

SCHOOL AGE

Week

35

Smart Activities



SMART CHOICE. SMARTER CHILD.®

Yardstick Lever Ping Pong Ball Launcher

What is a lever and how does it work? A lever is a simple machine made from a rigid beam (which will be the yardstick) and a fulcrum (which will be the can). When you apply a downward force to one side, it has an opposite reaction, sending the unattached load (the ping-pong balls in the plastic cups) flying. You can change the amount of effort it takes to move those balls: the closer the can is to the cups, the less work it takes to move the projectiles.

Materials: metal can (like a coffee can), paper, markers, painters' tape, yardstick, low heat hot glue gun (**adult assistance needed**), glue sticks, 9 oz. plastic cups (4), rubber band, ping pong balls

Preparation: Gather materials.

Instructions:

1. Decorate your paper using markers. You will use this paper to wrap around the can. (This is an optional step.)
2. Cover the can with your paper and secure with tape.
3. Use a hot glue gun to attach the plastic cups to one end of the yardstick (**this is an adult's job**).
4. Secure the can to the middle of the yardstick with a rubber band.
5. Place ping pong balls or other small objects in the cups. Then, stomp or press down firmly on the free end of the yardstick to launch the projectiles across the room.



Marbling Masterpiece

Materials: shaving cream, toothpick, aluminum foil, paper, food coloring

Preparation: Gather materials.

Instructions:

1. Lay out your aluminum foil (make sure it is bigger than your paper). Fold up the sides making a box to prevent the shaving cream from leaking out.
2. Spray shaving cream in your aluminum foil tray and spread out. Now begin to add food coloring and use your toothpick to swirl in the shaving cream until you get a pattern you love.
3. Place your paper gently into the shaving cream mix and gently lift.
4. Lay it right side up and allow to dry.
5. You can take your toothpick and swirl it again to make another masterpiece or just have fun mixing the shaving cream with your hands.



My Wonder Turner

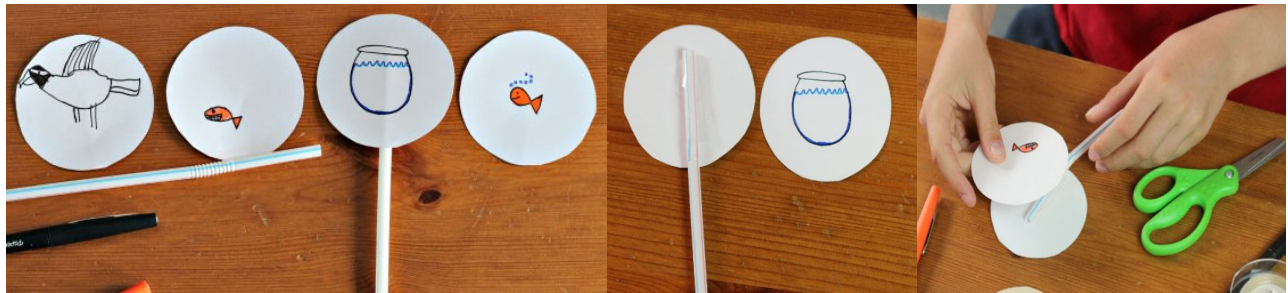
Thaumatrope: a card with different pictures on opposite sides, such as a horse on one side and a rider on the other, which appear as if combined when the card is twirled rapidly, thus illustrating the persistence of visual impressions.

Materials: cardstock, something round (for tracing even circles), pencil, markers, scissors, double sided tape, straws

Preparation: Gather materials.

Instructions:

1. Take your cardstock and your round object. Trace and cut out two identical circles.
2. Draw two images which "go together." Some examples could be a bird and a cage or a goldfish and a fishbowl. Think about items that go together and make it your own, the possibilities are endless.
3. To align the drawings, stack the paper circles and press hard with a pencil around the outline of the first image. The image impression will be on the 2nd circle and you easily align the images appropriately.
4. Place a piece of double-sided tape on the straw and apply the first paper circle. Flip over and apply second piece of tape. Carefully align the images back-to-back and press to secure.
5. Now take the straw in the palm of your hands and rub together causing the thaumatrope to turn fast. Watch your pictures as they become one.



Index Card Sound Spinner

Materials: index cards, markers, jumbo craft sticks, medium width rubber bands, craft foam, tape, scissors, string

Preparation: Gather materials.

Instructions:

1. Decorate and color your index cards using your markers. Make a fun pattern such as a checkerboard or triangles or diamond shapes in two different colors.
2. Next, tape one card to each side of the craft stick.
3. Cut two strips of craft foam, 4" long by 1/2" wide. Fold the strips in half and tape around each end of the craft stick.
4. Stretch a rubber band around the length of the craft stick.
5. Cut a length of string 3/4 length of your arm.
6. Tie the string to the craft stick, slipping it under your rubber band.
7. Grasp the end of the string.
8. Now spin your newly created noise maker as fast as you can.



Ball in a Tube Game

Materials: cardboard tubes (cut down), yarn or string, markers, scissors, 1½" wooden bead

Preparation: Gather materials.

1. Cut your tube to the desired size.
2. Now, using your markers decorate your tube.
3. Thread yarn through your bead and tie off, leaving about two inches hanging. Then, thread through the cardboard tube and tie off.
4. You are done!
5. Now, it is time to play with your new ball and tube game. Make one for a friend and see who can get the ball in the tube in the fastest and the most times.



Floating Ping-Pong Ball

Materials: bendy straws, ping pong ball, markers

Preparation: Gather materials.

Instructions:

1. Take your ping pong ball and design it using the markers.
2. Allow time for it to dry.
3. Bend your straw at a 90-degree angle.
4. Hold it in one hand so the short portion of the straw is at the end and pointing up.
5. Place your ping pong ball on the bendy part and the other part in your mouth.
6. Holding the ping pong ball with two fingers begin to blow air into the straw as you slowly release the ping pong ball.
7. See how long you can keep it up in the air. Time it and challenge a friend.
8. Challenge yourself and place the ball on the end again and suck in air and see how long you can hold the ball in place without it falling.
9. Another challenge: Does the length of the straw affect the ping-pong ball? Try cutting some straws shorter and testing it out!
10. Look up this website: <https://www.stevespanglerscience.com/lab/experiments/flying-ping-pong-ball/>. Have some fun doing these experiments: Floating Ping-Pong Balls and Flying Toilet Paper.



Earthquake Sweets

WHAT IS AN EARTHQUAKE?

Have you ever wondered what happens to buildings when an earthquake occurs? What are the different types of ground buildings are constructed on? The ground could be rock, gravel, sand, soil, and many other things depending on the location. So, what is an earthquake? Earthquakes are the shaking, rolling, or sudden shock of the earth's surface. They are the Earth's natural means of releasing stress. More than a million earthquakes rattle the world each year and can be felt over large areas. Unfortunately, earthquakes cannot be predicted but scientist are working on it.

Materials: newspaper, wax paper, cloth (damp), Starburst® candy or sugar cubes (40+), peanut butter (sub in soy butter or sunflower seed butter), spoon or butter knife, cornstarch, water, measuring cup, shallow box, marbles (12-24), shallow tray (few inches smaller than your shallow box-hint aluminum cake-trays works well), fork, scissors, yellow food coloring (optional)

Preparation: Gather materials. Lay out newspaper and a wet cloth for your hands. Unwrap the Starburst candies.

Instructions:

1. Place a piece of wax paper 5" square or larger in front of you. Hint: this makes it easier to place the house on the test soil and to remove the house you are building after testing.
2. Gather the candies and peanut butter. The candies will be the bricks of your structure; the peanut butter will serve as the mortar that keeps the bricks together. (Mortar is a workable paste which dries to bind building blocks.)
3. Begin scooping up a little peanut butter using your spoon and apply it to the side of a piece of candy. Stick it to another candy. Repeat this process to build a building.
4. Now, cut the wax paper leaving 1-2" of paper left on each side of the building and set aside.
5. Next, scoop 3 cups of cornstarch into the shallow tray and add 1½ cups of water. Then, add a few drops of yellow food coloring. Use a fork to mix it well. **Remember:** *Getting the right consistency of the cornstarch mixture is important. It needs to be firm enough to support your candy building but still liquid enough that it will slowly ooze when you scoop up a piece. Add more cornstarch if a candy placed on the mixture slowly sinks in or add more water if it does not ooze.*
6. Place marbles into the shallow box. Then set the tray with the cornstarch mixture so that it is resting on top of the marbles. (*This will make the tray sway back and forth when you shake the box like an earthquake.*) Now, place your building on top of the cornstarch mixture.
7. Place your building on top of the cornstarch mixture. Take a picture of it before you shake the box.
8. Now, shake the box fast enough so the tray with the cornstarch mixture sways back and forth but does not hit the side of the box. Did your building survive?



<https://www.sciencebuddies.org/stem-activities/soil-and-earthquakes>