

**Girl Scouts North Carolina Coastal Pines** invites girls, families, and volunteers to stay involved while at home. We know that today's girl is ready to pivot on a moment's notice and is willing to embrace new ways to explore Girl Scouting. That's why we're promoting these options for engaging with us while you're at home today ... or any day!

**STEM** encourages Girl Scouts to look at the world around them with inquisitive eyes, experiment, push boundaries and learn as they go! Each Friday check out our activities, stories, and videos aimed at helping girls become better problem-solvers, critical thinkers, and inspirational leaders. Join the conversation online. **#OurGSNCCPCommunity**



### The Science of Art

We all love to use our creativity to express ourselves and share with others—this week, we're taking a deep dive into some of the science behind the arts! These physics experiments will help us understand how we perceive color and sound.

### Color

Light is what makes color possible! We often refer to the light from our Sun as “white light.” White light is made up of all the colors of the rainbow! In this at-home experiment, you'll split white-light into different colors to understand how light colors the world around us. Once you make your very own rainbow, check out this [SciShow Kids video](#) to learn about vision!

### Make a Rainbow: Materials

- A glass jar or cup
- Water
- A flashlight or sunlight
- A white piece of paper

### Directions

1. Make sure you have an adult to help you!
2. Fill the glass almost all the way up with water.
  - **If it's a sunny day**, place the glass so that it is half on and half off the edge of a table. You want the sun to shine through the water and onto the floor. Place your paper on the floor so that it is hit by the light shining through the water.
  - **If you are using a flashlight**, just place the glass of water on the white piece of paper.
4. Make small adjustments to the paper, glass (and flashlight) until a rainbow forms on the paper.



If you're using a flashlight, your rainbow might be small or faint—and that's ok! When you see the different colors of the rainbow, that means the white light shining through the water is being split into all its different colors. These colors are different wave lengths of light.

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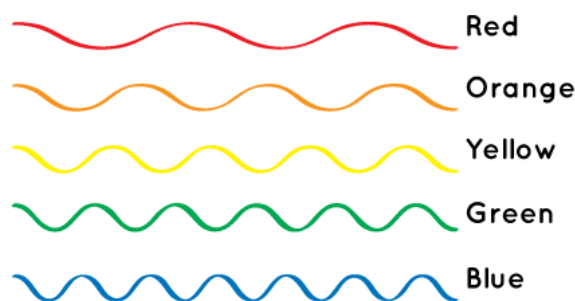
### How does it work?

Remember how light is made of many different colors? These colors are different wavelengths.

Red waves travel more slowly and have a longer wavelength. Blue waves travel more quickly and have a shorter wavelength.

When white light hits an object, that object will either **absorb** or **reflect** the different color wavelengths.

### Visible Light



The light that is absorbed by the object is not seen by our eyes—we see the light that is reflected (or bounced back) by the object. A red apple **absorbs** most orange, yellow, green and blue waves, but **reflects** red waves. These red waves travel to our eyes, and that's why we see the apple as red.

### Sound

Sound is energy—just like light. Sound is made through vibrations—energy passing through particles (like air, water, and even solid objects like walls). These particles bump into each other as the energy moves through them until they reach our ears ([check out this SciShow Kids video to learn more](#) about how we hear!). In these experiments, you'll make soundwaves visible, and create a string phone to harness the power of vibration.

### Make Rice Dance: Materials

- Plastic wrap
- A bowl
- A handful of uncooked rice
- A large spoon
- An empty box



### Directions

1. Wrap a piece of plastic wrap over the top of your bowl until it is taut, like a drum.
2. Take a handful of uncooked rice and sprinkle it on top of the plastic wrap.
3. Hold the empty box near the bowl with the rice. Make sure the box isn't resting on the same surface. Drum loudly on the box with the spoon.

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### How does it work?

If your sounds are loud enough, you should see your rice jumping with the beat! This happens because the energy you create when you hit the box causes the particles in the air to collide with each other—they keep bumping into each other until they reach the rice, making the rice jump. Even though we can't see soundwaves, we can see the impact of sound—the dancing rice makes the soundwaves visible.

**You can try this experiment with your favorite song**—just set a paper plate with the rice on top of a speaker while the music plays. You can also try using your rice bowl and set it near the speaker. **Be careful**—you may need to play the music loudly to see the soundwaves. Being exposed to loud sounds can hurt your ears, so be sure to only try this next step out with an adult.

### Make a String Phone: Materials

- Two paper cups
- 2-3 ft. of string
- Scissors and tape
- A sharpened pencil



### Directions

1. Carefully (ask an adult for help!) poke a hole in the bottom of both paper cups. You can use a sharpened pencil or scissors for this step. You want the hole to be just big enough to slide your string through.
2. Thread the cups onto each end of the string, and tie a knot at the end to keep them from falling off. You can secure the string to the bottom of the cup (inside or outside) with tape if you need.
3. Test your paper cup phones out with a friend—each of you will hold one cup with the string pulled fairly taut between you. Take turns speaking into your cup while the other person listens with their cup to their ear.

### How does it work?

Just like the soundwaves from your drum traveled through the air particles to make the rice jump, the sound of your friend's voice is traveling through the particles in the string to your ear! Pretty cool, right?