


# Underwater: Builders of Safety

## Objectives:

- Understand the connection between human and natural systems
- Develop analytical skills and problem-solving abilities
- Promote environmental responsibility

## STEP BY STEP

### Before starting

The teacher introduces the concept of hydrogeological , explaining the difference between floods and landslides.

**Flood:** Overflow of water from a river or stream, occurring during sudden rises caused by heavy rainfall.


**Landslide:** The downward movement of a mass of rock, debris, or soil along a slope, driven by the force of gravity.

The discussion can start with the following guiding questions:

- *What do you think are the main causes of floods?*
- *How can human activities influence the risk of landslides?*

The teacher may show a video or find images of flooding events and the damage caused by landslides to raise students' awareness of the impact of these phenomena.

### Human risk analysis

In small groups, students explore various factors that increase hydrogeological , such as:

- *Construction near watercourses.*
- *Deforestation and loss of vegetation.*
- *Pollution of rivers.*
- *Soil sealing with parking lots and buildings.*

Each group must identify and discuss a specific case, documenting the effects of these actions on the environment and natural events. They should consider how these factors contribute to the likelihood of floods and landslides, and the broader implications for communities and ecosystems.

### Flood Simulation

The teacher now introduces the activity. The previously formed groups will have one hour to experience what a flood feels like.

#### Necessary Materials:

- *A plastic tub or large container*
- *Soil or sand*
- *Small structures (recyclable materials like cardboard or LEGO)*
- *Water*
- *Measuring tools (e.g., cups)*

#### Procedure:

##### 1. Preparing the Terrain:

- Each group creates a miniature model of an urban area, including elements like roads,

buildings, vegetation, and watercourses. They can highlight both good and poor building practices.

## 2. Simulation:

- Students pour water into the model to simulate a flood event. They must observe and document how the water behaves in the built landscape and which areas experience the most damage.

## 3. Damage Analysis:

- After the simulation, groups discuss the areas that sustained damage and the reasons behind these effects. They can also calculate the “damage” in terms of lost resources (e.g., how much fertile land was affected).

- *What is our role as citizens in protecting the environment?*

The teacher encourages students to think about not only how to inform friends and family but also how to use **social media** and other platforms to raise awareness. Together, they discuss potential strategies for organizing awareness events in the school or community, such as workshops or presentations. This reflection aims to empower students to take action and engage others in **sustainability** efforts.

# Resilient Environment

Each group presents their findings and insights from the experiment to the class.

The teacher facilitates a discussion using the following guiding questions:

- What everyday actions can contribute to reducing hydrogeological **risk**?
- What campaigns or initiatives can we support to promote more sustainable practices?

The teacher shares examples of campaigns against deforestation and reforestation initiatives, such as “Plant for the Planet” ([link](#)) or “Trees for the Future” ([link](#)). Students can explore how these actions enhance the **resilience** of the environment and communities, discussing the broader impacts on water management and ecosystem health.

# Concluding thoughts

The activity concludes with a discussion on the changes students can make in their daily lives to contribute to a safer and more sustainable environment.

- *How can we educate others about hydrogeological risks?*

