Pairing STEAM with Stories

Hands-On Activities for Children

mdek12.org

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MISSISSIPPI DEPARTMENT OF EDUCATION

2023-2024

1 **ALL** Students Proficient and Showing Growth in All Assessed Areas

2 **EVERY** Student Graduates from High School and is Ready for College and Career

3 **EVERY** Child Has Access to a High-Quality Early Childhood Program

4 **EVERY** School Has Effective Teachers and Leaders

5 **EVERY** Community Effectively Uses a World-Class Data System to Improve Student Outcomes

6 **EVERY** School and District is Rated “C” or Higher

VISION

To create a world-class educational system that gives students the knowledge and skills to be successful in college and the workforce, and to flourish as parents and citizens

MISSION

To provide leadership through the development of policy and accountability systems so that all students are prepared to compete in the global community

Reading is an **active, imaginative act**; it takes work.

Increase student understanding by adding tasks that allow for “making” and “doing.”

Resource

Laying the groundwork for building children's curiosity, openness to learning, ability to persist in the face of failure, and interest in connecting learning from one subject to the other are important objectives for today's libraries. This resource offers ready-to-go, library-tested activities that meld cutting-edge STEAM education principles with some of the best books available for youth today. It's a model that can be used in a variety of library settings and can also be adapted for outreach.

Website www.alastore.ala.org/content/pairing-steam-stories-46-hands-activities-children

Additional Resources

Rubric

PROGRAM PLANNING

This is a worksheet to be used in developing a STEAM and Story program. Use this to help ensure you have all components you wish to include in the program.

PROGRAM NAME _____

Goals:
1. Books I will incorporate:
2. STEAM activities I will add:
3. MS CCS Standards employed in this program:
4. Library Learning Standards employed in this program:

Program outline: _____

Materials I will need: _____

Space setup needed: _____

Program promotion: _____

Ways we will reflect on what we have learned: _____

- STEAM terms with definitions
- *Science in the Library*
- Vendor and Store list
- Program Planning Rubric

Four C's of 21st Century Learning

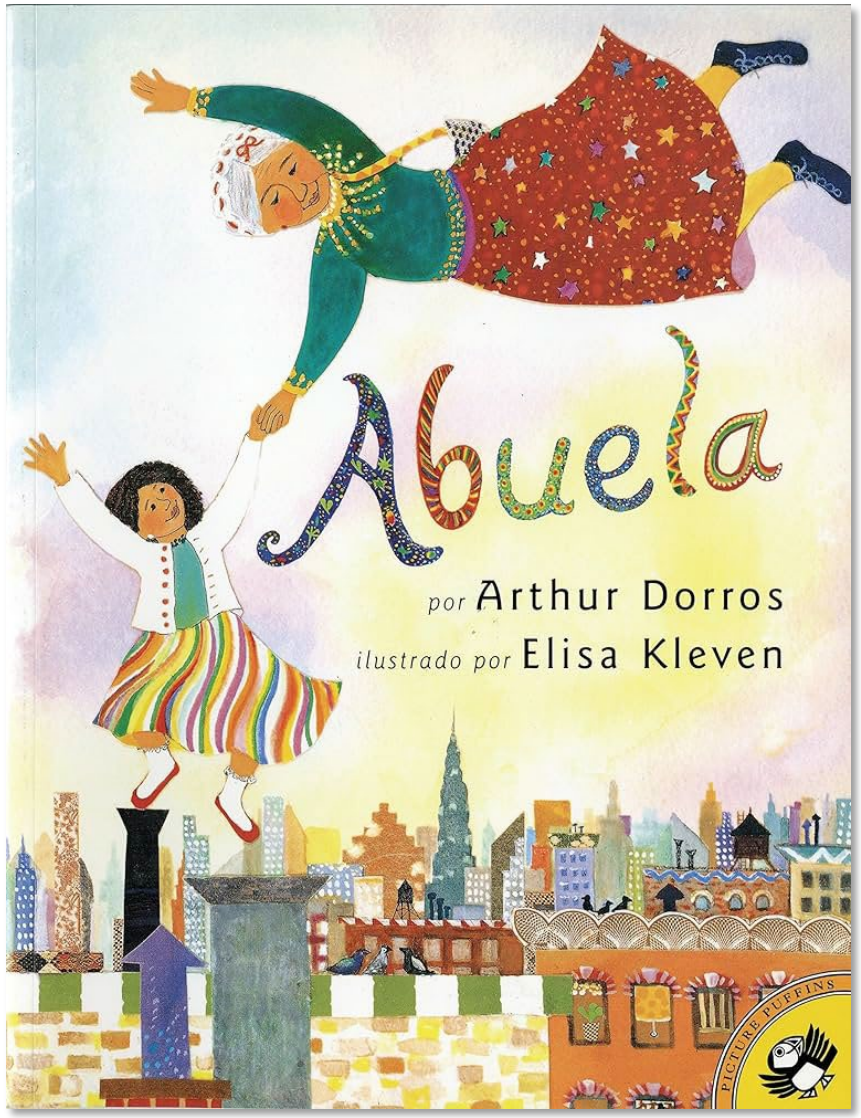
Supporting Research

Science, like reading, is not a static enterprise. Our understanding develops as we learn more and apply what we know.

The process of reflection is **critical** to closing the learning cycle and is **effective** when applied to learning programs in libraries.

Having the **curiosity** to ask why, the **confidence** to investigate and communicate, sets up children for **success** in school, work and most, important, life.

WE remember WHAT WE DO



Flying Gyroscope

10

While riding a bus with her grandmother, a little girl imagines that they are carried up into the sky and fly over the sights of New York City. **F** *40pgs*

LEXILE: 510L

Abuela
Arthur Dorros (1991)

Flying Gyroscope: *Introduction*

Learning Objective: Participants will learn how weight and spin can make an object fly through the air in a stable manner.

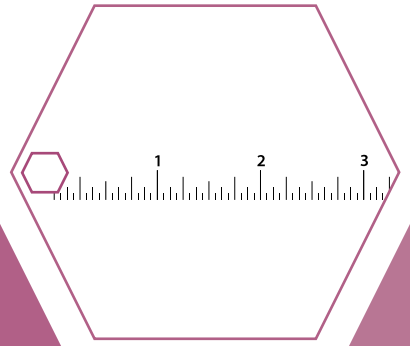
Caution: Try these flying gyroscopes in an open space where people won't be hit if one doesn't move exactly where you intended.

Book: After reading, discuss how a grandma can fly so far. The answer? With science!

Experiment: Build and test the simple-looking toy that flies a lot farther than expected.

Flying Gyroscope: *Materials*

Ruler

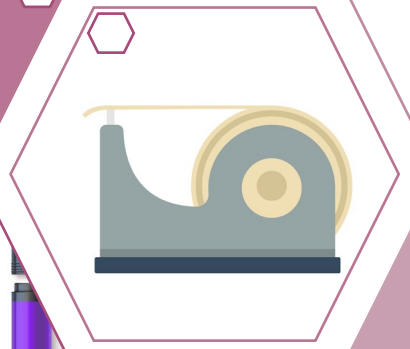


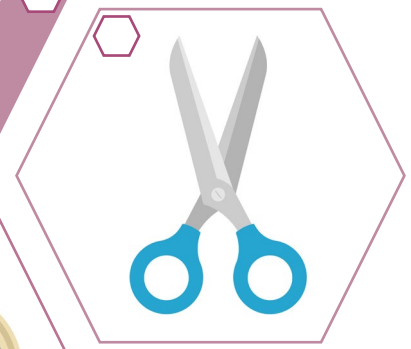
Markers

One Liter Bottle

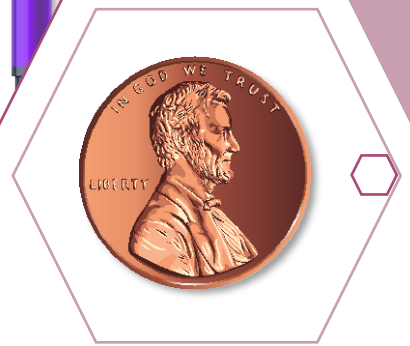
Tape

Scissors with Sharp Point





Pennies



Flying Gyroscope: *Instructions*

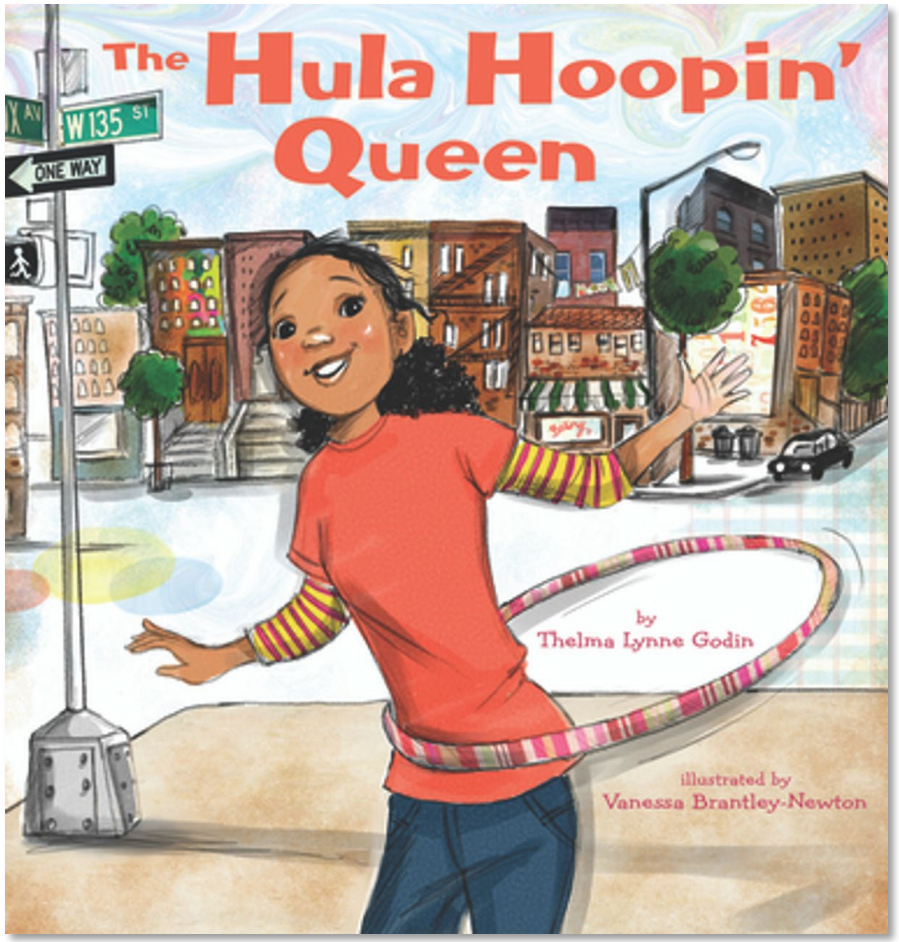
1. Provide a one-litter bottle with straight (not curved) sides for each child.
2. Draw a straight line all the way around the bottle near the bottom. Be sure the line is on a part of the bottle that has straight vertical sides.
3. Have an adult poke a hole on the line with the sharp point of the scissors or a utility knife. Cut all the way around the bottle, discarding the bottom.
4. Measure three inches from the first cut and draw another line around the bottle.

Flying Gyroscope: *Instructions*

5. Have an adult poke a hole on the line with the scissors or a utility knife. Cut all the way around the bottle, discarding the top. You should be left with the middle piece of the bottle that is now a cylinder with straight sides.

6. Tape four pennies on one end of the tube so they are equally spaced apart.

7. To fly the gyroscope, hold it like a football. Throw it penny-side forward and give it a spin, the same way a football is thrown. You can also throw it underhand: grab it by the non-weighted end, throw it penny-side first, and put a spin on it. It may take you a few tries to get the hang of it! Make sure the gyroscope spins as it flies; that's what will help it travel farther.



Kameeka yearns to continue her hula hooping competition with her rival, Jamara, rather than help prepare for Miz Adeline's birthday party, and "the itch" almost ruins the party before the girls learn who the real winner is. **F** *40pgs*

LEXILE: AD600L

The Hula-Hoopin' Queen
Thelma Godin (2014)

Circle Spinners: *Introduction*

Learning Objective: Participants will learn how adding weight to a top can make it spin for a long time.

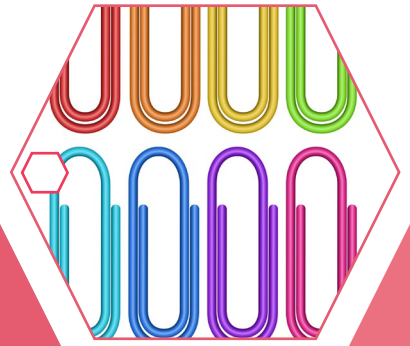
Move Forward: Check out the Toothpick Tops activity to learn more about spinning fun.

Book: Follow the reading with some hula-hooping in your library!

Experiment: Explore the science of spinning by creating toys that focus on balance and symmetry.

Circle Spinners: *Materials*

Paper Clips



One Liter Bottle

Markers

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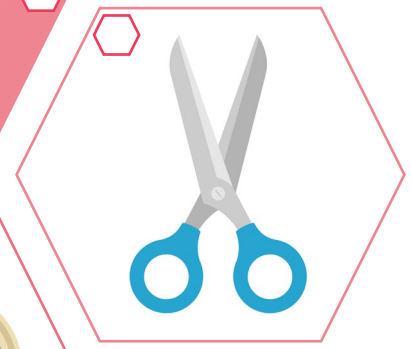
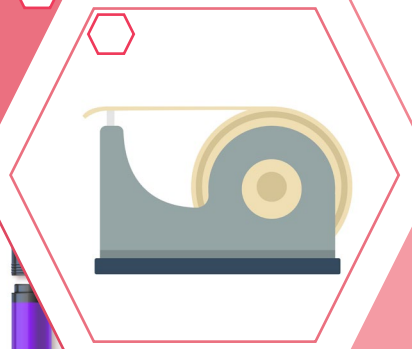
Scissors with Sharp Point





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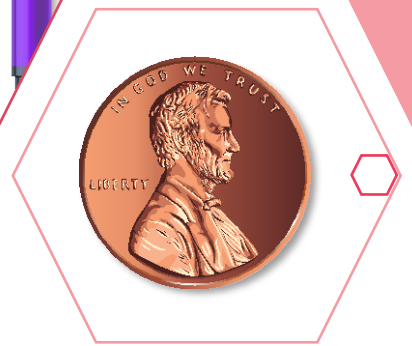


Circle Spinners: *Instructions*

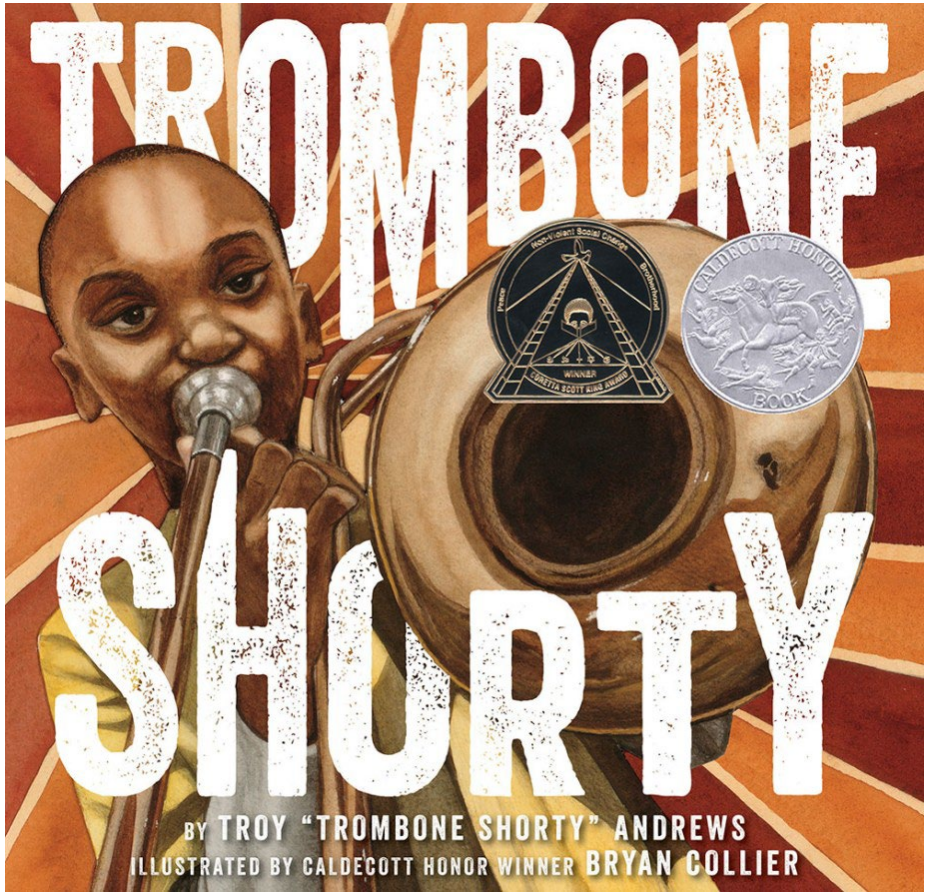
1. Cut the cereal box so you have a large flat piece of cardboard with no wrinkles.
2. Use a drawing compass to make a circle that is at least six inches in diameter.
3. Cut out the circle. Find the center of the circle by using a pencil to mark the point where two diameters intersect.
4. Partially unfold a paper clip so that it's shaped like the number 4.

Circle Spinners: *Instructions*

5. Poke the short arm of the paper clip through the center of the cardboard disc. This point is what your circle spins on. Tape the longer paper clip arm in place.

6. Grab the paper clip loop on top of the disc and give it a spin! Tape four pennies to the edge of the disc so they are across from each other and the distance from the center. Spin and observe what happens.

Sound Sandwiches



Hailing from the Treme neighborhood in New Orleans, Troy "Trombone Shorty" Andrews got his nickname by wielding a trombone twice as long as he was high. A prodigy, he was leading his own band by age six, and today this Grammy-nominated artist headlines the legendary New Orleans Jazz Fest. **NF** *40pgs*

LEXILE: 760L

Trombone Shorty
Troy Andrews (2015)

Sound Sandwich: *Introduction*

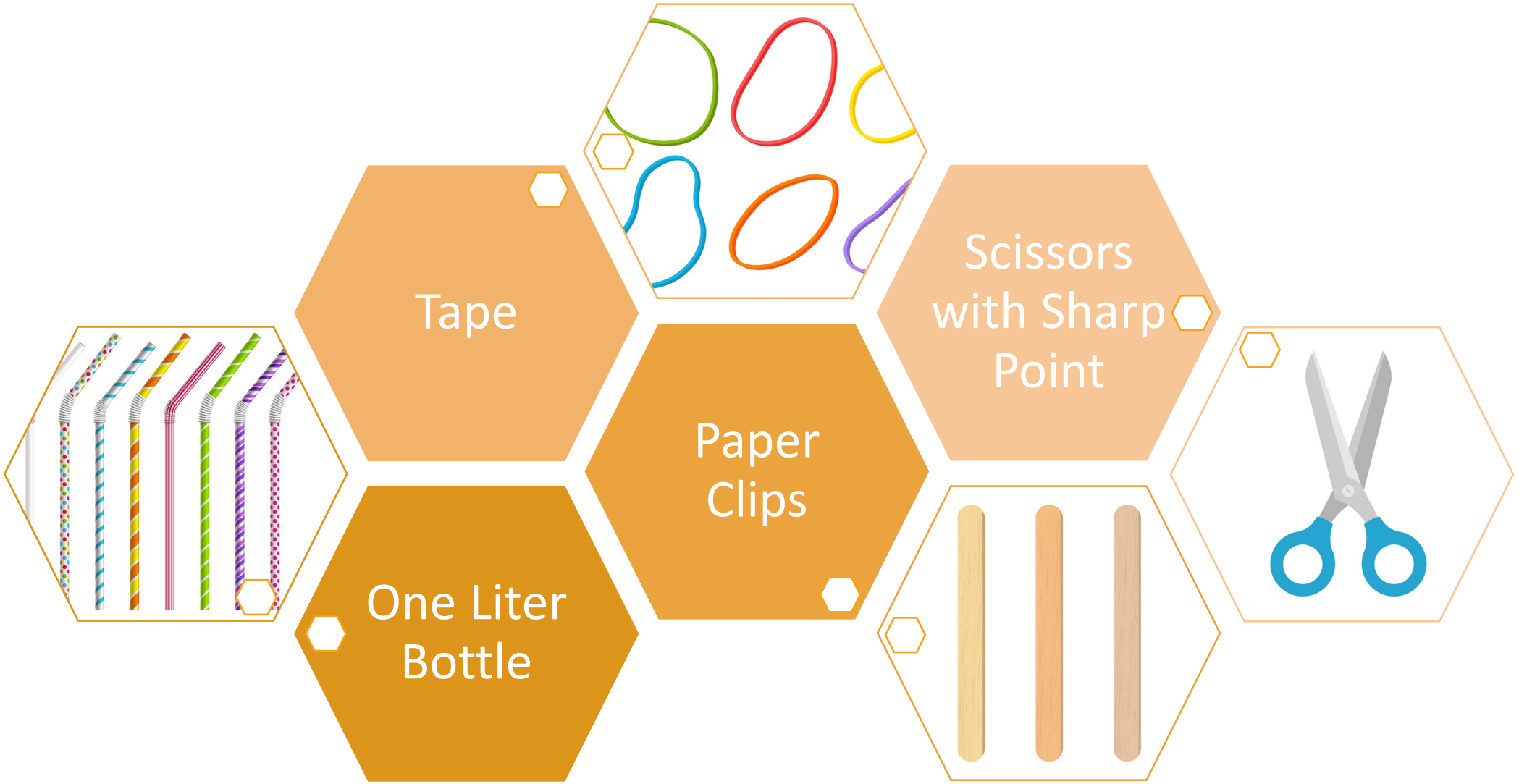
Learning Objective:
Participants will learn how sound comes from vibrations.

Age: This is a great pre-kindergarten activity.

Book: Use this book about music to learn about how sound is made.

Experiment: Learn how vibrations make sound.

Sound Sandwich: *Materials*



Sound Sandwich: *Instructions*

1. Place a wide rubber band lengthwise over one craft stick.
2. Cut two pieces of straw that measure about one inch each.
3. Tuck two straw pieces underneath the rubber band and slide each straw to opposite ends of the craft sticks, about one inch from either end.
4. Place another craft stick on top of the straws, like the top piece of bread on a sandwich.

Sound Sandwich: *Instructions*

5

Wrap a smaller rubber band around both of the craft sticks on one end of the sandwich to hold it together. Use another rubber band to do the same on the other end. The rubber bands should pinch the two craft sticks together, and there should be a small space between the two craft sticks created by the two pieces of straw.

6

Hold the sound sandwich up to your mouth and blow through the space between the sticks.

Solar Snacks

Meet Sun: He's a star! And not just any star -he's one in a billion. He lights up our solar system and makes life possible. **NF** *40pgs*

LEXILE: 520L

Sun: One in a Billion
Stacy McAnulty (2018)

Solar Snacks: *Introduction*

Learning Objective: Participants will learn how light from the sun provides enough heat energy to cook food, specifically s'mores.

Caution: Remind students that s'mores maybe hot to touch.

Book: Almost all the energy on Earth comes from the sun, as he explains in McAnulty's engaging biography.

Experiment: Use heat to create a solar oven that can cook food.

Solar Snacks: *Materials*

Solar Snacks: *Instructions*

1. About two inches from the edge of the pizza box lid, cut out three sides of a square.
2. Fold back the fourth side to create a flap.
3. Cover the inside of the flap with foil, shiny side out, taping it in place.
4. Open the box and cover the bottom and sides with foil. Cover the hole in the box lid that the flap made with plastic wrap, taping it in place.

Solar Snacks: *Instructions*

5. Assemble a s’more: graham cracker, chocolate, marshmallow, and graham cracker.
6. Put the s’more on a paper plate and place it inside the box on the foil bottom.
7. Put the box outside with the flap facing the sun. Try to angle the box and the lid so as much light as possible is focused on the food.
8. The length of time it takes for your food to heat up depends on how much solar energy it is getting, so be patient!

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