Hurricane Towers STEAM Challenge

(Building for Hurricanes: Engineering Design Challenge)

Standards:

S6E4d. Construct an explanation of the relationship between air pressure, fronts, and air masses and meteorological events such as tornados and thunderstorms.
e. Analyze and interpret weather data to explain the effects of moisture evaporating from the ocean on weather patterns and weather events such as hurricanes.

Keywords: engineering, hurricane damage, natural disasters

Summary: In this engineering design challenge, students will build a tower to resist a simulated hurricane.

Students are presented with the real-world problem of designing buildings for hurricane-prone areas. They will use the Engineering Design Process to complete the assignment. Students are given simple materials and design requirements and must plan out and build a tower as tall as possible that will hold up a tennis ball while resisting the force of wind from a fan. After the towers are built, the groups come together to test the towers. This also provides an opportunity to discuss how there are often different ways to solve the same problem. Students will analyze their results and can redesign their towers to improve their performance, or simply discuss what worked well and what didn't in their designs depending on the time remaining after testing.

Cross-curriculum connections: Math (shapes for towers and stable bases, measurement), Social Studies (geography-locations of hurricanes, social implications

Real World Connection – View and discuss designs of actual towers around the world. Discussion of societal applications and Severe Weather Preparedness (Safety).