

DAY 8

Camera obscura

It seems like magic, but today you'll catch a picture of the world in your box.

You will need

- Lens, tracing paper, today's box
- Glue stick

Here's how

1. Punch out the perforated pieces from the box.
2. Use the glue stick to coat the narrow frame of the rectangular hole you just created and stick the tracing paper to it.
3. Fold the box together again and close it.
4. Press the lens into the circular hole in the box from the outside.
5. Direct the lens toward a brightly lit area or the window. In order to focus the projected image, lightly press the lens into the box or pull it out slightly.

WARNING! Never look directly into the sun, either with your naked eye or through the lens, or with the camera. You could blind yourself!

WARNING! Never leave the lens or camera unattended in the sun. Fire danger!

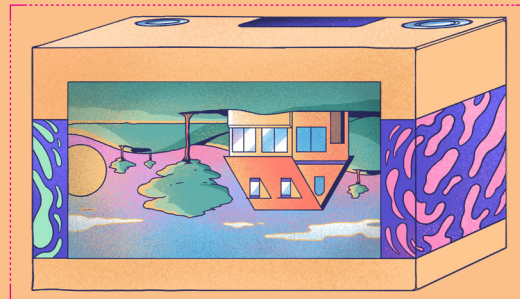


Scan this QR code with a smartphone or tablet with Internet connection to access these directions digitally.

CHECK IT OUT!

The principal of the camera obscura has been known for thousands of years. Camera obscura is Latin, and means "dark room." In the middle ages, people began to use the camera obscura to observe the sun, because it was too bright to observe with the naked eye. There was also a version with a mirror, which one could use to exactly copy an image. In the 19th century, the technology advanced so the camera obscura could hold onto its image ... this was the birth of photography.

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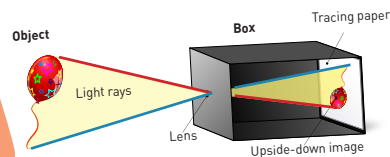


WHAT'S HAPPENING?

On the tracing paper, you can see a projection of whatever you focus the lens on. But how does that work? All objects that are illuminated bounce light rays back in every direction. But only a few of them find their way into the lens. Imagine that only one ray from each point on an object finds its way to the lens. This lens directs the ray onward into the box and onto the transparent paper. Because the ray of light is traveling straight, the ray from the very top of the object hits the very bottom of the paper, and vice versa. Therefore, the image appears upside-down.

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Camera obscura



By the way, your eyes work on the same principle. Everything you see hits your retina upside-down. Your brain just flips everything around so you see it right-side-up.