

Unit 1

Cereal Numbers

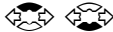
**Concepts**

- Counting to 10 (concept of order)
- Connecting number words and numerals
- Part-whole relationships
- Problem solving

Materials

- TI-10
- Book: *The Cheerios Counting Book*
- Cheerios® or similar cereal
- Plastic coffee straws or pipe cleaners
- Paper plates
- Yarn or ring hooks
- Number name cutout cards (0-10)
- Number name line cutout cards

Calculator Connections

- Operations $+$ $-$
- 2-Line display
- Scrolling 

Suggested Age/Grade Level

- Ages 5-6
- Kindergarten through first grade

Overview

After listening to *The Cheerios Counting Book*, written by Barbara Barbieri McGrath and illustrated by Rob Bolster and Frank Mazzola, Jr. (Scholastic, Inc., 1998) students are given the opportunity to build the numbers from zero to ten with cereal and connect the number name and numeral. Students will explore number sentences for numbers up to ten.

Assessment

Assessment should be done through student work samples and teacher observation. Student activity sheets and teacher observations can be used throughout the unit.

New Vocabulary:

Addend
Addition
Combination
Difference
Plus
Set
Subtraction
Sum
Symbol

Activity A: Connecting Literature and Mathematics

Read the pages about the numbers 1 to 10 from *The Cheerios Counting Book* to students. While reading each page, show the illustrations.

Activity B: Counting and Connecting to Number Names

1. Pass out the Number Name Cutout Cards (located at the end of the unit) for the numbers zero through ten and instruct students to cut out each card along the dotted lines. Tell them that these cards represent the numbers read about in the book.
2. Pass out at least ten Cheerios® to each pair of students.

Have pairs of students start with one empty paper plate and ask the following questions.

- How many Cheerios are on your plate?
- Which number card shows how many Cheerios are on your plate?

Have each student select the number card that shows the number of Cheerios on the plate.

3. Read the number name to your partner.
4. Add one Cheerio to your plate.
5. Find the number card that shows how many Cheerios are now on your plate.
6. Read this number name to your partner.

Continue these steps, having students add Cheerios to their plates until they reach the number 10.

Instruct the students to work with their partner to assemble their cards in counting order. Have students use yarn or ring hooks to make flipbooks out of their number card stack. Instruct each student to make a flip book.

Teaching Tip:

It may be helpful to prepunch holes before distributing the activity sheet.

Ask students to work with a partner and their flip book. One partner will be the “flipper” while the other partner will be the reader. Students should alternate roles.

Questions to ask:

- How did you read your partner’s flip book?
- How was the flip book arranged?




Activity C: Counting with the TI-10

Tell students that their TI-10 can be called an electronic number flip book.


Questions to ask:

- How would you use your TI-10 as a number flip book?
- How can the TI-10 help you place the number cards in counting order?



Ask students to place their TI-10 beside the paper plate and ten Cheerios®.

1. Press  to begin.
2. Press  to clear anything previously stored in the memory.
3. Press . The screen is blank (except for the cursor), the memory is clear, and you are ready to get started.

Tell students to look at their empty paper plates and ask the following questions.

- How might you show what is on your plate with a number key on the TI-10?
 - What number did you choose? Why?
4. Press .
 5. Add one Cheerio to your plate.

Question to ask:

- How would you show this action on the TI-10?
6. Press  .

Teaching Tip:

Encourage students to find a number that means empty or none.

The TI-10 displays:

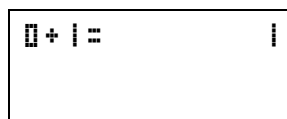


Question to ask:

- How might the TI-10 show how many Cheerios® are on your plate now?

7. Press [=].

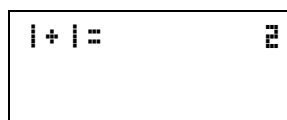
The TI-10 displays:



8. Add one more Cheerio to your plate and say, “plus one equals two.”

9. Press [+][1][=].

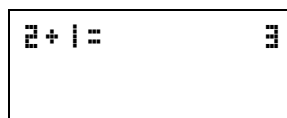
The TI-10 displays:




10. Add one more Cheerio to your plate and say, “plus one equals three.”

11. Press [+][1][=].

The TI-10 displays:



Continue this process until there are ten Cheerios on the plate. When you have reached the number ten, you can use the scroll key  to view all of the number sentences that you have made.

Questions to ask:

- What can you say about the number sentences?
- What can you say about the counting order?
- How are your paper and TI-10 flipbooks alike?
- How are they different?

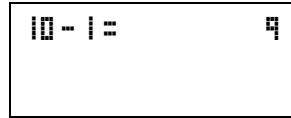
Teaching Tip:

Read the completed number sentences aloud for students.

- If I ask you to take away one Cheerio®, how would you show this action on the TI-10?

12. Press \square \square \square .

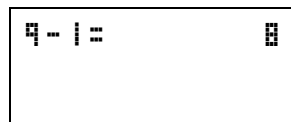
The TI-10 displays:




13. Take away one more Cheerio from your plate.

14. Press \square \square \square .

The TI-10 displays:



When you have an empty plate and have reached the number zero, you can use the scroll key  to see all of the number sentences you have made.

Questions to ask:

- What can you say about the number sentences?
- What can you say about the counting order?

Ask students to look again at their number sentences and the counting order with the TI-10 as the electronic flip book.

15. Read the last page from *The Cheerios Counting Book*.

Activity D: Making Number Sentences

Show the class the illustrations in *The Cheerios Counting Book*. Ask students to notice how the author has arranged the Cheerios on the pages showing numbers one to ten and zero.

Place one Cheerio® on the overhead projector and ask students if there are any different arrangements that could be made.

Place five Cheerios on the overhead projector in the author's arrangement and ask students if these Cheerios can be arranged in other ways.


Teaching Tip:


Read each number sentence aloud for students.


Teaching Tip:

Students can use their flip book or the TI-10 to model writing the numeral and the number name on the card.

Resetting the TI-10:

Press  to wake it up if it has turned off.

Press  if you need to clear the memory.

Press  to clear the display.

Next, tell students that their number cards show the author's arrangements. Ask students to use their Cheerios® to make a different arrangement for each number.

Questions to ask:

- Which numbers from one to ten will it be possible to make another arrangement?
- Are there any numbers for which this will not be possible? Why not?
- Which numbers have more than two arrangements?

Observe students working. Depending on the age, experience, and understanding of the students, it may be helpful to have students work in small groups or with partners.

1. Pass out the number name line card activity sheets.
2. Instruct students to choose an arrangement for each number and draw that arrangement on each card.
3. Ask students to assemble these cards in counting order and connect with yarn or a ring hook.

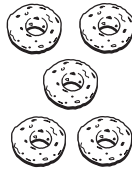
Activity E: Making Number Sentences with the TI-10

1. Pass out a coffee straw or pipe cleaner to each student.
2. Reset the TI-10.

Question to ask:

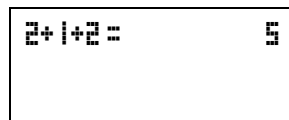
- How can the TI-10 make a number sentence from the author's arrangement of five?

Place the author's arrangement on the overhead projector again.



3. Press $2+1+2=$.

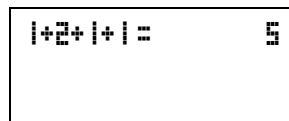
The TI-10 displays:




Ask students to use their TI-10 to explore other number sentences that make five. Students may first use the coffee straw or pipe cleaner with five Cheerios looped on it to aid understanding and making the concrete-symbol connection.

4. Press $1+2+1+1=$.

The TI-10 displays:



When students have entered all the possible number sentences for five, they can press  to see the number sentences they have made.

Questions to ask:

- What might you say about the number sentences?
- How are they alike?
- How are they different?
- Look at your arrangements for your other numbers. How might the TI-10 show those as number sentences?
- How might you find other arrangements?

Provide the opportunity for students to explore other arrangements and corresponding number sentences with their cereal and TI-10s for the numbers 0 to 10.

When appropriate, encourage students to also record their number sentences on paper with the sum first. (Example: $5=1+2+1$)

Conclusion

- Students may use their flipbooks for review at home.
- Students may make a class big flip book showing their arrangements of Cheerios.

Number Name Cutout Cards (0-10)

zero	0		six	6	ooo ooo
one	1	o	seven	7	ooo ooo o
two	2	oo	eight	8	oo o oo o oo
three	3	ooo	nine	9	ooo ooo ooo
four	4	oo oo	ten	10	oo oo o oo oo
five	5	oo oo			

Number Name Line Cutout Cards

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