PINHOLE VIEWBOXES

MATERIALS:

- empty shoebox

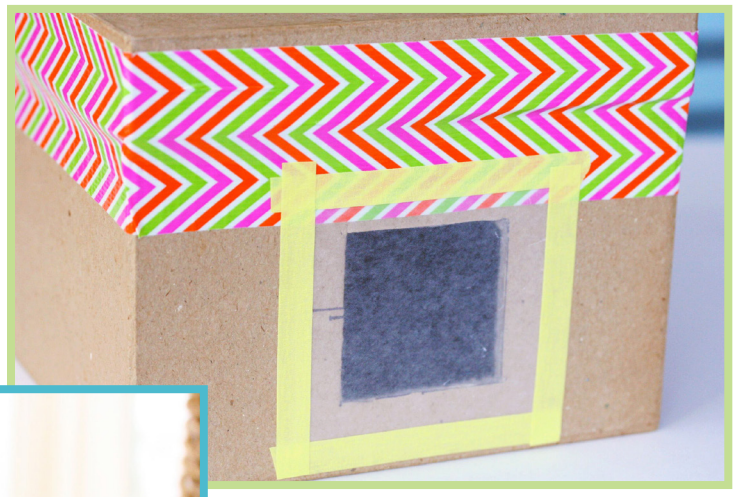
- black construction paper or black tempera paint

- scissors

- 2 inch square piece of wax paper

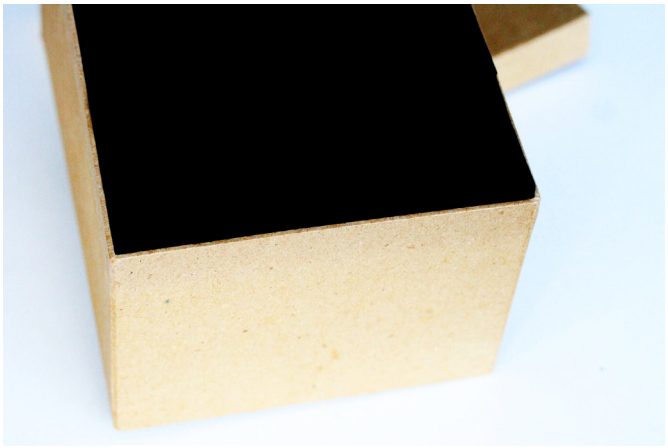
- ruler

- tape



The first time that I made a pinhole viewbox, it was as a high school student, enrolled in a basic photography class. Because we had access to a darkroom, we were able to take the extra step of replacing the wax paper at the end of the viewbox with actual film, and later developed the images that our "cameras" took. That might be a bit complex for our purposes here, but there is still plenty of fun to be had with the basic version of a pinhole viewbox. The viewbox is essentially a simplified version of a camera; it takes in light through a small hole, and projects an image onto the surface opposite the light source. The process is also similar to the way that the human eye works, making this project a great introduction to learning more about what we see, how we see it, and the world of photography.

As an added bonus, you can make a viewer with a truly pin-sized hole and use it to view the next solar eclipse (November 3rd, 2013, in parts of North America and Europe, and May 9th, 2013, in Australia).



Begin by lining your shoebox with black construction paper or by painting the inside black. We cut pieces of paper to size and then glued them into the box with a glue stick. Tempera paint covering the entire inside of the box works equally well.

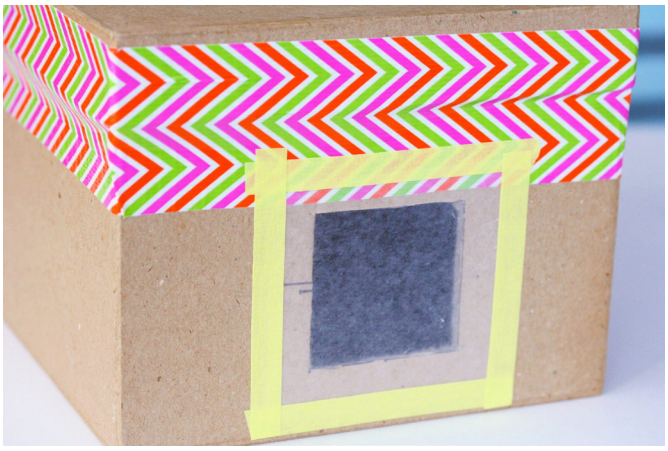
Put the lid on the box, and using some good, strong tape (such as duct tape), tape the lid onto the box. Make sure that you cover the entire perimeter of the box, sealing the crack between the lid and the bottom of the box so that light cannot get in.

Now your box should be all one piece, with the lid firmly attached to the bottom.

Using a nail, bookbinding awl or screwdriver, punch a hole in the middle of one end of the box. The hole should be about 1/4 inch in diameter.

In the middle of the opposite end of the box, cut a hole that is approximately two inches square. A paper cutting knife, paired with a responsible adult, is handy for this step.

Take the square piece of wax paper, and keeping it as smooth and taut as possible, tape it over the square hole. Make sure that the tape is around the edges of the wax paper so that it doesn't cover up any of the square hole itself.



To use the viewer, hold it about a foot away from your body with the wax paper window facing towards you. Cover yourself with a heavy blanket, wrapping the blanket around the box as well so that as much light is blocked from the window end of the viewer as possible. Aim the pinhole end of the box at a brightly lit object.

WHAT TO LOOK FOR

When you look at the wax paper window on the viewbox, you should be able to see an image projected there. The image will be of whatever the pinhole end of the box is pointed at. You should be able to see some color, although it is not likely to be vivid, and you should be able to make out the object image provided that you are familiar with what it is. It isn't as precise as a camera, that is for certain, but it is a pretty amazing representation of how cameras work considering it is nothing more than a box and some wax paper from the kitchen cupboard!

But here is something interesting: the image will be upside down! And, just like the image you are looking at, images entering the human eye are also seen upside down. It is our brain that knows to flip them around so that they appear right side up!

PICTURE THIS

One of the things about the pinhole viewboxes that makes them so fun and interesting is the fact that they are essentially very simple, filmless cameras, making them a great introductory project for kids who want to start learning the ins and outs of photography. The books on this list would make choice companion volumes for the exploration of the world of picture taking; you'll find titles including everything from fiction narratives about cameras and photos to factual accounts of the role of photography in our culture and the history of cameras as an invention. And, so as not to underestimate the importance of inspiration for aspiring artists, photographers and filmakers, you'll also find some books that simply highlight some really wonderful examples of photography at its finest.

PICTURE BOOKS AND NON-FICTION

Snowflake Bentley
by Jacqueline Briggs (R.L. 4.1, I.L. K-3)

Flotsam
by David Wiesner (R.L. ?, I.L. preK-3)

The Picture History of Great Inventors
by Gillian Clements (R.L. ?, I.L. 3-5)

It's a Snap!: George Eastman's First Photo
by Monica Kulling (R.L. ?, I.L. K-3)

Nature Got There First
by Phil Gates (R.L. 6.5, I.L. 5-8)

Lights! Camera! Action! : how a movie is made
by Gail Gibbons (R.L. 3.6, I.L.preK-3)

Penguins
by Liz Pichon (R.L.1.6, I.L. preK-2)

A Moment in Time
by Jennifer Butenas (R.L. ?, I.L. preK-2)

One Million Things: A Visual Encyclopedia
by Peter Chrisp (R.L. ?, I.L. family)

Pictures from Our Vacation
by Lynne Rae Perkins
(R.L. 2.7, I.L. preK-3)

Click!:
A Book About Cameras And Taking Pictures
by Gail Gibbons (R.L. 3.6, I.L. K-3)

The Fantastic Undersea Life of Jacques Cousteau
by Dan Yaccarino (R.L. 4.6, I.L.K-3)

CHAPTER BOOKS

Cam Jansen and The Mystery of the Television Dog
by David A. Adler (R.L. 3.1, I.L. 2-5)

Anne Frank: Beyond the Diary: A Photographic Remembrance
by Rian Verhoeven (R.L. 6.4, I.L. 5-8)

The Mystery of the Secret Message
by Gertrude Chandler Warner
(R.L. 3.3, I.L. 2-5)

Laura's Album:
A Remembrance Scrapbook of
Laura Ingalls Wilder
by William T. Anderson (R.L. 5.9, I.L. 3-5)