**FPS – Reflection/Refraction Lab**

Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Period\_\_\_\_\_\_\_\_\_\_

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| --- |
| I can… |
| *Define the parts of a wave.**Relate the properties of a wave.* |

* ***Go to shakerscience.weebly.com***
* ***Mouseover “Foundations” then click “Unit 5”***
* ***Scroll down all the way to Week 5***
* ***Click “Reflection Refraction Phet Lab”***


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| ***Part A – Speed of Light*** |
| 1. Select “Wave” in the top left corner. Sketch an outline of what occurs.
 |  |
| 1. Select “Angles”. What is the **incident angle** (original laser), the **reflected angle** (the lighter beam bouncing off the water) and the **refracted angle** (the bent bean going into the water)?
 | Incident\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Reflected\_\_\_\_\_\_\_\_\_\_\_\_\_\_Refracted\_\_\_\_\_\_\_\_\_\_\_\_\_\_ |
| 1. What do you notice about the reflected and the incident angles?
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| 1. Describe how the **refracted** angle differs and try to explain WHY.
 |  |
| 1. Grab the **green Intensity** tool.

Place the viewer over the incident ray and record the value, then record the intensity of the refracted ray.WHY do you think they differthe way they do? | Incident:\_\_\_\_\_\_\_\_\_\_\_%Refracted:\_\_\_\_\_\_\_\_\_\_\_%They differ this way because… |
| 1. Now, place the intensity reader on the reflected ray. WHY do you think they differthe way they do?
 | Incident:\_\_\_\_\_\_\_\_\_\_\_%Reflected:\_\_\_\_\_\_\_\_\_\_\_%They differ this way because… |
| 1. Check your notes: what part of the wave (frequency, amplitude, or wavelength) is the intensity **AND** what does that mean for a light wave?
 |  |
| 1. Move the **green Intensity** tool away. Grab the blue **Graphing** tool. Place one viewer on the incident ray and one on the reflected ray.

SKETCH what you see.  |  |
| 1. Does the frequency differ, if so how?
 |  |
| 1. Does the amplitude differ, if so how?
 |  |
| 1. Leav one viewer on the incident ray and move the other to the refracted ray. SKETCH what you see.
 |  |
| 1. Describe what you notice.
 |  |
| 1. Take the **orange Speed** tool. Record the speed of the incident, reflected, and refracted ray.

 | Incident:\_\_\_\_\_\_\_\_\_\_\_xc (m/s)Reflected:\_\_\_\_\_\_\_\_\_\_\_xc (m/s)Refracted:\_\_\_\_\_\_\_\_\_\_\_xc (m/s) |
| 1. Why do you think the speed of the incident and reflected ray the same?
 |  |
| 1. Why do you think the speed of the refracted ray in water is less?
 |  |
| 1. Leave everything the same, but change the Material to “Water”. Describe what you notice.
 |  |
| **The Quiz!** |
| Go to http://join.quizizz.com and enter the game pin on the board to get started! Record your score below. |