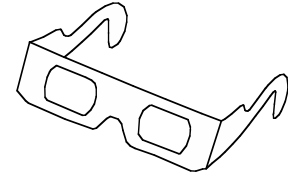


# RAINBOW GLASSES

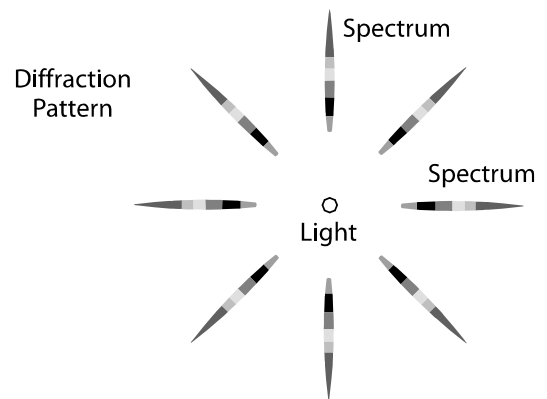
The colors of light that we see are usually made up of many colors. The easiest way to separate colors of light is with a diffraction grating. Your rainbow glasses contain diffraction gratings.

**WHAT YOU NEED:** Rainbow glasses. You will also want to get some colored pencils or crayons.



**WHAT TO DO:** Wait till dark so there's less light to distract you. A great time to do this lesson is when you're riding in a car at night. Inspect many different kinds of lights through your rainbow glasses. Have Fun!

For each light you'll see a diffraction pattern, with spectrums going out in all directions.



## OBSERVATIONS:

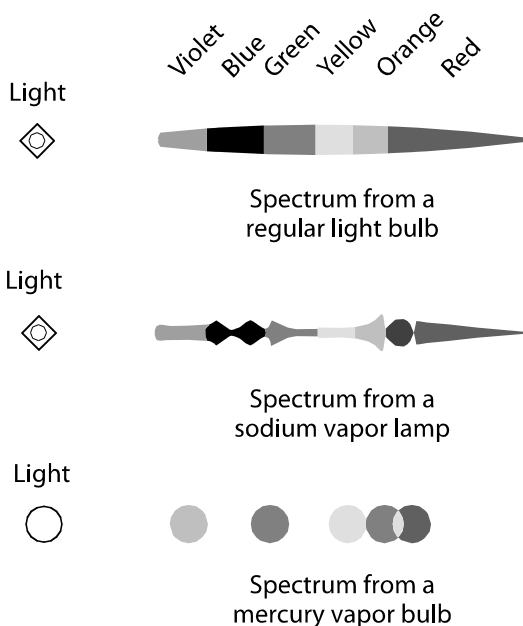
Which kind of light made your favorite diffraction pattern?  
Below, draw the pattern with crayons, colored pencils or markers:

## Here are some interesting experiments you could try:

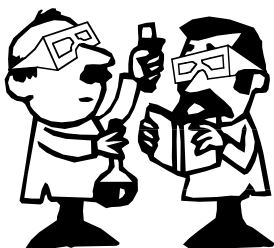
What happens to the spectrum from a traffic signal when the light changes from green to yellow to red?

Take a good look at yellow street lamps (sodium vapor lamps), and white street lights or security lights (mercury vapor lamps). Neon signs are also interesting. Can you see the unique patterns that these types of light create?

How are these patterns different from the spectrum from a regular light bulb?



## Scientists find diffraction gratings useful



"We like to wear them at parties!"

The rainbow pattern formed by each type of light is called a **spectrum**. Since different kinds of lights have slightly different spectrums, scientists can use a star's spectrum to figure out what it is made of.

