



Building a Fancy Spectrograph

Using simple materials students build a spectrograph and use it to analyze light sources. While doing so students will learn how and why astronomers use spectroscopy to gain understanding of what is inside the atmospheres of stars and planets in our universe.

Time

- 45 minutes

Next Generation Science Standards

- **MS:PS4** – Develop and use a model to describe that waves are reflected, absorbed, or transmitted through various materials.

Grades

- 6-8

Utah Science Standards

- **8.2.5** Develop and use a model to describe the structure of waves and how they are reflected, absorbed, or transmitted through various materials.

Materials

- Cardboard oatmeal containers, one for each student
- Holographic diffraction gratings, one slide for each student. See note on purchasing.
- Incandescent light bulb, at least one, more if you desire more stations for your students.
- Exacto knives– one for each student pair.
- Tape– one for each student pair.
- Index cards– one for each student.
- Black markers– one for each student or student pair.
- Rulers with cm measurements– one for each student.
- Directions for Building a Fancy Spectrograph– one for each student pair.
- Lab/Homework Sheet printouts– one for each student.

Holographic diffraction gratings can be purchased in sheets or on card-mounted slides from: (info. from 2018)

Scientific Direct

A set of 2 12” x 6” sheets with 12,700 Grooves/in. costs \$7.95

A set of 15 2” x 2” card mounted slides with 12,700 Grooves/in. costs \$9.95

Rainbow Symphony Store

A set of 10 12” x 6” linear sheets with 500-13,500 Line/mm. costs \$25.00

A set of 50 2” x 2” card mounted slides with 500-13,500 Line/mm. costs \$0.40/each for 50-99

Please download the other resources for lesson directions