

DIATHEMATIKON PROGRAMMA
CROSS-THEMATIC CURRICULUM FRAMEWORK
FOR TECHNOLOGY

1. Teaching/learning aim

The aim of teaching Technology in Junior High school is the necessary familiarization of the pupils with the artificial technological environment in which they live, regardless of their future professional choices. Technological education can help pupils bridge the gap between dependency on technology concerning all areas of modern living, on the one hand, and lack of necessary skills and knowledge, on the other. Within the framework of the new post-industrial era, the integration of technological education in general education is more compelling than ever, as the latter (general education) has taken on a new face of which the former (technological education) constitutes a necessary part. Technological education also involves the exploitation of modern educational tools that is computers and the Internet, for information collection and processing. These two processes are the basis for any technological problem solving activity nowadays.

2. Content Guiding Principles, General Goals, Indicative Fundamental Cross-thematic Concepts

I. Primary school

Grade	Content Guiding Principles	General Goals (Knowledge, skills, attitudes and values)	Indicative Fundamental Cross-thematic Concepts
1 st 2 nd	Characteristics and applications of technology	<p>Pupils will acquire knowledge and understanding of:</p> <p>the history and nature of technology;</p> <p>the design and construction of technological products and systems;</p>	<p>Space-Time Change</p> <p>Tradition</p> <p>Civilization</p>

		<p>the difference between the natural world and human-made environments;</p> <p>tools and techniques used to create artificial environments.</p>	
1 st 2 nd	Core Concepts of Technology	<p>the dependency of technological systems on resources and demands/needs;</p> <p>the connections between core concepts of technology and other aspects of life.</p>	<p>Space-Time</p> <p>Similarity-Difference</p> <p>Tradition</p>
1 st 2 nd	Relationship between technologies and between technology and other fields	<p>the way knowledge relates to everyday experience;</p> <p>relationships and connection with other fields of study.</p>	<p>Similarity-Difference</p> <p>Interaction</p>
1 st 2 nd	Selection and use of construction technology	<p>artificial environments;</p> <p>the developments in the construction of shelters for human protection (from caves to houses, flat and office complexes);</p> <p>different professions involved in the construction process.</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-Difference</p>
1 st 2 nd	Selection and use of production process technology	<p>expendable and long-life goods;</p> <p>industrial products designed for consumption and use;</p> <p>how to re-design products to optimize speed, cost, etc;</p> <p>the processes of design, production, control, packaging and promotion of prod-</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-Difference</p>

		<p>ucts;</p> <p>the role of humans in the production process.</p>	
<p>1st</p> <p>2nd</p>	<p>Transportation Technologies</p>	<p>streets and highways as parts of a bigger system and their function within the greater transport system;</p> <p>the function and safe use of transport systems;</p> <p>the way animals move from place to place as compared to the way pupils go from home to school and back;</p> <p>car maintenance and components;</p> <p>the way vehicles have been used in various places around the world to transport people and goods.</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-Difference</p>
<p>1st</p> <p>2nd</p>	<p>The Impact of Technology on the environment</p>	<p>the process of recycling paper, cardboard and aluminum cans to produce new products;</p> <p>the harmful effects of pollution on people and animals;</p> <p>the importance of re-using and recycling products;</p> <p>the effects that a material, product or technological system can have on the environment.</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>Similarity-Difference</p> <p>Individual-Society</p>

<p>3rd 4th 5th 6th</p>	<p>The characteristics and uses of technology</p>	<p>Pupils should consolidate their knowledge and understanding of:</p> <p>the differences between technology and science;</p> <p>various processes and techniques;</p> <p>the way technology changes people’s perspective of the world;</p> <p>the impact of culture and economy on technological developments.</p>	<p>Space-Time Tradition Civilization Organization System Similarity-Difference</p>
<p>3rd 4th 5th 6th</p>	<p>Core concepts of technology</p> <p>Systems</p> <p>Resources</p> <p>Demands/needs</p> <p>Optimum solutions</p> <p>Trends</p>	<p>the concepts of systems, resources, demands and procedures;</p> <p>the use of advanced tools;</p> <p>the factors pertaining design: how a product will be developed and used, the natural laws that restrict the development of an idea, the necessary resources, the existing cultural norms.</p>	<p>Space-Time Civilization Organization System Similarity-Difference Individual-Society Conflict</p>
<p>3rd 4th 5th 6th</p>	<p>Relationship among technologies and interrelation of technology with other research fields</p>	<p>the relationship between various technologies and between technology and other fields of study;</p> <p>how different technologies are combined in the development of new products and machines.</p>	<p>Space-Time Tradition Civilization System</p>
<p>3rd 4th 5th 6th</p>	<p>Selection and use of construction technologies</p>	<p>The idea of people forming communities and its importance;</p> <p>the construction of the artificial environment in which they live;</p>	<p>Space-Time Tradition Civilization System Organization</p>

		<p>the fact that the resources used in the construction process are basically tools, machines, materials, information, energy, funds (money), time and humans;</p> <p>the fact that maintenance is a necessary process for the preservation of buildings and other constructions.</p>	
<p>3rd 4th 5th 6th</p>	<p>Selection and use of manufacturing technologies</p>	<p>ways of goods production;</p> <p>servicing the goods to ensure that they function properly and satisfy increasing demands;</p> <p>the process of decision-making for the selection of industrial products;</p> <p>the impact of technology on the environment as a key point of analysis in the designing of a product;</p> <p>production systems as conversion procedures of natural materials that are cultivated or mined and are converted into industrial reserves.</p>	<p>Space-Time Tradition Civilization Organization System Similarity-Difference Individual-Society Conflict</p>
<p>3rd 4th 5th 6th</p>	<p>Transportation Technologies</p>	<p>The transportation technological system as a whole whose parts combine to facilitate the transportation of people and goods;</p> <p>different transportation systems such as boats, rail and road networks, airports;</p> <p>The application of scientific knowledge, from the fields of science, mathematics</p>	<p>Space-Time Tradition Civilization Organization System Similarity-Difference Individual-Society</p>

		<p>from the fields of science, mathematics, social sciences and arts to the field of transportations;</p> <p>the fact that the transportation system consists of various subsystems and needs huge quantities of energy to work.</p>	Conflict
3 rd 4 th 5 th 6 th	The Impact of technology on the environment	<p>alternative technological solutions for the protection of environment;</p> <p>the positive and negative impact of technology on the environment;</p> <p>the various technologies used to limit irrational use of resources;</p> <p>the most appropriate ways of waste disposal and recycling;</p> <p>the ways to keep the environment clean;</p> <p>alternative methods of transportation that reduce environmental pollution.</p>	Space-Time Tradition Civilization Organization System Similarity- Difference Individual- Society Conflict

II. Junior High school

Grade	Content Guiding Principles	General Goals (Knowledge, skills, attitudes, values)	Indicative Fundamental Cross-thematic Concepts
1 st	The characteris-	Pupils should gain insight into: technological developments and their	Space-Time

	<p>tics and applications of Technology</p>	<p>causes;</p> <p>the interrelationship between way of living and technology;</p> <p>ways of improving existing technologies;</p> <p>the use of computers to design a model of a future product;</p> <p>creativity as a core element in the development of new products and systems;</p> <p>the development of technology as a product of the knowledge acquired through research and experimentation;</p> <p>the evaluation of market applications of technology for economic, political and environmental purposes.</p>	<p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-</p> <p>Difference</p> <p>Individual-</p> <p>Society</p> <p>Conflict</p>
<p>1st</p>	<p>Core Concepts of Technology</p> <p>Systems</p> <p>Resources</p> <p>Demands/Needs</p> <p>Optimum solutions</p> <p>Trends</p>	<p>technological systems and their subsystems;</p> <p>the way an automated production line works;</p> <p>practices, constructions;</p> <p>the use of information in order to determine the faulty functioning of appliances and the process of maintaining products and systems.</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-</p> <p>Difference</p> <p>Individual-</p> <p>Society</p>

2 nd	Relationships among Technologies and interrelationship between Technology and other fields of research	<p>the interrelationship of technology with other fields of study;</p> <p>how technological ideas, processes, products and systems are interrelated;</p> <p>the interrelation of various professions in the workplace in technological and manufacturing environments;</p> <p>the dissemination of technological knowledge as a way of improving living standards and increasing the competitiveness of a country in the international market.</p>	Space Tradition Civilization Organization System Similarity-Difference Individual-Society Conflict
2 nd	Selection and use of construction technologies	<p>the design and building of model constructions and the importance of artificial environments in everyday life;</p> <p>different kinds of constructions and their use;</p> <p>the importance of proper design, maintenance and appropriate subsystems in the buildings of a community;</p> <p>how constructions change and what causes this change;</p> <p>the necessary materials for a construction project.</p>	Space-Time Tradition Civilization Organization System Similarity Difference Individual-Society Conflict
2 nd	Selection and use of production	<p>industrial products and systems, how they are constructed and how they can</p>	Space-Time Tradition

	<p>technologies</p>	<p>be properly used, how they are promoted in the market and what process of waste disposal is followed;</p> <p>maintenance of industrial products in order to ensure their proper and safe function;</p> <p>how manufacturing processes affect people and the environment;</p> <p>techniques for the design and development of technological processes and systems compatible with the natural environment;</p> <p>the parameters of development that delegate the workforce into primary, secondary and tertiary sector.</p>	<p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-</p> <p>Difference</p> <p>Individual-</p> <p>Society</p> <p>Conflict</p>
	<p>Transportation Technologies</p>	<p>how different transportation means are used on land, water, in the air and space and that different environments require suitable vehicles and systems for the transportation of people and goods;</p> <p>the problems caused when a specific subsystem does not work or is missing, as well as the interdependence of transportation systems and their relationship with other systems;</p> <p>the design and construction of model transportation subsystems and how each</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-</p> <p>Difference</p> <p>Individual-</p> <p>Society</p> <p>Conflict</p>

		<p>one is connected with the environment in which it is used.</p>	
	<p>Impact of technology on the environment</p>	<p>the life-cycle of a material or product;</p> <p>how product waste can be recycled to make a new product;</p> <p>technological production processes that are friendly to the environment;</p> <p>the fact that technology can be used to change environments that are hostile to man;</p> <p>the contribution of technology in the process of maintaining rivers, lakes and oceans clean; the electronic appliances for measuring and monitoring air pollution, which have greatly contributed to the reduction of acid rain;</p> <p>the positive and negative points of a specific technology that have to be carefully considered for decision-making;</p> <p>the relationship of technology with economy and the environment.</p>	<p>Space-Time</p> <p>Tradition</p> <p>Civilization</p> <p>Organization</p> <p>System</p> <p>Similarity-Difference</p> <p>Individual-Society</p> <p>Conflict</p>