

Unit 7

Helping Hands



**Concepts**

- Counting
- Connecting number names and numerals
- Problem solving
- Whole numbers

Materials

- TI-10
- Book: *Count on Your Fingers African Style*
- Markers or crayons
- Construction paper
- 1 sheet of 9" x 12" tagboard per student
- Glue or paste
- Scissors
- Primary lined word cards (or large index cards)

Calculator Connections

- 2-Line display
- Scrolling  

Suggested Age/Grade Level

- Ages 5-6
- Kindergarten

Overview

After listening to *Count on Your Fingers African Style* written by Claudia Zaslavsky (Writers and Readers Publishing, Inc., 1999), students will make their own finger signs for the numbers from zero to ten. Students will relate each finger sign to its number name and numeral. They will use the numeral keys and scrolling feature of the TI-10 to enhance the concrete-symbol connection and sequencing of numbers.

Assessment

Throughout the activity questions are included for formative assessment and teacher observations.

New Vocabulary:

Africa
 Greater than ($>$)
 Kenya
 Less than ($<$)
 Number name
 Numeral
 Symbol
 Zulu

Teaching Tip:

Depending on the understanding of the students, this reading may take several sessions. It will be helpful to have a map of Africa and African artifacts for prereading experience.

Teaching Tip:

For this phase of the activity, only one hand will be used. It will be helpful for students to color in the outline of the hand before cutting it out. When the hand is finished, each side should be of a contrasting color.

Activity A: Literature-Mathematics Connection

1. Read *Count on Your Fingers African Style*.
2. Hold up three objects, such as apples, for the class.

Questions to ask:

- How might you make a finger sign to show how many apples I have with your fingers?
- What other ways do you see in the classroom?
- How are some like the one you made?
- How are some different?

Instruct students to work with a partner and make up a finger sign for another number. Students can alternate guessing what number the sign represents.

Activity B: Making a Handful of Digits

Tell students that they will make up finger signs for the numbers zero to five. Ask students to show the number five with their fingers.




1. Pass out construction paper and instruct students to trace one hand (right or left) with fingers spread slightly.
2. Cut out the traced hand from the construction paper.
3. Pass out a sheet of tagboard to each student.

Instruct students to glue the palm of the paper hand cutout to the tagboard, leaving the fingers unglued. This will make a paper hand manipulative workmat which we will call a paper hand mat.



Ask students to show how they might represent the number five by using their paper hand mat.

Activity C: Integrating the Technology

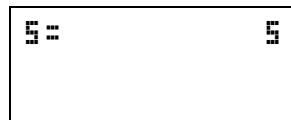
Ask students to place their TI-10 next to their paper hand mat.

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.

Show students an overhead transparency of the TI-10 and point to the symbol for number five. Ask students to find and show the symbol for the number five on their own TI-10.

4. Press  .

The TI-10 displays:



Repeat this process by calling out another number for students to make with their hands. For example, ask students to make a finger sign for the number two by using only one hand.

Questions to ask:

- How might you fold the fingers on your paper hand mat to show the number two?
- How are the numbers five and two different?
- How are they alike?
- How might you find and show the number two on the TI-10?

5. Press  .

The TI-10 displays:



Teaching Tip:

It may be helpful to also write the number word on the board or overhead transparency.

Instruct students to make the numbers zero through five using finger signs on one hand first, next on the paper hand mat, and finally on the TI-10.

Activity D: Connecting Hand Signs, Number Names, and Numerals from 0-5

Teaching Tip:

Modeling handwriting is very important. Some students may benefit from tracing the number name on their word card.

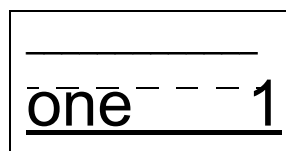
Teaching Tip:

The TI-10 keyboard provides a better model for number writing than the numerals displayed on the screen.

After students have explored the numbers zero through five with hand signs and the TI-10, pass out lined word cards.

Tell students that they will be writing number names for each number from zero to five.

As students write each number name on a separate word card, ask them to locate the numeral on the TI-10 keyboard to use as a model for writing. These will be called number name cards.



Activity E: Match My Number Game

Ask students to work in pairs to sequence their number name cards by playing a matching game. They will need a TI-10, a paper hand mat, and a set of number name cards (0-5).

Tell the students how to play the matching game.

1. The first partner begins by making a hand sign for zero with their fingers.
2. The second partner matches that sign by folding the paper fingers on the paper hand mat.
3. The second partner continues by entering the number zero on the TI-10.
4. Reset the TI-10.
5. Press .

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.

The TI-10 displays:



- The first partner matches that number with the appropriate number name card by laying it face up on the desk.

When students have reached the number 5, the second partner will press  to scroll back to 0.

The second partner continues by pressing  while the first partner turns each matching number name card face down.

Both partners say each number together as one scrolls and the other turns each number name card face down as they play Match My Number Game.

Activity F: Making Two Handfuls of Digits

- Show six objects (for example, apples) to the class.

Questions to ask:

- How might you show how many apples I have with your fingers?
- What other signs do you see in the classroom?
- How are some like the one you made?
- How are some different?

Ask students to make up a finger sign for another number greater than five and work with in pairs to guess the number.

Tell students that they will make up finger signs for the numbers six through ten.

Questions to ask:

- How might you show the number seven with your fingers?
- How might you work with your partner to show the number seven on your paper hand mats?


Teaching Tip:


Students may discover that they can count backwards, as well as forwards together with the scrolling feature.


Example:

If a pair of students was asked to create a finger sign for the number seven using the paper hand mats, the first student could show five fingers on one hand mat and the other student would show two fingers. Other combinations such as three and four would work as well.

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.

Have students work in pairs with their paper hand mats to show the numbers from six through ten. In order to create these finger signs, the students will need to use two hand mats.

Activity G: Integrating the Technology

Ask students to place their TI-10 next to their paper hand mats.

1. Reset the TI-10.

Show students an overhead transparency of the TI-10 and ask them to find and show the symbol for the number seven on their own TI-10.

2. Press  .

The TI-10 displays:






Repeat this process by calling out another number for students to make with their hands. For example, ask students to make a finger sign for the number ten.

Instruct students to make this sign with their partner on their paper hand mats.

Questions to ask:

- How did you and your partner show the number ten with the paper hand mats?
- How are the numbers seven and ten different?
- How are they alike?
- How might you find and show this number on the TI-10?

3. Press   .

The TI-10 displays:



Question to ask:

- How was pressing the number $\boxed{1}$ $\boxed{0}$ different from pressing the number $\boxed{7}$? Why?

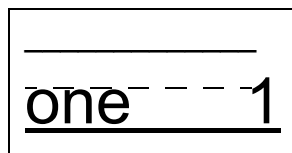
Instruct students to work in pairs to make the numbers six through ten by first using finger signs on two hands, then by using two paper hand mats, and finally by using the TI-10.

Activity H: Connecting Hand Signs, Number Names, and Numerals from 6-10

After students have explored the numbers six through ten with hand signs and the TI-10, pass out more lined word cards.

Tell students that they will be writing number names for each number from six to ten.

As students make their new number name cards, ask them to locate the numeral on the TI-10 keyboard.



Instruct students to work in pairs to sequence all of their number name cards by playing Match My Big Number Game. This game uses the same rules as Match My Number Game, but with all of the numbers from zero through ten. They will need a TI-10, paper hand mats, and a complete set of number name cards (0-10).

Conclusion

Instruct pairs of students to alternate scrambling the number name cards for the other partner to sequence in counting order.

