**Waves: Light**

NGSS 1-PS4-3: Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.

**Science and Engineering Practices**: Planning and carrying out investigations to answer questions

**Cause & Effect**: Simple tests can be designed to gather evidence to support or refute student ideas about causes.

**Phenomena**: Ao ~ Light  Aka ~ Shadow

**What you need:**
- flashlight
- lantern
- lamp (ask an adult for help with the lamp)

Get 5 things from around the house you want to test:
- towel
- tissue
- ball
- book
- cup
- tissue
- toy
- cloth
- lettuce

**What to do:**

<table>
<thead>
<tr>
<th>Directions:</th>
<th>Predict</th>
<th>Results</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Write the name of the thing.</td>
<td>Will it make a shadow or will not make a shadow?</td>
<td>What happened?</td>
</tr>
<tr>
<td>2. Predict if it will make a shadow or will not make a shadow, put a / in the box.</td>
<td></td>
<td>Did it make a shadow or did not make a shadow?</td>
</tr>
<tr>
<td>3. Test each thing.</td>
<td>Shadow</td>
<td>Shadow</td>
</tr>
<tr>
<td>4. Put a / under shadow or did not make a shadow, to show what happened.</td>
<td>No shadow</td>
<td>No shadow</td>
</tr>
<tr>
<td>spoon</td>
<td>/</td>
<td>/</td>
</tr>
<tr>
<td>1.</td>
<td></td>
<td></td>
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<tr>
<td>2.</td>
<td></td>
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<td>3.</td>
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<tr>
<td>4.</td>
<td></td>
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<tr>
<td>5.</td>
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</tbody>
</table>

How were the shadows different from each other? Dark? Light? Only parts? **Why?**

I learned __________________________________________.

____________________________________________________________________

____________________________________________________________________

Kamehameha Schools
Kealapono Division
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Phenomena: Aka ~ Shadow

You need: some toys, blocks, plants, pencil, crayons

Go outside and try shadow tracing:

1) Set up things you to make shadows on your paper.
2) Trace the shadow with a pencil.
3) Color in the shadow picture you made.

I learned ____________________________________________________________
_________________________________________________________________
_________________________________________________________________
_________________________________________________________________

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Try making hand shadows of animals:

I learned ____________________________

____________________________________________________________________

_______________________________________

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