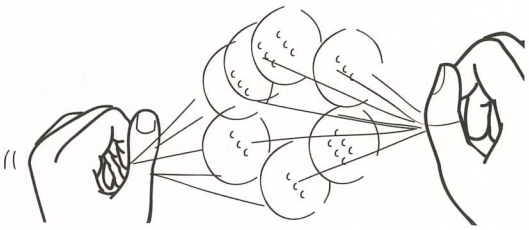
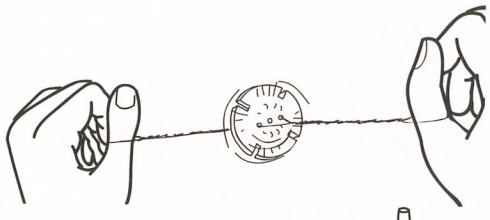
HOME/SCHOOL CONNECTION

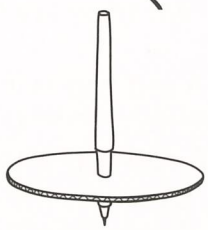
Investigation 2: Patterns of Motion

Zoomers. Traditional zoomers are made from a button and a piece of string or strong thread. The string is strung through two button holes and tied to make a loop. The button will spin when you twirl it around to put a twist in the string and pull it tight to unwind.





Top. Cut a 13 or 15 cm (5 or 6 inch) piece of cardboard. Poke a hole in the center big enough for a pencil or felt-tip pen.



Try this!

- Add more cardboard disks to the top.
- Compare zoomers made with a big button and with a little one.
- Add a spinning design to a top or zoomer. (The best way to see the spinning design on a zoomer is to change the position of the zoomer. Bring one hand in front of your face. Move the other hand away from you. Make the zoomer go fast or slow. Watch the design change.)
- Make tops from different materials.
- Be curious!—try anything you can think of!

What did you make? What did you try? What happened?

HOME/SCHOOL CONNECTION

Investigation 4: Mixtures

How does temperature affect how much sugar will dissolve in water?

Materials

- Sugar
- Room-temperature water
- Ice water
- Hot tap water (not boiling)
- 3 Clear containers
- 1 Measuring spoon (5 mL or teaspoon)
- 1 Measuring cup
- 1 Mixing spoon

Procedure

1. Measure 100 mL (1/2 cup) room-temperature water into one clear container.
2. Measure one level 5 mL spoon (1 teaspoon) of sugar, and put it into the water.
3. Use the mixing spoon to mix the sugar until it has all dissolved. (How do you know it has all dissolved?)
4. Continue to add and mix spoonfuls of sugar until no more sugar dissolves (when you start to see non-dissolved sugar on the bottom of the pan).
5. Record your data in the table below.
6. Predict how many spoonfuls of sugar will dissolve in ice water and in hot water. (Do you think there will be a difference? Why?)
7. Repeat Steps 1–5, using ice water, and then using hot water.
8. In the last column of the table, record the difference, if any, in number of spoonfuls of sugar when mixed with water at different temperatures.
9. Answer the questions below the table.

Water temperature	Prediction (spoonfuls of sugar)	Actual (spoonfuls of sugar)	Difference (compared to room-temperature water)
Room temperature			
Ice water			
Hot water			

How did the amount of sugar you could dissolve change when you used different temperatures of water?

What is the relationship between water temperature and amount of sugar that will dissolve?