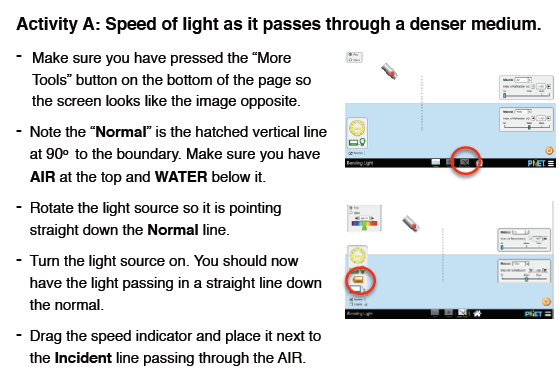
**FPS – Reflection/Refraction Lab**

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? |  |
| 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 differ the 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 differ the 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. | |