

Rocket Balloon

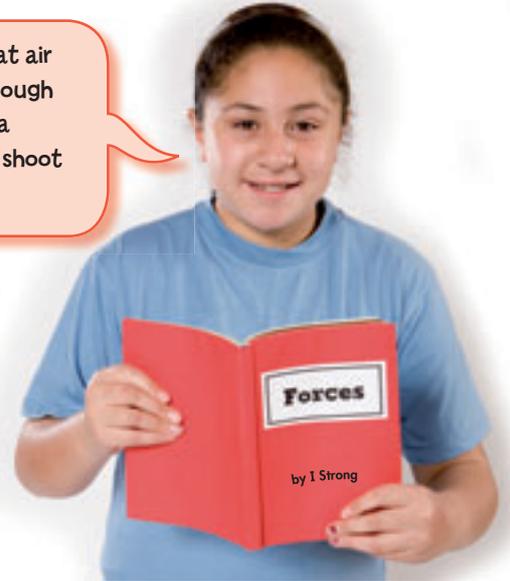
- You need** ★ a long piece of thin string or builders' twine ★ straws ★ adhesive tape ★ a bulldog clip
 ★ balloons of different and identical shapes and sizes ★ a balloon pump (or deep breaths!)
 ★ a stopwatch ★ rice or weights (such as coins or metal washers) ★ a classmate

Activity One

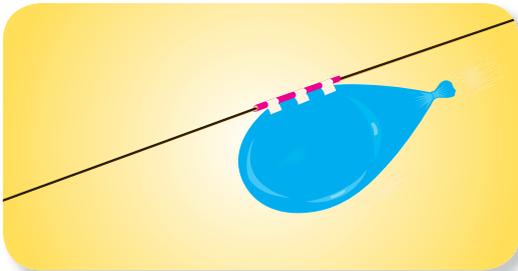
How to make a rocket balloon

- i. Thread a piece of thin string or builders' twine through a straw.
- ii. Tie the string across the room, making sure that it is stretched tightly.
- iii. Blow up a balloon and stop the air escaping. (You could use your fingers or a bulldog clip.)
- iv. Use adhesive tape to attach the balloon to the straw.

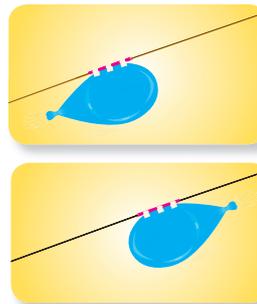
It says here that air can provide enough force to make a rocket balloon shoot across a room!



1. a. Follow the instructions above to make your own rocket balloon.
- b. Move the straw and attached balloon halfway along the string and then allow the air to escape. Observe what happens.



- c. My balloon went in the opposite direction to yours! Why did that happen?



Can you explain what happened to Laki's balloon?
 Discuss with a classmate.

2.



If we increase the number of pumps of air, I think we'll increase the force. That should make the balloon go faster and further.

Trial this idea. Does increasing or decreasing the number of pumps of air affect the speed and distance travelled?



3. Test whether the shape of the balloon affects the speed and distance.

We need to keep the number of pumps of air the same for the experiment to be fair.

I wonder what would happen if we varied the mass of the balloon?

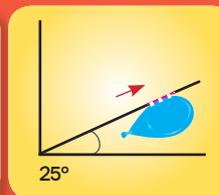
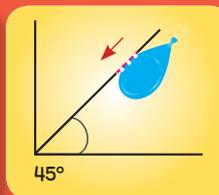
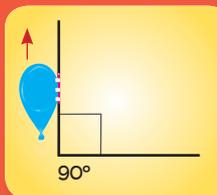


4. a. Add mass to a balloon (for example, by taping weights to the outside or inserting rice). Predict what will happen when the air escapes and then try it. Repeat with different masses.
- b. Discuss any differences between your prediction and what actually happened.

Activity Two

Compare the time it takes the rocket to travel along the string when the string is tied at different angles. (You'll need to have the same number of pumps of air each time.) Try this with the rocket going up and down the string. (You could also try this with different masses.) Explain what you think affected the speed of the rocket.

Approximate angle	Time up	Time down



Focus

Relating pressure, mass, angle, and speed