



How do cameras collect collect images and place them on film? They do it with lenses made of highly polished and precisely shaped glass. But did you know that you could actually create an image with nothing more than a pinhole? Try it by making a device called a pinhole camera. Pinhole cameras are very easy to make.

### **What You Will Need:**

- A large coffee can with lid or oatmeal container
- A good-sized nail (at least 3" long) and a hammer
- A small pin or needle
- One 3" x 5" index card
- Tissue or waxed paper
- Tape
- Dark cloth, about 1 X 1 meters

### **Make It**

Use the hammer and nail to punch a hole in the bottom of the container. Try to place the hole in the center of the bottom. Next, tape the 3" x 5" card on the bottom of the can. Using a pin, punch a small hole in the card right through the nail hole. The cleaner the hole, the better the image. Put on the plastic lid, and you have completed your camera. If you don't have a plastic lid, tape a sheet of tissue paper or waxed paper over the end. This will become your screen.

### **Try It Out**

It's now time to try out your new camera. Start with something easy like a bright light bulb. Point the pinhole end of the camera about 1/2 meter from the lit bulb while looking at the other end of the camera. You should see the image of the bulb projected on the surface of the lid. Do you notice that the bulb is upside down?

### **Experiment**

Now it's time to test your camera on something outside. To collect enough light to make the image bright enough on the screen, you need to look at something in full sun. Aim your camera at a brightly lit car or tree. To make the screen dark enough, place the black cloth over your head and the top of the camera. (Have you ever seen those old photographs of the photographers with the black cloth over their heads? Now you know why.) With a little adjusting, you should see the image inverted on the screen-and in color!

## **Experiment**

For the more adventurous, see what happens when your pinhole camera has two holes rather than one. Before you try, guess what you think will happen.

The only thing your camera doesn't do is capture the image on photographic film or digitize the image on a disk. Until you can come up with a way of loading your film in your pinhole camera, you will just have to use the ultimate in recording – your memory!