

Making a Pinhole Camera

Your task this week is to make a pinhole camera. You will need to do the following:

- Ensure you have the correct materials to make your camera (see below)
- Follow the step-by-step guide carefully.
- Take a photo of your finished creation for us to see.
- **You DO NOT need to bring in your camera to school.**
- Write a paragraph about the process of making your camera. You will need to include:
 - What materials you used.
 - Were the instructions easy to follow?
 - Was it a success? Were you able to create an image?
 - Would you do anything differently?

What is a pinhole camera?

The word “camera” comes from *camera obscura*, which simply means “dark chamber”. A pinhole camera is one of the most basic examples of this concept. Pinhole cameras are made from a lightproof box, some photographic paper and a tiny hole (often made with a pin, hence the name).

The pinhole is just an aperture, not a true lens, but because it is so small it will still focus on an image on the opposite side of the box, exposing the photo paper placed there.

How to make a pinhole camera

You will need:

- A box with a lid – You can make your own or use a shoebox or similar, but then the lid is on it must not let any light inside. You could also use a wide cardboard tube instead.
- A roll of aluminium foil or sheet of black paper.
- Sticky tape.
- Scissors.
- A needle or drawing pin.
- A sheet of tracing paper or piece of greaseproof paper.

What to do.

1. Cut a hole in the middle of each end of the box. Make sure that these holes are lined up, so you can see straight through the box. It does not matter if the holes are not exactly the same size, but they should be about 10cm square.
2. Line the inside of the box with black paper, but make sure it does not cover the two holes you have just cut.
3. Check there are no other gaps, holes or tears in the box. If there are, tape some black paper or aluminium foil over them.

4. Cut out a piece of aluminium foil or black paper and a piece of tracing paper, both a little bigger than the holes you have cut in the ends of the box.
5. Tape the tracing paper over the hole at one end.
Tape the foil or black paper over the hole at the other end.
It does not matter if you tape them on the inside or the outside, but it looks neater if you tape them on the inside.
6. Your pinhole camera is nearly ready.
7. Use a needle or pin to make a small hole in the aluminium foil or black paper end. Make it as small as you can to begin with. You can make it bigger if you want to later, but it will be much harder to make it smaller.
The end with the aluminium foil or black paper is the end you point at the object you are looking at and the tracing paper is the screen.
8. Set your shoebox camera on a flat surface. Aim the pinhole end at a well-lighted object. Cover the shoebox with a large black cloth. Pull the cloth back to uncover the pinhole. Drape the cloth protruding from the other end over your head. Block out as much ambient light as possible so you can see the well-lighted object projected through the pinhole onto the translucent screen inside your shoebox.

This is a very basic device, so even objects that are well lit still appear only very dimly on your screen. However, it still demonstrates the basic principle of how an analogue camera captures images on film if you use your hand as a shutter.

You may find this website useful <https://www.wikihow.com/Make-a-Shoebox-Pinhole-Camera>.

Good luck!

