01. ANALYZE THE WAY OF PROBLEM FIXING

M2U3P1 DESIGN AND TECHNOLOGY

INTRODUCTION

- When we are designing something, we need to be creative
- We have to use creativity to fix the problem or our need
- When we want to fix something correctly, we need to analyze the problem and find information about it from trusted sources
- There are many ways to fix a problem so we have to consider the conditions and the technological resources to find the best possible solution

TECHNOLOGICAL RESOURCES

- We have to consider our technological resources when we want to fix a problem
- Technological resources are divided into 7 categories
- 1. Human
- 2. Data & Information
- 3. Materials
- 4. Tools & Equipment
- 5. Energy
- 6. Capital
- 7. Time

1. HUMAN

- Humans are the users and the makers of technology
- When making the solution we have to consider the person that will make it
- The human needs to have knowledge and skills in that area or otherwise there will be a problem with the solution

2. DATA AND INFORMATION

- When we find out about the problem, we need to collect data and information on how to fix it
- We have to analyze and process that data so we can use it effectively in making the solution
- It can be used in consideration for appropriate decision making

3. MATERIAL

- For most of the solutions we need to use materials
- We have to carefully choose the materials that we will be using for fixing the problem
- Each material has different purpose

4. TOOLS AND EQUIPMENT

- Tools are things that help us increase our ability in some kind of work
- It makes the process easier, comfortable and faster
- When considering the solution, we need also to consider the tools and their capabilities

5. ENERGY

- For every type of work we need to use energy (human energy, electrical energy, thermal energy…)
- Most of the work will require electrical energy, but sometimes we will not have it so we have to take that into consideration also

6. CAPITAL

- Capital is the money, budget, property, business and places that are important factors in solving the problem and creating the solution
- Some solutions may require a lot of capital so we have to consider it also

7. TIME

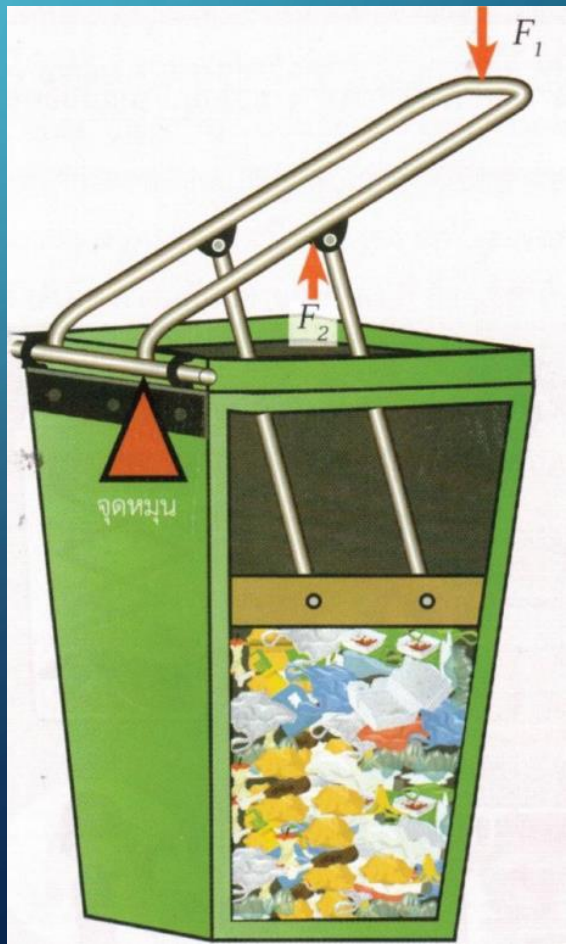
- Another important factor for deciding the solution is the ability to solve the problem in a short time
- We should always choose the one that will be easier and faster to make

TECHNOLOGICAL RESOURCES

- It can be seen that the technological resources are important in determining the solution
- Depending on the conditions and limitations, we won't use all 7 technological resources
- We will show few examples how to use these technological resources

EXAMPLE 1: CRUSHING THE TRASH

- **Human** - We have to use a person that has the knowledge about physics and skills to design it
- **Data** – Use data about the physics and the types of material we need to sue
- **Material** – Use strong enough materials that can hold the pressure
- **Tools and Equipment** – Use standard tools
- **Energy** – Use human strength to crush it
- **Capital** – We need small capital to buy the materials and tools
- **Time** – Make it as simple as possible, try not to use too much time



EXAMPLE 2: SMART TRASHCAN

- **Human** – Use a person that has knowledge about the scissor system and sensors
- **Data** – Use data about the scissor system and sensors
- **Material** – Use strong enough materials that can hold the pressure and it will not rust
- **Tools and Equipment** – Use standard tools, solar cells and sensors
- **Energy** – Use solar energy to convert it into electricity
- **Capital** –Use capital to buy tools, solar cells, sensors, circuit board
- **Time** – Make it as simple as possible, try not to use too much time

EXAMPLE 3: ISSUING MEASURES FOR PLASTIC

- **Human** – Director of the school, students, shop owners
- **Data** – Information about what type of plastic is mostly used and thrown
- **Material** – We don't need any special materials
- **Tools and Equipment** – We don't need any special tools
- **Energy** – We don't need any energy
- **Capital** – We don't need any capital
- **Time** – Spend about 1 month to make and promote the laws

EXAMPLE 4: MAKING BROCHURES AND POSTERS

- **Human** – Group of workers/students that will design it
- **Data** – What patterns look interesting for brochures and posters
- **Material** – Paper or other materials that we will print on
- **Tools and Equipment** – Computer and printer
- **Energy** – We don't use much of energy
- **Capital** – Money for printing
- **Time** – Takes about 3 months to start planning, make brochure/posters and put them in public places

CONCLUSION

- When we have more options we have to choose the option that will be the best one for us, and for technological resources that we have