

Unit 6



Amazing
Appetites**Concepts**

- Addition
- Subtraction
- Classification
- Problem solving
- Patterning

Materials

- TI-10
- Book: *My Little Sister Ate One Hare*
- Grid Paper
- Markers
- Picture cut-outs of items eaten in story
- Tape or glue
- Manipulatives to represent items in story

Calculator Connections

- Number Sentences
- Memory Recall **M+** **MR/MC**
- Scrolling  

Suggested Age/Grade Level

- Ages 5-8
- Kindergarten through second grade

Overview

After reading *My Little Sister Ate One Hare* written by Bill Grossman and illustrated by Kevin Hawkes (Crown Publishers, Inc., 1996), the class constructs a chart including the quantity and items eaten. The chart is then used to help create and solve original word problems. The TI-10 is used to illustrate the pattern that develops in the story and to facilitate problem solving strategies.

Assessment

Assessment should be done through student work samples and teacher observation. The following items should be considered.

Does the student:

- Count the number of manipulatives correctly?
- Discover the growing pattern in the number of objects?
- Use addition when combining sets?
- Use subtraction when removing the set?
- Use manipulatives to illustrate the actions?
- Perform simple addition correctly with the TI-10?
- Communicate his or her thinking with his or her partner?
- Consider his or her partner's reasoning?
- Use manipulatives to reflect the reasoning communicated?
- Use the TI-10 to reflect his or her actions with the manipulatives?
- Classify the animals by their attributes?
- Use the number keys on the TI-10 that correspond to the number of manipulatives needed?
- Use the operation keys correctly?
- Use the memory function correctly?

Activity A: Connecting Literature and Mathematics

Discuss the different creatures in the book *My Little Sister Ate One Hare*. The creatures include: a hare, snakes, ants, shrews, bats, mice, polliwogs, worms, and lizards.

Questions to ask:

- What is a hare? (A hare is similar to a rabbit. It has longer ears, large hind feet, and long legs.)
 - How would you describe a bat?
 - Which of the animals can fly?
 - Which animals do not have legs?
 - What is a shrew? (A shrew is a rodent with a long, pointed nose and small, poorly developed eyes.)
 - What is a polliwog? What does it become?
1. Read *My Little Sister Ate One Hare* to the class.
 2. Read the book a second time. Stop reading after each item and with the students, construct a list showing the number of and name of the object eaten each time.

Questions to ask:

- What was the first thing the little girl ate?
- How many hares did she eat?

Complete the chart with the class by recording one hare, two snakes, three ants, and so forth.

3. Discuss the chart with students.

Questions to ask:

- What do you notice about the chart?
- Is there a pattern anywhere? What is it? (The numbers increase by one more each time.)
- What do you think these pictures mean?
- Do these animals really wear clothes? Why do you think the author wrote that in the book?

Prerequisite Skills:

Basic estimation
Concept of addition
Concept of subtraction
Numerals to 25
Sequenced directions
Symbol recognition
(+, -, =)

Vocabulary:

Add
Addend
Equal
Memory
Minus
Number sentence
Operation (+, -)
Pattern
Subtract
Sum
Total

Sample Chart:

one	
two	
three	
four	

Teaching Tip:

Be sure students understand that this story is written to entertain the reader. They should not eat any of these things other than peas.

Teaching Tip:

Since this is more numbers than most primary age children are capable of adding, provide time for students to explore the problem using the TI-10 and manipulatives.

Teaching Tip:




Give each pair of students some connecting cubes or other appropriate manipulatives. If working with young children who need many concrete experiences, you may wish to tape small pictures of the different animals and the peas onto the cubes.

- What is on this list that you might get on your lunch tray in the school cafeteria?
- Why would you not get the other things?

Activity B: *How Much Did She Eat?* *Exploring with the TI-10*

1. Pair students with a classmate sitting beside them.

Questions to ask:

- About how many things do you think the little girl ate?
 - Why do you think that? How did you choose that number?
 - How can you use the TI-10 to help us find out?
 - What operation key will you need to use?
2. Press    to begin.
 3. Instruct students to try to discover how many items the little girl ate. Students may use manipulatives and the TI-10 to solve the problem.

As the students work in pairs, monitor the classroom. Move around to observe students working and offer hints or suggestions to assist any pair having difficulty getting started. After a set time frame (10 or 15 minutes, or sooner if students appear frustrated or finished), bring students back together as a group. Probe students to share their thinking and their actions.

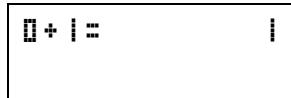
Questions to ask:

- In what ways did you use the TI-10?
- What strategies did you use?
- Was there a pattern to this question? Explain your thinking.

Have two students demonstrate their problem solving strategies for the class. One should illustrate the keystrokes as the other models with the manipulatives. This may look like the following:

4. Reset the TI-10.
5. Press \square because the girl has not eaten anything yet.
6. Press \square \square for the hare, and then press \square .

The TI-10 displays:

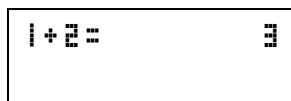


7. Show one manipulative to represent the hare.

Questions to ask:

- What did the little girl eat next?
 - Do you remember how many snakes she ate?
8. Show two manipulatives of a different color and connect them to the first to represent the snakes. Count the total number of manipulatives.
 9. Press \square \square \square to add the snakes.

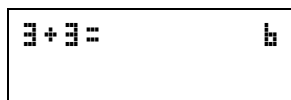
The TI-10 displays:



Questions to ask:

- What did she eat next?
 - How many did she eat?
10. Add three cubes of a different color to the cube train that already exists. Have the students count the total number of cubes.
 11. Press \square \square \square to add the ants.

The TI-10 displays:



Resetting the TI-10:

Press \square to wake it up if it has turned off.

Press \square if you need to clear the memory.

Press \square to clear the display.

Teaching Tips:

Remind students that they can use the chart to recall what was eaten by the little girl.

Teaching Tip:

Remind students that they can use the scroll keys \square \square to review the number sentences on the TI-10.

Continue solving the problem by using both manipulatives and the TI-10. Have the students count the total number of cubes in the train and compare with the total on the TI-10.

*Activity C:
Applying the Concept
My Little Brother Ate...*

Students use the TI-10, manipulatives, and the class chart to solve the following problems.

I'm going to tell you about my little brother. He eats some of the same unusual things as the little girl in the story.

My little brother ate the animals wearing clothes, but he got full and did not eat two of the bats.

Questions to ask:

- How many things did my little brother eat?
- Which animals are wearing clothes? (ants, shrews, and bats)
- How can we find out how many things he ate? (add)
- Did he eat the same number of each animal as the little girl? (no, he ate a different number of bats)
- How many bats didn't he eat?
- Why didn't my little brother eat them? (He was full.)

Give the students time to explore the problem in their groups. Move around the room observing and interacting with students. After ten or fifteen minutes, bring the groups back together and have students share (with guidance when needed) their solutions to the problem.

Activity D: My Grandmother Ate...

I guess my little brother gets his appetite from my grandmother. Last week when she was really hungry, she gathered together all the things with four legs. How many animals did she have?

Provide time for student pairs to work on the problem. Students should record their thinking using words, pictures, and numbers. Before sharing solutions, observe students working. Remind students to use the chart to identify the animals with four legs.

An example of how this problem can be solved using the TI-10 might be:

1. Press $\boxed{1}$ (hare) $\boxed{+}$ $\boxed{4}$ (shrews) $\boxed{+}$ $\boxed{6}$ (mice) $\boxed{+}$ $\boxed{7}$ (frogs) $\boxed{+}$ $\boxed{9}$ (lizards) $\boxed{=}$.

The TI-10 displays:



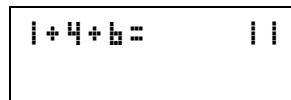
$$1 + 4 + 6 + 7 + 9 = 27$$

2. Press $\boxed{M+}$ to store this in the memory.
3. Press Clear .

After she gathered all the four-legged animals, she decided not to eat the animals with fur. How many animals did Grandma eat?

4. Use your charts and identify the four-legged animals with fur.
5. Press $\boxed{1}$ (hare) $\boxed{+}$ $\boxed{4}$ (shrews) $\boxed{+}$ $\boxed{6}$ (mice) $\boxed{=}$.

The TI-10 displays:

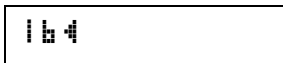


$$1 + 4 + 6 = 11$$

6. Press $\boxed{M-}$ to take away the number of four-legged animals with fur (subtract) from the number of four-legged animals stored in memory.

7. Press $\boxed{\text{MR/MC}}$ to see the number of animals Grandma ate.

The TI-10 displays:



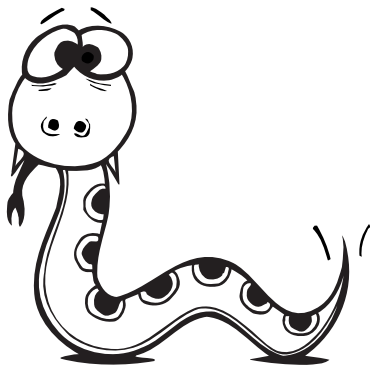
Extension

Have students make up their own word problems using the information from the story. Some of the other categories that could be used with *My Little Sister Ate One Hare* are animals with no legs, two legs, or six legs; animals with wings; animals with scales; animals that fly, swim, hop, or slither; things that are green; or animals with tails.

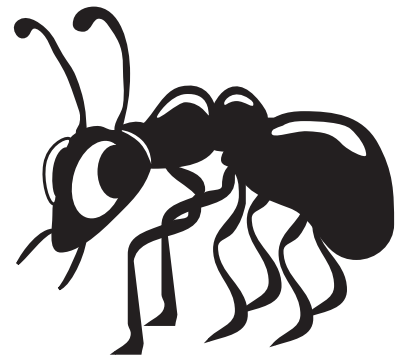
Students may tell or write their own stories patterned after this book. They may either construct their word problems or challenge classmates to do so.



hare



snake



ant



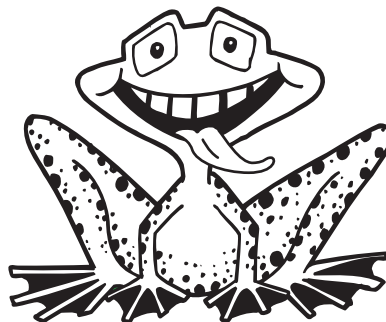
shrew



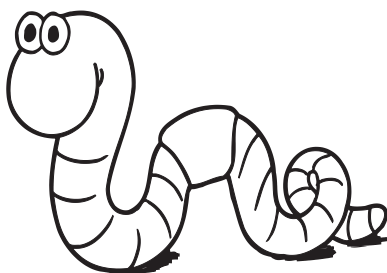
bat



mouse



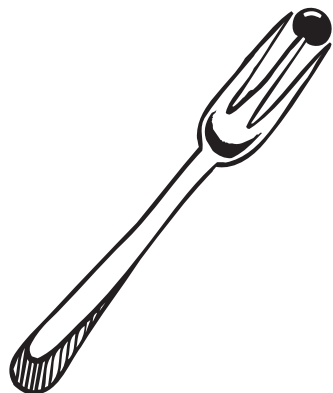
frog



worm



lizard



pea