

LET'S MAKE AN ELASTIC PUPPET

Elasticity is the property of a substance that enables it to recover its original shape and size after it has been stretched, squeezed, or bent. All substances are elastic in one way or another.

THE CHALLENGE

Design and build a string puppet and test its elasticity.

GRADE LEVEL

Grades 5-8

BUILD AND TEST

1. Notch the straws

- Use scissors or a single-hole punch to cut notches in the side of a narrow straw. These are the straw's "joints."
- Experiment:
 - Where you cut the notches will change the way the straw moves. Cut notches on the same side of one straw. Then with the second narrow straw, notch on different sides.
 - **Tip:** If you want your "arms" to bend in one direction, make sure your notches are along the same side of the straw.
 - **Tip:** If you want your "arms" to bend in different directions, alternate the notches on either side of the straw.



- **Tip:** If your joints don't bend easily, cut a deeper notch, but not too deep. There needs to be some rigidity for the straw to go back to its normal shape when you let go of the straw.

2. Thread the string

- Cut a piece of fishing line three times the length of a straw. Thread it through one of the narrow straws.

3. Tape the string

- When the string pokes through the end of the straw, bend it over the tip and tape it. Leave the other end loose.
- Cut another piece of fishing line and thread it through the second narrow straw. Tape it as you did with the first.

4. Make it move

- Pull the loose strings. Watch your straws bend. What ideas does this give you? What type of puppet will you make?



5. Feed the strings

- Pull the loose strings of both narrow straws into and through the wider straw.

6. Wedge the straws

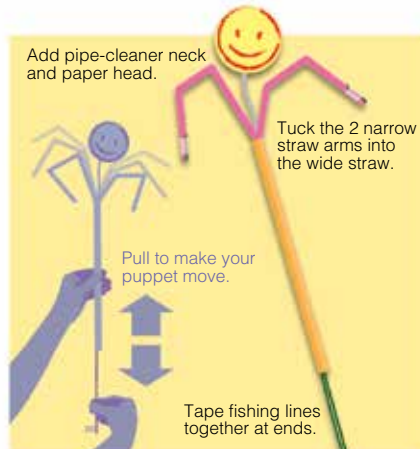
- Wedge the straws of both of the narrow straws into the wider straw, far enough down that they are secure. Both strings should now hang out of the bottom of the wider straw.
- **Tip:** If you wedge the narrow straws too tightly into the wider straw, back them out a bit. The string needs to be able to slide easily without catching or rubbing.

7. Tape the ends

- To pull both strings easily, tape them together and make a tab that lets you pull the two ends of string together.

8. Give it a tug

- Pull the tab and watch both “arms” (or maybe they are “legs”) of your puppet move.



9. Get creative

- Decorate your puppets! Add a head, body, eyes, arms and legs.

DISCUSSION

Ever go fishing? A fishing rod makes clever use of materials so you can cast a lure and reel in a fish. How is a fishing rod similar to your string puppet? Are both the fishing rod and straw elastic and why? What else do you use every day that is elastic?



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