

## Make Your Own Spectrograph!

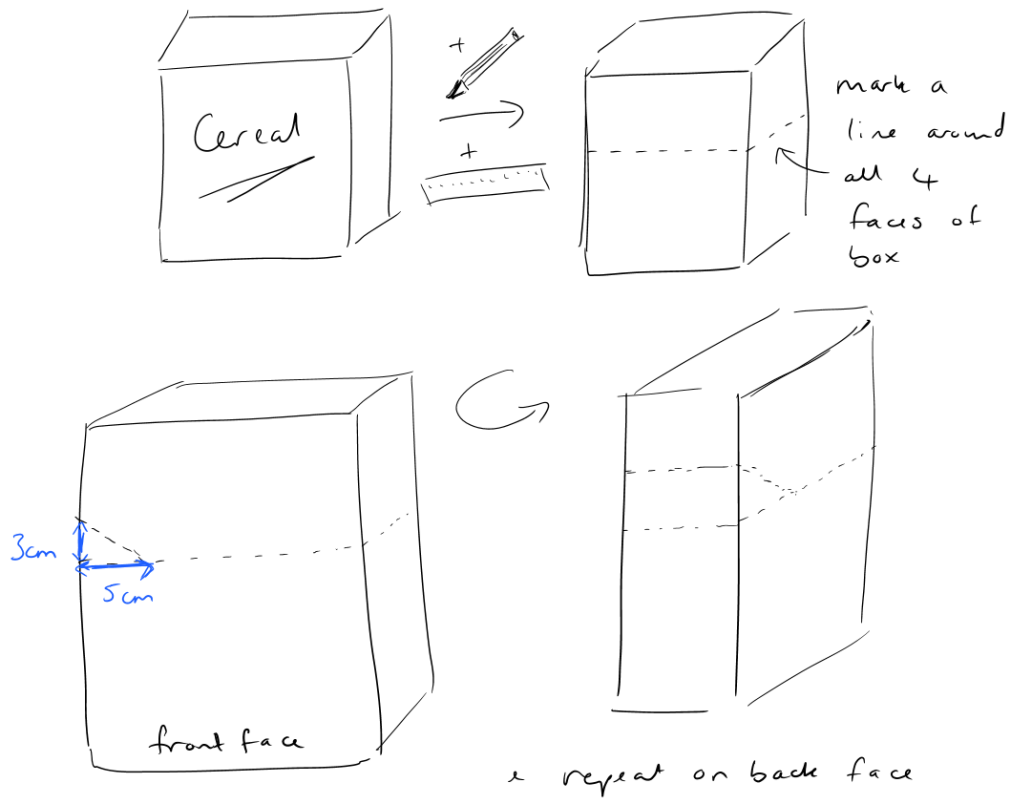
Instructions and drawings by Dr. Samantha Thompson. A copy of this document can be found here: [http://www.mrao.cam.ac.uk/~sjt20/outreach/cd\\_spectrograph.pdf](http://www.mrao.cam.ac.uk/~sjt20/outreach/cd_spectrograph.pdf)

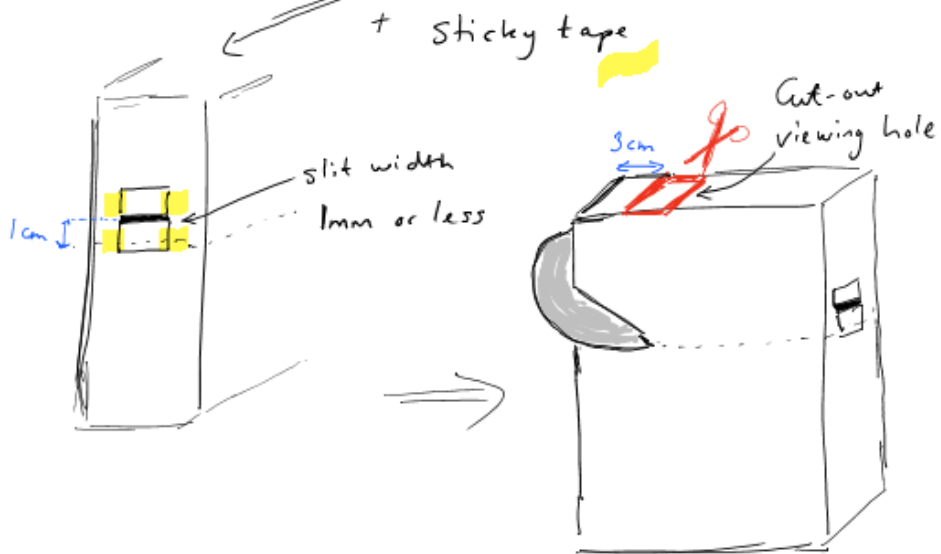
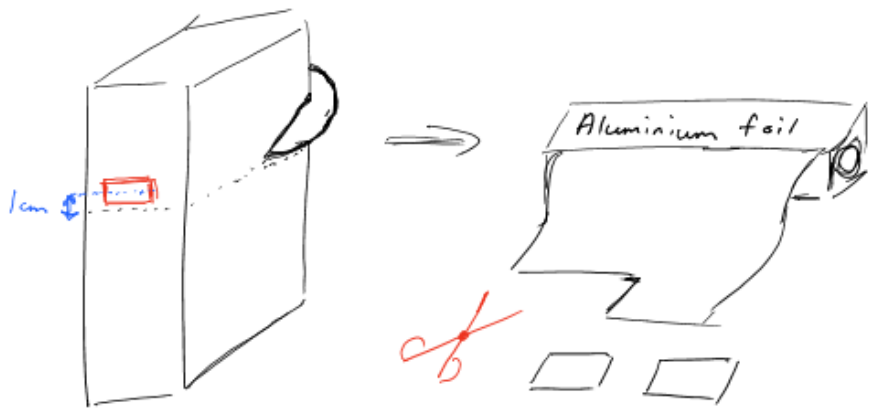
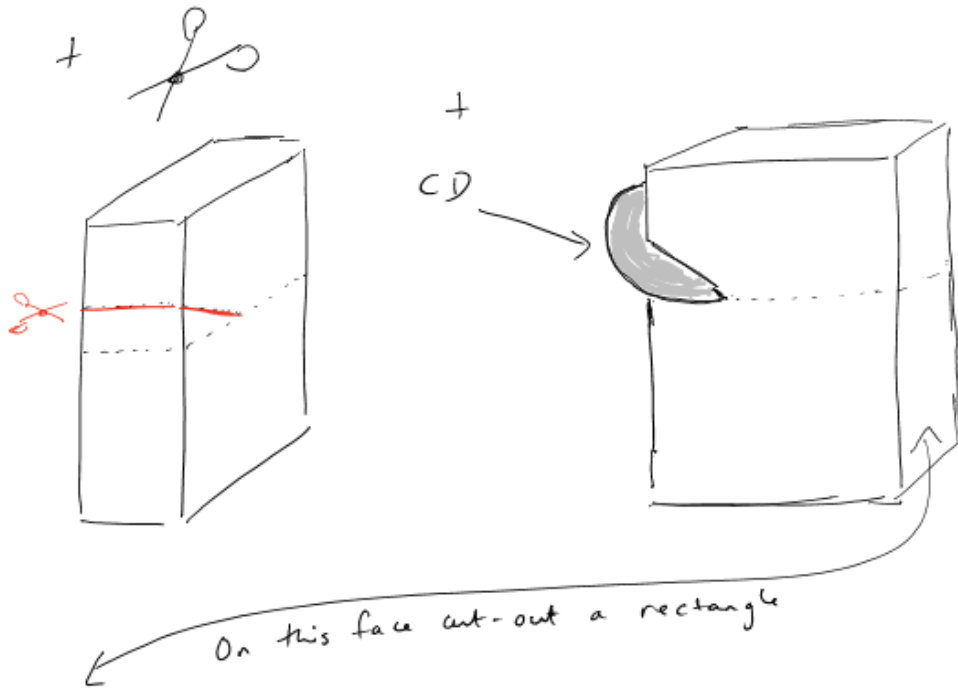
### What you will need:

1. Empty cereal box
2. Old CD
3. Pen
4. Ruler
5. Scissors or craft knife
6. Aluminium foil
7. Sticky tape

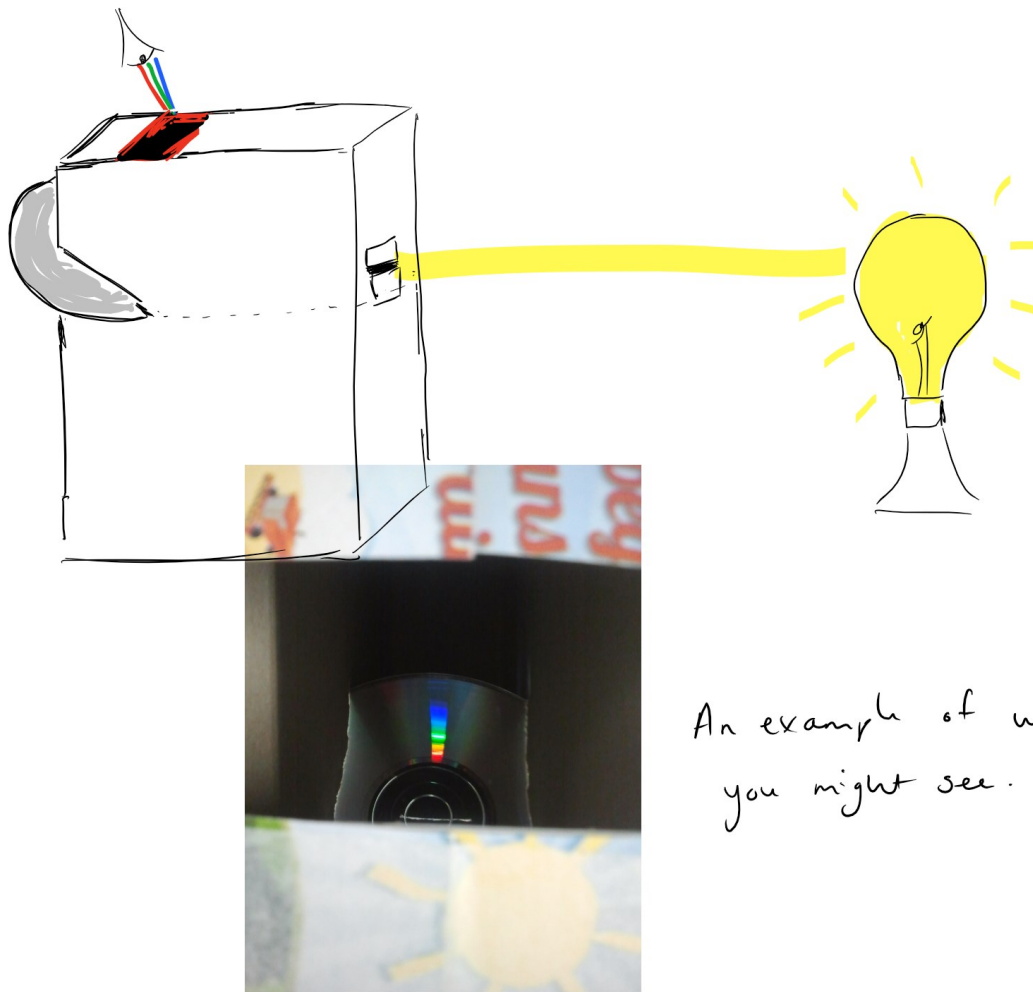
Adult supervision is recommended for younger children.

### Let the fun begin ....





Spectrograph is ready to use!



An example of what you might see.

**WARNING** – NEVER point your spectrograph towards the sun or look at the sun with the naked eye – viewing the sun or reflections of the sun can seriously damage your eyes!

Suggested light sources to investigate with your spectrograph:

- Different types of light bulbs: tungsten filament, compact fluorescent bulbs, a sodium street lamp (the orange ones), LED lights.
- LCD computer monitor – try setting your screen to different colours and seeing the difference in the spectrum.

Things to note:

- The tiny grooves in the CD act as a diffraction grating which separate the light source into different wavelengths (which you see as different colours) – this produces the spectrum (rainbow) that you see on the CD. (A CD has around 500 grooves per millimetre!)
- Try changing the separation between the 2 pieces of foil you used to make the spectrograph slit – can you see any difference in the spectrum produced as you make it wider or narrower?