

## TEACHERS ACTIVITIES



### Theme:

A good mystery sparks the imagination and encourages appreciation of the unexplained marvels of life.

### Topics For Discussion:

Invite students to share a mysterious event that occurred in their lives. How did they go about solving the mystery?

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Discuss with students how people solve mysteries. What makes a good mystery? Why do people like mysteries?

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Have students respond to the same question LeVar asks the children in the program, "What do you love to do best in the whole world and why?"

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Invite students to share any experiences they have had on boats or ships.

### Curriculum Extension Activities:

Set up a chart that lists the basic elements of a mystery: something has happened and no one seems to be able to explain it; someone is called in or volunteers to solve the mystery; clues to the mystery must be organized and followed, and suspects are identified; we find out what really happened (i.e., the mystery is solved). Leave space on the chart beneath each of these four elements. Review the story of *Mystery on the Docks* with the students and write the details (using a different color marker) under the correct element.

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Brainstorm with the students a list of qualities that a good detective must have. Compare Ralph, the cook-turned-detective in the story, with the qualities. Have students think of other detectives they know from books (such as Nate the Great) and discuss how well they match the items on the list.

While the children are out of the classroom, invite another teacher the children know well to visit and leave some clues behind as to her/his identity. These clues might be a hat or scarf she/he always wears on the playground, an item that is unique to her/his classroom or subject, something that shows a personal interest of that teacher, etc. When the children return, let them know that someone was there while they were gone and ask them to try to figure out who it was. List clues they find on the chalkboard as they find them. When they figure out who the mystery person is, ask them to explain how they put the clues together to solve the mystery.



Have students make up coded messages and trade them with each other to figure out. Use a code such as A = 1, B = 2, C = 3, etc. Put the code on the board or a chart so students can refer to it.



As a class, compose two news articles: one based on the kidnapping of the opera singer and the other on the solution to the mystery. Discuss the 5 W's of news reporting—who, what, when, where, why (or how)—before writing. Take dictation of the students' ideas. Refer to the book if they have difficulty recalling details. Edit the news "copy" as a group and give both articles a headline.



Conduct a survey among class members of their favorite singers. Have students graph the results. To make a larger survey, they might pose the question to other classrooms in the school. (Sometimes a graph of this nature may be too large because too many names are mentioned. To make it more manageable, have the class decide on five or six of the most popular names after they have finished their own survey. Then, in the other classrooms they survey, students will have a forced choice response.)



Give students a brief definition of "opera" (a drama with singing actors that combines instrumental music, dancing, storytelling, poetry, painting, and architecture with acting and singing). Perhaps the music teacher or another staff member who has an interest in opera could help with the explanation. Listen to some opera recordings and discuss the special talents needed to become an opera singer. Discuss differences students notice between opera and other kinds of music.

Have students research different kinds of boats (e.g., canoe, gondola, ferry, aircraft carrier, kayak, tanker, ocean liner, steamboat, yacht, windjammer, junk, hydrofoil, tugboat, etc.). Give them 3 x 5 index cards and have them put facts about the boats on one side of the card and a picture of the boat on the other. Put the fact cards on a metal ring and place the set in the classroom library.

### **SUPPLEMENTARY BOOKLIST:**

FLATFOOT FOX Mystery Series  
by Eth Clifford (Houghton Mifflin)

A CASE FOR JENNY ARCHER  
by Ellen Conford, illus. by Diane Palmisciano (Little, Brown)

HARBOR  
by Donald Crews (Greenwillow)

THE MYSTERY OF KING KARFU  
by Doug Cushman (HarperCollins)

AUNT EATER LOVES A MYSTERY  
by Doug Cushman (HarperCollins)

BOAT BOOK  
by Gail Gibbons (Holiday House)

GUMSHOE GOOSE, PRIVATE EYE  
by Mary DeBall Kwitz, illus. by Lisa Campbell Ernst (Dial)

THE BOAT ALPHABET BOOK  
by Jerry Pallotta, illus. by David Biedrzycki (Charlesbridge)

**BOATS**

by Ken Robbins (Scholastic)

**DETECTIVE DINOSAUR**

by James Skofield, illus. by R. W. Alley (HarperCollins)

**PIGGINS**

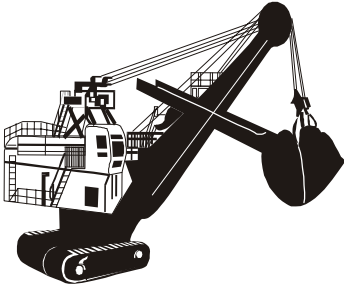
by Jane Yolen, illus. by Jane Dyer (Harcourt Brace)

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# A Big Lift



**Key Words:** simple machines, pulleys, cranes

**Concept:** People can lift more weight using a pulley than without one.

Cranes, like “Big Momma Blue” in the Charleston harbor, are complex machines. Machines are used to make work easier for people. Cranes make work easier for people by using a system of simpler machines like pulleys and cables. Pulleys make work easier by taking some of the weight off the object that is lifted. “Big Momma Blue” is able to lift a load as heavy as 8 elephants by using a system with several pulleys and cables. Discover how a single pulley can be used to make work easier.

**Materials:** Heavy string, a 1-gallon plastic milk jug with a screw on lid, water, wide tape, red and blue markers.

1. Fill the plastic milk jug with water. Place the lid on the jug and tighten securely. Then wrap tape around the lid and the jug to make sure the lid won't fall off if the jug is dropped.
2. Tie a 2-foot piece of string to the handle of the jug. Color the loose end of this string blue using a marker.
3. Ask individual students to lift the jug of water by pulling up on the blue end of the string. Remind them to place the jug back down on the floor as gently as possible. The jug will seem quite heavy and some students may not be able to pick it up using the string.
4. Then explain to the students that they can make the jug easier to lift by using a system that is similar to a pulley and cable. Have a student tie a 6-foot piece of string to a door handle on a strong, solid door. Then ask a students to place the jug of water near the door and thread the loose end of the string through handle of the jug. Color the loose end of this string red using a marker.
5. Have students lift the jug by pulling up on the loose end of the string marked with red. Ask students to tell which of the two strings made it easier to lift the jug. (*The red.*)

The handle of the jug acts similar to a pulley. A pulley that is attached to the load itself, as this handle pulley is attached to the jug, is called a single moveable pulley. It is easy to see why— the pulley moves up and down with the jug rather than being attached to the floor or some other object that can't be moved. By using a single moveable pulley, students can

lift about twice as much weight as they could without one. The jug is easier to lift using the red string because the pulley handle allows some of the jug's weight to be supported by the door knob.

## Tug, Tug, Tugging Along

**Key Words:** simple machines, inertia, force, tugboats

**Concept:** It takes more energy to start an object moving than to keep an object moving.

The "Hinton," a tugboat seen on this episode, demonstrates that although tugboats are small boats, they have very strong engines and can move huge ships many times their own size. One of the hardest parts of a tugboat's job, is in the beginning as it pulls on a ship which is not moving. It takes more force to begin moving an object than it takes to keep an object moving. In this activity you can judge the different amounts of force needed to move a model boat.

**Materials:** Paper, pencils or crayons, scissors, heavy books, strong string, paper clips, medium strength rubber bands about 2" long, a flat smooth surface.

**Teacher Note:** To get the best results, try this activity before presenting it to students so that the best combination of books, rubber bands, and surfaces can be selected from the materials you have available.

1. Ask each student to make a simple drawing of a ship as seen from above. Have them cut out their drawing and tape it to the top of a heavy book so that the front of the boat is pointing towards the spine of the book. (Check first to make sure the tape will not damage the covers of the books.)

You may wish to discuss the terms Captain Mazeke uses to describe the different parts of a boat: bow (*front*), stern (*back*), port (*left side*), and starboard (*right side*).

2. Have each student make a loop of string large enough to fit around their books. Ask students to place the loops so that they go through the middle of the books and around the spines. Then have them attach a paper clip to their string and attach a rubber band to their paper clip.

3. Have students set their books on a large smooth surface.

4. Ask them to imagine that their book is a docked ship which they are going to slowly move out into the harbor by gently pulling on the rubber band. Tell them to pull on the rubber band using a steady slow movement, not jerky or fast. Explain that the farther the rubber band stretches, the more force they are exerting. Ask them to watch the rubber band closely so that they can tell when the rubber band is stretched the most, indicating when the most force is exerted.

Students will notice that the rubber band stretches the farthest just before the book starts to move. Explain that the amount of force needed to start an object moving is greater than the amount needed to keep an object moving. This is because objects have a tendency to resist changes in motion. This is called inertia. In this case, friction between the book and the table adds to the inertia of the book.

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