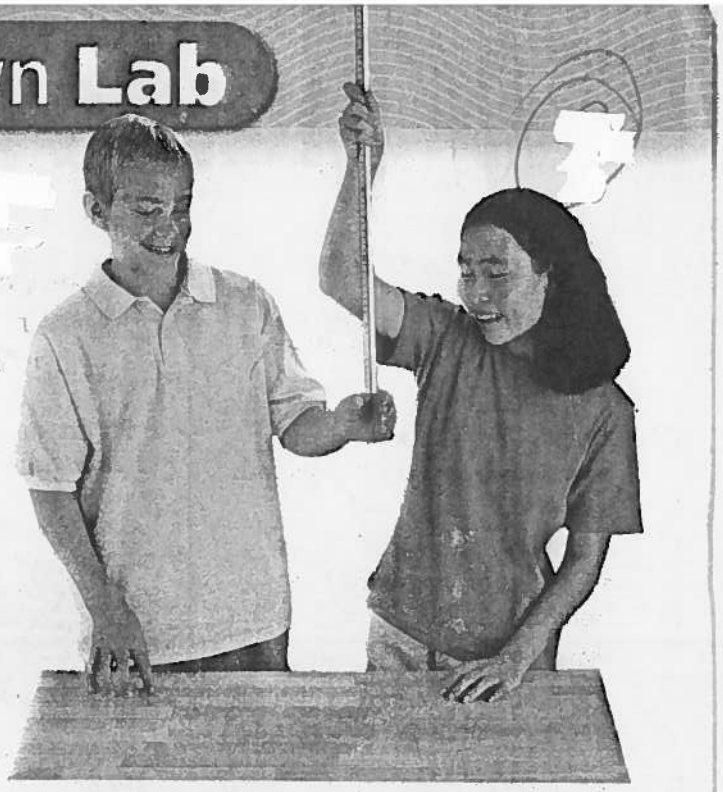
Ready or Not!



Problem

Do people's reaction times vary at different times of the day?

Skills Focus

developing hypotheses, controlling variables, drawing conclusions

Material

- meter stick

Procedure

PART 1 Observing a Response to a Stimulus

1. Have your partner hold a meter stick with the zero end about 50 cm above a table.
2. Get ready to catch the meter stick by positioning the top of your thumb and forefinger just at the zero position, as shown in the photograph.
3. Your partner should drop the meter stick without any warning. Using your thumb and forefinger only (no other part of your hand), catch the meter stick as soon as you can. Record the distance in centimeters that the meter stick fell. This distance is a measure of your reaction time.

PART 2 Designing Your Experiment

4. With your partner, discuss how you can use the activity from Part 1 to find out whether people's reaction times vary at different times of day. Consider the questions below. Then, write up your experimental plan.
   - What hypothesis will you test?
   - What variables do you need to control?
   - How many people will you test? How many times will you test each person?
5. Submit your plan for your teacher's review. Make any changes your teacher recommends. Create a data table to record your results. Then, perform your experiment.

Analyze and Conclude

1. **Inferring** In this lab, what is the stimulus? What is the response? Is the response voluntary or involuntary? Explain.
2. **Developing Hypotheses** What hypothesis did you test in Part 2?
3. **Controlling Variables** In Part 2, why was it important to control all variables except the time of day?
4. **Drawing Conclusions** Based on your results in Part 2, do people's reaction times vary at different times of the day? Explain.
5. **Communicating** Write a paragraph to explain why you can use the distance on the meter stick as a measure of reaction time.

More to Explore

Do you think people can do arithmetic problems more quickly and accurately at certain times of the day? Design an experiment to investigate this question. *Obtain your teacher's permission before carrying out your investigation.*