



STEM Demo Notes

Ray Optics Laser System

Description: This ray optics set uses a Laser Ray Box that has bright, well-defined rays because it uses lasers rather than an incandescent light source. The Laser Ray Box projects five parallel laser beams onto any flat surface. It contains five 1 mW diode lasers (wavelength 635 nm). The laser beams are spread out into clearly visible lines by cylindrical lenses inside the box.

The ray box has a magnetic back for mounting on any steel board. The unit is powered by an included AC adapter.

Grade Level: K-12

Additional Requirements: Extension cord & access to power

Materials Included:

- Laser Ray Box with magnetic back
- Components with magnetic backs
 - 4x Double-convex lenses
 - 1x Double-concave lens
 - 1x Plano-concave lens
 - 2x "D" lenses (4.5 cm and 7.5 cm radius)
 - 1x Plane, convex, and concave mirrors
 - 1x Right-angle prism
 - 1x Rectangle (6 cm x 10 cm)
 - 1x Optical fiber (2 cm x 20 cm)
- 6 magnetically-backed templates that have guidelines showing where to put components to perform different demonstrations, including:
 - Modeling the human eye and eyeglasses
 - How a camera works
 - Two types of telescopes
 - Spherical aberration
 - Refraction
 - Reflection
- Steel whiteboard

Laser Safety Information:

- Do not stare into laser beam
 - Class 2 Laser Product
 - 635nm, < 1mW CW (Red).

Demo Overview:

1. The PASCO Ray Optics Laser System is designed for simple and clear demonstrations of geometric optics principles. Five diode lasers housed in the Laser Ray Box produce easily visible, parallel “light rays” which can be directed through a variety of simple and complex optical instruments. Most of these investigations can be conducted under normal room-lighting conditions.

Additional Information:

- Ray Optics Laser System Instruction Sheet Link: [Click Here](#)