

7.2.3 e1 Structures and Hazards Narrative

Time: 60-70 minutes	Anchor Phenomena: Homes in Utah have different characteristics than homes in Florida (see phenomenon info sheet)
Big Idea: Structures are engineered to withstand geologic hazards.	
CCCs <u>Structure and Function</u> , <u>Patterns</u>	Practices Ask Questions, Construct an Explanation, Develop Models

EPISODE SNAPSHOT

Students will do a hands-on activity and research how houses in areas prone to flooding are engineered.

GATHERING

Part A (15-20 minutes): Students build a small house using the provided template and masking tape or glue sticks. (Teacher Hint: Don't have them spend very long on the houses or add detail, many will be destroyed anyway!) Have them place their house in one of three 'zones' in the classroom. These zones should be set up in a way that students won't know what will happen to the houses. Make sure there is a way to 'flood' the houses in whatever zone you designate as the flood area. It helps to switch each class period.

After the houses have all been built, carefully add water to the flood zone and have students observe what has happened to the flooded houses. Go through the PowerPoint showing the results of actual flooding and have them brainstorm questions and possible solutions.

REASONING

Part B (15-20 minutes): Students will now make modifications to the original house in groups of 2-4 students to see if they can make them survive future flooding. Have them use already built houses that were in the other zones to save on supplies – just have them use one their own houses if it survived, or someone else's if they didn't. Give them a limited amount of supplies for the modifications.

Recommended supplies:

Choose ONE of the following: 4 toothpicks, 2 popsicle sticks, 1 bamboo skewer

Masking tape as needed.

Give them 5-10 minutes to brainstorm and build their modifications and put them in the flood zone. Have them make their prediction of their house's performance before the next test. After testing, they will describe what happened to their house.

Part C (20-30 minutes): Show students the PPT about stilt houses. Have groups brainstorm possible questions and write a claim about engineering for floods and give them the two articles about stilt houses. They will read the articles and answer the questions and use reasoning to show the evidence supports their claim.

COMMUNICATE

Students will participate in discussions with the class and their groups throughout the episode.

Assessment: Students construct an explanation for the engineering of stilt homes.	Materials, resources, handouts, etc. • 7.2.3 e1 StructuresAndHazards • 7.2.3 e1 ZoneSigns • 7.2.3 e1 HouseTemplate • 7.2.3 e1 FloodingPPT • 7.2.3 e1 StiltHousesPPT • 7.2.3 e1 10StiltHouses • 7.2.3 e1 StiltHouseOwners • Modification supplies: ○ Masking tape, toothpicks, popsicle sticks, skewers
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