

Unit 1.- Technology and the Technological Project.

1.- What is technology?

Technology is the practical application of knowledge (science) and skills (techniques) to create solutions (technological objects or systems) which satisfy our needs or solve our problems.

Components of technology:

Science: the application of scientific knowledge, experiments, measuring, calculations, etc.

Technique: working with materials, tools and machines.

Method: planning, dealing with problems in an organised way, organising tasks, etc.

Expressions: drawings, writing reports, interpreting drawings and diagrams, presenting results, etc.

Society and culture: economic considerations, environmental impact, fashions, etc.

2.- The stages of technological processes.

The technological process is the way technology uses to develop a technological product.

Need → Idea → Develop the idea → Construction → Check

These are the steps we have to follow to develop and build a technological product:

1. Proposal and analysis of the need or problem
2. Search for possible solutions and analyse the background
3. Design an individual idea
4. Agree and choose the best solution
5. Develop the solution
6. Plan the group work
7. Construction and experiment
8. Evaluate and check the product
9. Construction report.

3.- The Technological Project

This is a document we prepare before starting the construction of the object, and it contains all the details and instructions we need to build the object. The project has several sections:

1. Memory, with:
 - description of the problem or need.
 - possible solutions.
 - chosen solution.
2. Drawings: sketches, views, general drawings. Detailed enough and with real dimensions of the object.
3. Planning:
 - list of materials and tools.
 - Ordered list of construction tasks and who is going to do each one.
4. Budget: an estimate of the cost of our project.
5. Final report: description of result of the project, its evaluation and if it matches our need or problem.

4.- Working in the Technology Workshop

We work in groups. This means that we are going to share our ideas and we all have to agree which is the best solution for our task. Then we will design it and start construction.

During construction, we are going to use different tools and materials which can be dangerous. So, to prevent accidents, we must follow some safety rules in the workshop.

Technology Workshop safety rules:

- Always follow your teacher instructions.
- Keep your work bench and the workshop tidy.
- Use a brush to clean shavings of you work bench, never blow them off.
- Use tools properly If you don't know how to use it, ask your teacher..
- Do not run or jump or play, it can be dangerous for your classmates.
- Ask you teacher for permission if you need an electric tool.
- If you have long hair, tie it back, it can be caught by a machine.
- Wear safety goggles or gloves if it is required.
- Do not shout, too much noise makes people irritable.
- Tell your teacher if you have any trouble or accident.

5.- Technology and the environment.

Technological development has many advantages, but it also has crated a series of problems:

- Production of polluting gases.
- Production of toxic waste.
- Natural resources are overexploited.
- Natural habitats are disappearing.

We have to find a sustainable development so that the advantages of technology are available to all humanity.

6 Budget

This is a document we use to estimate the cost of our project. It has to include the quantities of each material and the unit cost of the material. At the end, we add up the cost each material to get the final cost of our project.

Unit 1 activities:

1.- Classify these products into technological objects or technological systems: pencil, computer, internet, desk, electrical installation, cell phone, house, heating.

2.- The following table lists the basic needs of human beings. Give several examples of technological products that meet these needs.

Need	Products that meet this need
Shelter	
Food	
Clothing	
Transport	
Communications	
Study	
Health and hygiene	
Safety	

3.- Set the right order of this instructions for building a box in your notebook:

- attach the base to the sides
- file the parts
- paint the box
- attach the lid to the rest of the box with hinges
- draw the parts in a piece of wood
- think about the box size, design it and do the drawings
- cut out the parts.

4.- Draw a sketch of a wooden case for your pens and pencils.

5.- Which of the following actions are dangerous in a workshop: running, working, jumping, drawing, having loose hair, and pushing? Why?

6.- Copy and complete this sentences about safety:

You mustn't make too much noise because....

You must keep your work bench clean and tidy because....

You mustn't wear loose-fitting clothes because

you must keep your hands clean and dry because...

7.- Make a list of four materials and objects at home that could be reused in the workshop. Explain what each one could be used for.

8.- A group of students is going to use a 20cm x 30 cm plywood board. This wood costs 0.3€ per dm². How much will this board cost to the students?

9.- Prepare an estimate for a project we are going to build in the workshop, based on the following data:

Materials	Quantity	Unit price	Total price
Light bulb	3	1,00 €	
Plywood board	½.	4,40 €	
Electric wire	2 meters	0,5€ each meter	
4,5 volt battery	1	1,20 €	
Screws	12	0,10 €	
TOTAL:			

10.- Mention several disadvantages that technological development is creating nowadays.

