



Skills For My Future



45 minutes



Challenge yourself

BROWNIES

Camera obscura

Aim of activity:

3...2...1...Smile! Photography can be so much fun, especially when the world is upside down!

What to do

1 Thanks to technology, nowadays you can take photos of anything, anywhere and at any time! What's your favourite photo you've ever taken?

2 Way before modern digital cameras were invented, people experimented with how to save the beautiful things they saw. The camera obscura was first built thousands of years ago. It doesn't actually take photos, but it led to other cameras being invented in the future. Get into small groups and follow the instructions; or you could make your own. Perhaps you'll see the world in a different way.

How to make your camera obscura

- Make one long cut all the way down one of your cardboard tubes to open it up. Lightly roll your cut tube back up to make a smaller tube. Push your new smaller tube inside your other tube, but not the whole way, make sure you leave some space at the end.
- Wrap a rubber band around the cut tube about 3cm from the end. This will help it keep its shape and not get stuck in the larger one. If this is tricky, you could use tape on the smaller tube instead.

- Take your smaller tube out and stick a piece of tracing paper to the end without a rubber band. Try to get the tracing paper flat and smooth, as this is where you'll see your picture.

- Tape a piece of tin foil to the end of the larger tube. Carefully use a sewing needle or pin to make a small hole at the end. Now pop your smaller tube back into the larger tube as you did earlier, with both the tracing paper and tin foil at the same end.

3 Now you've built your camera obscura, hold your camera obscura to your eye. What can you see? Make sure there's lots of light around.

Did you notice things looked upside down? Did you know that we actually see everything upside down like in our camera obscura? When we look at something, the light gets flipped going through to the back of our eye and up to our brains. Our brains are super smart and flip the image the right way up for you to see! It's all to do with how light moves. Because the light has to go through a tiny hole, the colour from the top of what you're looking at hits the bottom of the tracing paper and the colour from the bottom of it hits the top. So, we see it upside down in our obscuras.

4 Do you see things better when it's brighter or darker? Making the hole in your tin foil will let in more light. Experiment with the size of the pin hole and see what you notice. You might notice that bigger holes will let more light in so you can see things that are darker, but it might be harder to focus on what you're looking at. You could always put fresh foil over the end to keep experimenting, just be careful with the sharp edges of the foil.

What you'll need:

- Per girl or small group:
- Two cardboard tubes
- A small piece of tracing paper – enough to cover over the end of one of your tubes
- A rubber band
- A pair of scissors
- Sticky tape
- A small sheet of tin foil – enough to cover over the end of one of your tubes
- A sewing needle or pin

Note to leader

You might want to make a camera obscura before the meeting to show in demonstration. There are lots of videos available online to help if you're finding the instructions tricky.

Stay safe

Remember to take your time and work carefully when using a needle or pins. Return them to your leader at the end of the session. Never look directly at the sun or other bright light sources as it could hurt your eyes.

