

## 614-0701 (50-030) Cylindrical Spectroscope



### **Warranty and Parts:**

We replace all defective or missing parts free of charge. Additional replacement parts may be ordered toll-free. We accept MasterCard, Visa, checks and School P.O.s. All products warranted to be free from defect for 90 days. Does not apply to accident, misuse or normal wear and tear. Intended for children 13 years of age and up. This item is not a toy. It may contain small parts that can be choking hazards. Adult supervision is required.

### **Description:**

This device is made of optical glass. The optical glass has been carefully machined into a compound prism and convergent lens. Spectrums of many different kinds can be seen through this spectroscope.

### **Curriculum Fit: Optics, Lenses, Prisms, Spectrum of Light**

### **Experiment:**

#### **Procedure:**

1. Hold the casing pipe of the spectroscope with your hand.
2. Face the small opening toward a fluorescent lamp which has been turned on.
3. Look through the large opening while looking at the lamp.
4. You will observe a spectrum of 3 bright lines based on mercury (Hg).
5. If you hold the spectroscope with the small opening facing the reflecting light of the sun (**Note: Do not look directly at the sun!**), the 3 lines are more blurry as compared directly with the lines observed in step 3 above.

## **BENCHMARKS AND STANDARDS**

<b>Benchmarks for Science Literacy</b>	<b>National Science Education Standards</b>
<b>Physical Setting 4F.2</b>	<b>Physical Science</b>
<b>Something can be “seen” when light waves emitted or reflected by it enter the eye just as something can be “heard” when sound waves enter the air.</b>	<b>Transfer of Energy: Light interacts with matter by Transmission, Absorption, or Scattering. To see an object, light from that object must be emitted by or scattered from it and then enter the eye.</b>

**611-1615 Acrylic Refraction Rod-** Our 50-015 Acrylic Refraction Rod is a precision machined and formed light tube. When a light such as a flashlight, LED or laser is shone through one end, the light beam stays in the rod and follows the tube length (even around a loop!) This occurs through the concept of total internal reflection.

**654-0010 Refracting Telescope Kit Set of 10-** Experiment with each element of a simple 16-power refracting telescope and see how the lenses work when put together without using an optical bench. Galileo's first telescopes lacked precision and clarity. Nevertheless, he made astonishing discoveries with his crude instruments. This simple lab enables students to build a telescope that is similar to Galileo's. Use the telescope and see how it is similar to a pinhole camera

- view inverted astronomical images
- estimate the magnification power
- find the focal length of a lens
- see how the moon looked to Galileo. The Kit includes (10 of each unless noted):
  - inner and outer tubes
  - plastic lenses (43mm diameter, objective, 400mm focal length)
  - plastic lenses (17.5mm diameter, 25mm focal length)
  - foam holders and cardboard spacers for the eyepiece lenses
  - red plastic caps
  - 1 set of instructions & activities.