



15-minute STEAM

Growing Worm



Materials Supplied:

Paper Towel (provide paper towel)

Washable markers (provide pip-squeak markers)

Materials From Home:

Glue Stick

Black permanent marker

Water

Drinking straw (or pencil)

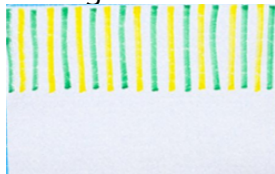
Start by setting down a piece of paper towel on a placemat or extra piece of paper with the long side facing you.

Use a colored washable marker to draw vertical lines from the top of the paper towel down to the middle. Space the lines just over 1 inch apart.

Now draw lines in between the previous ones with the other color of washable marker.

Flip the paper towel upside down, so that the marker lines are at the bottom and they face your working surface.

Set a drinking straw or pencil at the bottom center of the paper towel. Begin rolling the paper towel around the straw. Roll it somewhat tightly, but leave enough slack that you'll be able to remove the straw later on. Stop rolling when there's about 1 inch of paper towel left.



Apply glue stick to the unrolled part of the paper towel.

Continue, rolling the paper towel into the glue and pressing it down to secure it.

Grab a black Sharpie or another type of permanent marker. Use this to draw a pattern of lines or dots across the rolled-up paper towel.

Hold the center of the paper towel in place as you begin scrunching up one side, bringing it in towards the middle. Repeat on the other side until the “worm” is as small as possible.



Remove the straw from the center of the paper towel roll, being careful to keep the worm as small and scrunched up as possible.

Set your worm on a plate or another dish. A rimmed baking sheet or pie plate will work well. Now pour a little bit of water on top of the worm. You'll start to see it growing right away!

Allow the worm to sit in the water for a few seconds. It will continue to grow and you'll begin to see the marker colors showing through! (If your worm still has dry spots, add a bit more water.)



Tips on Pouring the Water

If you have good control, you can pour the water out of a measuring cup. Younger kids may prefer to use an eyedropper. You could also stick the end of the straw in some water and place your finger on the top to trap the water inside. Hold the straw above the worm and raise your finger up to let the water fall out. Another easy and simple way to control the amount of water added is to scoop up the water with a small teaspoon or measuring spoon.

The Science

How does the growing worms science experiment work?

Imagine dipping the end of a paper towel into a glass of water. The water will climb up the paper towel all by itself, right? Well that's capillary action, the same scientific principle at work here!

Capillary motion involves both cohesion and adhesion. Cohesion means that the water molecules want to stay together, like they're holding hands really tightly.

But adhesion means the water wants to be friends with the paper towel too! Adding water to the paper towel makes the adhesion stronger than the cohesion.

Then the water molecules begin to spread across the paper towel, since it's a porous material – meaning it can absorb liquid. The water then spreads and travels through the tiny spaces in the paper towel. As the liquid is propelled along the paper towel the paper expands back to its natural size, giving the illusion that the worm is growing and wriggling.