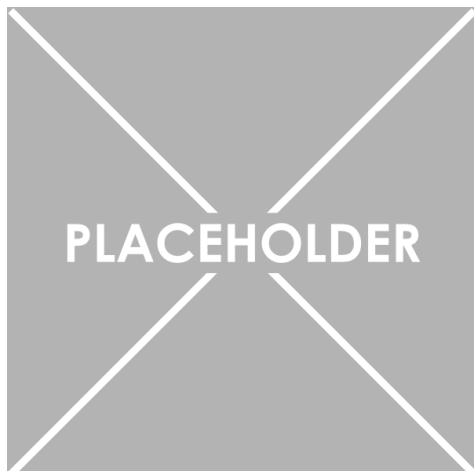


Grating Spectrometer

Key words: atomic spectra, spectrometer, spectrograph, emission spectrum, astronomy, diffraction grating, waves and optics



Equipment List:

1. Handheld spectrometer
2. Emission lamps and power supplies
3. Retort stand and clamps (optional)
4. Webcam (optional)

How to assemble and operate:

- Clamp the spectrometer to the stand if using that, and point towards source (out a window, at ceiling lamps, etc).
- If using an emission lamp, shine the beam onto a white sheet and point the spectrometer at the sheet for safety reasons, do not observe directly.
- Look into the spectrometer, observe spectrum
- If using a webcam, clamp that near the eyepiece and project the view to the room with the projector

Description/Theory:

This demonstration illustrates different spectra from a variety of sources. It can be used to explain atomic excitation and de-excitation, in astronomy or in optics.

Comments/Notes:

Unless the group is very small, this demonstration should be used with a webcam so the audience can see the spectra properly. The accompanying video can also be shown instead. The spectrometer is fragile and should not be dropped. The emission lamps will take a couple of minutes to heat up.