**O3: View through a “pinhole camera”**

**Materials:**
- Optical bench, metal cylinder, black paper, tape, pin, translucent screen, light source

**Initial instructions and questions:**
1) Imagine light traveling through a tiny “pinhole” punched in a piece of black paper. Do you think you could form an image on one side of the pinhole of an object placed on the opposite side of the pinhole? Draw a sketch of the light going through the pinhole. Use what you learned about the way light travels in O1 and O2 to make a prediction of what the image would look like.
2) Now get an optical bench. Make a pinhole in black paper and tape it to the front of your cylinder. Turn on your light source and look at the image formed on the translucent screen. Look at the back of the screen (transmitted light) since that image is brighter. Study it in detail. Does the image look like the pattern you see when you look directly at the slide on the light source?

**Guide to notes in your lab book:**
1. Are the results of the experiment what you expected? Why or why not?
2. What does this tell you about the propagation of light?
3. Can you reconcile your observations with those you made in previous labs?