

MAKE YOUR OWN SPECTROSCOPE!

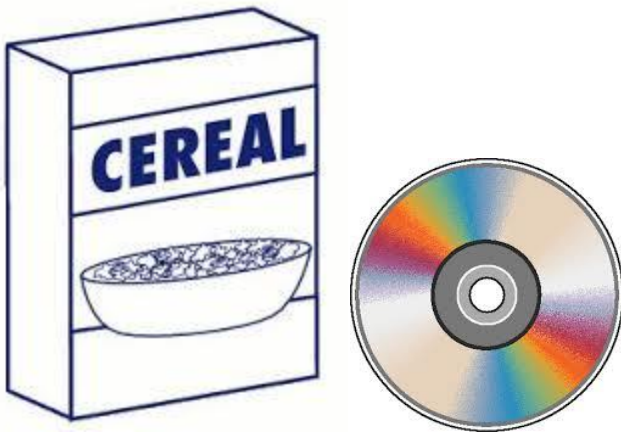
The first spectrosopes used a glass prism to break up light into its constituent colors.

An alternative technology for revealing the colors in light is a diffraction grating, which is a clear or reflective material with finely ruled lines.

Diffraction gratings were invented around 1785 in Philadelphia by David Rittenhouse, but were initially difficult to produce. Now they can be found everywhere in the form of compact disks (CD).

Here is a description of how to make a simple spectroscope using a CD as follows:

The main materials:



1. Take your cereal box, and cut a slit into it an about 30 degrees from the bottom of the box.
2. Then take your CD, showing the mirrored side up, slide it into the slide you have just made.
3. Then you need to make another slit in the opposite side of the cereal box. Be aware that the quality of this slit is going to determine the quality of the images you produce.
4. TO see what is going on, you need to cut a viewing port in the top of the box to make a window.
5. Point the slit at a light source and view the colors from the light source

Check the demonstration of your teacher and the video.

Then enjoy observing the smooth rainbow of colors from an incandescent light bulb and compare it with the lines at specific colors that come from a fluorescent light. Stars have both types of spectra. The smooth spectrum of colors indicates the average temperature of the star at its visible surface, while the bright lines reveal the composition of the star.