

## 2<sup>nd</sup> Grade - Lesson 1.4

### Using the Properties of Materials to Improve a Model Boat

#### NGSS Alignment

#### Performance Expectations

2-PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.

#### Disciplinary Core Ideas

##### PS1.A: Structure and Properties of Matter

- Different properties are suited to different purposes. (2-PS1-2)

*In Lessons 1.2 and 1.3, students tested the strength and absorbency of paper, plastic, felt, and aluminum foil. In this lesson (Lesson 1.4) students consider these properties when deciding which materials to use to make a boat that will hold the most weight before sinking.*

#### Science and Engineering Practices

##### Analyzing and Interpreting Data

- Analyze data from tests of an object or tool to determine if it works as intended (2-PS1-2)

*Students observe a demonstration of a paper model boat absorbing water and sinking after a number of pennies are placed in it. Students consider the properties of the materials they have tested and choose materials to cover the boat so it can hold more weight before sinking. Students test the boat and make modifications if necessary.*

#### Crosscutting Concepts

##### Cause and Effect

- Simple tests can be designed to gather evidence to support or refute student ideas about causes. (2-PS1-2)

*Students see a paper boat absorb water and weaken. They test a boat with non-absorbent materials covering the paper to see if the boat holds more weight before sinking. This simple test shows students that the characteristics of materials can be useful for different purposes and that absorbing water caused the boat to weaken and sink.*