

TABLE 1

Details for activities.

Activity	Key Objectives	Key Vocabulary	Materials	Approx. Time	Differentiation Suggestions
Camera Obscura: What do you think we will see in a completely dark room if a small amount of light enters from the outside window?	Engage students in asking questions and defining problems. Engaging students in argument from evidence.	Observation Inference	<ul style="list-style-type: none"> Room with exterior facing window and unobstructed view Thick trash bags Painters' tape Scissors 	60 minutes	Using guiding questions to probe students. Sitting students closer to the wall where image is projected.
Exploring Light: How Does Light Travel?	Students observe that light travels in a straight line. Students observe that light reflecting from objects and entering the eye allows objects to be seen.	Light Ray - A model of light drawn as a straight line. Opaque - Material that blocks light. Reflect - When light bounces off an object. Transparent - Material that does not block light.	<ul style="list-style-type: none"> Red laser Pointer Clear cup Water Flour 	45 minutes	Provide templates and graphic organizers for recording observations. Allow students to either draw and/or write out their observations independently or lead the initial model creation and allow students to create their own models alongside the teacher. Place students in proximity to teacher who may need additional supports and verbal prompting. For those with physical needs, pair with a peer who can help manipulate materials.
Exploring what happens when light hits colorful materials.	Students observe that when light hits a colorful surface, we see the color bouncing (reflecting) off.	Light Absorption - When an object soaks up some of the colors of light. Color Reflection - The color of light reflected off a surface, which we see. Light Ray - A model of light drawn as a straight line. Opaque - Material that blocks light. Reflect - When light bounces off an object. Transparent - Material that does not block light.	<ul style="list-style-type: none"> Flashlight Manilla folder or white paper Red (and other various colors of) paper 	45 Minutes	Provide templates and graphic organizers for recording observations. Allow students to draw and/or write out their observations. Allow students to either draw and/or write out their observations independently or lead the initial model creation and allow students to create their own models alongside the teacher. Place students in proximity to teacher who may need additional supports and verbal prompting. For those with physical needs, pair with a peer who can help manipulate materials.
Developing a Model	Students use models to demonstrate how light reflecting off materials and traveling in a straight line, through a camera obscura-type opening, creates inverted images of objects on the opposite side of the opening.	Light Absorption - When an object soaks up some of the colors of light. Color Reflection - The color of light reflected off a surface, which we see. Light Ray - A model of light drawn as a straight line. Opaque - Material that blocks light. Reflect - When light bounces off an object. Transparent - Material that does not block light.	<ul style="list-style-type: none"> Camera Obscura sheet Yarn (three different colors are suggested: white, brown, and green) Clear tape 	45 minutes	Students either draw and describe their observations in writing independently or draw and discuss their observations alongside the teacher. Place students in proximity to teacher who may need additional supports and verbal prompting. For those with physical needs, pair with a peer who can help manipulate materials.