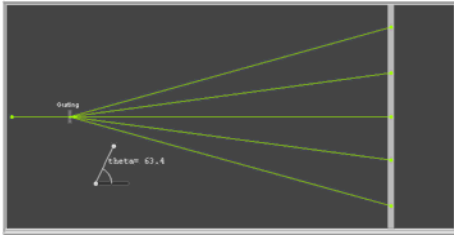


Worksheet for Exploration 38.2: Diffraction Grating



This animation models a diffraction grating which is a series of parallel slits in a material. You can change the wavelength of the light as well as the slit spacing and see the first and second order maxima (**position is given in centimeters and angle is given in degrees**). [Restart](#).

First, consider different colors of light passing through the grating.

- What happens when you increase the wavelength?
- What happens when you decrease the wavelength?
- Why do you see the results in (a) and (b)? Explain in terms of the interference between waves passing through the grating.

Now, consider the effect of the spacing between the slits in the grating.

d. What happens when you increase the number of slits per millimeter (decrease the spacing between slits)?

e. What happens when you decrease the spacing between slits?

f. Why do you see the results in (d) and (e)? Explain in terms of the interference between light waves passing through the grating.

g. Using the moveable protractor, verify the relationship found in your textbook between the location of the maxima, the wavelength of the light, and the spacing between the slits.