

Thrust

Propeller Power

Supplies

One skateboard

One powerful household fan

Duct tape

One extension cord (at least 9 feet in length)

Procedure

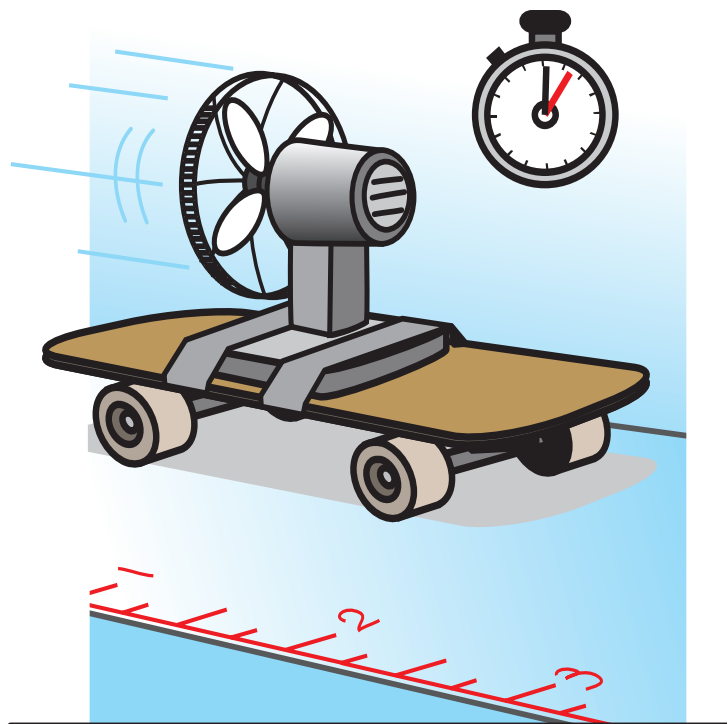
1. Place the fan on the back of a skateboard and duct tape it to secure it to the board.
2. Plug the fan into the extension cord.
3. Place the skateboard on a hard, even surface like a linoleum or wood floor.
4. Plug in the extension cord and turn the fan on low.
5. Record how long it takes the skateboard to cover a certain distance.
6. Repeat on medium and high settings over the same distance. Record your results.

Questions

What were your results?

How is this similar to the way a propeller engine works?

How could you apply your findings to airplane design?



Thrust

Jet Power

Supplies

15 to 20 feet of string (slender enough to slide easily through a straw)

One drinking straw

One balloon

Tape

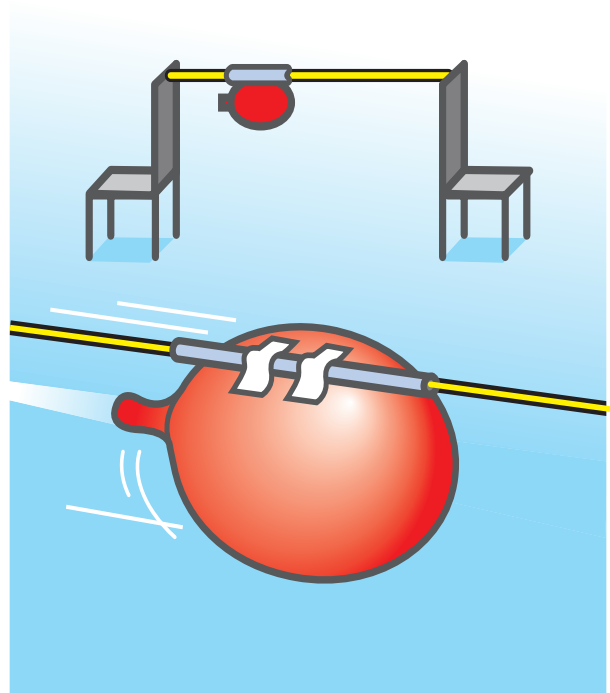
Procedure

1. Slide the string through the straw.
2. Attach the string to two chairs placed as far apart as possible (make sure the string is tight so that the straw slides easily over the string).
3. Inflate a standard party-sized balloon and hold the opening shut with your fingers while another person tapes the side of the balloon securely to the straw.
4. Release the balloon.

Questions

What were your results?

How is this similar to the way a jet engine works?



Thrust

Rocket Power

Note: This project is messy! Be sure to put plastic or newspaper on the test area to soak up the vinegar and baking soda mixture, and have towels handy to clean up afterwards.

Supplies

Baking soda

White vinegar

One plastic film canister

One cardboard tube made into a rocket shape (see illustration)

Procedure

1. Place the rocket-shaped cardboard tube over the film canister (make sure you have a snug fit!). Do three dry runs to make sure that you can do this very quickly.
2. Put 2 to 3 teaspoons of baking soda inside the lid of the film container.
3. Pour 1/2 to 1 ounce of white vinegar into the canister.
4. Place the baking soda-covered lid onto the canister, turn the canister over so the cap is on the bottom, and quickly slide the canister under the rocket.
5. Step back and record what happens.

Questions

What happened?

Try increasing the amount of baking soda and vinegar. What happens then?

How is this similar to the way a rocket engine works?

