



LIVING THINGS AND THEIR NEEDS

# We Need Water

Written by Nancy Moreno, Ph.D., Barbara Tharp, M.S., and Paula Cutler, B.A.

from *Living Things and Their Needs Teacher's Guide* and for *Tillena Lou's Day in the Sun*.

## BioEd<sup>SM</sup>

Teacher Resources from the  
Center for Educational Outreach at  
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The activities described in this book are intended for school-age children under direct supervision of adults. The authors, Baylor College of Medicine and the publisher cannot be responsible for any accidents or injuries that may result from conduct of the activities, from not specifically following directions, or from ignoring cautions contained in the text.

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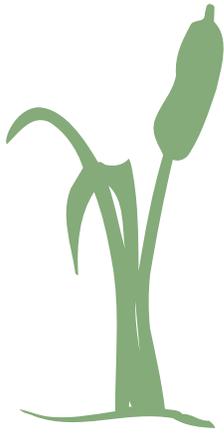
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# Using Cooperative Groups

Cooperative learning is a systematic way for students to work together in groups of two to four. Quite often, early primary students need to have their own materials, but can work in groups to share ideas and to learn from one another. Through such interactions, students are more likely to take responsibility for their own learning. The use of cooperative groups provides necessary support for reluctant learners, models community settings where cooperation is necessary, and enables the teacher to conduct hands-on investigations in a more manageable environment.

Students wear job badges that describe their duties. Tasks are rotated within each group for different activities so that each student has an opportunity to experience all roles. Teachers even may want to make class charts to coordinate job assignments within groups.

Once a cooperative model for learning has been established in the classroom, students are able to conduct science activities in an organized and effective manner. All students are aware of their responsibilities and are able to contribute to successful group efforts.

• Asks others to help with questions

○ fold here ○

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○ ○



**Scientist Leader**

• Gets the materials and returns materials to the leader

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○ ○

**Materials Scientist**



• Writes or draws results when group is finished

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○ ○



**Scientist Recorder**

• Follows the safety rules cleanup

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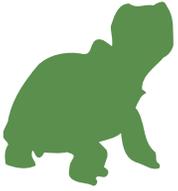
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**Safety Scientist**







# My Science Journal

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\_\_\_\_\_  
Name

\_\_\_\_\_  
Date

\_\_\_\_\_  
Project Name

**DRAWING**

**KEY WORD  
TO USE**

**I OBSERVED . . .**

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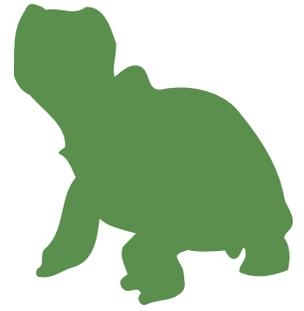
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# We Need Water

Students will make lemonade by mixing lemon juice, sugar and water. They will discover that the water they need every day is sometimes in sources other than drinking water.



All living things on Earth require water in some form. Even desert organisms that appear to survive without water need it in one way or another. Some desert animals can get all the water they need from the food they eat. One example is the sand cat, which lives in North Africa and the Arabian Peninsula. Camels also can go for long periods of time without drinking water, as long as they have green vegetation and dew to feed on. Contrary to popular myth, camels' humps are reservoirs for fat—not water.

Young children need to take in about eight cups of water each day, either directly by drinking it, or indirectly through foods and other beverages.

## SETUP

Prepare the supplies for each group beforehand. Set up one tray per group as follows: 4 prepared cups (each marked with a “fill-line” across the middle and containing 2 teaspoons of lemon juice); small pitcher of water containing 2 cups of cool or cold water; 1/2 cup of sugar; 4 plastic teaspoons; and paper towels.

## PROCEDURE

### Part 1. Making lemonade

1. Before beginning this activity, have students wash their hands.
2. Ask students, *Where does Tillena Lou live? (pond). What do we find in a pond? (water). Do you think Tillena needs water to survive?* Encourage students to think about the ways in which Tillena, a turtle, might need water. These include water for drinking, water to keep her body cool, and water as a place where she finds food to eat. Write students' ideas on the board.
3. Next ask students, *What about you? Do you need water?* Allow students time to volunteer ways in which they need water (drinking, washing, cooking, etc.). Follow by asking, *How do you get the water you need?* Students may offer a variety of answers, including water from the faucet, bottled water, or water from the drinking fountain.
4. Challenge students by asking, *Do you drink things other than pure water? What are some of your favorite things to drink?* Make a list of students' favorite drinks. Ask, *Do you think that these drinks also give your body water?* Tell students that they will be thinking about this question as they make their own lemonade to drink.
5. Demonstrate how to obtain juice from a lemon by cutting one in half and squeezing each half over a clear cup. You may want to give each

## CONCEPTS

- All living things need water.
- People and many other animals take in water through their food and by drinking a variety of liquids.

## SKILLS

**Science:** Observing, communicating, generalizing, measuring

**Mathematics:** Observing, communicating, generalizing, measuring

**Language Arts:** Listening, communicating, writing, using descriptive language, following directions

## TIME

**Set-up:** 20 minutes

**Class:** 30 minutes

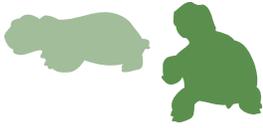
## MATERIALS

- 9 clear plastic cups, 9 oz
- 250-mL bottle of lemon juice (a little over 1 cup, see Setup)
- 2 tsp sugar
- Cup of milk
- Cup of orange juice
- Cup of another kind of juice
- Fresh lemon
- Plastic teaspoon
- Sharp knife
- Water (see Part 2)

### Per group

- 4 clear plastic cups, 9 oz (prepared, see Setup)
- 4 plastic teaspoons
- 1/2 cup of sugar
- Paper towels
- Plastic tray
- Small pitcher (see Setup)





## WATER NEEDS

Every day, we lose about 2,500 mL of water that must be replaced for us to live.

Even K–2 students need a total of about 8 cups of water from drinks and food each day.



## EXTENSION

Most foods contain significant amounts of water. A tomato, for example, is 90% water. Have students compare and contrast different kinds of food that are available in both dried and fresh forms. Examples include fresh meat or fish, and beef jerky and dried fish or shrimp; grapes and raisins; plums and prunes; and bananas and banana chips. Allow students to use hand lenses to examine differences between the fresh and dried versions. Let students taste the different examples and discuss how the loss of water has changed each item. Students can make their own dried grapes or apple slices as a class experiment by stringing the fruit on a cord and hanging it near a sunny window. Do not eat the dried fruit.

student a spoon and allow students to taste a few drops of the juice. Ask students, *Would you want to drink this as a snack? What might we add to the lemon juice to make it taste better?*

6. After students have discussed alternatives for improving the lemon juice, measure 2 teaspoons of sugar into the cup. Add 1/2 cup of water and stir. Let students predict how the new mixture might taste.
7. Have students work in groups of four to share materials as they make lemonade. Each student should make his or her own cup of lemonade. Have the Materials Scientists from each group pick up a tray of materials from a central location or create a station where students in each group can make their lemonade.
8. Have each student measure 2 teaspoons of sugar into one of the marked cups (that already contain lemon juice). Next, he or she should add water to the cup, up to the marked fill-line, and stir the mixture.
9. As students drink their lemonade, ask, *What happened to the sugar when you mixed it with the water and lemon juice?* (dissolved or “disappeared”). *How can you tell that the sugar is still there?* (taste). *Is the lemon juice still there? How do you know?* (taste). *What about the water? Can you taste it?* (probably not). *Does your body get water when you drink lemonade?*

## Part 2. Other liquids

1. In front of the class, show 8 clear cups. Fill the first 3 cups with milk, orange juice, and another juice, respectively. Fill the remaining 5 cups with water. Hold up a cup of water and explain that our bodies need about 8 cups (this size) of water every day. Ask students if they know what liquid is in each of the other cups.
2. Ask, *What ingredient did we add to the lemon juice?* (water). *Do you think these other beverages also contain water? Why or why not? What about the drinks on our list? Do you think they contain water?* Help students understand that they obtain needed water from a variety of sources.
3. Conclude by having students draw or write about other examples of foods or liquids comprised mainly of water. Examples include soups, fruits, hot chocolate, etc. OR have students list or draw all the foods they might eat in a day and place a check mark next to all those that they think may contain water. Let them share their ideas within their groups and later with the class.

