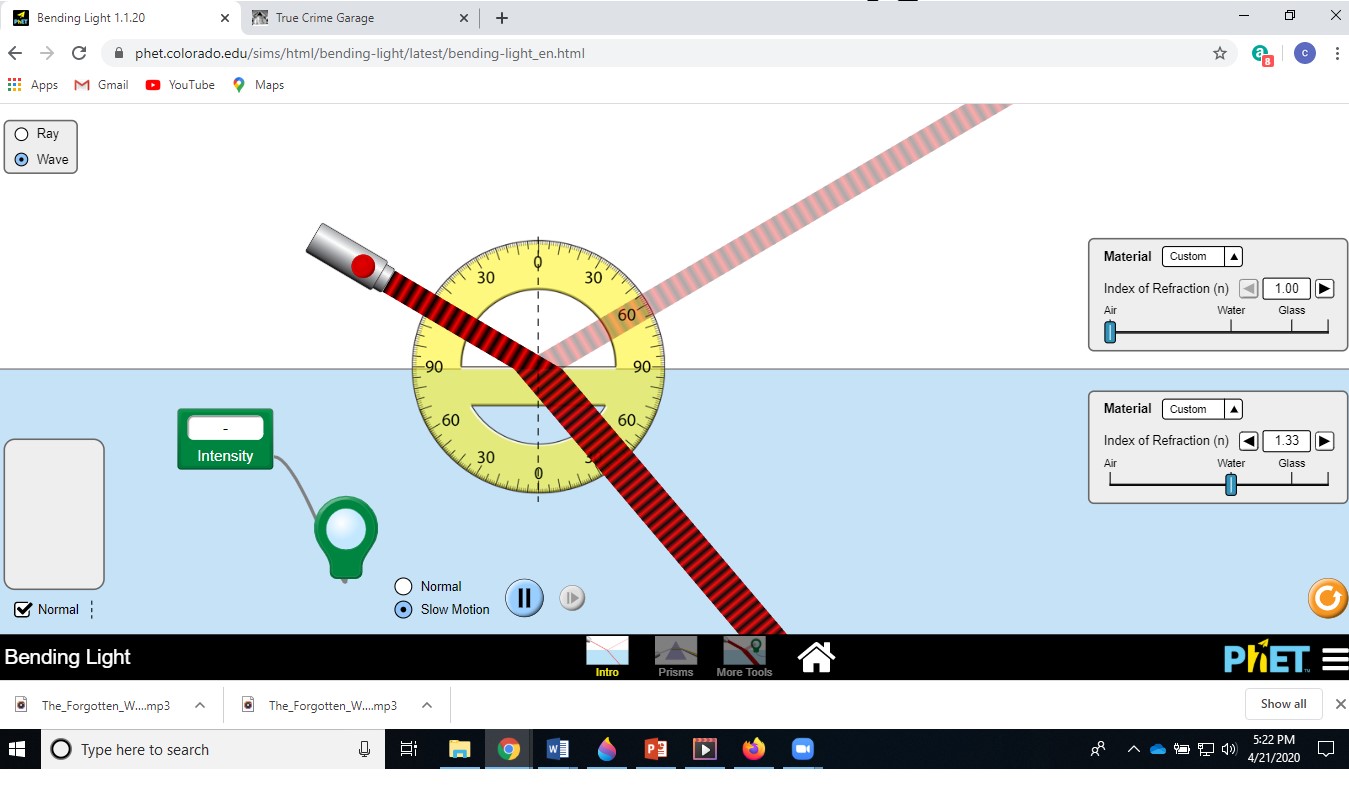
**PhET Bending Light**



Google PhET; Select Physics; Select Bending Light.

<https://phet.colorado.edu/sims/html/bending-light/latest/bending-light_en.html>

1. Move the protractor to the perpendicular.
2. Place the center of the protractor at the boundary.
3. Turn on the light.
4. Place light so that the angle of incidence is 30°.
5. Record the angle of reflection. \_\_30\_\_\_
6. Record the angle of refraction. **\_\_22\_\_\_**
7. Use

to calculate the index of refraction of water, using the fact that the index of refraction in air is 1.00.

1. Place light so that the angle of incidence is 60°.
2. Record the angle of reflection. \_\_60\_\_\_

Record the angle of refraction. \_\_40\_\_\_

Use this angle to once again calculate the index of refraction of water. Is it the same as calculated on question 7?

They are not exactly equal but values are nearly same.

1. Turn on wave option and note what the wave front does at the boundary.

At boundary wave front splits into two, one is reflected other refracted.

1. Turn off wave option.
2. Change water medium to glass medium and note what happens to the angle of refraction.

The angle of refraction decreases to 35 degree.

1. Record the angle of reflection. \_\_60\_\_\_

Record the angle of refraction. \_\_35\_\_\_

Use this angle to once again calculate the index of refraction of glass. Is it the same as calculated on question 7?

No they are not same.

1. Switch the top medium from air to glass and the bottom medium from water to air,

One case we can take advantage of in fields such as fiber optics is total internal refraction. Here the light never travels passed the boundary, which means when this first occurs the angle of refraction is .

If going from glass to air, at what incident angle would we first see total internal refraction?