

HURRICANE ENGINEERING

MAIN OBJECTIVES

- Create a model house able to withstand a “hurricane”
- Communicate and collaborate with others to create something new
- Use critical thinking to develop and implement a plan
- Understand interactions between wind forces on objects

ACTIVITY

Create a model house able to withstand a “hurricane”

After being told to construct a house (with minimum requirements based on grade level, ie. minimum height/size etc.) able to withstand a hurricane using the materials provided, students will be given minimal instruction.

MATERIALS

Tray (to contain water)

Box fan or larger/ Blow dryer

Model house Materials:

Paper (highest difficulty level), precut cardboard squares, popsicle sticks, paper towel rolls, masking tape, scissors

Waterproofing materials:

Foil, playdough, cotton, paper towels, sponges, paper towel rolls, cling wrap, etc.

GAME ADAPTATIONS

Students can hypothesize and make predictions of what they think will happen/what methods will work the best

This can also be done as a competition where the group that is able to best protect their house wins
Additional factors beyond wind can be added to create a more realistic and challenging project such as water proofing the house (building on the flood barrier project but also waterproofing the roof)

Materials can also be limited (ie. Each group only receives 1 foot of tape)

This also allows the option to discuss weather patterns and what makes a hurricane compared to a thunderstorm or tropical storm.

CURRICULUM COMPONENTS

Science Standards

- 3rd Grade:
 - 3.P.1 Understand motion and factors that affect motion.
 - 3.P.1.1 Infer changes in speed or direction resulting from forces acting on an object
- 5th Grade
 - 5.P.1 Understand force, motion and the relationship between them.
 - 5.P.1.2 Infer the motion of objects in terms of how far they travel in a certain amount of time and the direction in which they travel.
 - 5.P.1.3 Illustrate the motion of an object using a graph to show a change in position over a period of time.
 - 5.P.1.4 Predict the effect of a given force or a change in mass on the motion of an object.
 - 5.E.1 Understand weather patterns and phenomena, making connections to the weather in a particular place and time.
 - 5.E.1.1 Compare daily and seasonal changes in weather conditions (including wind speed and direction, precipitation, and temperature) and patterns.
 - 5.E.1.2 Predict upcoming weather events from weather data collected through observation and measurements. 5.E.1.3 Explain how global patterns such as the jet stream and water currents influence local weather in measurable terms such as temperature, wind direction and speed, and precipitation.