is a subject that integrates the theoretical knowledge and practical skills needed in daily life. Connections between handicraft and applied art facilitate creative self-realisation. The students discuss connections between art, handicraft and fashion and the importance of handicraft and light industry in the past and present. They become familiar with different materials and their properties and try various techniques when using them.

The students learn to see and find interesting and novel solutions when designing items and products. They learn to value preservation and development of national culture traditions in handicraft and home economics. ~~It is national cultural traditions in handicraft and home economics.~~ The students learn to note the handicraft and food traditions of different countries and their connections with history, climate, religion and cultural customs.

During home economics lessons the students learn the basics of healthy eating and how to create a balanced menu; they learn to cook; they develop housekeeping skills. Students reflect on consumer behaviour and understand the importance of consumers who act in an environmentally friendly manner and know their rights and obligations; they analyse consumer behaviour and value consumers who act in an

environmentally friendly manner and know their rights and obligations; and seek connections and contradictions between health awareness and actual behaviour.

Thus, the subject of handicraft and home economics shapes practical thinking and creativity and develops manual activities, self-analysis abilities and technological literacy. The subject integrates the knowledge acquired in other subjects. The creative and practical activities also carry the function of relaxation, both in the context of school studies and subsequent life.

2.2.3. Learning and Educational Objectives of Handicraft and Home Economics in the 2nd stage of study

After completing the 2nd grade of study, students:

- 1) experience the joy derived from individual and collective work performance;
- 2) know and use various materials and means of labour, adhering to safety requirements and maintaining proper order in the workplace;
- 3) find ideas and can present them;
- 4) understand work manuals and explanatory drawings;
- 5) know basic foodstuffs and their properties and cook simple food;
- 6) know the basics of healthy eating; and
- 7) know the cultural traditions of their home area and Estonia.

2.2.4. Learning Outcomes and Learning Content of Handicraft and Home Economics in the 2nd stage of study

Item design and folk art and Folk Art

Learning Outcomes

The students:

- 1) design feasible handicraft items based on the work methods acquired;
- 2) note folk design elements in contemporary items;
- 3) find ideas for designing handicraft items from Estonian folk art;
- 4) find possibilities for the re-use of textiles; and
- 5) can use subject-specific literature and information sources for design.

Learning content

The importance of idea and design when making an item. Principles of design and their application. Graphic design possibilities. Taking into account the basics of colour when designing items. Finding ideas and developing them into designs.

Principles of selection and suitability of textiles and handicraft materials depending on the sphere of application.

Objective folk art and its significance. Customs and traditions. Folk patterns/ornaments on historical and modern items. The role of museums in preserving folk art. Use of folk elements in the design of modern consumer items.

Materials and Work Progress

Learning Outcomes

The students:

- 1) describe the acquisition of natural fibres, their main properties, application and maintenance;
- 2) differentiate between loom-made fabrics and knitted wear and compare their properties;

- 3) make the connection between handicraft yarn thickness and the completion time of an item.
- 4) work independently in accordance with a simple work manual;
- 5) work in compliance with safety requirements and maintain proper order in the workplace; and
- 6) assess the correctness and aesthetic features of their work.

Learning content

Textile fibres. Natural fibres, their acquisition and properties.

The principle of fabric weaving. Fabric types: loom-made, knitted and non-woven fabrics.

Sewing threads, handicraft threads and yarns. Maintenance of items made from different textiles.

Working under oral supervision. Working in accordance with a work manual. Compilation of a simple work manual.

Work distribution in a group, planning collective work. Analysis and assessment of collective work.

Work Types

Learning Outcomes

The students:

- 1) use one- and two-line stitches when adorning a textile item;
- 2) prepare a sewing machine for work and tack and sew with simple seams and hems;
- 3) cut out and sew together a simpler item;
- 4) crochet and knit basic loops and know ways of pattern notation and the corresponding symbols; and
- 5) crochet and knit on the basis of a simple layout; and
- 6) understand the need for precision when sewing and work accordingly.

Learning content

Embroidery. Means and materials. Symbols and signs. Plain and adornment stitches. One- and two-line stitches. Pattern application on cloth. Finishing.

Sewing. Means. The need for precision in sewing. Manual and machine-assisted sewing. Threading a sewing machine. Simple seam. Hemming. Hems. Cutting placement on cloth and seam allowances. Finishing and maintenance.

Knitting. Means and materials. Creation of loops. Front and back loops. Edge loops. Knitting completion. Reading of simple knitted patterns and using them for knitting. Finishing and maintenance.

Crocheting. Means and materials. Crocheting of basic loops. Forwards-backwards crocheting. Ways of crocheting pattern notation. Layout-based crocheting. Circular crocheting. Crocheting and connection of motifs. Finishing and maintenance.

Food and Eating and Consumer Education

Learning Outcomes

The students:

- 1) know different food groups and the individual foodstuffs that comprise these groups and the properties of such foodstuffs;
- 2) compare the nutritional values of different foodstuffs listed on product packaging;
- 3) know which foodstuffs are perishables and preserve foodstuffs appropriately;
- 4) know what the expressions “use by...” and “best before...” mean;
- 5) behave as environmentally aware consumers;
- 6) can choose different goods and substantiate their choices; and
- 7) assess how their eating habits match the basic tenets of healthy eating.

Learning content

Foodstuffs and nutrients. Basics of healthy eating. Food pyramid. General characterisation of food groups: grain and cereal products, milk and dairy products, vegetables, meat and meat products, fish and fish products, eggs and dietary fats. Preservation of foodstuffs.

Consumer information (printed on packaging). Informed and economical consumption. Economical consumption of energy and water. Sorting of waste.

Cooking, Work Organisation and Hygiene

Learning Outcomes

The students:

- 1) use measuring items and scales and can convert volume and weight units;
- 2) select means and equipment in accordance with the objective and use them in compliance with safety requirements; and
- 3) cook simple, healthy food using the most widespread foodstuffs and hot/cold processing techniques.
- 4) together compile a work plan, agree on the distribution of duties, complete the task and assess the result and the role of each member in achieving it; and
- 5) comply with the rules of hygiene when working in the kitchen.

Learning content

Recipes. Units of measurement. Means of working in the kitchen. Safety. Pre-processing of foodstuffs and hot/cold processing. Sandwiches. Desserts made without hot processing. Cold beverages. Hot beverages. Boiling of potatoes, eggs and pasta products. Green and mixed salads. Cold sauces. Porridges and other cereal-based foods.

Personal hygiene requirements applicable to kitchen work. Food safety. Washing dishes by hand and in a dishwasher and maintaining proper order in a kitchen. Work sequence when cooking.

Work distribution in a group, planning collective work. Analysis and assessment of collective work.

Table Manners and Etiquette

Learning Outcomes

The students:

- 1) lay a table in accordance with the meal, choosing and placing suitable tablecloths, tableware and decorations on the table and assess table and food layout;
- 2) abide by generally recognised table manners; and
- 3) find creative solutions for gift wrapping.

Learning content

Table manners and table-laying customs and different creative possibilities. Tablecloths, tableware and decorations. Selection of suitable tableware for serving food. Finding ideas and solutions for wrapping different gifts.

Home Maintenance

Learning Outcomes

The students:

- 1) perform housework using suitable means;
- 2) plan the washing, drying and ironing of clothes based on care labels; and

- 3) understand that the distribution of household chores is a pre-requisite for good relations between family members.

Learning content

Cleaning and maintenance. Means of household work. Washing of clothes by hand and in a washing machine. Care labels. Ironing.

Footwear maintenance.

Project Studies

The students:

- 1) find (independently and/or in cooperation with others) solutions to tasks and problems;
- 2) treat their fellow students benevolently and take into account the work-related opinions of others;
- 3) perceive themselves as participants in group work, project work and other collective work activities;
- 4) actively participate in various forms of cooperation and communication;
- 5) value the design process and analyse completed assignments and feedback; and
- 6) conceive, present and justify their opinions.

In each school year, the subject syllabus includes a module that provides students with an opportunity for free selection of a study group and a project. The projects can be in the field of technology studies, handicraft or home economics. Project work activities can be mutually integrated and also integrated with projects of other subjects and inter-class projects, as well as with events that encompass the whole school and longer-term events between schools.

Technology studies in exchanged study groups

Learning Outcomes

The students:

- 1) appreciate the need for technological literacy in everyday life;
- 2) know the main materials, their properties and methods of processing;
- 3) design and make simpler products using suitable means; and
- 4) comprehend and comply with occupational health and safety requirements.

Learning content

Essence of technology. Technology and society. Types of materials (wood, metal, plastic etc.) and their properties. Methods of material processing (marking, sawing etc.) and corresponding means (tools and machinery).

Idea and draft. Designing and making products from different materials.

Most common manual and electrical tools. Joining of materials. Selection of finishing depending on a particular material and the sphere of application of the product.

Occupational health and safety requirements during processing and safe work methods.

2.2.5. Learning and Educational Objectives of Handicraft and Home Economics in the 3rd Stage of Study

After completing the 9th grade of study, students:

- 1) experience the joy derived from individual and collective work performance and understand the importance of work and cooperation skills for everyday life and future employment;
- 2) discuss changes in work and technology;

- 3) implement their creative ideas using suitable techniques and materials;
- 4) perform creative task-solving using materials gathered via modern information channels and from subject-specific literature;
- 5) know and value the cultural heritage of different peoples, have an overview of past and present professions associated with the field;
- 6) analyse their own creative and technological abilities and make choices for further studies;
- 7) choose healthy food, create balanced and diverse menus and cook different types of food; and
- 8) cope with household chores and a family budget and act as informed consumers.

Design, Drafting and Folk Art

Learning Outcomes

The students:

- 1) discuss changes in fashion;
- 2) select suitable clothes depending on materials, purpose, cut, style and their own figure;
- 3) note original and inventive solutions in item and clothing design;
- 4) design individual items.
- 5) know the main Estonian national handicraft traditions;
- 6) use ethnographic items for inspiration; and
- 7) value the cultural heritage of different peoples.

Learning content

Textiles in clothes and fashion as a reflection of the spirit of an era. Consideration for the principles of fashionableness, individuality and proportionality in design. Selection of suitable additions in style design. Idea drafting and formalisation. Consideration for compositional regularities in handicraft item design. Textile item design and methods of adornment in different textile technologies. Ornamental art. Symbols and signs in folk art. Knitting, crocheting and embroidery in Estonian folk art. Folk costumes. The Estonian ethnographic ornament in contemporary design of clothing and the objective environment. Ethnography of other peoples as a source of inspiration.

Materials and Work Types

Learning Outcomes

The students:

- 1) describe the main properties of chemical fibres, their application and maintenance;
- 2) select materials comparing their influence on our health; and
- 3) choose suitable materials, means, techniques and finishing methods to make a particular item;
- 4) take cuttings from a sheet, select the suitable technology with the teacher's assistance and sew an item of clothing;
- 5) knit a patterned surface, create patterns using a pattern layout and do circular knitting; and
- 6) find creative opportunities to apply the handicraft techniques they have learned.

Learning content

Textile fibres. Chemical fibres. Acquisition and properties of artificial and synthetic fibres. Modern handicraft materials. Finding opportunities for joint use of various materials.

Embroidery. Familiarity with various embroidery types. Embroidery as a means of creative expression. If possible, design and creation of embroidery using computer software.

Sewing. Hot and damp processing of fabrics. Sewing an item of clothing. Taking measurements, determining garment size, using a cutting sheet and placing cuttings on the material. Application of technological methods suitable for sewing a chosen item of clothing. Finishing.

Knitting. Design and use of loops. Circular knitting. Patterning. Knitting of different patterns based on the layout provided. Calculation of loops, item knitting and finishing.

Crocheting. Familiarity with crocheting technique options.

Work Organisation in Crafts

Learning Outcomes

The students:

- 1) perform tasks with the aid of modern information sources;
- 2) present or exhibit their work;
- 3) perform set tasks independently and with others and schedule their work; and
- 4) analyse their own creative and technological abilities and makes choices for further studies and hobbies.

Learning content

Development of handicraft techniques and the textile industry and the historical factors that influenced this development. Modern technological possibilities and novel methods of manufacturing clothes and consumer items. Sewing- and handicraft-related professions and entrepreneurial opportunities.

Selection of suitable means and technology depending on the material and the item to be made.

Planning of work alone and in a group.

Procurement of the necessary information from modern information sources, analysing it and using it.

Work with electrical means and their maintenance in accordance with user manuals.

Analysis and assessment of own work process and results. Presenting work and, if possible, showcasing the design and using a virtual environment to exhibit work.

Food and Eating

Learning Outcomes

The students:

- 1) know how important a diverse selection of food is to their health and understand the necessity for and sources of the principal macro- and micro-nutrients;
- 2) analyse the nutritional values of different foodstuffs, assess their quality, know different food preservation methods and the risk factors due to food perishability;
- 3) analyse the healthiness of a menu and create balanced and diverse meals;
- 4) know how food changes when it is cooked and can apply this knowledge; and
- 5) compare the national dishes of different countries and know the factors that influence dietary customs.

Learning content

Macro- and micro-nutrients, their necessity and sources. Additives in foodstuffs. Assessment of the nutrient content of foodstuffs.

Creation of a diverse and balanced daily menu based on eating recommendations.

Websites dedicated to healthy eating. Food allergy and intolerance. How vegetarianism and diets influence our body. Eating disorders.

Food of Estonians through the ages. Eating traditions of different peoples and the factors that influence food choices (location, religion etc.). Changes in foodstuffs during hot processing and nutrient wastage.

Micro-organisms in food. Reasons for foodstuffs perishing. Requirements for hygiene in the preservation of foodstuffs. Food-borne diseases. Preservation and canning of foodstuffs.

Organisation of Food Preparation and Consumer Education ~~Work Organisation~~

Learning Outcomes

The students:

- 1) perform group tasks taking into account the opinions and assessments of fellow students;
- 2) create menus using subject-specific literature and other information sources;
- 3) calculate food costs; and
- 4) assess their own interests and suitability to work with food professionally or as a hobby;
- 5) know consumer rights and obligations and how advertisements influence our purchasing behaviour; and
- 6) know how to compile a budget for an event.

Learning content

Team leadership. Organisation of a larger project: from menu creation, calculations and practical work organisation to analysis of results.

Food-related professions.

Consumer rights and obligations. Product markings. Advertisement and purchasing decisions. Informed and economical household management. Money-saving possibilities and analysis of expenses. Planning of expenses for special occasions (parties, anniversaries etc.).

Cooking

Learning Outcomes

The students:

- 1) know methods of hot processing of foodstuffs;
- 2) know the main flavourings and food flavouring possibilities;
- 3) cook various hot and cold dishes using recipes; and
- 4) bake dough products and compare different leavening agents.

Learning content

Modern kitchen appliances, their use and maintenance.

Methods of hot processing.

Flavourings and flavouring food.

Soups. Meat cuts and meat dishes. Fish dishes. Warm sauces. Leavening agents and dough products.

Casserole and wok dishes. Hot-processed desserts.

National dishes.

Etiquette

Learning Outcomes

The students:

- 1) create a menu depending on a particular event and lay the table;
- 2) design an invitation and find creative opportunities for gift packaging;
- 3) dress and behave in accordance with the nature of the event; and

- 4) understand the importance of table manners in establishing a pleasant and communicative atmosphere.

Learning content

Organisation of gatherings. Invitations. Design of various table layouts. Creation of a table menu. Clothing and behaviour at receptions, home-laid tables, cafés and restaurants.

Home Maintenance

Learning Outcomes

The students:

- 1) discuss and find connections between the interior decorations of homes and the people who live there;
- 2) know different home appliances, can operate them on the basis of their user manuals;
- 3) know the basic types and techniques of home maintenance work; and
- 4) can read and understand manuals when buying and using detergents.

Learning content

Different interior decoration styles. Home appliances. Detergents, their properties and safe use. Spring-cleaning.

Project Studies

The students:

- 1) find (independently and/or in cooperation with others) solutions to tasks and problems;
- 2) organise collective work in a flexible manner, develop a schedule and can allocate tasks;
- 3) communicate with institutions outside of school as required for the project to obtain, analyse, critically assess and interpret relevant information;
- 4) treat their fellow students benevolently and take into account the work-related opinions of others;
- 5) understand the importance of critical assessment of information and use information in accordance with applicable laws and standards;
- 6) conceive, present and justify their opinions; and
- 7) value working and analyse progress, completed assignments and feedback.

In each school year, the subject syllabus includes a module that provides students with an opportunity for free selection of a study group and a project. These projects can be dedicated to technology studies or handicraft and home economics. Project work activities can be mutually integrated and also integrated with other subjects and inter-class projects, as well as with events that encompass the whole school and longer-term events between schools.

Technology studies in exchanged study groups

Learning Outcomes

The students:

- 1) use suitable materials, tools and processing techniques to produce an item;
- 2) perform tasks using subject-specific literature and other information sources;
- 3) produce original items, using different processing techniques;
- 4) present and analyse work results; and
- 5) value the ethics of using technological solutions and consume resources in an environmentally friendly and sustainable manner;

- 6) learn to find technical solutions for household maintenance and repair work;
- 7) know how the modern world of work functions; and
- 8) comprehend and comply with occupational health and safety requirements.

Learning content

Analysis of technology: positive and negative influences. Ethical convictions in the application of technology. Information and communication technology.

Acquisition of information about materials and their processing from printed sources and the Internet.

World of work. Inventions, innovation and solving problematic tasks. If possible, product design using computer software.

Manual and electrical tools. Modern options in processing materials and joining elements to form a product.

Household maintenance and repair work.

Occupational health and safety requirements during processing and safe work methods.

2.3. Technology studies

2.3.1. Educational and Educational Objectives of Technology studies

The aim of teaching technology is that by the end of the basic school, the student would:

- 1) acquire technological literacy, including development of technological knowledge and skills and satisfaction through practical self-realisation;
- 2) be able to make connections between people and the surrounding environment and analyse how technology influences the environment;
- 3) creatively perform tasks, possess the skill of idea-shaping and create products inventively;
- 4) take ethical, aesthetic and sustainability convictions related to technology into account;
- 5) have the courage to experiment, see the value in an enterprising spirit, friendliness, cooperation skills and motivation for work, and understand why different skills and attitudes are important for everyday life and future employment;
- 6) acquire knowledge and skills by dealing with different materials, means and processing methods;
- 7) be able to creatively apply theoretical knowledge in performing practical tasks;
- 8) use safe and ergonomic work methods and adhere to moral norms of behaviour in the work process;
- 9) choose and cook food based on the principles of healthy eating;
- 10) understand how technological development causes changes in the world, incl. employment opportunities;
- 11) have an overview of the professions in the field of technology, be able to make decisions about their subsequent learning choices and future career, value cultural heritage.

2.3.2. Subject of Technology studies Description

During the 2nd and 3rd stages of study the course content consists of five constituent skills per stage:

- 1) technology in our daily lives;
- 2) design and drawing;
- 3) materials and their processing;
- 4) home economics (with study group switches); and
- 5) project work.

Education provides a general foundation and basic knowledge that the students must acquire to perform the required tasks or make certain products. During the lessons the teacher integrates the course content with practical activities (wood- and metalwork, electronics etc.). The course content and/or sequence can be altered by stage or the knowledge and skills already acquired can be tackled in more depth at the next stage. The teacher plans and arranges these parts during the school year in cooperation with the teacher of handicraft and home economics. In the interest of subject diversity, the study groups of handicraft and home economics and of technology studies are switched.

Education emphasises students' sensible and creative innovation where the joy of discovery is coupled with an experience of producing something from idea to finished product. The students perform interesting and imaginative practical tasks, including task or product planning, design and production, self-assessment and presentation of results.

Practical output and connections are revealed between school subjects and life spheres, fostering an integral understanding in the students of the corresponding task or product. It is important for students to understand how technology functions and personally participate in creation of technology that is suited to students, incl. a functioning item. These objectives are achieved in compliance with the contemporary development level of the students and in a manner that is understandable to them. Different abilities and interests are also taken into account, and self-initiative and learning motivation are supported. The subject is taught stressing the importance of inventive activities and the young people's work-related behavioural attitudes and value judgements are shaped. The students are encouraged to value environmentally friendly approaches and local traditions and acquire ethical convictions.

2.3.3. Learning and Educational Objectives of Technology studies in the 2nd stage of study

After completing the 6th grade, students:

- 1) plan work and perform related tasks;
- 2) make drawings and design simple products;
- 3) know basic materials and their properties and work with these materials expediently;
- 4) know the main means and methods of processing and can use them in work;
- 5) make simple products (for example: toys, boats, moving cars etc.);
- 6) present an idea, drawing or product;
- 7) comprehend and comply with occupational health and safety requirements;
- 8) appreciate and adhere to the established work-related value judgements and behavioural attitudes;
and
- 9) know basic foodstuffs and their properties and cook simple food.

2.3.4. Learning Outcomes and Learning Content of Technology studies in the 2nd stage of study Technology in Daily Life

Learning Outcomes

The students:

- 1) appreciate the need for technological literacy in everyday life;
- 2) associate technology studies with other school subjects and spheres of life;
- 3) compare different means of transportation and energy sources;
- 4) describe the use of the wheel and energy throughout history and today;
- 5) describe how human activities and technology influence the environment; and
- 6) create working models as part of practical work.

Learning content

Essence of technology. Technological literacy and the need for it. Technology and sciences. Technology, the human and the environment. Means of transportation. Energy sources.

Design and Drawing

Learning Outcomes

The students:

- 1) explain the meaning of lines on a drawing and can produce and present a viable technical drawing;
- 2) draw a three-dimensional view of a simple component;
- 3) know and use design elements when performing learning tasks;
- 4) design simple products using specified materials;
- 5) notice problems and offer distinctive solutions;
- 6) participate in the creation of a novel technological process connected to the selection of materials and an expedient processing method in a manner that is suited to the students; and
- 7) understand the relative importance of inventions in the development of technology.

Learning content

Draft. Design of a simple product. Technical drawing. Lines and their meanings. Dimensions and scale. Imagery and views. Creation and presentation of a simple technical drawing with dimensions. Design. Elements of design. Product finishing. Problem-solving. Engineers and inventing.

Materials and their Processing

Learning Outcomes

The students:

- 1) know the main materials, their primary properties and methods of processing;
- 2) select and purposefully use different means, materials and methods of processing;
- 3) can make viable joints;
- 4) make various simple products (including toys);
- 5) use a drill press and a lathe in studies;
- 6) analyse and assess a product they make, including its aesthetic and applied aspects;
- 7) comprehend and comply with occupational health and safety requirements;
- 8) value and use safe work methods that pose no threats to health; and
- 9) use materials economically and find opportunities for their re-use.

Learning content

Types of materials (wood, metal, plastic, electronic components etc.) and their properties. Methods of material processing (marking, sawing etc.) and the corresponding means (tools and machinery). Most common manual and electrical tools. Drill press and woodturning lathe. Joining of materials. Occupational health and safety requirements during processing and safe work methods.

Project Work

Learning Outcomes

The students:

- 1) find (independently and/or in cooperation with others) solutions to tasks and problems;
- 2) treat their fellow students benevolently and take into account the work-related opinions of others;
- 3) perceive themselves as participants in group work, project work and other collective work activities;

- 4) actively participate in various forms of cooperation and communication;
- 5) conceive, present and justify their opinions; and
- 6) execute a feasible project and analyse feedback received.

Learning content

Each school year the syllabus contains one study part in which the students are free to choose their study group and project. Project work can be derived from handicraft, home economics or technology studies. Project work can be integrated with other projects, other subjects or joint projects between classes, or with endeavours that involve the entire school or several schools and have a longer duration.

Home Economics in exchanged study groups

Learning Outcomes

The students:

- 1) know basic foodstuffs and their properties and cook simple food;
- 2) perform basic home maintenance work using suitable means;
- 3) realise the need to comply with rules of hygiene when working in a kitchen;
- 4) know and value the fundamentals of healthy eating;
- 5) lay a table and abide by generally recognised table manners; and
- 6) know the main waste-handling and environmental protection requirements.

Learning content

Foodstuffs and nutrients. Basic tenets of healthy eating. Preservation of foodstuffs.

Hygienic requirements of kitchen work. Sorting of waste.

Using recipes and units of measurement.

Pre-processing of foodstuffs and hot/cold processing.

Making sandwiches and salads. Pasta dishes and porridges. Desserts. Cold beverages.

Hot beverages.

Table manners and table-laying customs and different possibilities.

Cleaning and maintenance work. Proper care for clothes and footwear.

Consumer information (printed on packaging, user manuals etc.).

Informed and economical consumption.

2.3.5. Learning and Educational Objectives of Technology studies in the 3rd stage of study

After completing the 9th grade, students:

- 1) select suitable materials, means and processing methods to make a particular product and obtain and use the necessary information from subject-specific literature and online sources;
- 2) safely handle manual and electrical tools and materials and understand the importance of working safely, incl. the connections between health and career opportunities;
- 3) use resources in an environmentally friendly and sustainable manner and understand how to apply the acquired skills in everyday life and future employment;
- 4) generate ideas, implement them creatively when making and improving products and understand the importance of their personal involvement in the use of technology;
- 5) analyse the product-making process and synthesise new knowledge;
- 6) present the product, assess the quality of the result;
- 7) make products and realise and implement different opportunities offered by natural sciences in practical activities;

- 8) develop positive value judgements and moral work habits and avoid and assess likely work threats; and
- 9) make healthy food choices, value healthy lifestyles and act as responsible consumers.

2.3.6. Learning Outcomes and Learning Content of Technology studies in the 3rd stage of study Technology in Daily Life

Learning Outcomes

The students:

- 1) describe and analyse how human activities influence nature and the environment;
- 2) understand the personal participation in technological processes;
- 3) use means of information and communication technology and know safe handling of the corresponding devices;
- 4) know possibilities for the implementation of agricultural technology, medical technology and biotechnology;
- 5) realise that resources are limited and consume them in an economical and sustainable manner;
- 6) can plan their activities, and know their self-realisation preferences in choosing suitable vocations/professions; and
- 7) understand the mutual influence of technology and human beings.

Learning content

Analysis of technology: positive and negative influences. Ethical convictions in application of technology. Sustainable consumption of resources. Consumption of resources. World of work and work planning. Raw materials and production. Perspectives in the world of technology. Information and communication technology.

Design and Drawing

Learning Outcomes

The students:

- 1) plan the performance of a task, design the product and, if possible, present it using ICT tools;
- 2) solve problematic tasks;
- 3) know and use different finishing options;
- 4) know and use surface coating properties and application possibilities;
- 5) take into account the fundamental rules of ergonomics and ornamental art and can implement them in work;
- 6) read layouts and simple assembly and construction drawings; and
- 7) make a viable technical drawing and formalise and present such a drawing or layout.

Learning content

Inventing and innovating. Dealing with tasks that are problematic and develop technical acumen. Finishing and surface coatings. Ergonomics. Modelling an item on a computer. Drawing formalisation and presentation. Layouts. Conventional signs and reference marks in technical drawings. Cross-sections and sections. Assembly drawing. Construction drawings.

Materials and their Processing

Learning Outcomes

The students:

- 1) find information about materials, their properties and processing methods and obtain and use subject-specific information from printed sources and the Internet;
- 2) compare properties of materials, their processing methods and application opportunities and synthesise new knowledge;
- 3) use various means in making products, if possible including a CNC machine tool, and select the most suitable method of processing;
- 4) know and use different machinery and mechanisms in processing;
- 5) make distinctive products and know and use different joining options;
- 6) develop positive value judgements and moral work habits; and
- 7) comprehend and comply with occupational health and safety requirements and safely use machinery and other working means.

Learning content

Possibilities for acquisition of information about materials and their processing from printed sources and the Internet. Modern methods of material processing.

Manual and electrical tools. Machinery and mechanisms.

Possibilities of integrating computers into the processing of materials (CNC machine tools).

Selection of the optimal method of processing. Use of various jointing options. Modern opportunities for processing materials and joining elements to form one product.

Occupational health and safety requirements during processing and safe work methods.

Project Work at the 3rd stage of study

Learning Outcomes

The students:

- 1) can find solutions, either individually or in a group, to assignments and problems;
- 2) participate in a flexible manner in collective work, distribution of tasks and scheduling;
- 3) communicate with institutions outside of school as required for the project to obtain relevant information;
- 4) are friendly towards their peers and consider their opinions;
- 5) understand the need for critical assessment of information and use information in compliance with current legislation and norms;
- 6) form, present and justify their opinions;
- 7) execute a feasible project and analyse individual tasks and feedback received.

Learning content

Each school year the syllabus contains one study part in which the students are free to choose their study group and project. The project works can be derived from handicraft, home economics or technology studies. Project work can be integrated with other projects, other subjects or joint projects between classes, or with endeavours that involve the entire school or several schools and have a longer duration.

Home Economics

Learning Outcomes

The students:

- 1) create menus using subject-specific literature and other information sources;
- 2) make healthy food choices and create balanced and diverse menus;
- 3) cook various hot and cold dishes using recipes;

- 4) calculate food costs; and
- 5) act as informed consumers.

Learning content

Assessment of nutrient content of foodstuffs. Creation of a diverse and balanced daily menu based on eating recommendations. Websites dedicated to healthy eating.

Vegetable dishes and soups. Fish and meat dishes. Baked dishes and casseroles.

Behaviour at the table, at a café and in a restaurant.

Detergents and their properties.

Home appliances. Care labels.

Consumer rights and obligations.