1 Solving Problems: Save Fred!

INVESTIGATION

We all solve problems every day—from little problems like what to wear to school, to bigger problems like whether to get a job or go to college. Different kinds of problems require different problem-solving approaches. One problem can often be solved in more than one way. What do you do when you are faced with a problem?

CHALLENGE

How can you and your partner solve a problem?

MATERIALS

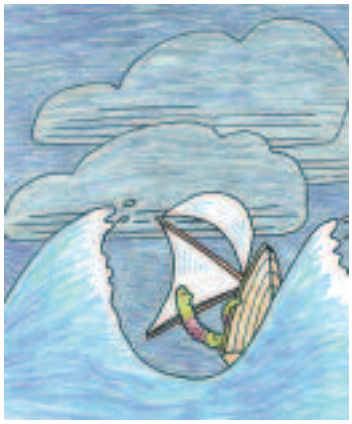
For each pair of students

- **1 gummy candy life preserver**
- **1 gummy candy worm**
- **1 plastic cup**
- **4 paper clips**

PROCEDURE

1. Work with your partner to solve the problem below. A picture of the set-up is on the next page.

SAVE FRED!



Poor Fred! He was sailing along on a boat (your plastic cup) when a strong wind blew it upside-down. Fred (your candy worm) ended up on top of the upside-down boat. Unfortunately for Fred, his life preserver (your candy life preserver) is still trapped under the boat.

Your job is to place the life preserver firmly around Fred's body, but you must obey three rules:

1. Fred may not fall into the "sea" (onto the table) more than one time; if he does, Fred "drowns."

2. You may not injure him in any way.

3. You may use only the four paper clips to move Fred, the boat, and the life preserver. You may not touch anything except the paper clips.

2. Work with your partner to record in your science notebook exactly what you did to save Fred. You may wish to draw a picture or a diagram to explain your procedure.
3. Explain your procedure to another two partners.

ANALYSIS

Each activity in this book asks Analysis Questions. These questions will guide you in your learning. You will not have to write your response to all of the questions nor will you have to answer all of them by yourself. Use the key below as well as directions from your teacher to find out exactly what to do.

KEY TO ANALYSIS ICONS

 = Answer the question by yourself.

 = Discuss with your partner.

 = Discuss with your group.

 = Discuss the question in class.

1. You can solve problems in many different ways. In fact, you may use more than one way to solve a single problem. You can

- develop a plan.
- find a pattern.
- draw a picture or a diagram.
- act out the problem.
- make a list.
- guess and test.
- work backward.
- write an equation.
- construct a table or graph.
- simplify the problem.
- use objects to model the problem.

Which of these ways did you and your partner use to save Fred?

2. As a class, discuss the ways in which various groups of partners saved Fred. How were your problem-solving methods similar? How were they different?

3. **Reflection:** People face problems in their lives every day. What did you learn from this activity that you can use to solve other problems?