FLOOD MANAGEMENT (LEVEL 1)

Description	Learners will explore some of the most frequent natural disasters by beginning to understand their causes and far-reaching effects. They will research the effect of the natural disaster on plants, animals and people, and design an emergency response kit including safety guides and disaster kits
Leading Question	Can you manage a flood in your community?
Total Time Required	~4 hours over 5 days
Supplies Required	• 1 large flat container or tray with sides (a deep tray), soil or modelling clay, sponge, little rocks, • Empty plastic container and marker • Plastic bottles, rope, thread and large plastic bag
Learning Outcomes	1. Understanding floods and the impact of excess rains 2. Understanding standards units of measure and designing your own scale 3. Identify impact of the flooding 4. Protective and emergency measures to protect from the consequences of flooding
Previous Learning	None

DAY 1

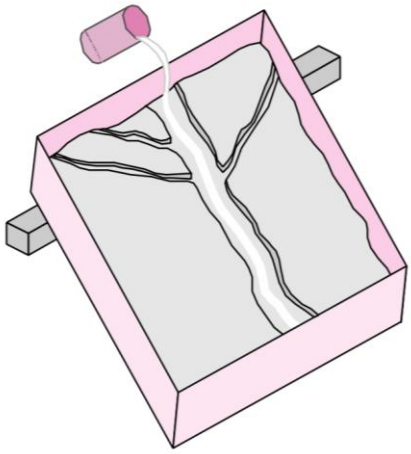
Today you will begin to explore floods.

Suggested Duration	Activity and Description
15 minutes	• Think of a flood as extra water in a usually dry land. • Make an illustrated list of the natural sources of water and water bodies that you know: • Rain

- Sea
- Rivers
- Lakes
- Glaciers, etc.

45 minutes

- Make models to explore the impact human activity on creating floods. Record the outcome of each experiment with drawings or descriptive sentences on the floods.
- Flood model set up:
  - Take any large flat container or tray with sides. Place sufficient modelling clay or soil at the bottom of the pan. Carve a river path for water in the container in the clay/soil. Place little stones, wood cubes, or toy houses alongside the river to define the path and also make these the “homes” of people.



  - Pour water into the model in the river and observe the water staying within the river path. You can add a rainstorm by increasing the volume and the flow of the water.
  - Experiment 1: Observe what will happen to the neighboring areas. Move the little stone homes around their model and notice that those closest to the river get more flooded.
  - Experiment 2: Straightening river channels and paths

    - Try keeping a straightened river path as shown above and testing the speed of the water flow and the amount of flooding.
    - Then attempt to create a meandering or zig-zag / curved river path and test the speed of water follow and the amount of flooding.
    - Observe that the curving river path slows down the speed and the intensity of the water flow and reduces the amount of flooding. Also

	add more bends to the curvature to the test assumption. - Complete your drawings and notes from the different experiments to understand what happens when it rains a lot.
15 minutes	● Let's explore the multiple human factors causing floods including: • Experiment 2: Straightening river channels and paths - Try keeping a straightened river path as shown above and testing the speed of the water flow and the amount of flooding. - Then attempt to create a meandering or zig-zag / curved river path and test the speed of water follow and the amount of flooding. - Observe that the curving river path slows down the speed and the intensity of the water flow and reduces the amount of flooding. Also add more bends to the curvature to the test assumption. - Complete your drawings and notes from the different experiments to understand what happens when it rains a lot. For younger learners, orally voice over your understanding based on the experiments and drawings.

DAY 2

Today you will explore and measure the intensity of natural hazards.

Suggested Duration	Activity and Description
15 minutes	● Numeracy extension: Make your own ruler/scale! ● A ruler/scale is used to make straight lines or measure distance. Each ruler or scale is marked in equal intervals. ● Take any rigid object e.g. a piece of wood, cardboard or even thick paper. Determine the units of measure as cm's or inches – place their index finger horizontally for each mark. While each of the markings will not be exactly a cm or an inch, it is important to make sure that it is equal. Use the unit of familiarity in their context. Older learners can divide each cm or inch into smaller units of measurement including millimeters or centimeters.
15 minutes	● Rain gauge to measure the amount of rainfall. Use the newly created ruler/scale to measure the amount rain or water in a cup. Use any cup (paper or plastic). Use this scale to mark the outside of the cup. This cup can be places in an open area where it is not disturbed (or on some

	elevated surface) when it begins raining. As the rain fills the gauge, you can measure it after each rainfall. • In the case that it is not raining, you can pretend it is raining and fill the cup with water and do the measurement. Do this cup measure experiment 3 times – each time holding the cup under any flowing water for 5-10 seconds. Since it rains with different intensity, do this under a fully open tap or fast flowing water, slightly slower flowing water, until it is just a few drops.
15 minutes	• Complete an illustrated report where you can draw the cup for each of the 3 tries and write the terminology associated with it and the measured amount of rain in each try. • When it rains a lot, the cup gets full very fast and sometimes overflows. Learners who are unable to write, vocalize the terminology.

20 minutes	• Numeracy Extension: Use your ruler to measure 5 different items in your home. Measure your pencil, eraser, book, finger, vegetable, etc. Then draw and label the items you measured and their lengths. Then solve these world problems:
	  • What is the longest item you measured?
	  • What is the shortest item you measured?
	  • Were there any two items with the same length?
	  • What is the difference in length between the longest and shortest item? (biggest – smallest)
	  • What is the total length of all the items put together? (add all the numbers)
	  • Can you arrange the numbers from biggest to smallest?
	  • What is the difference between the longest two and the shortest two items?

DAY 3

Today you will gather research on the impact and result of floods on humans.

Suggested Duration	Activity and Description
20 minutes	• Ask your parents and family members' questions about their experiences with floods. Older learners can create a little survey about the impact of a flood with their family members on any 3 or 4 of the below mentioned areas of impact: • Food supplies

	• Plants and trees • Animals • Homes • Roads • Transportation • Schools
20 minutes	● Illustrate and write a short note (if possible) on the 3 scenarios of: • Too little rain, also known as droughts (Prompts: What would happen to plants, animals and people with too little water? What color would plants be? What would happen to crops?) • Just enough rain (Prompts: What happens after the rain to plants, animals and people? What are the colors you see after the rain? Etc.) • Too much rain, could lead to a flood (Prompts: What would happen to fields with plants and trees? What would happen to animals that can or cannot swim? What would happen to homes and buildings? What colors do you expect?)

DAY 4

Today you will prepare yourselves and your communities for floods.

Suggested Duration	Activity and Description
20 minutes	● Begin by designing an emergency details card for what you will do when a flood happens: - What is the number of the emergency number of the fire / police and ambulance? (e.g. 911 or 100) - What is the safe location in your community area? (e.g. school building, hospital etc.) - If you were to get separated from your parents – you need to know the details to share with emergency contact: Parents Full Name, Full Address, Contact Number etc. - What is the name and number of a close relative or friend?
20 minutes	● Design a survival kit for when floods happen. Here are some important words to know: - Essential – this is something that is absolutely necessary or extremely important - Important – this is something of great value - Optional – this is something that is nice to have

	● Make a chart with 3 columns: Essentials, Important and Optional. Write or draw 2 - 4 items in each of the 3 columns. Discuss these categories with their families or parents on what are the items that they really need or would be nice to have in discussion with their parents. Alternatively, Identify which things they cannot manage without for the entire day e.g. food, water – these are essentials, what are the things you really need these things are important e.g. blankets etc. and what are the things that you would like to have, but are ok without e.g. soap etc. ● Some examples:

Essential	Important	Optional
Food (that is more durable e.g. biscuits or canned food)	Blankets	Torch
Water	Phones and Chargers	Soap and Toiletries
Medicine	ID card or papers	

10 minutes	● Make colored flags and a help poster to attract attention from the ground.

DAY 5

Today you will pretend to be weather forecasters.

Suggested Duration	Activity and Description
20 minutes	● First prepare a script and narrate it – this can be recorded by family members. You can draw or write a few key words to help prepare for the news report. ● First you have to think of a warning issued by their National Weather Service. The warning has to alert people when bad weather might happen. ● In the warning issue, you need to cover: - How do floods happen? - How can you measure the different amount of rain? - What will happen if there is a flood? - How can we be prepared for it with our emergency ID cards and survival kit
20 minutes	● Present this weather warning report orally to all their family members.

ASSESSMENT CRITERIA

- Understanding of the causes of human action on flooding
- Design of the scale / ruler and measuring items
- Practicality of the emergency protocol
- Understanding of different items as essential, important or optional
- Demonstrated understanding in the final weather watch report

MODIFICIATIONS FOR SIMPLIFICATION

- Learners can reduce the number of models and the instruments being used for measurements

APPENDIX

WATER, WATER EVERYWHE

Hi everyone, my name is Rising Waters. We all know that "April showers bring May flowers," bu showers that turn into heavy rains can also cause floods. I'm here to remind you that during a flo you and your family can get to higher ground to stay safe.

My friend Sasha needs your help! Last week, there was a lot of rain where she lives. Now the river in her town is rising fast. The river is spilling over its banks. There is flooding near her hom Sasha find her route to evacuate. Draw a path through the maze below. Help Sasha and her family a safe place!