

# BUOYANT BEHAVIOR

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## Lesson Summary for Grades 4–6

Students observe and predict the floating behavior of an egg placed in tap water and saltwater. They learn the terms “observant” and “buoyant.” Students complete lists of other words ending in “ANT,” and read several books about ants. Extensions are also provided for language arts, mathematics, and social studies.

Featured Fiction Book: Most, B. *There’s an Ant in Anthony*; Morrow: New York, 1980. (ISBN 0-688-32226-3-6) Readers are encouraged to find the ant in a boy’s name, at a circus, and at the zoo. Is it possible, or is it really not an insect at all that they are looking for?

## Part 1: Building Bridges

The class reads the story, *There’s an Ant in Anthony*, by Bernard Most, and students pick out the words that contain the letters “ANT.”

Prior to the science activity, students brainstorm their own list of “ANT” words, and the teacher adds the words “observant” and “buoyant” if they are not already part of the list.

Students also read *ANTics*, by Cathi Hepworth, an alphabetical anthology loaded with illustrations of more “ANT” words.

## Part 2: Science Activity: Floating Egg

*Students make observations and predictions about what happens when an egg is placed in tap water and what happens when the same egg is placed in saltwater. Students learn the definition of buoyancy.*

Key Science Topics:

- buoyancy

Key Process Skills:

- observing
- predicting

### Materials

- egg
- plastic cup
- water
- salt
- tablespoon

## Getting Ready

Ask students for the definitions of observant and buoyant. Ask what these two words might have to do with science. Allow time for responses. Then, conduct the procedure to demonstrate understanding of the new vocabulary.

## Procedure

1. Fill the cup  $\frac{3}{4}$  full of water.
2. Put the egg in the cup of water and make observations. What happened?
3. Carefully remove the egg from the cup of water and add at least 3 tablespoons of salt.
4. Stir the salt thoroughly in water with the spoon.
5. Observe the cup of water now. Do you see any changes in the way it looks? Record observations and predict what might happen when the egg is added to the water.
6. Put the egg in the saltwater and observe once more. What differences did you observe when the egg was placed in the saltwater?
7. Record data and draw conclusions. (Why did this occur?)

Define buoyancy: the tendency of a body to float or rise when in a fluid, or the power of a fluid to put an upward force on a body placed in it.

## Science Explanation

The egg sank in fresh water but floated (was more buoyant) in saltwater because saltwater is denser than ordinary water. Since the weight of the displaced saltwater was greater than the weight of the egg, the egg floated.

Concept: Water becomes denser when salt is dissolved in it.

## Science Extension

As another egg experiment, use 2 cups of ordinary water, one regular egg, and one egg shell with the insides emptied out. See how the two eggs behave when placed in a cup of water. The regular egg will sink, but the empty egg will float because it is more buoyant due to the air trapped inside the egg.

## Other Science Activities (ANT Related)

### Ant Farms

To teach students how to become “observANT” scientists, have the students keep an illustrated journal for several consecutive days documenting any changes that take place in their classroom ant farms. (See worksheet.)

Have the students address the following questions in their journals: What is happening? Why are the ants doing this? What jobs do different ants have in their colony?

### Ant Communication

To teach students about how ants communicate using antennae and pheromones, stretch a long piece of yarn across the room to symbolize an ant trail. Have the yarn lead to some small pieces of crackers, chips, etc. left behind from a family picnic. Have one student crawl along the yarn, rubbing his or her abdomen along the ground to leave a scent so that the other forager ants can find the food. When the ant (student) reaches the food, have him or her carry a small piece back to the nest and tap another ant’s antennae (another way of communicating) to alert them of what was found.

## Tie-in Literature

Parker, S. *It's an Ant's Life: My Story of Life in the Nest*; Reader Digest Children's Books: Pleasantville, NY, 1999.

Dorros, A. *Ant Cities*; Crowell: New York, 1987.

McDonald, M. *Insects Are my Life*; Orchard Books: New York, 1995.

## Part 3: Lesson Extensions

### Language Arts Activity 1

After students have heard the story, *There's an Ant in Anthony*, have them find at home 10 more words that contain "ANT." They may use dictionaries or other sources. In class, have them compile a large list of their newfound "ANT" words. Then, have each student choose his or her favorite "ANT" word, type it on the computer, print it out, and then illustrate the page. Finally, have the students bind the pages into their own class book "Antics from Room 309."

### Language Arts Activity 2

Read aloud these books:

*Two Bad Ants*, by Chris Van Allsburg

*Hey Little Ant*, by Phillip and Hannah Hoose

*If I Were an Ant*, by Amy Moses

Discuss each story from an ant's point of view: How would things look/seem if you put yourself in its place? Have the students make and illustrate a page for a class book with an analogy. "If I were an ant, a \_\_\_\_\_." Example: "If I were an ant, a flower would be an umbrella," or "If I were an ant, a piece of cheese would seem like the moon."

### Language Arts Activity 3

Near the end of the ant unit, have the students think about all they have learned about ants and have them write an acrostic poem, using all their new knowledge. Then have them make a paper bag puppet and write their final copy of the poem on it. Hang the puppets from clips in the room so that all can enjoy.

### Mathematics Activity

Have students move about the room and interview their classmates about their favorite insect. After compiling their data, have the students create a "Bug Bar Graph" using the results.

You can also do "fANTastic" calculations. Each student, after learning that an ant can carry about 50 times its own weight, figures what 50 times his or her own weight is and makes a list of what items might be in that weight range.

### Social Studies Activity

Have students research in groups and locate on maps where different species of ants are found. As a review of map skills, have them name the continent on which the ants are found. Have them determine whether the continent is in the northern or southern hemisphere. Have them identify the oceans bordering the continent, etc.

## **Handout Masters**

Masters for the following handouts are provided:

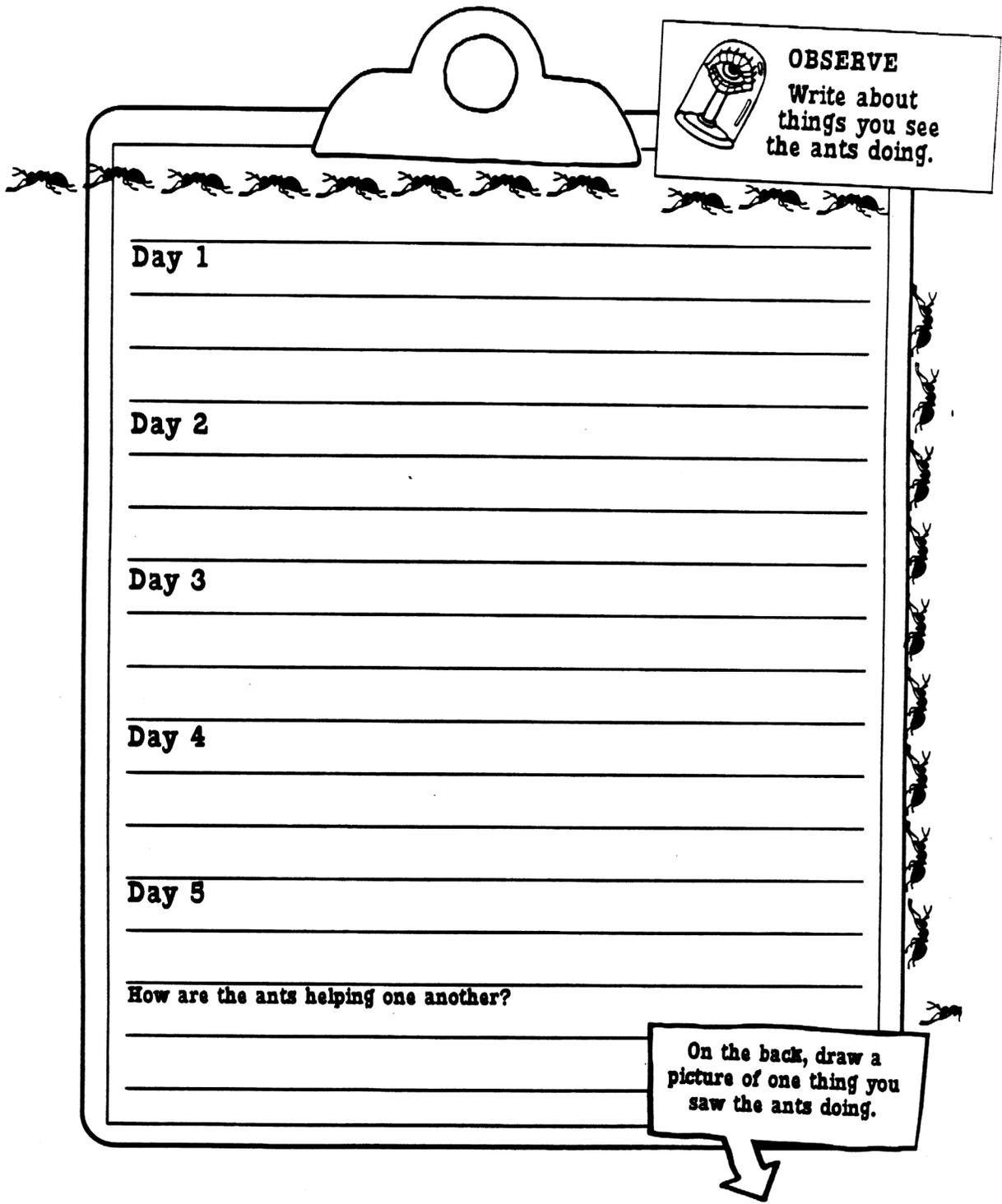
- Be Observ-ANT—Observation Sheet

Copy as needed for classroom use.

# BUOYANT BEHAVIOR

## Be Observ-ANT—Observation Sheet

Name \_\_\_\_\_



**OBSERVE**  
Write about things you see the ants doing.

**Day 1**

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**Day 2**

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**Day 3**

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**Day 4**

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**Day 5**

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**How are the ants helping one another?**

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On the back, draw a picture of one thing you saw the ants doing.