LEWIS LATIMER HOUSE MUSEUM

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TINKER LAB *At Home!*

Paper Magic

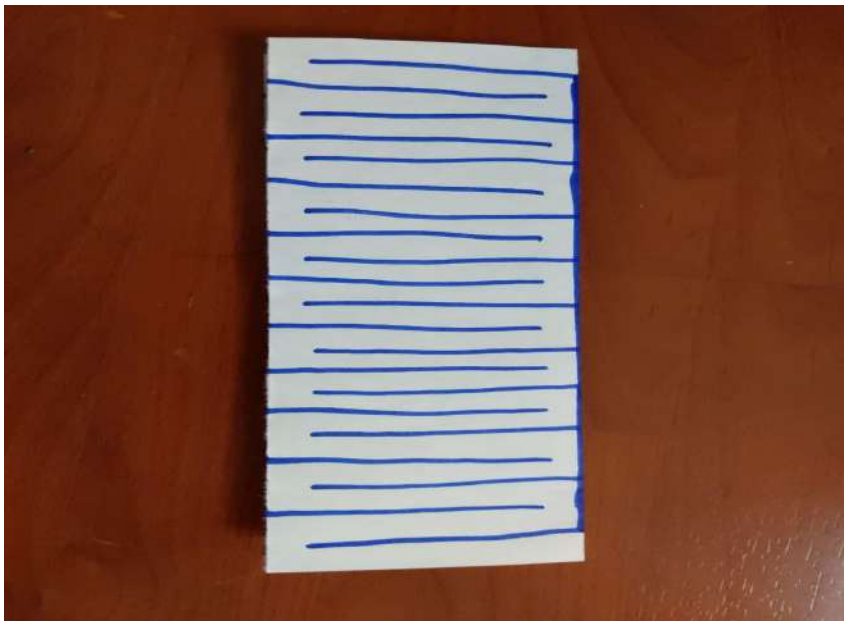
Age: 6+

Materials:

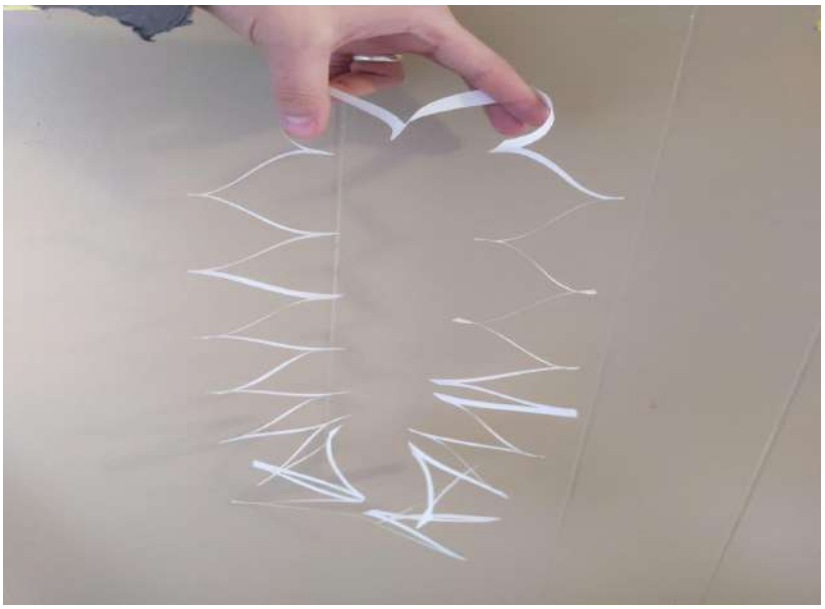
- Paper
- Scissors

Introduction: Would you believe me if I said that you could cut a hole in a sheet of paper that's large enough for you to pass through? Or even that you could make a sheet of paper stretchy? It's true! All it takes is a pair of scissors and a sheet of paper.

Activity: Let's start by folding a sheet of paper in half. To make this project work, we have to make a pattern of alternating cuts on the sheet of paper. Each alternating cut will create a joint in the paper. Take a look at the picture below to see where your cuts belong. The more cuts in the pattern, the larger the ring you can make!



It is important to notice that the cuts marked in blue run along the creased side of the paper as well. But you should also note that the ends of the crease do not get cut! If you cut the ends, the loop will be broken! Be careful to not let any of your cuts create too thin a piece of paper, or it could be very delicate. Once you have all your cuts made, unfold, and spread out! You will see how stretchy this ring of paper really is!

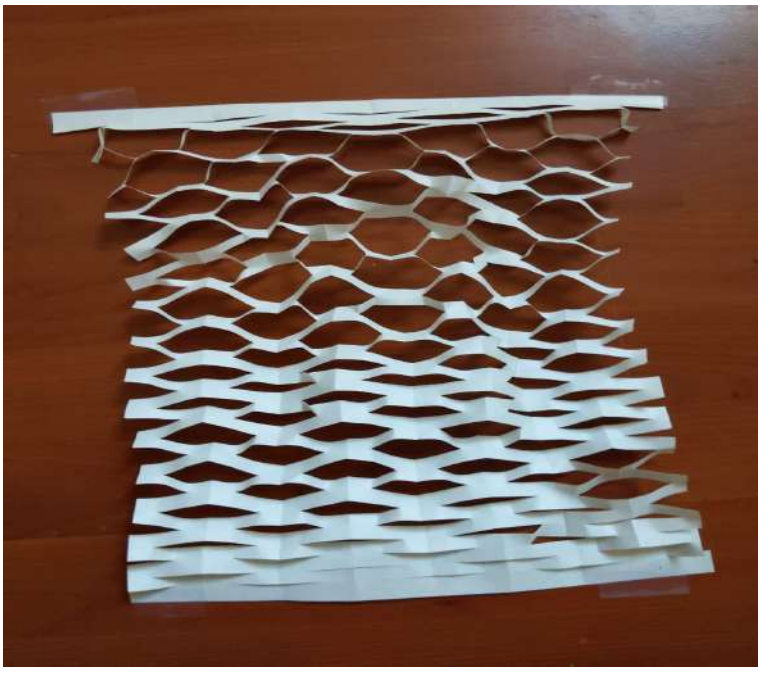


The hole you made can stretch many times larger than the size of the paper we started with. Knowing this technique, you could challenge your friends to a contest to see who can make the biggest hole out of a single sheet of paper! Next, let's learn a similar technique to create a paper mesh

To make the paper mesh, fold your sheet of paper back and forth like an accordion, or a paper fan. Then we will use that same series of alternating cuts. This time, we don't have to pay any special attention to the sides, and the pattern is the same throughout.

Once you have your cuts all across the folded paper like this, you can open it up.

All your cuts have been multiplied! Now all you have to do is tug on the ends of the paper to make it stretch!



You can make quite the pattern with this technique! It's very useful as well to engineers. Some mesh and metal fencing is manufactured this way because you can easily take a thin sheet of metal and punch a bunch of holes in it like this, and make it much longer! What other applications can you think of for this pattern?

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