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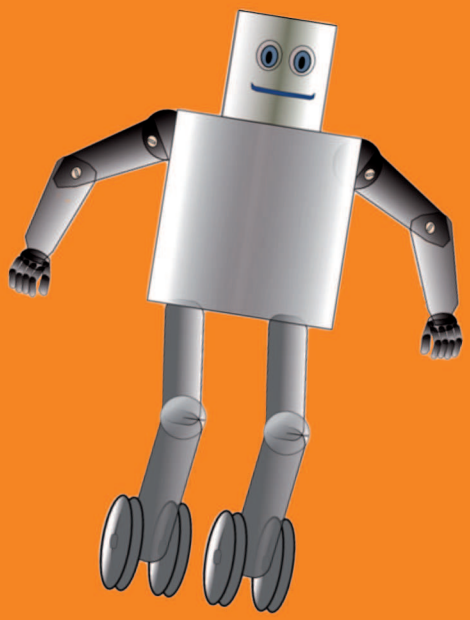


Our innovation

2.1. REFLECTING ABOUT WHAT INNOVATION IS

Make a team meeting and try to discuss about the positive and negative issues that the Technology has brought to Mankind. In this kind of meetings, one of you have to annotate all the things are told. Then, make a summary of the discussion and write it in the space available below.

2.2. REVIEW OF THE INNOVATION WORKSHOP

In the material you have available in your space in the digital platform, you will work with your teacher about the concept of innovation and what the creation of innovation has supposed for Mankind throughout the History. Take some annotations from the key ideas you think that are outstanding in the workshop.

2.3. RESEARCHING THE INNOVATION

In the workshop, you have learnt the concept of innovation and its benefit for Society. Now, it's your turn to find by your own some innovation examples.

In this course, you'll be focused to remember all those concepts that you have learnt in previous courses in the areas of mechanisms, mechanical parts and structures and we will study and practice with electricity and electronic components to be applied in your innovation. You're going to make a research of the main innovations carried out in the fields of the rational and sustainable use of the Energy, the Electricity and the Electronics. Your team will try to find some examples in Mankind History in which the introduction of an innovation has provoked a technological, scientific or social advancement.

Write some lines about the historical context, describe the innovation and add a small picture or drawing related with the innovation.

Technical Area	**RATIONAL AND SUSTAINABLE USE OF THE ENERGY**
	[Paste here a picture or drawing related to the innovation]

Technical Area	**ELECTRICITY**
	[Paste here a picture or drawing related to the innovation]

Technical Area	ELECTRONICS
	[Paste here a picture or drawing related to the innovation]

Technical Area	COMUNICATIONS
	[Paste here a picture or drawing related to the innovation]

Technical Area	COMPUTERS AND INFORMATICS
	[Paste here a picture or drawing related to the innovation]

2.4. REINFORCING THE CONCEPT OF INNOVATION

After working the Innovation workshop and researching about innovation in different areas of Science and Technology, demonstrate that you have understood the concept. Describe what you understand as INNOVATION.

We have understood that Innovation is...

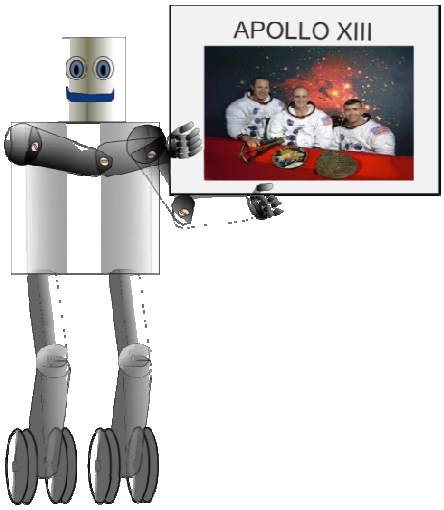
2.5. A STORY TO INSPIRE

In the First Cycle of ESO, you learnt to find needs and generate ideas. In that moment you applied the technique of Brainstorming to generate a list of ideas. This technique is very used by companies when they need to find solutions to a certain problem. Problems are often solved through an easy way but sometimes the solution turns complex.

Observe this true story. By NASA's Apollo program, mankind was able to walk on the Moon until six times. Up to six spacecrafts landed in the Moon's surface, Apollo 11, 12, 14, 15, 16 and 17. Just one, Apollo 13, with a crew of 3 astronauts, Lovell, Swigert and Heise, did not reach the objective because when going to the Moon, one of the liquid oxygen tanks exploded in the service module. The mission then dramatically changed: the goal was not to land in the Moon but to get the three astronauts back alive to the Earth.

In a few minutes, the central command in Houston could be able to transmit the coordinates to approach to the Moon, surround it, and take the accurate impulse using Moon's gravity in order to drive the spacecraft right back to the Earth. But a problem appeared inside the spacecraft. The astronauts' breathe was rapidly consuming the oxygen inside the spaceship and rising the CO2 levels. The CO2 filter had been damaged with the explosion and the spacecraft atmosphere was turning more and more unbreathable. Astronauts had to repair the filter quickly to get CO2 out and substitute it by oxygen.

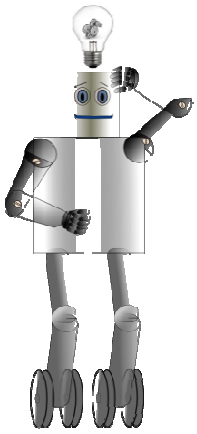
Some engineers met in the Earth to find a solution to the astronauts' problem. They put on a table all the same objects that the astronauts had inside the spacecraft and they began thinking the way to make a CO2 filter with the available materials. They gave a lot of useless solutions and practicing brainstorming, they finally got the solution by assembling several elements including an astronaut's socks, a container, a small funnel and some adhesive tape. In a few minutes, they called to the spacecraft and told the astronauts the way to assemble these parts. They had been able to keep the crew alive and the three astronauts came back to the Earth.



This story, that has inspired many people to never give up to adversity, should be useful to observe environ and give solutions to problems. Make a list of ideas and compare their advantages and inconvenient.

Now make the list of ideas you want to develop

Brief description of the idea	What are the advantages it has?	What is the inconvenient?



TRY NOW TO BALANCE THE INS AND OUTS OF EACH IDEA IN ORDER TO REDUCE THE LIST UP TO THREE CANDIDATES.

2.6. RESTRICTING THE LIST OF IDEAS

Think now that you need to apply these three restraints to the ideas:

a) The innovative object must be feasible, i.e., it has to be possible its building,
b) The innovative object have to work by means of electricity and,
c) The object must include an electronic control system you would be able to develop

By applying these restraints, the list has to be reduced to three ideas. Think of each idea and make a valuation for each. Try to do a scheme or a simple sketch in each case and write some brief annotations of everyone in the available spaces. Do not try to organize the information you think about each innovative object. This will be considered later.

OBJECT FROM IDEA #1:

OBJECT FROM IDEA #2:

OBJECT FROM IDEA #3: