OPTIONAL ENGAGE ACTIVITY

Have students record observations about the color and shape of the light at each step:

1. Position an overhead projector in a dark space so it will project its light on a lighter-colored (preferably white) background. Turn on the projector.
2. Put a diffraction grating in front of the lens head. Observe.
3. Rotate the diffraction grating by 90 degrees. Observe any changes.
4. Lay two any two opaque objects on the stage of the projector to make a narrow slit. Observe what happens to the light as you narrow the slit.
5. Rotate the orientation of the slit by 90 degrees. Observe.
6. Rotate the diffraction grating another 90 degrees. Observe.
7. Orient the slit and diffraction grating to give you the clearest spread of color. Observe the order of the colors (red, green, etc.) seen.
8. Different types of light bulbs make spectrums. Look through a diffraction grating to see if your classroom has incandescent bulbs (a continuous spectrum as in the top of the figure) or energy-saving fluorescent light bulbs (partial spectrum shown on the bottom of the figure).

Questions for Discussion

1. Did the orientation of the diffraction grating matter? What can you infer about the construction of diffraction grating?
2. How does a diffraction grating change the light?
3. Why does the use of a slit make the spectrum easier to see?
4. Most homes don't have an overhead projector and diffraction grating. Suggest materials from your home that you would use to replace the projector and grating.