



RESOURCES AND THE ENVIRONMENT

The Math Link

Written by Barbara Tharp, M.S., and Nancy Moreno, Ph.D.

The Math Link mathematics supplement is part of the Environmental Resources educational unit, which is comprised of the student storybook, *Tillena Lou's Big Adventure*, the *Resources and the Environment Teacher's Guide*, and two integrated supplements: *The Reading Link* and *The Math Link*. These materials, along with teaching slide sets and presentations for classroom use are available at www.bioedonline.org.

For more information on this and other educational programs, contact the Center for Educational Outreach at 713-798-8200, 800-798-8244, or visit www.bcm.edu/edoutreach.

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This Math Link contains ready-to-use mathematics activities that are aligned with the My World and Me: Resources and the Environment integrated unit. It is not intended to represent a comprehensive mathematics program. The activities are related to mathematics objectives common to many curricula and cover a range of grade and ability levels. Teachers may wish to select from these activities those that are most appropriate for their own students.

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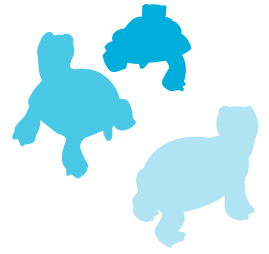
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Mathematics



The following activities and strategies are designed to incorporate science concepts related to the story into grade-level appropriate mathematics activities.

ESTIMATION

Use examples such as those below to help students develop their skills at making estimations.

- Tillena Lou gets lost as she wanders far from home. How far might Tillena have traveled? Tell students to make their best predictions: 1 foot, 1 mile, 10 miles. If necessary, have students think about the size of a turtle and readjust their estimates accordingly.
- For every step taken by the girl in the story, Tillena Lou must take five. How many steps will Tillena have to take if the girl takes five steps? 10 steps? 15 steps?
- What else from the story could you estimate?

ADDITION: Warm-up

Give each student two photocopies of the “My Drawing” student page. Have them solve the following.

- Tillena Lou eats snails for breakfast. If Tillena ate one snail each day for one week, how many snails would she have eaten?
- There are 10 squirrels living near Tillena’s home. While Tillena was out wandering, she saw three times as many squirrels. How many squirrels did Tillena see away from home?
- In the house, Tillena Lou walks across a tile floor. If each tile is four inches long and she walks across two tiles, how far did Tillena go?
- Tillena Lou saw a person at the table eating apples. If the person ate one apple for breakfast, one apple for lunch and one apple for supper, how many apples did the person eat?

SUBTRACTION: Fact Families

1. Give students a set of three numbers. Have student works individually or in groups to make two subtraction problems from the set. For example, if the set of numbers is (5, 2, 3), two possible problems are: $5 - 2 = 3$ and $5 - 3 = 2$.
2. Have students make a story for each subtraction problem. For example, there were five water lilies in the pond. Tillena ate two lilies. How many were left? (three).
3. Let students chose their own sets of three numbers and make their own subtraction problems.

NUMBER SENSE

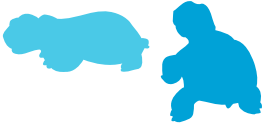
Use the following teasers to stimulate students’ mathematical thinking.

1. Think of a number and challenge students to figure out what it is. Tell them that the number is between 1 and 10, and that it is even. Ask students, *What are the possible numbers that it could be?* (2, 4, 6, 8). Give hints (less than, more than, etc.) until students identify the number.



Read the storybook, *Tillena Lou's Big Adventure*, with students before completing this activity.

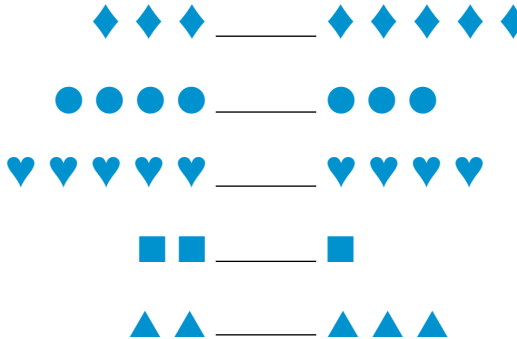




- As a group, have students skip count by 2, 5 and 10.

LESS THAN OR MORE THAN

Discuss the mathematical symbols that indicate less than ($<$) and more, or greater than ($>$). Have students complete the following.



Individual hands-on activities from the *Resources and the Environment Teacher's Guide*, the student story-book, *Tillena Lou's Big Adventure*, and *The Reading Link* language arts supplement also are available for free download (PDF format) from www.bioedonline.org.

PROBABILITY

You will need a paper fastener, scissors and enough cardstock to make one spinner for each student.

Draw a large circle and an arrow on a piece of paper. Put one animal picture inside one half of the circle and a different animal picture on the inside of the other half of the circle. Photocopy enough spinner pages for each student.

- Cut out the photocopied circles and arrows (or have students cut them out). Use a paper fastener to attach each spinner arrow to the spinner.
- Have students predict how many times the spinner will land on each animal. Have students test the spinner 20 times.
- Help students record their results and describe what they found. (Students will discover the animal will have been selected by the spinner about half of the time, on average).

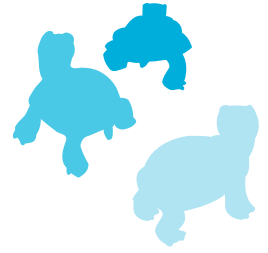
SORTING

Tell students that Tillena Lou keeps a store of Cuisenaire rods (or some other manipulative, buttons, shells, etc.) to build with. Ask students, *How many ways can you sort the rods?* The answer will depend on the colors, shapes, sizes, etc. of the materials selected.

GROUPING

Have students work through the following.

- How many ways can you group 10 turtles? Represent 10 as many ways as possible. (1 + 9, 9 + 1, etc.)
- How many ways can you group six water lilies? Represent six as many ways as possible. (1 + 5, 2 + 3, etc.)
- Which number can be represented in more ways: 6 or 10?



DIVISION: Warm-up

Use the following story to reinforce division concepts. Make one photocopy of the “My Drawing” student page for each student.

- When Tillena returned back to her family they had a feast. There were two dozen (24) snails. If the snails were shared evenly how many snails did each family member receive? Tillena has three brothers and both parents. Draw the answer.
- How many snails would each brother receive if her parents didn’t want any? How many would Tillena receive if she got to keep half of the snails?

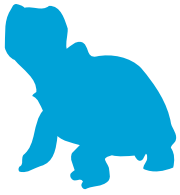
DIVISION: Halves

Make one photocopy of the “Division” student page for each student. Have students draw a line through each item, dividing each image in half.

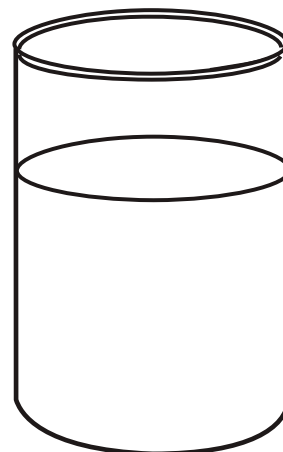
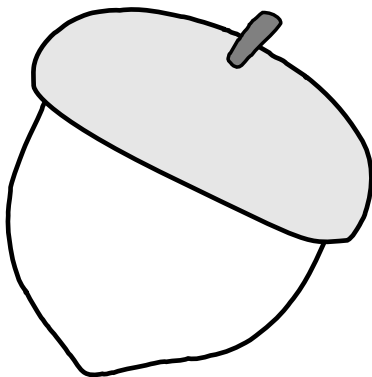
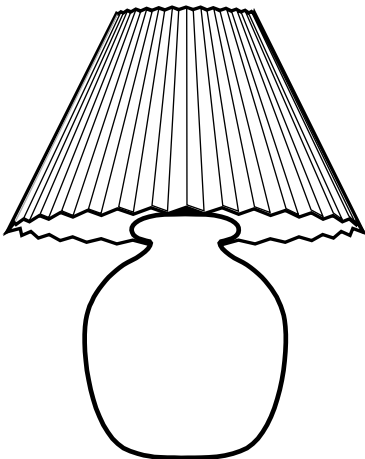
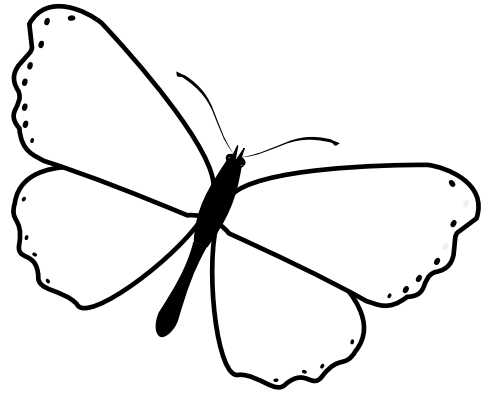
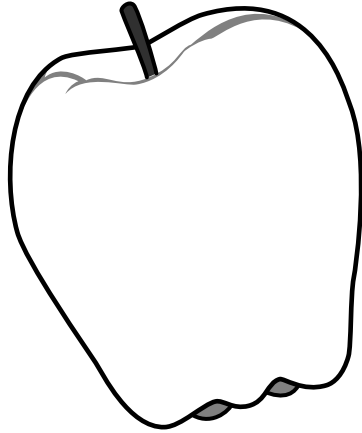
PATTERNS

Select and photocopy enough animal images from the storybook for students to create a “numbers” book.

1. Create or have students make a 10-page blank book using fasteners.
2. Mark or have students mark each page in sequence with the numbers 1–10.
3. Have students cut out animal images to correspond with the numbers on each page and tape or glue the images in place. For example, on page 1, students will place an image of one turtle; on page 2, students will place images of two snails, etc.



Division



My Drawing

