

# SCHOOL AGE

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Week

28

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Smart Activities



SMART CHOICE. SMARTER CHILD.®

## Toothpaste Batik

**Materials:** chart paper, marker, drawing paper, pencils, erasers, permanent markers, inexpensive muslin squares, inexpensive toothpaste, body lotion, squirt bottles, tempera or acrylic paint (not washable), paintbrushes, cups, water, paper towels, cardboard, examples of pattern in nature and African batiks

**Preparation:** This project will take 3 separate chunks of time. Spread over 3 days. Make 50/50 combinations of toothpaste and lotion in squeeze bottles.

Vocabulary – textile: woven or knitted cloth; batik: a method of producing pattern designs on cloth using wax resist and dye; pattern: a repeated element of art.

### Instructions:

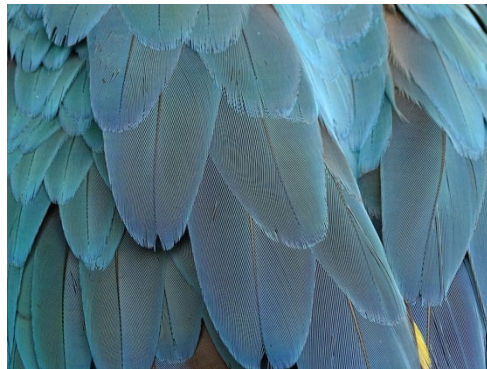
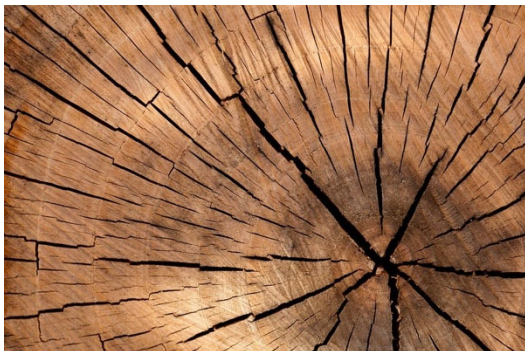
Discuss the vocabulary. Preview examples of African batik (Google image search). Talk about patterns in nature and in the environment. Have your child practice pattern designs on scrap paper. When your child has a design he/she likes, recreate the pattern on the muslin fabric using squeeze bottles of the toothpaste mixture. Let dry overnight.

When dry, paint over the toothpaste batik with colors of choice. Encourage your child to lay down areas of different colors. Review warm and cool color schemes, if needed. When paint is dry, rinse batiks in warm water to remove the toothpaste mixture.

Review the traditional batik process here - Slideshow: The Creation of handmade Batik in Ghana: <https://artsandculture.google.com/exhibit/the-creation-of-handmade-batik-in-ghana/VQKCZ6vNn8LILA>

Ambient Music - African folk music instrumental featuring instruments like the marimba, kalimba, and African drums: <https://safeshare.tv/x/ss5f68fe8124ead#>

Patterns in Nature:



## Physical Fitness in the Pumpkin Patch

**Materials:** Pumpkin Patch exercise cards (included), scissors, index cards, tape/glue, place markers, age-appropriate music, two or more players, optional: timer

**Preparation:** The main focus for this activity is on form and fitness. Make sure each player knows how to perform the exercise. Have a large clear playing area.

**Instructions:**

Have your child cut out the Pumpkin Patch exercise cards and tape/glue them to index cards for sturdiness. Set up a starting point and an area for the cards some distance away. Scatter the cards face down.

To play the game, begin the music. One player will gallop the distance to the activity cards and pick one without looking at it while the other player jogs in place. He/she will gallop back to the starting point, read the exercise card, and perform the exercise. Alternate turns until the song stops.

Extension: change the movement that players use to get to the exercise cards: skip, hop on one foot, bear crawl, etc.

Discuss: Ask your child to name an exercise that helps to improve fitness. Encourage him/her to describe how to perform the exercise.



## Pumpkin Patch Physical Fitness Cards



## Are My Eyes Playing Tricks on Me?

### WHAT IS AN OPTICAL ILLUSION?

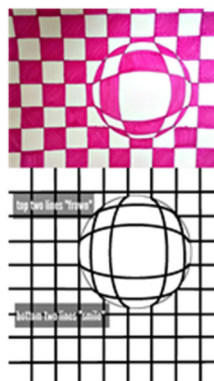
An optical illusion (also known as a visual illusion) is one which shows images that differ from normal reality. The information gathered by the **eye** is processed in the brain to give a perception. Our brain works on sense data to try to produce a meaningful perception.

**Materials:** Template "Optical Illusions", ruler, paper, markers, pencil

**Preparation:** print template, look at websites

### Instructions:

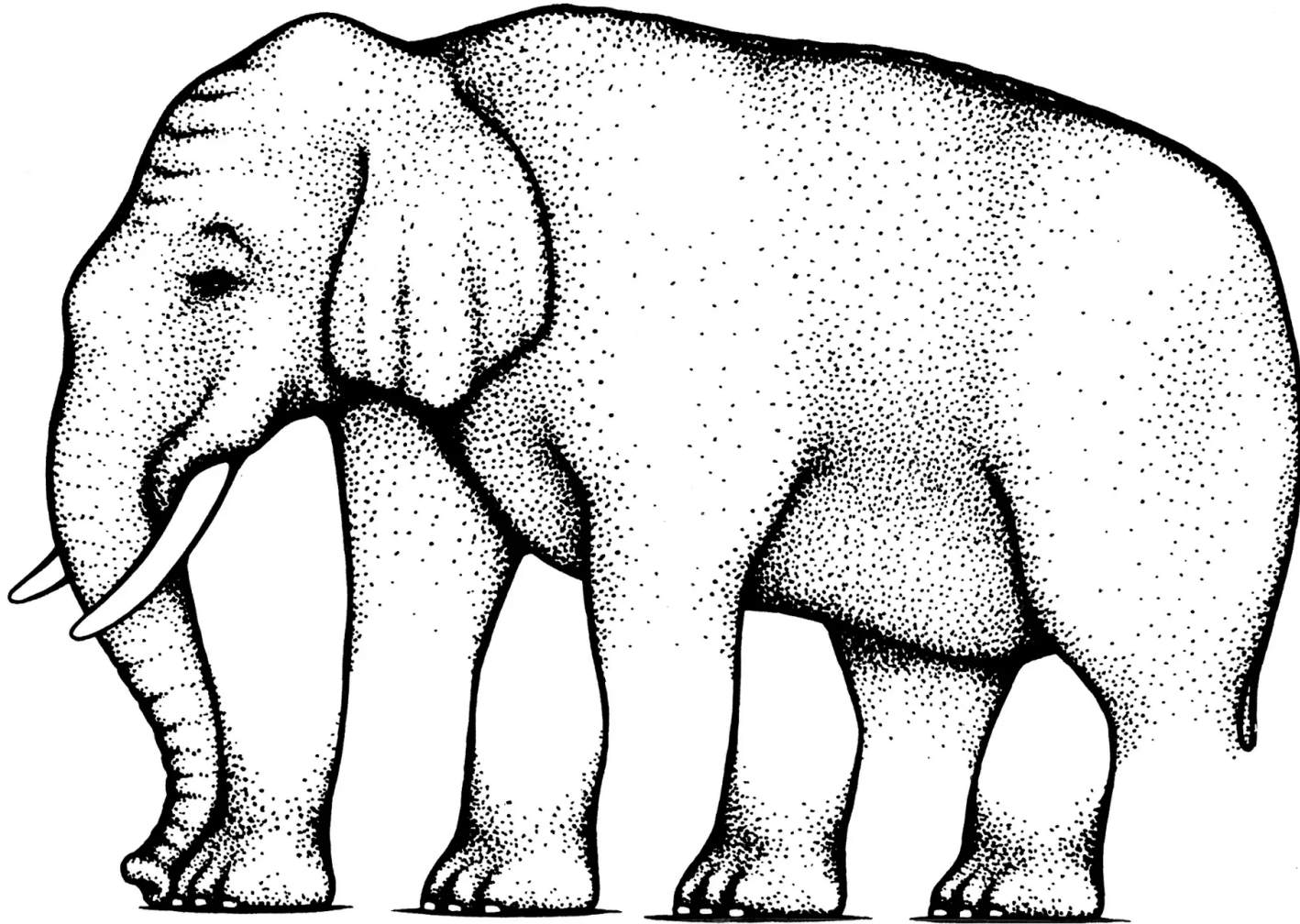
1. Look at each image and see what your eyes and brain say you are seeing.
2. Now, it is your turn to make your own optical illusion using your artistic and math skills.
3. Take your paper and trace a circle on your paper.
4. Now, use your ruler to mark every inch.
5. Then, without turning the paper, slide the ruler to the bottom of the page and mark every inch again.
6. Next, connect the dots stopping at the edge of the circle and repeat on the other two sides of your page.
7. Once the grid is done connect the lines that edge the circle. The top two should be connected with a line that looks like a "frown" following the arc of the circle. The bottom two should look like a "smile." Then, turn the paper 90° and repeat that process. Choose your color.
8. Start with a row that runs through the circle. Color every other square. Where the circle intersects with a square it should be the opposite color. {If the square is uncolored that section of the circle will be colored; if the square is colored that part of the circle will be uncolored.} Inside the circle every other space will be colored. Then, resume the pattern in the squares.
9. Once that first row is finished, complete the pattern within the circle. Then finish the pattern in the squares - every other should be colored with the rows alternating like a checkerboard.



<http://www.amyallender.com/2015/04/30/optical-illusion-art-for-kids/>

## Optical Illusions Template

What do you see? How many legs?

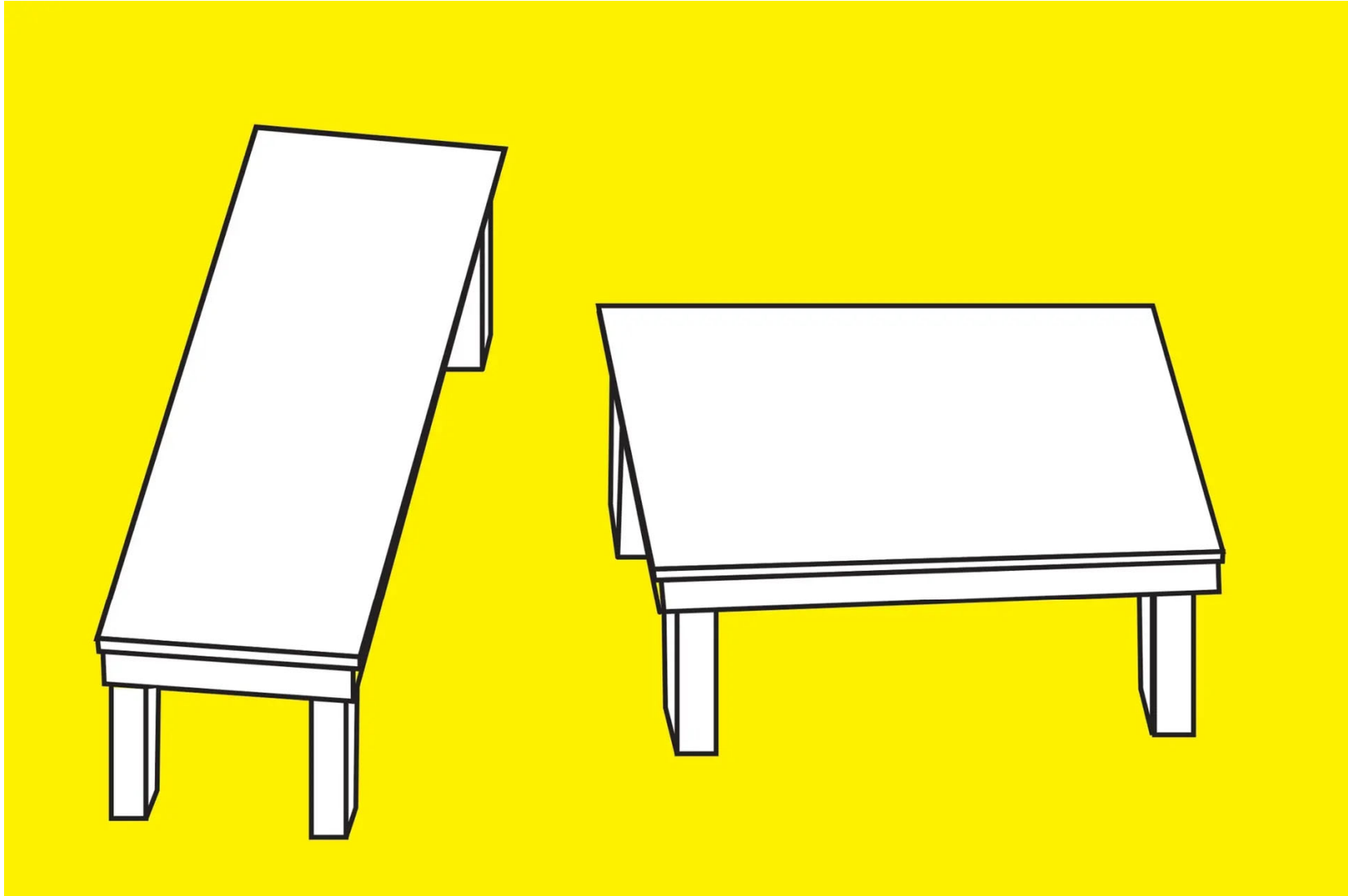


Picture by cognitive scientist and author of *Mind Sights*, Roger Newland Shepard. Shepard entitled the illusion “**L’egs-istential Quandary**”.

It is impossible to isolate the elephant’s legs from the background. What do you see? Remember human brains can spot patterns and will fill in the gaps of incomplete data it receives from the senses, but this picture muddles with our brains.

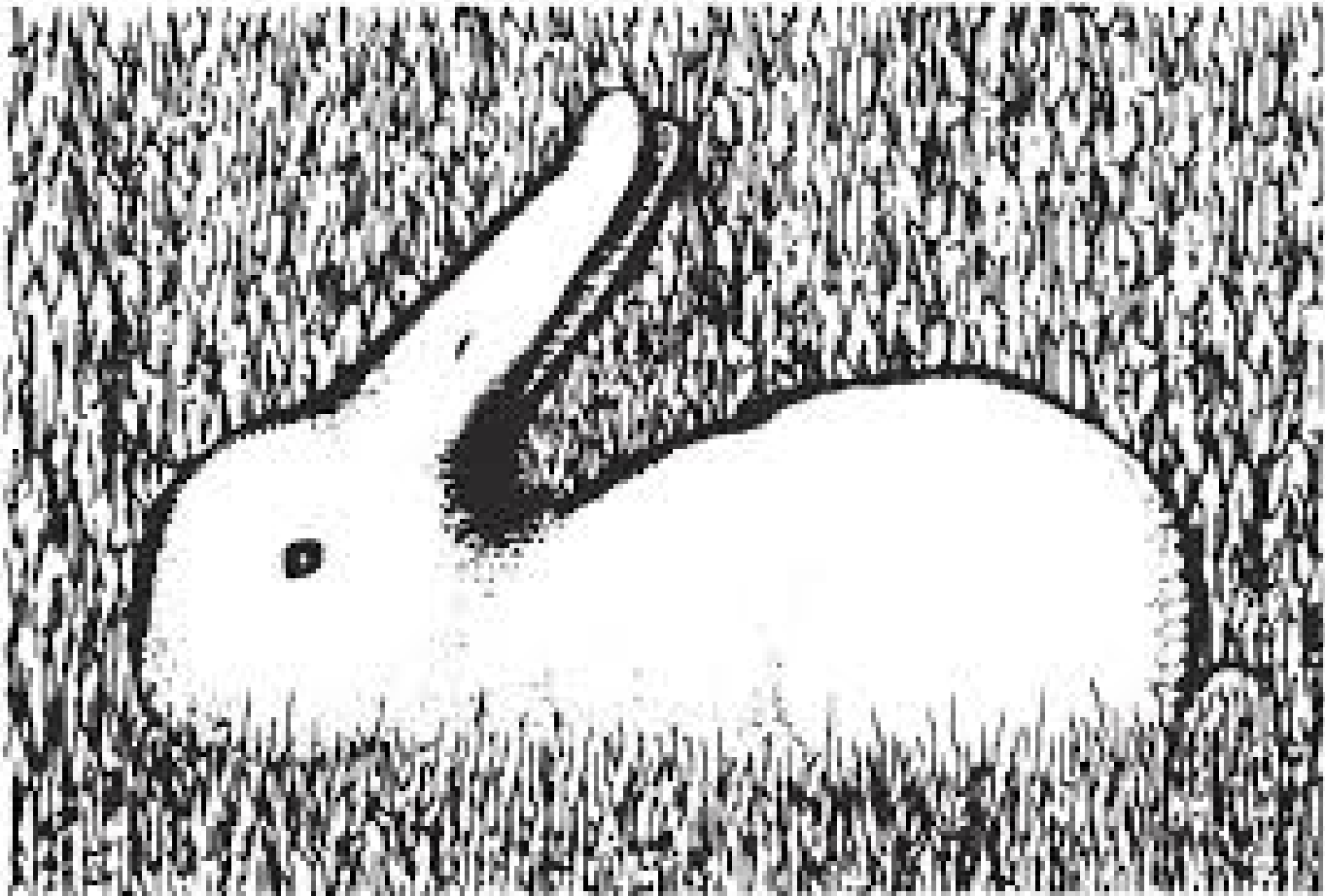
## Optical Illusions Template

Which of these two tables is longer or are they both the same size? Take out a ruler to measure the long side of both tables. The answer may surprise you



# Optical Illusions Template

What animal or animals do you see in this picture? What did you see first?



Duck or Bunny



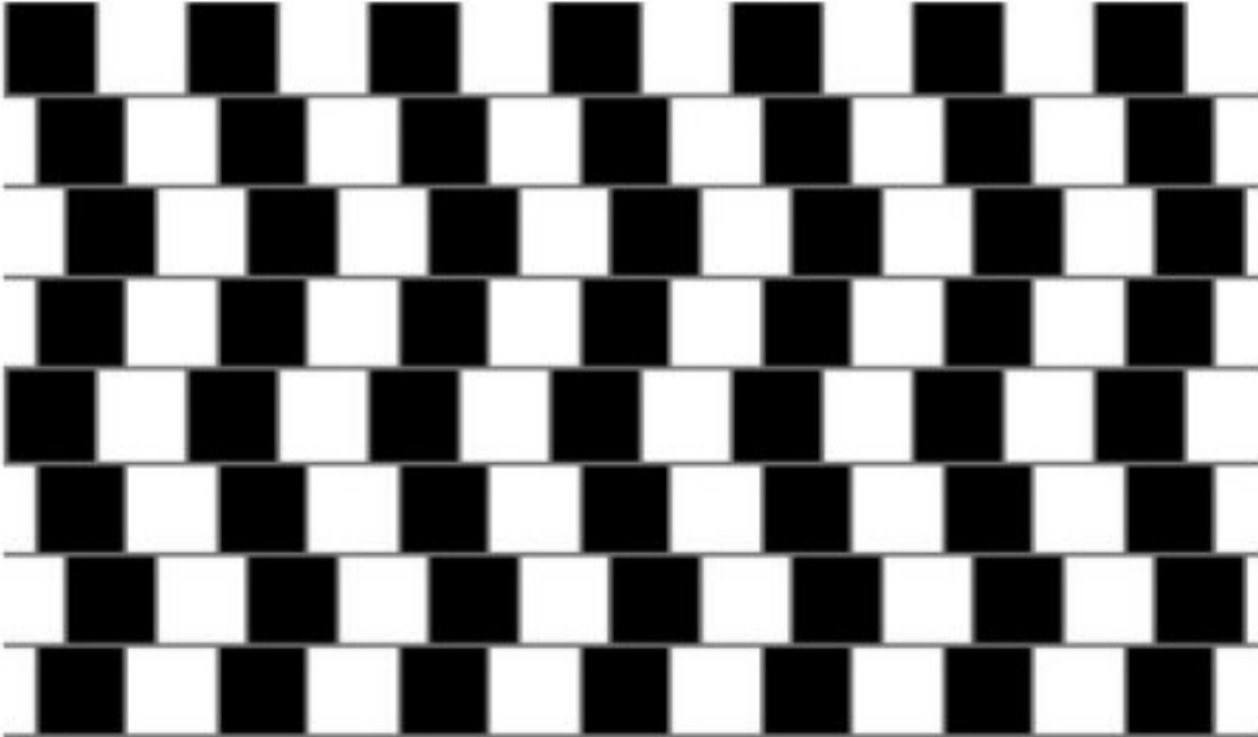
**Optical Illusions Template**



Look closely and you can see a young lady and an old lady

# Optical Illusions Template

Are the horizontal lines sloping or straight?



The black and white blocks are not aligned and so it fools our brain into thinking the lines are sloping.

## Optical Illusions Template

Look at some of these links below for more fun.

<https://www.theguardian.com/childrens-books-site/gallery/2014/nov/17/best-optical-illusions-ever-clive-gifford-eye-benders#img-5>

<https://www.optics4kids.org/illusions>

<https://sharpbrains.com/blog/2010/10/27/test-your-brain-with-these-top-10-visual-illusions/2/>

<https://www.sciencebuddies.org/stem-activities/afterimages-illusions#instructions>

## Bathtub Raft Water Strider

### WHAT IS SURFACE TENSION?

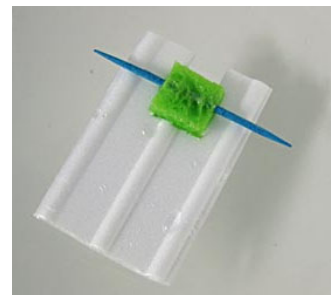
**Surface tension** is an effect where the surface of a liquid is strong. The surface can hold up a weight, and the surface of a water droplet holds the droplet together in a ball shape. Some small things can float on a surface because of surface tension even though they normally could not float. Did you know water striders can run on the surface of water because of surface tension? So, let's see if you can make a raft float like a water strider does on the water.

**Materials:** Styrofoam (flat - ex: take-out and thoroughly clean a meat packaging tray), toothpick, kitchen sponge, liquid dish soap or liquid laundry detergent, water, sink or bathtub, scissors, ruler, pencil

**Preparation:** Gather materials.

### Instructions:

1. Cut the Styrofoam piece to be a small rectangular shape, ex: 3" X 2" or 4" X 3". This will be your raft.
2. On one of the short ends of the raft, about half an inch in from the end of the raft, take your scissors and carefully cut out a square that is about one inch by one inch in size. (Adult assistance may be needed.) Center the square along the end. This will be the back of the raft.
3. Cut a small square out of the kitchen sponge, about 1" by 1" in size. This sponge piece should fit in the square you cut out of the raft, so adjust the size of the sponge piece if needed.
4. Run a toothpick horizontally through the sponge piece. The toothpick will rest on the Styrofoam raft, while the sponge will rest in the raft's square hole. Run the toothpick closer to the top side of sponge so that when you place it in the Styrofoam hole, the bottom of the sponge piece is as low or lower than the bottom of the Styrofoam raft.
5. Now, cut out the small remaining strip of Styrofoam between the square and that end of the raft but make the cutout narrower than the sponge piece. You are doing this because when you place your raft in the water, you will want the sponge piece to have some open water behind it, but part of the Styrofoam strip needs to still be there to prevent the sponge from floating away.
6. Place the toothpick and sponge on top of the Styrofoam. Your toy raft is now ready to launch!
7. Fill the sink or bathtub with water. Make sure there is enough room for your raft to move around.
8. Place the raft into the water surface and let it float. Make sure the sponge piece stays in the raft's square cutout.
9. Once the raft is still, carefully put one or two drops of liquid dish soap or laundry detergent on the sponge piece. Make sure none of the detergent accidentally drops into the water. If needed, you could use a medicine dropper to better aim the drop.



## Art Toast

**Materials:** bread (your choice), sweetened condensed milk, bowls, food coloring, paintbrushes or pastry brushes, spoons, plate, paper towels, toaster or toaster oven

**Preparation:** Gather materials.

**Instructions:**

1. Pour the condensed milk into the different bowls (the number will depend upon how many colors you want to paint on your bread).
2. Next, add food coloring to each bowl stirring until you get the color desired.
3. Then, place your bread on a plate.
4. Using a paintbrush, begin to make your rainbow or picture on your bread.
5. Once you are satisfied with your creation, gently blot the bread with a paper towel to remove any excess paint.
6. Place toast into your toaster or you can eat it without toasting it.



## Pendulum Art

**What is a Pendulum?** A pendulum is a fixed object hung from a point so it can swing freely back and forth due to the force of gravity. To give you a clearer picture, think of a swing. As a swing moves back and forth, it is demonstrating the physics of a pendulum. The swing is moving back and forth due to the force of gravity on the swing.

**Materials:** cardstock, paper cups, string, paint (various colors), cardboard tube (ex: wrapping paper tube), boxes, paper, scissors, low heat hot glue gun (**Adult supervision or assistance is needed**), glue sticks, newspaper or drop cloth, tape (packing secures it best)

**Note: If you do not have the boxes or tubes, you can take a broom or mop handle and secure between two chairs.**

**Preparation:** Gather materials.

### Instructions:

1. First, poke a hole in the bottom of your cup and one hole on each side of the cup underneath the rim.
2. Then, tie a piece of string through the two holes on the side of the cup creating a handle for the cup. Set aside until after the tube is secure.
3. Place newspaper or drop cloth where you will build your pendulum. This will keep your table or floor safe from paint and easy clean up.
4. Take your boxes and stack up evenly on each side. Secure them to the table or floor using tape.
5. Then place the tube on top of the boxes. Hot glue the tube on each side to the boxes. (**Adult supervision or assistance is needed.**) This will secure the tube stays in place. If the tube is flimsy, find something to place inside it to make it sturdier.
6. Hot glue your paper towel roll across your two cardboard poles evenly.
7. Take some string and wrap around the tube several times and knot it leaving one piece of the string dangling.
8. Now, take your cup with its handle and secure the dangling string to the cup. Tie a tight knot.
9. Add paint by color in small cups You will want to add some water to your paint to thin it out. Experiment from 1:2 ratio of water to paint.
10. Add a piece of paper right under your paint bucket.
11. Pour your paint in the paint bucket. Swing it around and watch the paint drip in motion. How do the patterns change depending on where you swing?
12. Add more paint on top of the old paint in the cup to keep creating your masterpiece.



## Spaghetti Strength

**Question:** How much weight do you think spaghetti can hold when it is vertical? How about multiple pieces of spaghetti? Could it hold up a book? Now is your chance to use your science, math, and engineering skills to make it happen!

**Materials:** 2 packages of spaghetti, 2 sheets of Styrofoam (can be purchased at Hobby Lobby, etc.), books (various weights and sizes)

**Preparation:** Gather materials.

**Instructions:**

1. Choose an amount of spaghetti noodles to place vertically into the Styrofoam sheet.
2. Then, try to place your lightest book on them. Did the noodles break or hold it?
3. Think about how many noodles you should try this time to support the weight. Could you use something else to help hold the book? Remember you have the other piece of Styrofoam. How can you place it to help make it balance?
4. How many noodles did it take to hold one book? How about two or more books?
5. Keep experimenting and using your math, science, and engineering skills to find the correct number of spaghetti noodles needed.



## Salt Dough Craft

**Materials:** 2 cups flour, 1 cup salt, 1 cup cold water, baking sheet, bowl, oven-250 degrees (**Adult supervision or assistance needed**), rolling pin, cookie cutters (optional), rocks or beads (optional), yarn (optional), small toys (to make an imprint/fossil)

**Preparation:** Preheat oven to 250 degrees (while you are creating your design).

### Instructions:

1. First, mix flour and salt together in a bowl. Slowly mix water, a few tablespoons at a time, into flour mixture until dough is smooth and easy to handle.
2. Knead dough for 10 minutes and let rest for 20 minutes.
3. Then think of a design you would like to create. It can be simple using cookie cutters or as detailed as you would like.
4. Once you have completed your creation, place on a baking sheet. Remember, if you are making a necklace make the hole in the salt dough before baking.
5. Place in your preheated oven and bake for about 2 hours. (**Adult supervision or assistance needed.**)
6. Remove from oven. (**Adult supervision or assistance needed.**)
7. Allow to cool completely.
8. Paint your creation, if desired.

