

Name of Lesson: Science Companion Light – The Path of Light (Lesson 3)		
Your Name: Kelly Grahl	Date of Lesson: Wednesday 3/30/16	Time: 11:00 – 12:10pm
Topic: How does light travel? What happens to light when it hits an object in its path?		
Focus for MT/FI Observations: Management of materials and transitions. Are learning goals being met? Is too much material planned?		
Context: Students have observed various sources of light and how the light they emit differs. In this lesson, students begin to examine how light travels in straight lines from its source. Students start to think about what happens to light when it hits objects in its path, which is a major concept in this unit moving forward.		
Resource: <i>Science Companion – Light: Teachers Manual, Science Companion – Light: Science Notebook, Science Companion – Light: Assessments</i>		
Next Generation Science Standards:	Learning Goals:	Assessments:
NGSS 1-PS4-1 NGSS 1-PS4-2 NGSS 1-PS4-3 NGSS 1-PS4-4 Note: The SC materials currently used by AAPS are not appropriately aligned with NGSS. However, connections can be made.	SWBAT observe and discuss how light travels outward from a source in straight lines.	Student: Students will observe how light moves through a cloudy substance Teacher: Instructors will lead exploration and discussion around light and how it is emitted. Instructor will collect SC notebooks for assessment of student diagrams and observations.
Vocabulary: <i>emit, illuminate, illumination, light source, light beam</i>		
Materials: Science Companion, straws, lamp w/ shade, flashlights, 6 sealed bottles with cloudy liquid, CER worksheet to be cut and pasted		
Duration: 70 minutes		

Teaching Sequence:

Time/Task	Instructional Moves <i>(Include key questions you want to ask.)</i>	Considerations <i>(Things you want to remember/attend to: e.g., differentiation, transitions)</i>
Engage [10 min]	[Display the (Not) Sources of Light butcher paper on the board] Yesterday we explored a bunch of different light sources. <i>Does the light from different sources always look the same?</i> <i>How does light from different sources look different?</i>	Be sure to include vocabulary on Light Word Wall when this lesson is over.

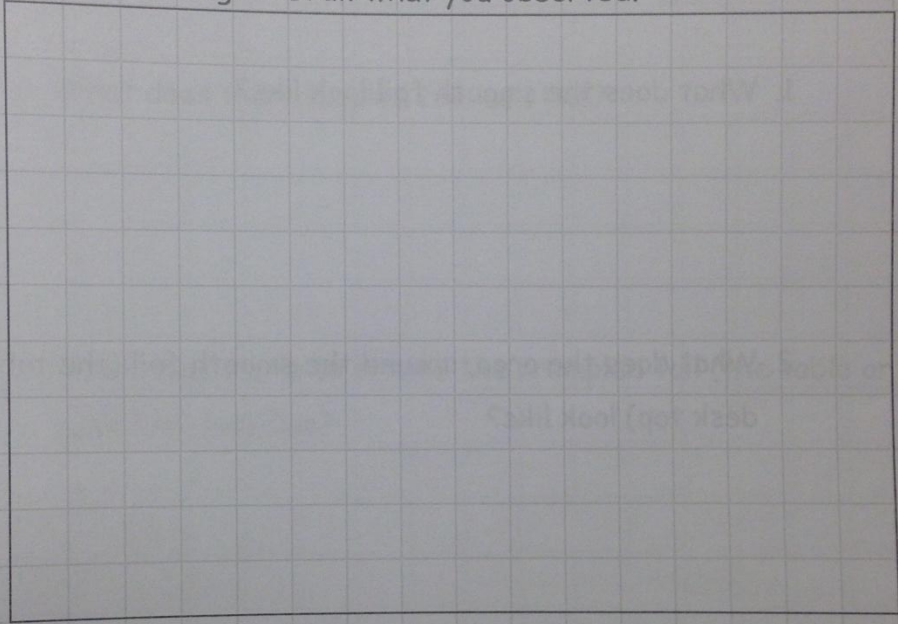
	<p>Today, we are going to observe light beams, and notice the direction that light travels from its source. We are going to try to answer a very specific question:</p> <p>[Display investigation question, not where projector is]</p> <p><i>How does light travel from its source?</i></p> <p><i>Share your predictions with the person sitting next to you. I am going to take three predictions.</i></p> <p>[Collect and write on whiteboard under predictions]</p>	
<p>Explore [30 min]</p>	<p>The first thing we are going to do is experiment with how light travels through a cloudy solution. I am going to put you into groups and your group is going to get a flash light and a bottle of cloudy solution.</p> <p>[Have volunteers come up and assist the demonstration in front of the room, on document camera show the pages that they will record their findings on]</p> <p>[Review expectations]</p> <p>[Split students into groups of 5, have them sit at different spots in the room with their SC]</p> <p>In each group, one person is in charge of the materials. That person will come get them when I tell you to and bring them back when I give the signal.</p> <p>[Choose materials manager]</p> <p>[Put timer up on the board so that students know how long they have to complete their observations]</p> <p>[Have materials managers collect flashlights and cloudy water]</p> <p>[Demonstrate with straws how light beams travel]</p> <p>If I position the flashlight like this, someone come up and show us with the straws how the light travels.</p>	<p>Need: Lamp w/ shade Flashlight</p> <p>6 bottles of cloudy water 6 working flashlights</p> <p>straws</p>

	[Do this twice with two student volunteers]	
Share and Discussion [20 min]	[Pass out CER worksheet, have students copy down what is written on the board as we go] <i>What did you observe when we shined the flashlight into the side of the water?</i> <i>What happened to the light when we tilted the flashlight?</i> <i>Did light travel in a curved path or in a straight line?</i> <i>Was this true even when you tilted the flashlight?</i> <i>How could we make a claim to answer our investigation question based on what we noticed?</i> [Light travels in straight lines from its source] <i>Okay, and we collected some pieces of evidence that support our claim:</i> [We observed that light went in a straight line out of the flashlight through the water] [We observed that the light still went in a straight line even when we tilted the flashlight] [Show students the lamp with no shade and the flashlight again] <i>What is the difference between the light as it comes out of the lamp and as it comes out of the flashlight? Do they still travel in straight paths?</i> [Have students model how light beams travel from a flashlight and how they travel from a night light] <i>The reasoning behind all of this is that: All light waves travel in straight lines.</i> [Have students cut this out and paste it into the back of their science companion notebooks]	

Date: _____

Observing Light

2. What happened to the light when you tilted the flashlight at a different angle? Draw what you observed.

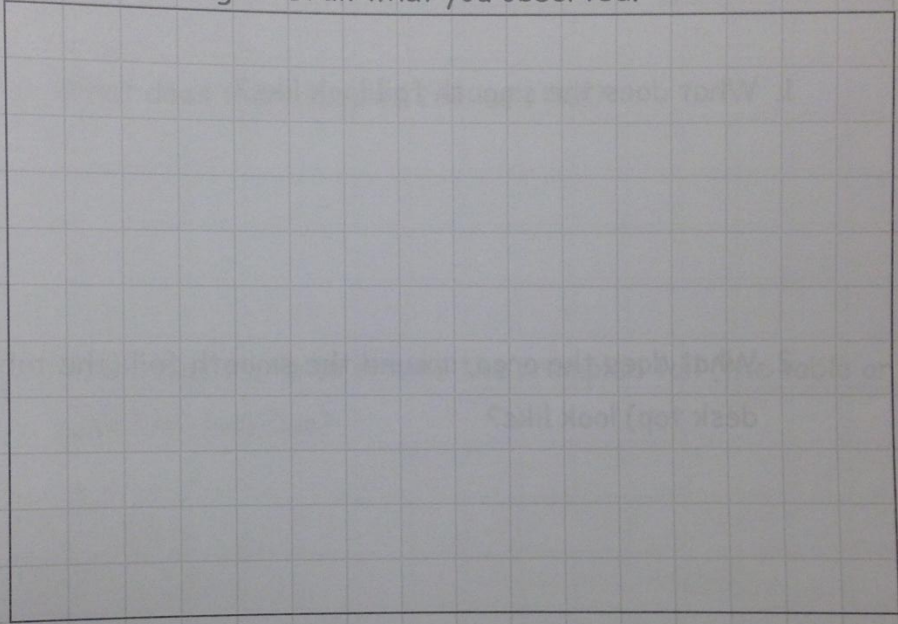


3. Describe what you think happens when light hits something.

Date: _____


Observing Light

2. What happened to the light when you tilted the flashlight at a different angle? Draw what you observed.



3. Describe what you think happens when light hits something.

Investigation Question:



Claim:

Evidence:

Reasoning:
