Understand Flooding

#FLOODED
Grades 5 - 12
Activity

Main Objective

Learners will understand the different types of flooding, their causes, and the consequences of flooding.

Learning Outcomes

By the end of this activity learners will:

- Understand the different types of flooding and their causes
- Learn about the consequences of flooding and the types of flooding in their area

Length of Activity: 1 - 1.5 hours

Step 1+2: Intro to flooding and the different types of flooding *(25 - 50 minutes)*
Step 3+4: Research the amount of water that falls at school and discuss findings *(20 minutes)*
Step 5: Flood case study *(20 minutes)*

Materials Required

- Internet enabled device
- Assessment Rubric
- Flood:ED Backgrounder
- How Much Rain Falls? Worksheet

Activity

Step 1: Introduction to Flooding (20 - 30 minutes)

Begin by watching the following videos with your learners to explore what is flooding.

- https://www.youtube.com/watch?v=udRNUBHbE0o (4 minutes)
- https://www.youtube.com/watch?v=9hQZCiZ21fk (4 minutes)
- https://www.youtube.com/watch?v=4PXj7bOD7IY (3.5 minutes)

https://www.youtube.com/watch?v=kyH02NjyfPA&feature=emb_title (start at 1:26 minute)

In groups, encourage learners to research what causes flooding and have a discussion in class sharing findings.

Step 2: Understand Flooding in Your Area (15 -20 minutes)

- Continue by explain the types of flooding to your learners using the **Flood:ED Backgrounder**
- Continue by explaining the following to your learners:
  - **Extreme weather** events are unexpected, unusual, unpredictable, severe, or unseasonal weather events. These weather events are considered extreme because they at the rare in the historical record - defined as lying in the most unusual ten percent.
  - **100-year storms** refer to the estimated probability of a storm event happening in any given year. A 100-year event has a 1 percent chance (or 1-in-100 chance) of occurring in a year. The term “100-year flood” allows us to place a particular weather event in context with other similar events. These 100-year storms are defined by the severity of the winds - the large amount of rain and the intensity in which it falls and the flooding that results.

These terms are used more and more frequently in the news now, since we are witnessing an increased number of extreme weather events or 100-year storms around the world due to climate change.

Learn more about weather changes and climate change by visiting the GreenLearning’s program page Decoding Carbon.

Explore the weather data provided below for Canadian provinces and territories and discuss the questions below.

Weather data:

To see your area and compare or explore other regions in Canada, check out the Climate Atlas. Move around the map, and click on different regions to see the historical average data, and the projected mean for future dates:

https://climateatlas.ca/map/canada/annual_precip_baseline#

You can get a little more specific with this site; choose your province or territory, select "Go", and then choose a weather station near you! Scroll down through the supplied data to find more information about precipitation:

https://climate.weather.gc.ca/climate_normals/index_e.html

Discussion Questions:

1. What is the record rainfall in your region?
2. Imagine standing in this much rain - where does it reach on your body?
3. What might be some of the effects of these storms happening every few years?
4. Research the rainfall in your community. What is the average rainfall per year? What is the record amount of daily rainfall?

Step 3: What Volume of Water Falls in Your School During a Rain Event? (10 minutes)

- Download the worksheet “How Much Rain Falls?”
- Using the weather averages data linked above for your location, find out how much water falls in your school during a rain event and fill out the handout.
- Compare answers with your peers!

Step 4: Post Activity Class Discussion (10 minutes)

After completing the activity above, break into groups and consider the following questions for discussion:

1. When was the last big flood you remember?
2. Where does the rainfall in your area drain to in these floods?
3. Where are your local waterways (streams, rivers, lakes or oceans)?
4. Which buildings in your neighbourhood are likely to be flooded?
5. Have you seen flooding in these areas before?
6. What areas of a house or building are most likely to be flooded? Why?
7. What parts of where you live would be affected - and what do you have stored there?
8. All the litter on the street would go down the sewer. What kind of trash would this be?
9. Have beaches been closed in your community? Flooding and pollution runoff can eventually lead to closed beaches. What is the connection?
10. Why does flooding sometimes mean people have to evacuate (leave their home for a safe place to stay)?

Step 5: Consequences of Flooding Case Study (20 minutes)

In groups, assign the following case study to students to understand the damages caused by flooding:

Damages sustained from rising lake water levels and restoration plans for waterfront parks

After reading the article, discuss in groups any 3 of the following questions:

1. What health risks are associated with flooding?
2. What are the effects of flooding on homes, buildings, roads, and bridges?
3. Why did this flood cost so much in loss of tourist revenue?
4. Do you believe your family and friends are prepared for a flood? Why or why not?
5. What could the government do to prepare for future flooding?

Resources Referenced

- https://www.zurich.com/en/knowledge/topics/flood-and-water-damage/three-common-types-of-flood
- https://www.zurich.com/-/media/project/zurich/dotcom/industry-knowledge/flood-and-water-damage/docs/four-common-types-of-flood-explained.pdf?la=en
- https://www.toronto.ca/legdocs/mmis/2017/cc/bgrd/backgroundfile-105457.pdf