

2 Phases of a technological project

Technological projects follow a plan that includes various phases.

1. Needs. In the classroom, the teacher sets the problem to be solved. It should be specific enough to have a clear solution, but open enough to allow for various alternatives. All group members should be able to contribute to this initial process.

2. Analysis and individual proposals. It's important to study similar problems and solutions people have worked on previously. Then each person draws a sketch for their proposal, with details about the size, function and parts of the object, as well as its final appearance.

3. Group discussion and selection of a solution. After individuals present their ideas, the group selects one option or combines ideas from various options. In this way, everyone feels involved in the project.

4. Development of a group solution. In this phase, the project is defined in terms of structure, function, cost and method of construction.

Technical drawings: These include measurements, technical specifications and details about how the parts are joined.

Progress status sheet: This describes what must be done, who will be responsible, how it will be performed and how long it will take.

Measurements and budget: This lists the types and quantities of materials needed, along with prices, in order to calculate the total cost.

5. Construction. It's often best to start with support elements or pieces that are difficult to join together. Materials and tools should be handled carefully. Precision and cleanliness are also important. Any unexpected difficulties should be recorded on an **incident report sheet**. Modifications to the original plan should also be recorded.

6. Checking, presenting and evaluating. After the object has been built, we make a summary report and analyse the results. We check that everything works properly and meets the requirements. Then the object can be presented to the class. Then we do a final evaluation, which may include self-evaluation and peer evaluation by other groups.

7. Marketing. Marketing is a combination of activities that a company uses to sell or trade its products. By doing this, the company can recover its **investment** and earn a **profit**. To start the process, companies carry out a **market study** and create a **marketing plan**. If a product is going to be sold, an **impact evaluation** should be done, looking at the economic, social and environmental impacts.

Market study	
• Supply	• Competition
• Demand	• Viability
• Consumer needs	
Marketing plan	
• Pricing	• Advertising
• Distribution	• Customer service

CLIL activities

4  What are the advantages of working in a group when you are designing a new product? Are there any problems? What can groups do to avoid them? Answer the questions in your notebook.

5  In pairs, imagine that you are going to design, build and sell a new type of electric scooter. Discuss the seven different stages of the project. Then share your ideas with the class.

6  Listen and answer the questions.

- What country does tea come from originally?
- What did Robert Fortune start shipping to India?
- How did Fortune transport this important cargo?
- What else did he 'steal' from the tea producers?
- What effect did Fortune's industrial espionage have on the international tea trade?