Educational Resources from *Phenomenon Science Education*

Student Proficiency Goals for **NGSS K-PS3-2**

Information about K-PS3-2

NGSS Performance Expectation K-PS3-2

Use tools and materials provided to design and build a structure that will reduce the warming effect of sunlight on Earth's surface.*

Clarification Statement.

Examples of structures could include umbrellas, canopies, and tents that minimize the warming effect of the sun.

Assessment Limits.

No specific assessment limits are listed for this Performance Expectation.

Science and Engineering Practice (Constructing Explanations and Designing Solutions)

- Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem.

Disciplinary Core Idea (PS3.B: Conservation of Energy and Energy Transfer)

- Sunlight warms Earth's surface.

Crosscutting Concept (Cause and Effect)

- Events have causes that generate observable patterns.

* The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.

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Student Proficiency Goals for **NGSS K-PS3-2**

<table>
<tr><th colspan="2">Student Proficiency Goals</th></tr>
<tr><td colspan="2">SEP (Constructing Explanations and Designing Solutions):

• Students use provided or collected observations (either firsthand or from grade-appropriate media) of Earth surfaces in both direct sunlight and shade to determine where to build a structure that will reduce the warming effect caused by sunlight.
• Students describe a solution to the problem to be solved.
• Students design a structure that will reduce the warming effect caused by sunlight.
• Using provided materials, students build a structure that will reduce the warming effect caused by sunlight.
• Students describe how well the structure reduces the warming effect caused by sunlight on the surface that is protected by the structure.</td></tr>
<tr><td>DCI (PS3.B Conservation of Energy and Energy Transfer):

• Students know that sunlight warms Earth’s surface.</td><td>CCC (Cause and Effect):

• Students consider the pattern of Earth surfaces often being warmer in direct sunlight than they are in the shade.
• Students use cause-and-effect to think about causes for the pattern of temperatures of Earth surfaces in both direct sunlight and shade.</td></tr>
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