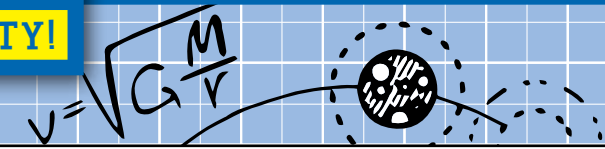


ACTIVITY!



SUPPLIES

- ① pint-sized milk or juice carton, clean and dry
- ① scissors
- ① string
- ① waterproof tape
- ① large tub or bucket
- ① water

AEOLIPILE

In this project, you can recreate the work of the Greek mathematician Hero, using water instead of steam. The basic **principle** of action and reaction is the same—for every action, there is an equal and opposite reaction. As the water shoots out of the holes in the carton, it pushes on the carton with an equal force. **NOTE: This project is best performed outside.**

- 1 Use the scissors to poke a hole near the bottom left corner of each side of the milk carton. Open up the carton at the top.
- 2 Punch a hole in the top of the carton and thread the string through the hole. You can hold the other end of the string to hang it over the tub or bucket, or tie it to something like a tree branch. The carton should be able to rotate freely.
- 3 Seal the four holes with waterproof tape and fill the carton halfway with water.
- 4 Either hang the carton from the string or hold it over the tub. Quickly remove the tape and watch.

What's Happening? What is the water making the carton do? This is an example of the same force that makes rockets work! If you fill the carton with different amounts of water, how does that affect the carton's reaction?

