

RAFT IDEAS

Topics: Rockets, Pressure, Forces, Motion

Materials List

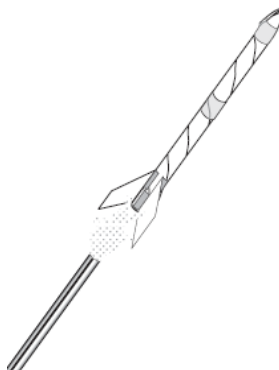
- ✓ Paper
- ✓ Pencil
- ✓ Straw, slightly narrower in diameter than the pencil
- ✓ Transparent tape

This activity can be used to teach:

- Motion and Forces (CA Science Standards: Grade 8, 2.0)
- Investigation and Experimentation (Scientific Method) (CA Science Standards: Grades 2 & above)

Paper Rockets

Create rockets from strips of paper



Use this simple paper rocket and its straw launcher to explore forces and motion.

Assembly

1. Cut a paper strip ~4 cm x 21 cm (1½" x 8.5").
2. Starting at the eraser end of a pencil, wrap the strip diagonally around the pencil, overlapping the wrap each time around to make a paper tube.
3. Tape the top, bottom, and middle of the paper tube.
4. Cut small paper fins and tape to the bottom of the paper tube.
5. Remove paper tube from pencil.
6. Fold over and tape the top of the paper tube to create the nose of the paper rocket.

To Do and Notice

1. Place the paper rocket over a straw with a diameter smaller than the pencil.
2. Blow on the uncovered end of the straw to launch the paper rocket.
3. Create a launch test range with markers to measure distance traveled by the rockets.
4. Optional: Use planet pictures as targets on the distance markers.

The Science Behind the Activity

Objects at rest stay at rest unless acted upon by an unbalanced force. When air is blown into the straw, with the paper rocket on the end, it increases the pressure within the straw. The difference between the air pressure inside the straw and the pressure outside creates an unbalanced force. When the force exerted by the pressurized air inside the straw is greater than the force of gravity acting on the rocket's weight; the rocket will be propelled off the straw.

Taking it Further

Create, compare, and evaluate a variety of rockets; see RAFT Idea Sheets *Puff Rockets*, *Pop Rockets*, and *Stomp Rockets*, for different types. Rockets can also be made with film canisters (see web site below).

Web Resources

NASA Rockets Teacher Guide (3-2-1 Pop! is the film canister rocket) - <http://teacherlink.ed.usu.edu/tlnasa/units/Rockets/index.html>