Chapter 1: Quick Activities

About Science

The Cool Rubber Band

Predict what happens to the temperature of a rubber band as it is stretched. Predict what happens to the temperature of a stretched rubber band as it relaxes.

PROCEDURE

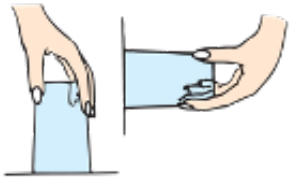
Stretch a rubber band while holding it to your lower lip, which you will find is sensitive to small temperature changes. Now relax the stretched rubber band in contact with your lower lip.

ANALYZE AND CONCLUDE

1. Does the speed at which you stretch the rubber band make a difference?
2. You touch your hand to the forehead of someone with a fever. You feel that his or her forehead is hot. How does your hand feel to the person with the fever?
3. If the contracting rubber band causes your lip to cool down, what does your lip do to the contracting rubber band?
4. A hammer is hanging by a stretched rubber band. Hot air is then blown over the rubber band with a hair dryer. Is the hammer lifted upward or does it drop downward?
5. True or False: Experiments often raise more questions than they answer.

Card Holding Water

Fill a glass with water. Place a card on top of the glass. Holding the card in place, turn the glass upside down. While holding the upside-down glass, predict what will happen when you let go of the card. What happens when you tilt the glass sideways?



Falling Can

Poke a small hole in the bottom of an aluminum can. Hold your finger over the hole and fill the can with water. Remove your finger from the hole and, of course, water comes out in a downward stream. Now predict whether water will still come out of the can through the hole while the can falls to the ground. Try it and see. To avoid a mess, drop the can into a bucket.

Author Responses to Quick Activities

The Cool Rubber Band

1. The rate of temperature change increases when the rubber band is stretched more quickly.
2. The person with the fever will feel your hands a cool.
3. The warmth of your lip causes the rubber band to warm up.
4. Try this to see!
5. True

Card Holding Water

Air has mass, which means that it also has weight. The weight of this air pushes against us in all directions. The force of this push at sea level is about 14 pounds for every square inch. So how does the card hold up the water in the bottle? Answer: It doesn't. The downward push from the weight of the water in the bottle is less than a pound. The upward (and sideways) push against the outer side of the card from the weight of the air, however, is about 14 pounds. The air wins! Although invisible, air is real stuff. Because of this, birds and airplanes are able to fly.

Falling Can

As you hold up the can, the water flows out through the hole because of gravity, which is a force that pulls things downward. When you release the can, gravity continues to do the same thing—it pulls the water downward, only this time it pulls the can down with it too. Because the can and the water are falling together, there is no reason for the water to flow out of the can.

For your further consideration: Does the same hold true when the hole is made not at the bottom of the can, but along the lower side? Try it and see.