

Design and technology education in Polish schools for children aged 5-9 years

A short history of the teaching of technology

The teaching of technology as a school subject has a 90-year tradition in Polish schools. The name of the subject has been changed from 'manual work', to 'practical-technical exercises' to 'technology'. The idea of teaching the subject (practical skills) was taken from Sweden by Władysław Przanowski. He worked on the basis of his own curriculum established to meet the needs of those in Polish schools.

Przanowski's strategy was:

- the education of teachers. In 1925 in Warsaw the Institute of Manual Work was established
- the preparation of a material base in schools (workshops, appliances, materials, tools)
- the preparation of the curricula for general high schools and teacher education schools
- highlighting the importance of teaching the subject to teachers, parents and creating a favourable public reaction to it.

From 1916 to 1939 the subject was treated as part of general education and was taught for two hours a week. Lessons were enriched with didactic films and excursions. From 1945 until 1990 the subject was separate and always present in Polish schools.

Current status of the subject: programme and main aims

The name of the subject was changed to 'technology' in 1990 when some changes were introduced. The subject programme in a general school is cross-referenced with the syllabus of physics, chemistry, and biology. The main aim of the subject is to develop the practical and technical skills one needs at home and at school. Those skills include:

- a recognition of basic raw materials, semi-products and products
- the use of basic tools, appliances, meters

- tracing and drawing of simple technical drawings
- an awareness of conservation, including the need to save materials, tools and time.

The content of the curriculum has been arranged in four sections:

- elements of organisation of work
- the principles of technology:
 - Technical information
 - Technology of materials
 - Technology of production
 - Technical appliances
- chosen topics in economy and technology
- information about technical professions and jobs.

Lesson organisation

Age 5-6 years

At this stage, there is one lesson a week, with 20-30 pupils in a class. All subjects are taught by one teacher. Materials used include paper, tissue paper, cardboard, soft wire, nature products, string and remnants (boxes, cork, bobbins, textiles), etc. It is forbidden to carry out exercises which require an electrical supply.

Age 7-9 years

There are one or two lessons a week, with 30-40 pupils in a class. In most cases one teacher teaches all subjects. The materials used include tissue paper, paper, cardboard, textiles, plastics, soft wire, timber and natural products.

The School and Pedagogical Editor has prepared exercise books with lesson ideas, although teachers can also prepare lessons using their own ideas.

Teachers are graduates of a university or higher pedagogical college. Lessons are preferably run in workshops if a school provides these. The curricula for the older age group are differentiated.

Aniela Nowak

A technology lesson in practice

Girls and boys follow the same programme of technology teaching in general schools. The practical tasks are carried out individually or in small groups (3-4 pupils). A lesson follows a clearly defined plan:

- definition of the subject, needs and task
- how pupils will achieve the task
- discussion, tools, materials
- safety rules
- first drawings
- realisation of the task
- discussion of the outcome, assessment and self-assessment.

While pupils enjoy technology lessons, there are still schools that do not have workshops, enough tools and materials.

A new syllabus, prepared by the Ministry of National Education in 1997, further refined technology education. The main aims of general technology education for the pupils in the 5-7 age group were defined as:

- to prepare them for using technical achievements
- to enable the development of pupils' individual abilities and interests relating to a range of technical and technological issues.

The education of pupils in this age group capitalises on the experiences children have gained in the family, other environments and from the mass media.

The activities of pupils are based on:

- the organisation of their own work and familiarisation with techniques and tools
- the planning of activities and the taking of responsibility for the implementation and results
- appropriate use of time.

To enable schools to implement general technical education, certain objectives are identified. These include:

- developing pupils' technical skills including thinking and technical imagination
- helping the pupils to understand themselves and technical environments
- enabling designing, constructing, modelling and producing
- awakening curiosity about technology and its implementation
- teaching of technical activities (to include individual and group activity that is effective, carried out responsibly and safely)
- creating conditions for the recognition of safety rules, economical and ecological behaviour in a technical environment, especially safety of pedestrians and cyclists in traffic.

The content of general technical education includes:

- technical texts and documentation, economic calculations (definitions, symbols, signs and drawings)
- computers – programs for users
- the standardisation in technology and everyday life
- the technical environment of pupils (house, flat, workplace, playground, town and country); technical activities and their results
- materials – their characteristics, uses and applications
- basic tools, measuring devices and appliances used in the pupils' environment
- technologies (splitting of materials, connecting, transformation and finishing of things)
- machines (home appliances, bicycle), safe use
- basic ecological activities in the pupils' environment

- safety of pupils as pedestrians, passengers and cyclists
- safe, proper and disciplined behaviour in technical situations, in which pupils can find themselves.

Having been involved in such technological activity, the pupils will acquire certain skills. These include:

- the evaluation of their own abilities, habits, interests and talents, especially technical ones
- the evaluation of products and technical processes from the point of view of economy and ecology
- communication relating to technical objects and technological activity with the use of pictures, drawings, symbols, texts, etc.
- the use of information technology in communication
- the planning of individual and group activities
- decisions relating to choice of tools, materials and methods for carrying out technical activities
- reading and understanding various service manuals
- the safe use of tools and home appliances the realisation of technical tasks (production works) individually and in groups
- technical experimenting and modelling
- making of basic technical measurements
- operating the computer
- the use of the bicycle and its safe use along roads (exams for a bicycle take place from 10 years of age)
- leaving the workplace and dwelling place in suitable state.

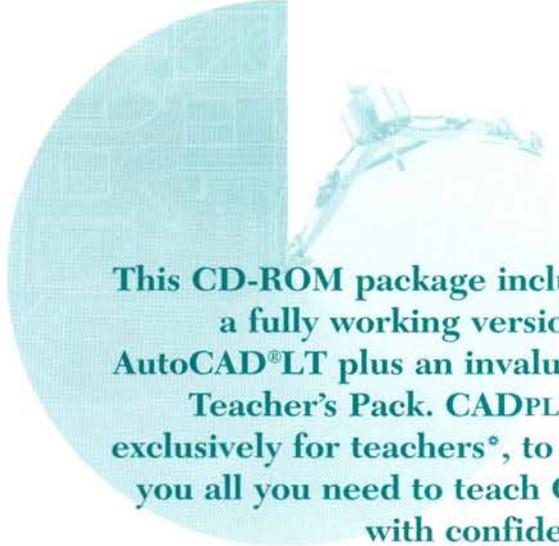
Didactic methods for the realisation of technology lessons

To achieve the aims of general technical education through technology lessons, teachers have at their disposal many teaching sets for assembling technical devices, large-scale illustrations, for

teaching about traffic to the youngest pupils and. The book entitled 'Technology', which acts as a set text, reflects the whole syllabus. The subjects of the lessons presented in them are suitable for pupils with a range of practical and mental abilities. Individual activities are preferred, but there are also examples of tasks to be done by small groups of pupils.

The pupils become acquainted with the materials, the necessary tools, the plan of the activity that they will carry out and the safety rules for working with the tools. Pupils plan the making activity from start to finish, and calculate the material that is needed for a specific task. They cut out from the printed textbooks parts which will be useful to complete the suggested tasks. The printed books enable the parents to know what kind of tasks the pupils will be doing during the school year and what kind of materials will be needed.

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