F.2 STEAM Project

2024-2025

Our SMART School

In this STEAM project, you are going to design your **SMART** school!

Each group will be responsible for each of the following areas in our school:

- ✓ **Open playground**
- ✓ **Tuck shop**
- ✓ **School gym**
- ✓ **Library**
- ✓ **Laboratories (GS Lab, ICT Lab)**
- ✓ **Special rooms (Art room, Needlework room, Home Economics Room, Music Room)**

Timeline

October and November

- Build a model of your **SMART** school (assigned area) based on the concepts learnt in IS, ICT and VA lessons

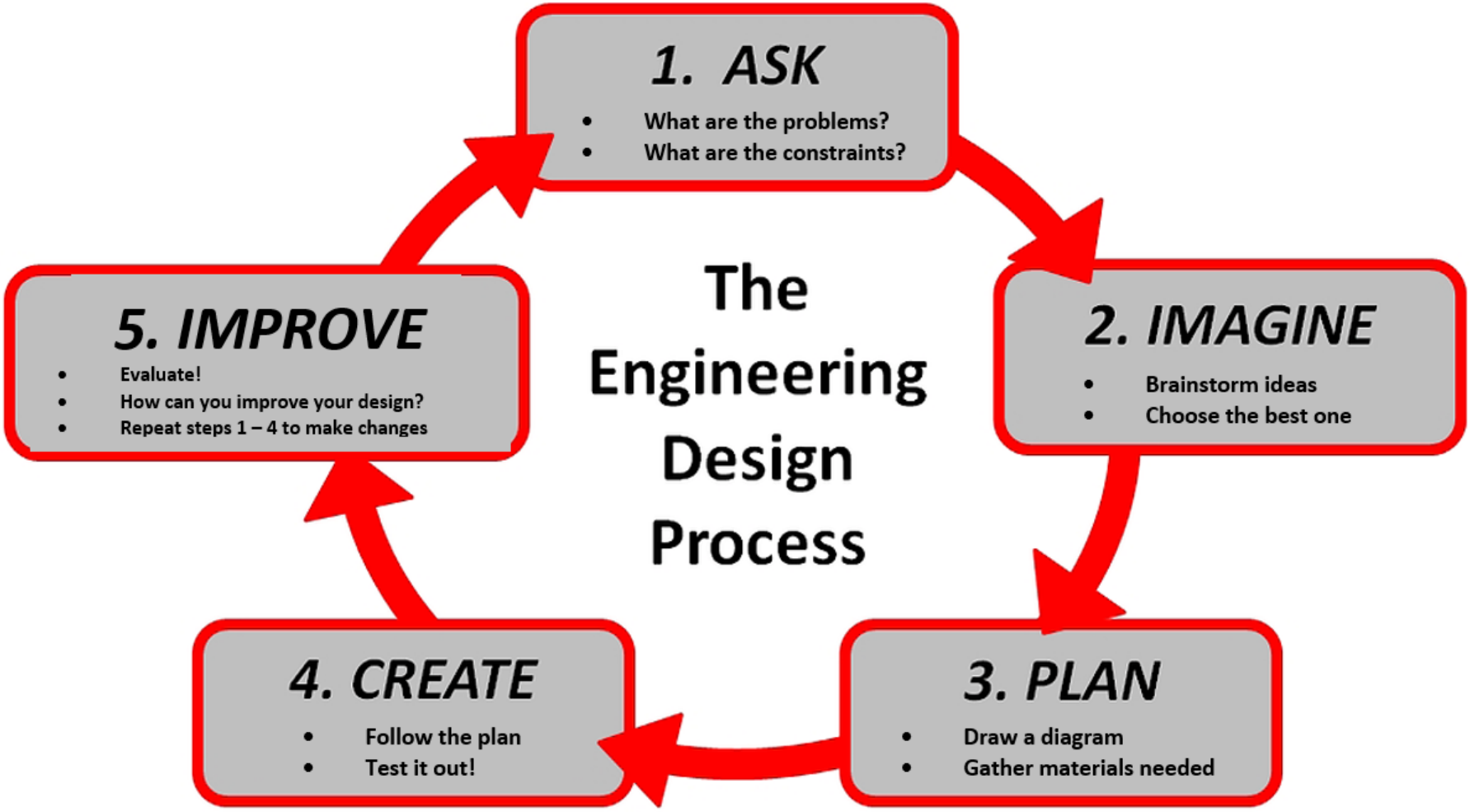
December

- Voting! The winning teams will further refine their models for public voting during the Open days!

January

- **Public voting on the Open Days!**

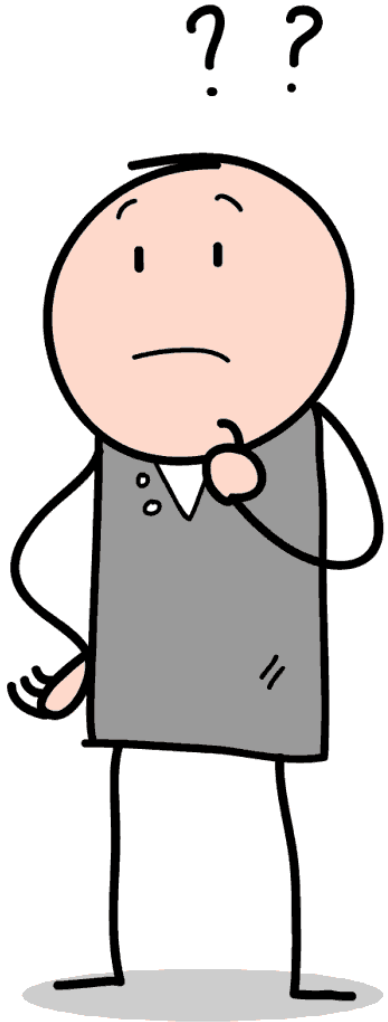
Engineering Design Process (EDP)



To design and implement a simple system to solve daily life problems.

Step 1

- **Identify the problem!**



Example:

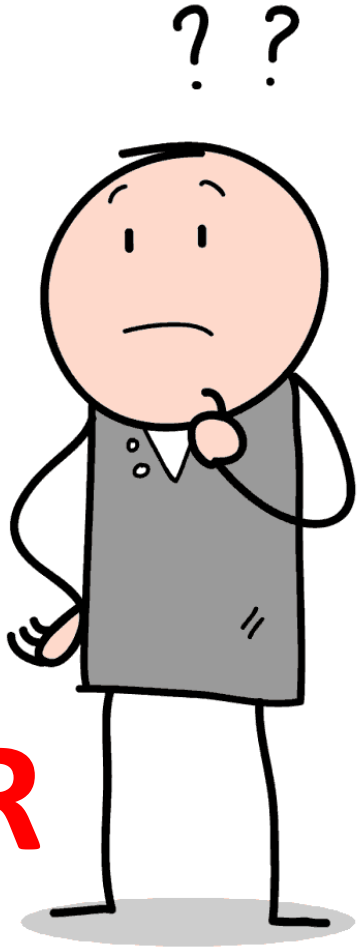
What are the problems in the chosen area?

Problem 1 – related to the temperature

Problem 2 – related to energy conservation

Problem 3 – Other problems

Problem 4 (Optional)



Example:

On the MTR

Example:

Describe the problem

It is too cool to sit on the bench.

Example:

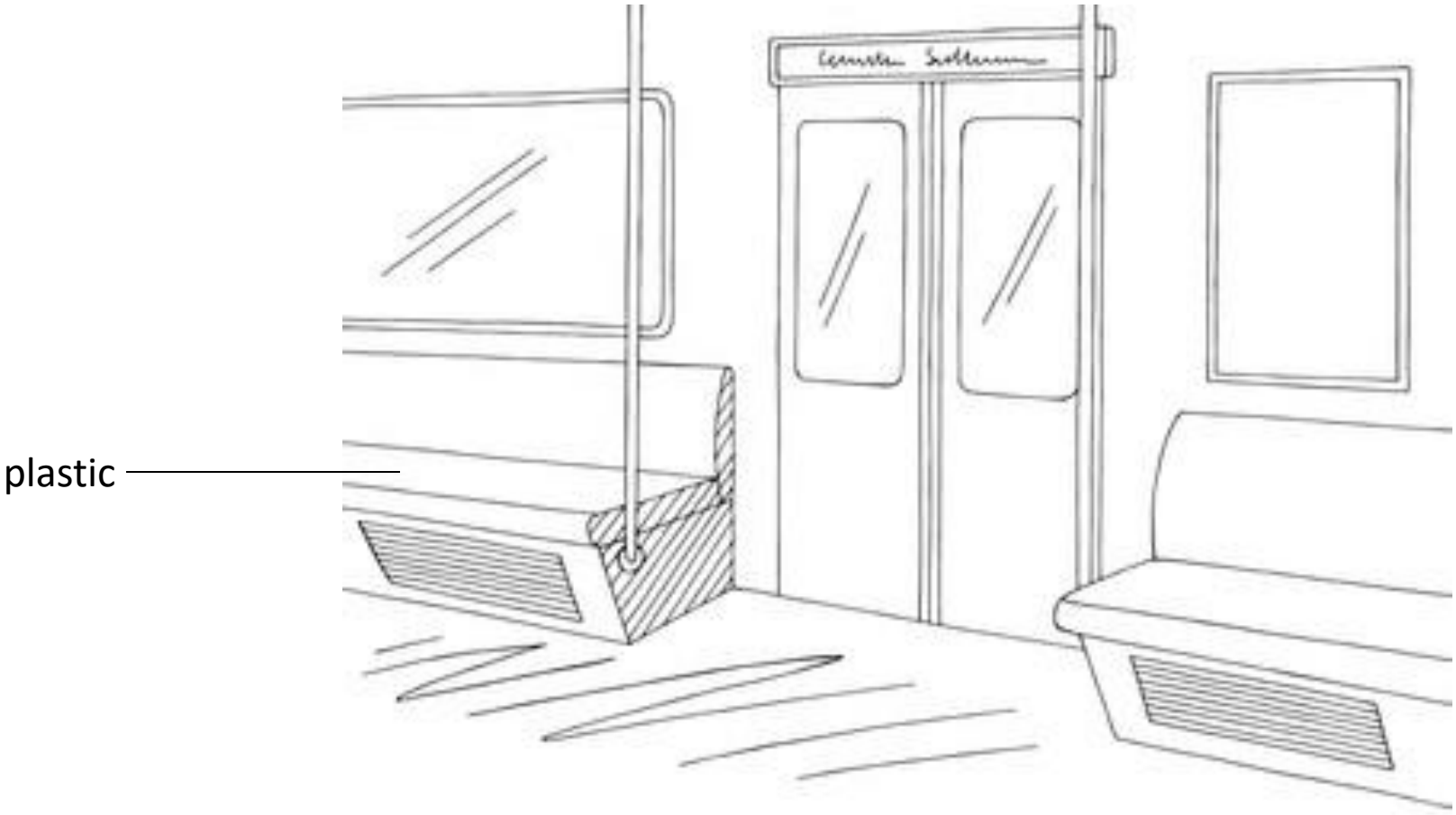
Describe and explain how you are going to solve the problem

I am going to use plastic as the material for the bench. (1)

Plastic is a good insulator of heat. (1)

Heat is not transferred effectively from our body to the plastic bench (1).

Show us your design!



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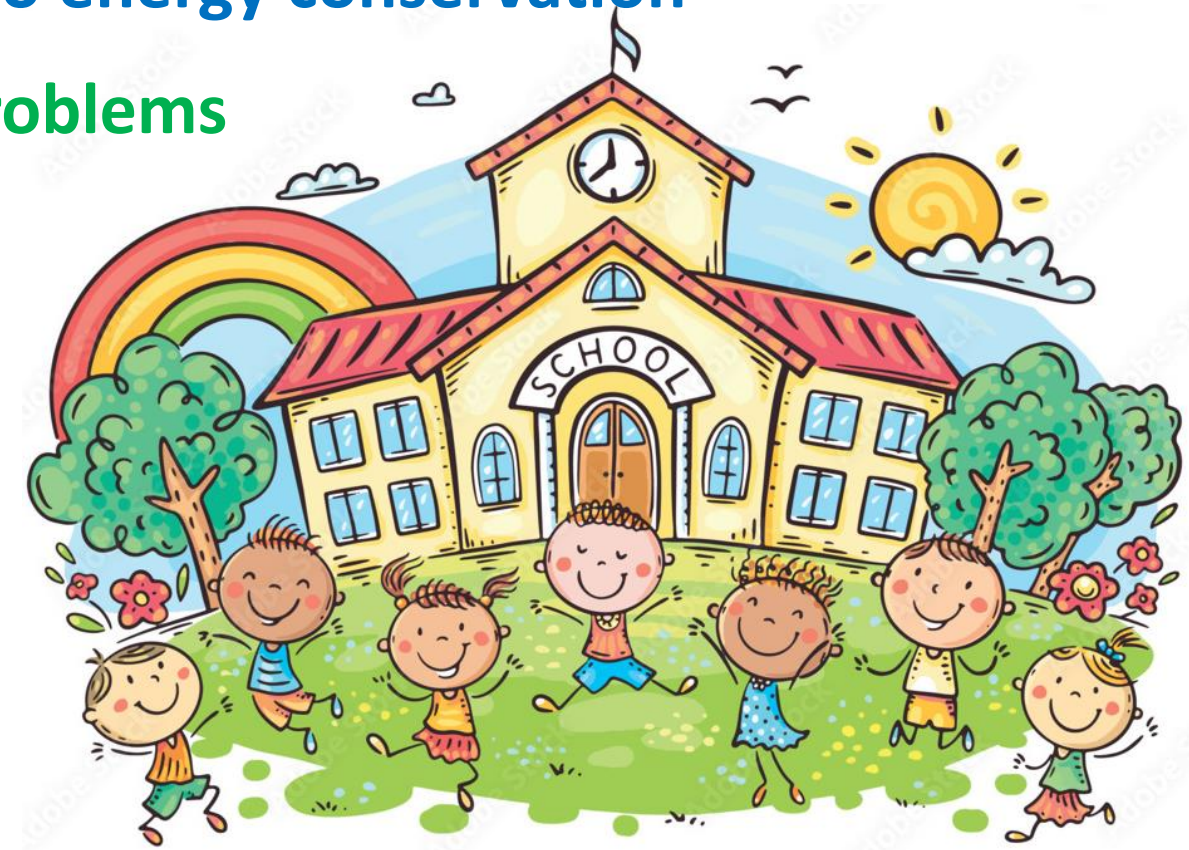


Values

Items of concern: Temperature / Thermal Adjustment

Examples:

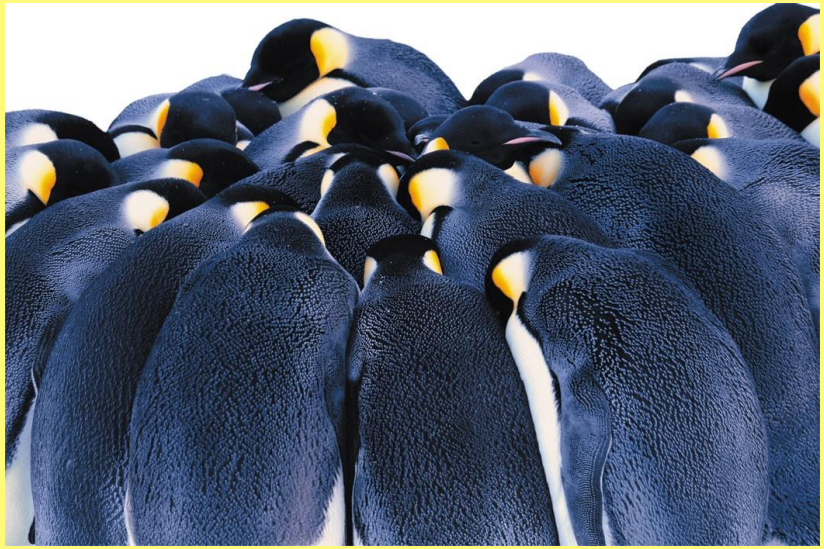
Resourcefulness: Finding innovative and sustainable ways to regulate temperature, such as using natural ventilation or passive solar heating.

Values

Items of concern: Temperature / Thermal Adjustment

Examples:

Adaptability: Adapting to temperature variations through appropriate clothing choices and behavior adjustments.



Values

Items of concern: Energy Conservation / Water Reservation / Electricity / Minimizing Pollutants / Temperature control

Examples:

Responsibility: Instilling a sense of responsibility for conserving resources and reducing energy consumption.

Values

Items of concern: Energy Conservation / Water Reservation / Electricity / Minimizing Pollutants / Temperature control

Examples:

Environmental Awareness: Understanding the impact of daily choices on the environment and exploring ways to minimize pollutants.

Values

Items of concern: Hygiene

Examples:

Respect: Cultivating a culture of respect for personal and environmental hygiene in shared spaces.

Values

Items of concern: Hygiene

Examples:

Responsibility: Taking ownership of hygiene practices and contributing to maintaining clean environments; Recognizing the significance of personal hygiene and cleanliness for overall well-being.

Values

Items of concern: Safety Concerns

Examples:

Risk Management: Identifying potential hazards and taking proactive measures to ensure safety; Responding effectively in emergency situations.

Values

Items of concern: Safety Concerns

Examples:

Empathy: Building a culture of care and concern for the safety and well-being of oneself and others in the learning environment.

Other values

- Your VA teacher will introduce more to you in the coming lessons

20 minutes

Submit your work on…

(Group work)

(after 1 week)

In your ICT lessons

- Develop simple programs to solve problems
- Develop simple setups in connection with sensors to solve problems

In your VA lessons

Build a model of your **SMART** school based on the problems and the corresponding solutions!