Educational Resources from *Phenomenon Science Education*

Student Proficiency Goals for **NGSS 1-PS4-2**

Information about 1-PS4-2

NGSS Performance Expectation 1-PS4-2.

Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.

Clarification Statement.

Examples of observations could include those made in a completely dark room, a pinhole box, and a video of a cave explorer with a flashlight. Illumination could be from an external light source or by an object giving off its own light.

Assessment Limits.

No specific assessment limits are listed for this Performance Expectation.

Science and Engineering Practice (Constructing Explanations and Designing Solutions)

- Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena.

Disciplinary Core Idea (PS4.B: Electromagnetic Radiation)

- Objects can be seen if light is available to illuminate them or if they give off their own light.

Crosscutting Concept (Cause and Effect)

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

Educational Resources from *Phenomenon Science Education*

Student Proficiency Goals for **NGSS 1-PS4-2**

Student Proficiency Goals	
SEP (Constructing Explanations and Designing Solutions): • Students make observations based on simple tests or grade-appropriate media to collect evidence for explanations of phenomena related to objects being seen in the presence of light and not being seen in the absence of light. • Students use their evidence to construct a causal explanation of phenomena related to objects being seen in the presence of light and not being seen in the absence of light.	
DCI (PS4.B Electromagnetic Radiation): • Students know that objects can be seen when light is available to illuminate the objects. • Students know that objects can be seen if the objects produce their own light. • Students know that objects cannot be seen if the objects are in darkness, and there is no light source illuminating the objects.	**CCC (Cause and Effect):** • Students consider that light being available to illuminate objects results in people being able to see the objects. • Students consider that objects producing light results in people being able to see the objects. • Students consider how to design simple tests to collect evidence demonstrating that objects can be seen when light is available to illuminate the objects. • Students consider how to design simple tests to collect evidence demonstrating that objects can be seen if the objects produce their own light.