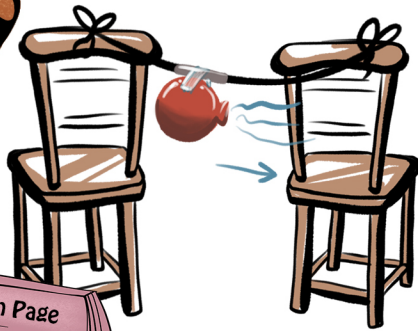


BALLOON ROCKETS



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A note from Page

This is a fun craft for when it's a nice day outside!

Engineers want to know **WHY** things work! They are problem solvers. They use science and math and art to design and build things that people need like...technology! The technology we're making today is simple but fun!

Materials:

- Balloons of various sizes
- Masking tape (or painters tape)
- Drinking straw
- String, yarn, or fishing line
- Two chairs
(or two friends to hold the string)

What Happened?

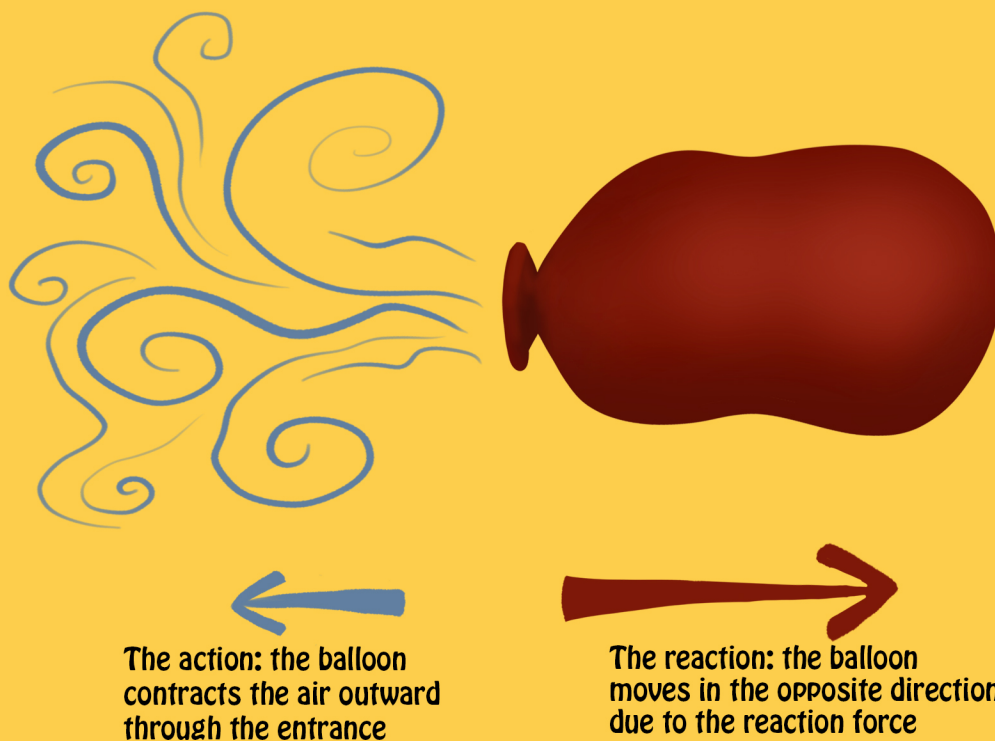
Action and reaction:

To make an object move one way, a force has to work in the opposite direction. In this case, the balloon is full of air. When you let go of the balloon, causing the air to rush out of the opening, it creates a pushing force in the opposite direction. As the air rushes out of the balloon, it creates a forward motion called **THRUST**. Thrust is a pushing force created by energy. In the balloon rocket demonstration, the thrust comes from the energy of the balloon forcing the air out. This makes the balloon move. Real rockets work in a similar way. A rocket engine works by exploding fuel inside a chamber that is open at the bottom. The force of the explosion creates an opposite force that pushes the rocket up and into space.

Directions:

1. Start by tying one end of the string to the back of a chair.
2. Thread a drinking straw onto the other end of the string.
3. Tie the string to the second chair.
4. Attach 2 pieces of tape (about 2 inches in length) to the center of the straw.
5. Inflate a balloon. (Don't tie the end!)
6. Holding onto the opening of the balloon (so the air doesn't escape) attach it to the straw using the tape.
7. Pull the balloon to one end of the string. Let go. The balloon should start to move as soon as you let go of it. Whoosh!

What Happened:



The project on page one is a demonstration.

To make it a true experiment, try to answer these questions.

1. Does the shape of the balloon affect how far (or fast) the rocket travels?

2. Does the length of the straw affect how far (or fast) the rocket travels?

3. Does the type of string affect how far (or fast) the rocket travels?
