

## AUDIENCE

New residents in a flood prone area

## TOPIC

Flood Preparedness

## TIME NEEDED

60 minutes

## LEARNING OBJECTIVES

By the completion of the program,

1. At the completion of this lesson, at least 80% of new residents will be able to name at least one flood prevention step on an assessment worksheet.
2. At the completion of this lesson, at least 80% of new residents will be able to name at least two ways to prepare for a flood evacuation on worksheet “Activity 5”.

## MATERIALS NEEDED

- Powerpoint Presentation
- Internet with Wifi connection
- Access to Zoom with breakout rooms & chatbox enabled
- “How to Prepare for a flood” Video
- Appendix A (Types of Flooding Assessment)
- Appendix B - Part 1: Emergency Flood Preparedness
- Appendix B- Part 2: Flood Facts

## PREPARATION

Open Zoom (computer audio and video). Open Powerpoint slides to present lesson plan activities and materials. Open Google form assessment (Activity 2) - be prepared to share links to residents over Zoom chat. Load videos (Activity 3). Open Google document (worksheet Activity 4) - be prepared to send file to residents over Zoom.

### PROCEDURE

#### 1. *Introduction*

##### Powerpoint Slides 1,2,3,4 (7 minutes)

1. Welcome new residents.
2. Introduce yourself.
3. Brief introduction on the topic of flooding in flood-prone areas.
4. Activity 1: Conduct an icebreaker.
  - a. Read out each question and Instruct residents to type their answers into the Zoom chat box
    - i. **Question 1:** Have you experienced a flood?
    - ii. **Question 2:** Have you experienced an evacuation?
    - iii. **Question 3:** Do you have any concerns you would like to share?

#### 2. *Risk Factors*

##### Powerpoint Slides 5, 6, & 7 20 minutes)

1. Conduct a mini lecture on flood hazards.
  1. What are floods?
    - a. Temporary overflow of water onto land
    - b. Common natural disaster
    - c. Flash floods develop quickly with no warning
  2. Floodwater Facts
    - a. Floods are one of the most common natural disasters
    - b. Flood waters are deeper than you realize
    - c. Force of 6 inches can knock people off their feet
    - d. Cars can be swept away in 2 feet of water
  3. Floodwaters can carry harmful debris and bacteria that may not be visible to the eye
    - a. Vibrio bacteria and toxins from cyanobacteria pose a threat to residents health
      - i. Vibrio bacteria can cause serious infections and lead to hemorrhage and edema
        1. CDC estimates 8000 Vibrio related infections resulting in 57 deaths per year in the U.S.

- b. Cyanobacteria can form harmful algal blooms, which is a risk to crops watered with surface water
  - i. It also impacts fishing and swimmers

### 2. Consequences of flooding

- a. Damage to property (homes, businesses, buildings, water supply, factories, power plants)
  - i. Loss of industrial production, sales, and traffic disruption
- b. Loss of life, health effects, loss of ecological value
  - i. Increased vulnerability of survivors
- c. Mental health
  - i. Emotional instability
  - ii. Losing sense of security

### 3. *Types of Flooding*

#### **Powerpoint slides 8, 9, & 10 (12 minutes)**

#### **Slide 8.**

1. Types of flooding video playlist (3 minutes) - Play videos outlining the 3 main types of flooding (Coastal, Riverine, and Snowmelt)
2. Post-video questions on Appendix A. Share link in zoom chat to Appendix A document.

#### **Slide 9.**

1. Why is this important for residents?
  - a. According to city's location, resident could be:
    - i. Subject to flooding from the Atlantic Ocean and inland rivers.
    - ii. Subject to storm surge.
2. Be prepared residents!
  - a. Know what flood zone your property is located within.
    - i. FEMA has a searchable map <https://msc.fema.gov/portal/home>.

#### **Slide 10.**

1. What would you take with you in the event of an evacuation?
2. What to include in your "Go To Kit" of supplies:
  - a. Important documents: ID's, Passport, medical records in a waterproof container, house documents, bank account records
  - b. Water (one gallon per person for 3 days)
  - c. Food (non-perishable food at least 3 day supply), manual can opener
  - d. Flashlight, extra batteries

- e. Battery powered radio
  - f. First aid kit
  - g. Dust mask / masks
  - h. Garbage bags, disinfectant wipes, hand sanitizer
  - i. Local maps
  - j. Cell phone with chargers and portable chargers
3. How to maintain your “Go To Kit”
    - a. Store in a cool and dry place.
    - b. Replace expired items as needed.
    - c. Update kits per family’s needs every couple of months.

#### ***4. How to Prepare for a flood***

##### **Powerpoint Slides 11,12 (16 minutes)**

##### **Slide 11.**

1. How to prepare for a Flood
2. What to do BEFORE a flood
  - a. Keep an emergency supply kit (Go To Kit)
  - b. Turn off electrical power and natural gas
  - c. Bring outdoor valuables inside
  - d. Protect your property from flood and wind damage
  - e. Purchase flood insurance
  - f. Develop an emergency communication plan with your family
3. What to do AFTER a flood
  - a. Inspect your property for damage
  - b. Stay out of buildings if waters remain and take caution
  - c. Look for fire hazards
  - d. Throw away food
  - e. Check for gas leaks, electrical system damage, sewage and water lines damage
  - f. Pump out flooded basements

##### **Slide 12, 13, 14, & 15 (28 minutes)**

##### **Slide 12.**

1. Present video “How to Prepare for a flood”

- a. (Video outlines steps to prepare for an imminent flood)  
[https://www.youtube.com/watch?v=43M5mZuzHF8&feature=emb\\_logo](https://www.youtube.com/watch?v=43M5mZuzHF8&feature=emb_logo)
2. Video “How to Prepare for a Flood”
  - a. (6 minutes) Questions and Group Discussion- ask participants discussion questions about the video they just watched and have them answer over audio/video or in the chat at their preference
    - i. What did this video describe/explain?
    - ii. What tip or piece of advice from the video most surprised you?
    - iii. What is one new flood prevention step or action that you will take after having watched this presentation?

**Slide 13.**

1. Appendix C: Instruct residents to complete worksheet individually
  - a. Send out worksheet Appendix B-Part 2 labeled “Flood Facts” in Zoom chatbox.

**Slide 14.**

1. Go over the answer key to the worksheet with residents

**Slide 15.**

1. Review Risk, Types of Flooding, and Prevention Strategies
2. Allot time for participants to ask any questions they might have

### References

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[https://www.cdc.gov/disasters/floods/floodsafety.html?CDC\\_AA\\_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdisasters%2Ffloods%2Fcleanupwater.html](https://www.cdc.gov/disasters/floods/floodsafety.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fdisasters%2Ffloods%2Fcleanupwater.html)

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<https://www.governor.sc.gov/sites/default/files/Documents/Floodwater%20Commission/SCFWC%20Report.pdf>

**Appendix A**

**Types of Flooding Assessment**

1. Which of these is NOT a type of flooding?

- Coastal
- Riverine
- Snowmelt
- None of the above-all are types of flooding
- Other:

2. What causes snowmelt flooding?

- The ground freezes and melting snow cannot penetrate it
- Snow melts faster than the ground can absorb it
- Ice breaks cracks and breaks open the earth releasing groundwater
- None of the above

3. What is the most common type of flooding?

- Coastal
- Riverine
- Snowmelt
- Other:

4. True or False: It needs to have snowed in your area for snowmelt flooding to occur

- True
- False
- Other:

5. Which type of flooding tends to be the most drastic/severe

- Coastal
- Riverine
- Snowmelt
- Other:

6. Name at least one flood prevention we have discussed today.

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**Appendix A Answer Sheet**

**Types of Flooding Assessment**

1. Which of these is NOT a type of flooding?

- Coastal
- Riverine
- Snowmelt
- **ANSWER: None of the above-all are types of flooding**
- Other:

2. What causes snowmelt flooding?

- **ANSWER: The ground freezes and melting snow cannot penetrate it**
- Snow melts faster than the ground can absorb it
- Ice breaks cracks and breaks open the earth releasing groundwater
- None of the above

3. What is the most common type of flooding?

- **ANSWER: Coastal**
- Riverine
- Snowmelt
- Other:

4. True or False: It needs to have snowed in your area for snowmelt flooding to occur

- **ANSWER: True**
- False
- Other:

5. Which type of flooding tends to be the most drastic/severe

- **ANSWER: Coastal**
- Riverine
- Snowmelt
- Other:

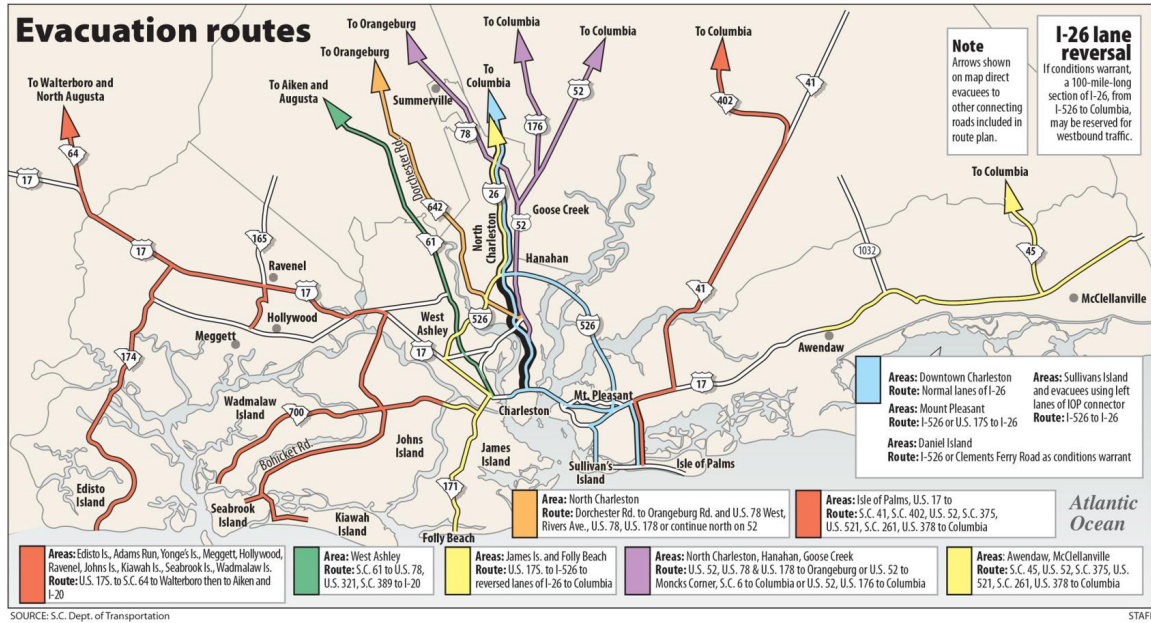
6. Name at least one flood prevention tool we have discussed today.



### POSSIBLE ANSWERS:

1. Keep emergency supply kit (Go 2 Kit)
2. Turn off electrical power and natural gas
3. Bring outdoor valuables inside
4. Protect your property from flood and wind damage
5. Purchase flood insurance
6. Develop an emergency communication plan with your family

**Appendix B - Part 1: Emergency Flood Preparedness**



**Find your evacuation route**

Familiarize yourself with evacuation routes nearest to your home. List the color of the evacuation route that you would take: \_\_\_\_\_

**Appendix B- Part 2: Flood Facts**

Word bank: infectious diseases    chemical hazards    flash    injuries    natural gas  
electrical power    outdoors    two feet    six inches

1. A \_\_\_\_\_ flood results from intense storms dropping large amounts of rain with no warning and within a brief period.
2. Floodwater can be dangerous and can make you vulnerable to \_\_\_\_\_, \_\_\_\_\_, and \_\_\_\_\_.
3. It is important to shut off \_\_\_\_\_ and \_\_\_\_\_ in your home to avoid fire, explosions, and electrocution before evacuating.
4. If using a generator or other gasoline-powered machinery during a power outage, it is important to keep them ONLY \_\_\_\_\_ and away from windows.
5. People can be knocked over by just \_\_\_\_\_ of floodwater.
6. Cars can be swept away in just \_\_\_\_\_ of water.

**Build a “Go 2 Kit” of supplies you would need if you had to evacuate your home**

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### Appendix B-Part 2: Flood Facts Answers

#### Flood Facts - Complete the blank

Word bank: infectious diseases    chemical hazards    flash    injuries    natural gas  
electrical power    outdoors    2 feet    6 inches

7. A **flash** flood results from intense storms dropping large amounts of rain with no warning and within a brief period.
8. Floodwater can be dangerous and can make you vulnerable to **infectious diseases**, **chemical hazards**, and **injuries**.
9. It is important to shut off **electrical power** and **natural gas** in your home to avoid fire, explosions, and electrocution before evacuating.
10. If using a generator or other gasoline-powered machinery during a power outage, it is important to keep them ONLY **outdoors** and away from windows.
11. People can be knocked over by just **6 inches** of floodwater.
12. Cars can be swept away in just **2 feet** of water.

#### Build a “Go Kit” of supplies you would need if you had to evacuate your home

- **Wide range of answers**
- **Can include: passport, ID, water, food, clothes, copy of medical records.**