

FIRST GRADE

Number and Number Sense



Hundred Chart Puzzle

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.19, 1.21

Materials:

- Hundred chart
- Hundred Chart recording sheet
- Pencils
- Overhead projector

Vocabulary

more, less, counting up, counting back, counting words, numerals

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Review the number patterns on the Hundred chart that you have been discussing with students. Ask, “What patterns do you see on the chart?” Point to a row and ask what students notice. Point to a column and ask what students notice. “What else do you see?”
2. Explain that you will be giving students a part of the Hundred chart that has been cut out from the whole.
3. Students need to decide what numbers could go on the puzzle piece cut from the chart.
4. Ask students to explain how they decided which numbers to put on the puzzle piece.
5. Have small groups/sets of partners share their Hundred chart piece with another group. “What do you notice about the other group’s puzzle piece? Do the numbers on the piece make sense? Why or why not?”
6. Pull the groups together to discuss several of the puzzle pieces. “What number did the group put first? How did you figure out what number to write next? Do the numbers on the puzzle piece make sense? Why or why not?”

Assessment

- **Questions:**
 - What patterns do you see on the Hundred chart?
 - What do you notice about the rows?
 - What do you notice about the columns?
 - How did you decide what numbers to place on the Hundred chart?
 - What number did you choose first?

- How did you figure out which number to write next?
- Do the numbers on the puzzle piece make sense? Why or why not?

Variations:

- Give a more abstract puzzle piece to students in need of more challenge (e.g., 3 x 3 puzzle piece, puzzle piece that resembles a staircase).
- Give students one number to place on the puzzle piece and have them deduce the other numbers.
- Record the thinking of those students who have difficulty expressing themselves on paper.
- Copy a Hundred chart with pre-written numbers on cardstock and laminate. Cut the Hundred chart into pieces and have students put the pieces together like a puzzle.
- Cover numbers on a Hundred chart and have students decide which numbers are missing and write them on the chart.

Name _____

Hundred Chart Puzzle

Here is a piece of a Hundred chart. Fill in the missing numbers that could go on the puzzle piece.

How did you know which numbers to put on the chart? Why did you place those numbers on the chart?

Bears in Caves

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.9

Materials:

- Bear counters
- Plastic bowls/cups (caves)
- Recording sheet
- Pencils

Vocabulary: *total, part, missing, counting on, counting back, equal, all*

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Tell students which number they will be working on during the activity and have them brainstorm things that they know about that number. For example, the number “8” could tell how many legs a spider has or how many tentacles are on an octopus.
2. Record their ideas on chart paper/board to begin the conversation about the number being discussed.
3. Have the partners count the number of bears they will be working with during the lesson, and let them know that this number indicates how many bears they will have in all.
4. Each set of partners should get a plastic bowl/cup to represent the bear cave.
5. Explain that students will take turns with their partner hiding some of the bears in the cave (under the bowl/cup) and leaving the rest outside the cave.
6. Students will figure out how many bears are hiding in the cave, given the total number of bears and the number of bears outside the cave.
7. Students will continue taking turns hiding bears in the cave until they have found different combinations for the total number.
8. Pull the students back together for a whole-class discussion of the different combinations they found for the number, and the strategies they used to decide how many bears were hiding inside the cave.
9. List all the different combinations on chart paper/board, and discuss what the students notice.

Assessment

• **Questions**

- If ____ bears are outside the cave, how many are inside the cave? How do you know?
- How did you determine how many bears were inside the cave?
- Do you notice any patterns with the different combinations you found?

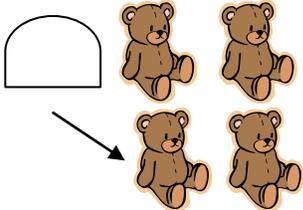
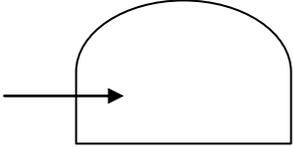
Variations:

- Use numbers that meet individual student needs.
- Struggling students can uncover the bears inside the cave if they are having difficulty figuring out the unknown part.
- Have students write a number sentence to show how they determined the missing part.

Name _____

Bears in Caves

There are _____ bears in all. Write how many bears are outside the cave. Write how many bears are inside the cave.

Outside 	Inside 	Total Bears 

Cube Connections

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	K.5, 1.18, 1.19

Materials

- Cubes
- Recording sheets
- Crayons/pencils

Vocabulary

make, build, add, and, plus, equal, total

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Explain to students that they will be connecting cubes to create a given number, such as 10, and finding ways to make that number with the cubes. (The recording sheets for this activity are to be completed as students discuss a given number—not all in one lesson.)
2. Each partner group needs to select two colors of cubes to use to make the given number.
3. After students have selected the colors, ask them to determine how to build the given number using the two colors of cubes.
4. Show students how to record a picture of what they made, as well as the numbers that represent the quantities of cubes used. (Record the same color first for each cube combination.)
5. Have students continue working to build the given number in different ways and record the solutions on the sheet.
6. Gather students together as a class to discuss the different ways they made the given number.
7. Record their ideas with numbers and pictures on chart paper or the board, and ask them what they notice about the shared ideas.

Assessment

- **Questions:**
 - How did you make ____?
 - How do you know that ____ and ____ make ____?
 - What patterns do you see?
 - Are there other ways to make ____?

- How do you know we have found all the different ways to make _____?

Variations:

- Use smaller or larger numbers, depending on needs of the students.
- Have students write number sentences using the “+” and “=” signs on the recording sheets.

Name _____

Cube Connections

4

--	--	--	--

_____ and _____ is 4

--	--	--	--

_____ and _____ is 4

--	--	--	--

_____ and _____ is 4

--	--	--	--

_____ and _____ is 4

--	--	--	--

_____ and _____ is 4

Name _____

Cube Connections

5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

--	--	--	--	--

___ and ___ is 5

Name _____

Cube Connections

6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

--	--	--	--	--	--

____ and ____ is 6

Name _____

Cube Connections

7

--	--	--	--	--	--	--

____ and ____ is 7

--	--	--	--	--	--	--

____ and ____ is 7

--	--	--	--	--	--	--

____ and ____ is 7

--	--	--	--	--	--	--

____ and ____ is 7

--	--	--	--	--	--	--

____ and ____ is 7

7

(continued)

--	--	--	--	--	--	--

___ and ___ is 7

--	--	--	--	--	--	--

___ and ___ is 7

--	--	--	--	--	--	--

___ and ___ is 7

--	--	--	--	--	--	--

___ and ___ is 7

--	--	--	--	--	--	--

___ and ___ is 7

Name _____

Cube Connections

8

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

8

(continued)

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

--	--	--	--	--	--	--	--

___ and ___ is 8

Name _____

Cube Connections

9

--	--	--	--	--	--	--	--	--

____ and ____ is 9

--	--	--	--	--	--	--	--	--

____ and ____ is 9

--	--	--	--	--	--	--	--	--

____ and ____ is 9

--	--	--	--	--	--	--	--	--

____ and ____ is 9

--	--	--	--	--	--	--	--	--

____ and ____ is 9

9

(continued)

--	--	--	--	--	--	--	--	--

___ and ___ is 9

--	--	--	--	--	--	--	--	--

___ and ___ is 9

--	--	--	--	--	--	--	--	--

___ and ___ is 9

--	--	--	--	--	--	--	--	--

___ and ___ is 9

--	--	--	--	--	--	--	--	--

___ and ___ is 9

Name _____

Cube Connections

10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

10

(continued)

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

--	--	--	--	--	--	--	--	--	--

___ and ___ is 10

Kids on the Playground

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.9, 1.18, 1.19

Materials:

- Counters (e.g., cubes, tiles, chips, blocks)
- Crayons/pencils to explain thinking
- Paper

Vocabulary

number combinations, word problems, pictures, numbers, words

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Introduce the activity by asking students to think about fun activities they enjoy on the playground. Ask, “What are some things you do on the playground? Who likes to swing? Who likes to play ball? Who likes to climb on the monkey bars? How many of you like to slide? How many of you like to do more than one thing? Do you do the same activity every day, or do you like to do different things? Why do you like to do different things?” (You could focus on one playground activity, such as swinging, and ask the students to discuss how many girls like to swing and how many boys like to swing. “Could these numbers change from day to day? Why?”)
2. Explain to the students that they will be working with a partner or in a small group to solve the following playground problem: There are 10 children on the playground. How many could be boys? How many could be girls? Instruct students to explain their thinking using pictures, numbers, and words.
3. Discuss the problem with students. “What are we trying to figure out? How many children are on the playground altogether? How could we record our answers?”
4. Students can use materials of their choice to solve the problems, but they must record their solutions (see recording sheet).
5. Allow student groups to work on the problem and find several ways to solve it.
6. Monitor students as they work to see how they are approaching the problem. What strategies are they using? Are they putting objects together randomly? Do they know their number combinations? Does each combination total 10? What difficulties are students having? What are students doing well?
7. After students have had time to explore the problem, pull them back together as a whole class to discuss the various combinations of girls and boys they found to make 10.

8. Record various students' solutions on chart paper or the board during the whole class discussion.

Assessment

- **Questions:**

- What is the problem asking?
- How could you record your thinking?
- How many children are there altogether?
- How did you solve the problem?
- Do you have 10 children on the playground altogether? How do you know?
- Do you need more? Fewer?
- If there are _____ girls, how many boys will there be? How do you know?
- Is there another way to solve this problem?
- How do we know that we have found all the ways to solve this problem?
- What do you notice about the combinations we have found?
- How did you record your thinking?

Variations:

- Use a smaller or larger number for students to explore, depending on student needs.
- Find all of the solutions (number combinations) for the problem.
- Have students write their own word problems to illustrate various combinations totaling 10.

Name _____

Kids on the Playground

There are 10 children on the playground. How many could be boys? How many could be girls?
Explain your thinking using pictures, numbers, and words.

Place Value Designs with Pattern Blocks

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.

Materials

- Counters
- Pattern blocks in bags to match the number of groups, with fewer than 99 per bag (Pattern blocks projected on an overhead or magnetized pattern blocks are options for the modeling.)

Vocabulary

tens, sets

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Show students various bags of pattern blocks. Ask students: “How many blocks do you think may be in the bags? How would you know? What can you do to find out?” (Most students will say, “Count them.” You may want to suggest that counting by ones will take a *long* time and that they may make a mistake.) Suggest: “Let’s try another way.”
2. Explain to students that they are going to make as many designs as they can with 10 pattern blocks. Each design will use 10 blocks and may include more than one color or shape. At this point, you should model several designs using 10 blocks. Be sure to comment on each design as it is completed. Have the students note how many squares or how many triangles were used in the design. Have them note which shapes were used more and which were used less, and then find the difference between the two.
3. After modeling several designs, distribute the pattern blocks into small cooperative groups, and have the students continue making different designs using 10 blocks. As you monitor the groups, Ask, “How many different designs have you made? How many blocks did you use? How do you know? How could that be written? Is there another way to write it? How do you know? How is that the same or different?” This information can be recorded and left face down on the table with the cooperative group.
4. Each group should then observe the designs of the other cooperative groups for comparison. The number of designs and blocks used should be recorded at each station.

Assessment

- **Questions:**
 - What did you do in this activity to speed up counting?
 - How does this help you know how many blocks you have in your bag? What are other things you may want to count by tens?

Spill!

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.18

Materials

- Part-Part-Whole mat, or 9 x 12 sheet of newsprint folded in half, “hamburger style,” to show two parts
- Six two-color counters per student or group of students
- Cups
- Paper to record results

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Explain to students that they will be finding ways to make 6 (or any other number).
2. Spill six two-color counters from the cup and lead the discussion to get students to describe the colors of the counters that they see (e.g., “I see two red counters and four yellow counters”).
3. Have students sort the counters onto the folded paper, according to color. On a chart marked with a “red” column and a “yellow” column, record the numbers to match what spilled from the cup. Do this several times.
4. Arrange the students in pairs. The first student spills the counters from the cup. The second student puts the red counters on the left and the yellow counters on the right. The first student then writes “_____ red and _____yellow” on the recording sheet. Have the partners trade roles and repeat several more times. This should allow each pair of students to see all the possible ways to make 6.
5. Have students rejoin as a class and discuss what they found. Record the different number combinations in order (e.g., 0,6; 1,5; 2,4) on a chart or black/white board for students to see and discuss.

Assessment

- **Questions:**
 - Is it possible for the number of red counters to match the number of yellow counters? When does that happen?
 - Is it possible to have zero red counters? When would that happen?
 - How many ways are there to make 6?
 - How do you know you are finished?

Name: _____

Red	Yellow

Name: _____

I have _____ red and _____ yellow.
I have _____ red and _____ yellow.
I have _____ red and _____ yellow.
I have _____ red and _____ yellow.
I have _____ red and _____ yellow.
I have _____ red and _____ yellow.
I have _____ red and _____ yellow.

I Found It!

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8

Materials

- Two sets of cards, each with one to six sticker
- Two blank cards

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Prepare two sets of numeral cards (you can use the number cards from a deck of cards, with the face cards removed).
2. Have the students place all of the cards face down in a stack, or spread out in a concentration factor.
3. Direct students to work in pairs to find two cards that make 6, or another number you are investigating. (If you are investigating another number, the cards in the stack need to reflect that. If you are looking for combinations to make 8, for example, you will need to add the cards for seven and eight.)
4. Each student turns over two cards at a time.
5. If the card values combine to make 6, the student may keep the cards. Cards that do not make 6 are returned to the bottom of the stack.
6. Play continues until all possible card combinations that make 6 are used.

Assessment

- Questions
 - How many ways are there to make 6?
 - How do you know you are finished?

Domino Math

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.18

Materials

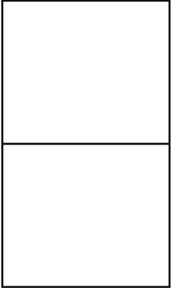
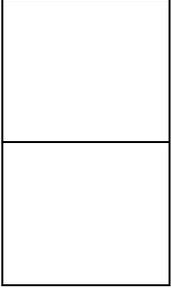
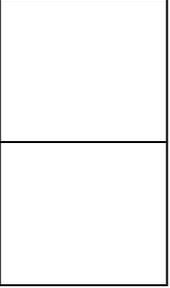
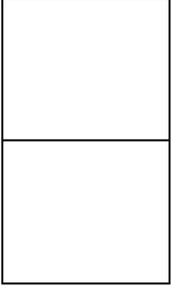
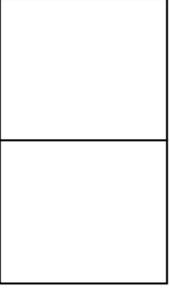
- Set of dominoes
- Paper bag
- Basket, or tub
- Recording sheets

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Put a set of dominoes in a paper bag, basket, or tub—preferably one that obscures students’ view of the dominoes.
2. Select a target number, or have students suggest one.
3. Have a student reach into the bag/basket/tub and draw a domino. If the dots on the domino add up to the target number, then the student should record the number combination that appears on the domino and keep it face up. If the number does not match the target, the student should turn the domino face down in a separate pile and draw again. After two chances, play then moves to the next student.
4. After students have drawn all of the dominoes from the bag, they should have the “set” of number combinations that are possible for the target number.
5. The students’ recording sheets should list all of the possible combinations they found.
6. At another opportunity, the students could investigate another target number.

Name: _____

Domino Recording Sheet

<p>My domino looked like this:</p> 	<p>My domino looked like this:</p> 
<p>My domino looked like this:</p> 	<p>My domino looked like this:</p> 
<p>My domino looked like this:</p> 	<p>My domino looked like this:</p> 

Seven Up

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.18

Materials

- Part-Part work mat, or folded sheet of newsprint as a substitute
- Colored tiles (each student should have only one color)
- Paper

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Place all seven tiles on the left side of the Part-Part mat (or folded newsprint). Have each student do the same.
2. Count the tiles aloud with the students. Ask, “How many tiles? How did you know?” Show the students that *all* seven tiles are on one side of the work mat and zero tiles are on the other side.
3. On a sheet of paper write, “____ and ____.” Show them how to write in the 7 and the 0.
4. Move one tile from the left to the right. Ask, “How did that change the mat? What do you see now?”
5. Record the change and continue in this manner until all the number combinations for 7 are recorded.

Assessment

- Questions
 - How many ways did you make 7?
 - Was the same number ever on both sides of the Part-Part mat?
 - How do you know you have all the possible combinations? Why or why not?

Part-Part Mat

A large empty rectangular box divided into two horizontal sections by a single horizontal line. The top section is approximately 50% of the total height, and the bottom section is the remaining 50%. The box is intended for students to draw or write on to represent a part-part mat.

Name: _____

Seven Up Recording Sheet

I have _____ and _____.

More, More!

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will <ul style="list-style-type: none"> a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.18

Materials

- Two-color counters
- 10-frames
- Number cubes or number cards

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Direct students to choose 10 counters and a 10-frame (the 10-frames on the next page can be copied and laminated). If necessary, review 10-frame rules: always fill the top row first; always use red first, then yellow.
2. Place counters and 10-frames in the center of each table, and direct students to choose theirs.
3. Choose random numbers by tossing number cubes or selecting cards. Ask students to place the corresponding number of counters on their 10-frames to match the random number selected.
4. Ask students to place *one more* counter, then *two more* counters for each number.
5. Ask how many counters would there be with *one more* and *two more*. Record those new numbers on the chart/whiteboard (see below).

Number	1 More	2 More
6	7	8

10-Frames

Crazy Eights

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.18

Materials

- Construction paper or paper plates for spider body and head
- Chenille stems/pipe cleaners (two colors)
- Glue
- Tape
- Roll-paper chart (see example)

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Ask students, “How many legs does a spider have?” Explain that each student will be creating a spider with eight legs made from the colorful chenille stems.
2. Place chenille stems in the center of each table, and direct students to each choose eight, making sure to select some of each color.
3. Have each student take two circles—one large circle for the spider’s body, one small circle for its head.
4. Students should attach chenille stems to the spider body, using glue on the paper or by poking the stems through the paper plates.
5. Instruct students to count one color of legs first (as the first addend) and then to count the other color of legs (as the second addend); this will demonstrate the commutative property.
6. Examine the spiders with students as they sort/count the number of legs by color. Have students then attach their spiders to the roll-paper chart in the appropriate place.

Assessment

- Questions
 - How is your spider the same or different from the others?
 - How many of each leg color did you count?
 - Where does your spider go on the chart? How can you tell?

Example of a Chart Made from Roll Paper

0 and 8	1 and 7	2 and 6	3 and 5	4 and 4	5 and 3	6 and 2	7 and 1	8 and 0

Have students place spiders in the column where they belong, based on leg color, making sure to count the same color first for each student's spider.

In or Out

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8

Materials

- Ten two-color counters for each set of student partners
- Newsprint Chenille stems/pipe cleaners (two colors)

Vocabulary

plus, equals, sum

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Model the game by placing newsprint sheets on the floor as a game mat. Explain: “I have 10 counters. I am going to gently toss my counters over the game mat. What do you think will happen? OK, let’s see how many counters land on the mat and how many counters land off the mat.”
2. Record total number of counters at the top of the game grid and the number of counters on and off the grid.
3. Repeat the above procedure, choosing individual students to gently toss the counters (choose students who may need additional practice in gentle tossing) and to record on the grid how many counters land on and off the mat.
4. Have students then join their partners to play the “In or Out” game together.
5. Circulate and monitor the groups. Those students having difficulty can join you in a separate area and use manipulatives to count objects and also to play the “In or Out” game.

The Circle Counting Game

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Direct students to stand in a circle.
2. Designate one student as the starter, who will begin counting to a designated number (e.g., 20). The student to the starter's right will say the next number in the sequence; continue around the circle until the designated number is reached.
3. The student who says the last number of the sequence sits down, and the sequence begins again skipping over those who are sitting down until only one student is left standing.
4. Repeat the game, starting with the same student, in the same direction, using the same sequence and have students predict who will be left standing. This can be played in any length sequence and with any number of students. Skip counting may be used as well.

The Hidden Hand Game

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8

Materials

- Small manipulatives, such as beans, two-color counters, or teddy bear counters that fit in your hand
- Ten two-color counters for each set of student partners

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Select a certain number of items (e.g., 10), and put some in each hand.
2. Open one hand to reveal the items. Have the other player count those items.
3. Then ask, “Knowing that there were 10 items total, how many remain in the closed hand?”
4. Demonstrate this several times.
5. When students are comfortable with how to play the game, break them into small groups or pairs to play together.

Count On

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.3, 1.8

Materials

- One number cube and one dot cube per group

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Model the exercise for students by rolling the number and dot cubes. Record the numeral first and the dot second. If you roll a “5” on the numeral cube, and “3 dots” on the second cube, announce “5” and then count forward, using the dots on the second cube: “6, 7, 8.” (Some students will need to touch the dots to count on.) Demonstrate this several times showing students how to use the numeral first and to “count on” using the corresponding number of dots from the second cube.
2. Divide students into pairs or small groups. To keep as many students playing as possible, instruct students that when one rolls the cubes, the other can count the numerals; and then the students switch roles.
3. After having played the game for a while, students can use a small whiteboard, or paper on a clipboard, to write the numbers that were counted on, or the addition sentence that was generated on the cubes.

How Many of Each?

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.8, 1.9

Materials

- Blank paper
- Counters or cubes

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Tell students that they are going to make a picture of two kinds of things that add up to 10. They can draw two kinds of animals, two kinds of food, two kinds of toys—anything they want, but the total must equal 10.
2. Demonstrate by illustrating two kinds of things that equal 10.
3. Tell students to decide which two kinds of things they want in their picture and how many of each type they want to have.
4. Distribute blank paper to students for their illustrations. They can talk with each other about possibilities but encourage them to think of their own ideas.
5. Students' illustrations should have 10 total things and include the number of each thing they've drawn. Alternatively, students can verbalize their picture using numbers and/or words.

Variations:

- Use a number larger than 10, or combine solutions of two students to make 20 things.

Me!

Reporting Category	Number and Number Sense
Topic	Count and write numerals to 100
Primary SOL	1.1 The student will a) count from 0 to 100 and write the corresponding numerals.
Related SOL	1.18

Materials

- Number cards (can be a regular card deck with face cards removed), one set per pair of students

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. To model how to play the game, pick a student to play with you.
2. Mix the cards and distribute them evenly between the two players, placing the stack of cards face down in front of each player.
3. Both players turn over the top card in their stacks.
4. The player with the larger number says, “Me!” (Should both cards be the same value, each player turns over another card.)
5. The game is over when all cards have been turned over.
6. Following the demonstration, distribute card sets to each team for play.

Variations:

- Turn over two cards each, combine the numbers, and call “Me!” if the student’s number is larger.
- Look for the smaller number instead of the larger number.
- Play with three players.

Constructing Numbers

Reporting Category	Number and Number Sense
Topic	Count and group objects into tens and ones (place value)
Primary SOL	1.1 The student will <ol style="list-style-type: none">count from 0 to 100 and write the corresponding numerals; andgroup a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value.

Materials

- Objects for constructing numbers (cubes, beans, cups, base-ten blocks, 10-frames)
- Number cards 11–100
- Recording sheet
- Pencils

Vocabulary

how many, groups of tens, ones, number word, pictures/representation, counting, collection, total

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Before the activity, construct number cards 11–20. You can use index cards or enlarge a Hundred chart and cut out the boxes.
2. Introduce the activity by having a student choose a number card from the set of cards. Write the number on the board/chart paper and ask students to identify the number you wrote.
3. Have students brainstorm different ways they could use counters to make the number. Using the number 46 as an example, the students may represent the number using 46 counters organized randomly, 46 counters in groups of two, four groups of ten and six ones, or two groups of ten and 26 ones. Ask students: “How could you show 46? How did you count the objects to make sure that you have a total of 46? Were any of the ways that you counted faster than other ways? Why did it seem that way? Were any of the ways that you counted slower than other ways? Why did it seem that way?”
4. Explain to the students that you would like them to make 46 using as many groups of ten as they can. Before they begin, pose the following questions: “How many groups of ten do you think you will have? How many will be left over? How do you know?” As students are working, walk around and observe the strategies they are using to group the counters using tens. When students have completed this task, discuss the strategies they used to make 46. Ask, “How many groups of ten did you make? How many were left over? What does this have to do with how many counters we have in all?”

5. Explain to students that they will be working in small groups to construct numbers using as many groups of ten as they can. They will use a recording sheet to record the number they choose from the set of number cards.
6. Next, they should use counters to determine how many groups of ten and ones (leftovers) they will have. To show their work on their recording sheets, they may use 10-frames, pictures of base-ten blocks, drawings of sticks (groups of ten) and dots (ones), or connecting cubes.
7. Students should record how many groups of ten and ones they have and the number word that tells how many.
8. Set the students to work on constructing numbers. Observe how they are constructing the number using counters and how they are determining how many groups of ten and ones are in their number.
9. After students have had time to work on several numbers, pull the students together to discuss a number and how many groups of ten and ones are in this number. Ask, “How did you make ____? How did you count the objects to make sure that you have a total of ____? How many groups of ten did you make? How many were left over? What does this have to do with how many counters you had in all?”

Assessment

- **Questions**

- How could you show ____?
- How did you count the objects to make sure that you have a total of ____?
- Were any of the ways that you counted faster than other ways? Why did it seem that way?
- Were any of the ways that you counted slower than other ways? Why did it seem that way?
- How many groups of ten do you think you will have?
- How many will be left over? How do you know?
- How many groups of ten did you make?
- How many were left over?
- What does this have to do with how many counters we have in all?

Variations:

- Give students the picture of the number. Ask, “How many are in the picture? How many groups of ten do you see, and how many ones are left over? What is the number word?”
- Give students the number word and have them determine the number, as well as how many groups of ten and ones are in the number. Have students create a representation/picture of how many.
- Use larger or smaller numbers, depending on student needs.
- Give students a bag of objects to count. Ask students to write how many, draw a picture to represent how many, tell how many groups of ten and ones are used in the numbers,

and write the number word. Be sure to count the objects in the bags and make note of the number before students complete this variation of the activity.

Name _____

Constructing Numbers

How many? _____

Make a picture/representation to show how many.

_____ groups of ten _____ ones

_____ number word

Largest Number

Reporting Category	Number and Number Sense
Topic	Count and group objects into tens and ones (place value)
Primary SOL	1.1 The student will <ol style="list-style-type: none">count from 0 to 100 and write the corresponding numerals; andgroup a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value.

Materials

- Cubes
- Number cards 0–9
- Hundred chart
- Recording sheets
- Pencils

Vocabulary

more, less, counting up, counting back, number words, ten less, ten more, numerals, Hundred chart

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Begin the activity by having students compare two numbers, such as 24 and 32. Ask, “How could you build 24 using cubes? How do you know you have the correct amount of cubes to show 24? How could you build 32 using cubes? How do you know you have the correct amount of cubes to show 32? Which number is larger? How do you know? Which number is smaller? How do you know?”
2. After students determine which number is larger and why, ask them to assess which number would be *ten more*. Students can use materials of their choice (e.g., cubes, Hundred chart, 10-frames).
3. Walk around and monitor students’ strategies for solving the problem.
4. After they have explored what *ten more* would be, discuss the strategies they used. Ask, “How did you know which number was *ten more*? What did you do to figure this out?” Record student strategies on chart paper/board. Compare the various strategies. Ask, “What is similar? What is different?”
5. Ask students to determine which number would be *ten less*. Students can use materials of their choice (e.g., cubes, Hundred chart, 10-frames).
6. Walk around and monitor students’ strategies for solving the problem.
7. After they have explored what *ten less* would be, discuss the strategies they used. Ask, “How did you know which number was *ten less*? What did you do to figure this out?”

Record student strategies on chart paper/board. Compare the various strategies. Ask, “What is similar? What is different?”

8. Next, have students work with a partner or in small groups. Each group needs a set of number cards.
9. Have each group choose two number cards and record the two numbers they selected on the recording sheet.
10. Students then need to use the two cards they chose to make the largest two-digit number they can.
11. Have students construct their number using cubes and record a picture of their number.
12. Next, they should write the number word for the number they made.
13. On the recording sheet, have students use pictures, numbers, and words to explain how they know they’ve made the largest number they could with the cards selected.
14. Have students construct and write the number that would be *ten less* than the number they have made. Have them record a picture of the number that is *ten less* and also write the number word on the recording sheet.
15. Pull students together as a class to discuss the strategies they used to construct the largest number from the cards. Ask, “How did you decide which number is *ten less*?”

Assessment

- **Questions**

- How could you build the number _____ using cubes?
- How do you know you used the correct number of cubes to show the number?
- Which number is larger? Smaller? How do you know?
- What is the largest number you can make with the two cards? How do you know?
- What strategies did you use to figure this out?
- Which number would be *ten more* than the number? How do you know?
- Which number would be *ten less* than the number? How do you know?
- What did your representation of the number look like? How does it relate to the number word that you wrote to tell how many?

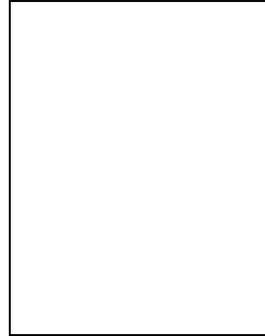
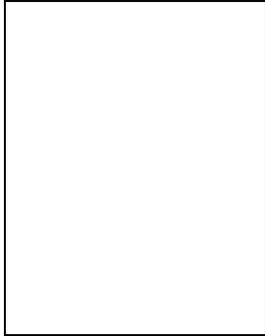
Variations:

- Students could use three cards to make the largest three-digit number from the cards.
- Students could find which number is *20 more*, *20 less*, *15 more*, and *15 less*.

Name _____

Largest Number

Pick two cards and write the numbers you chose on each rectangle below. Then, use the cards for the following problems.



Make the largest two-digit number you can using the number cards. Draw a picture of the number and write the number word for it.

_____ largest number

Picture of largest number



_____ number word

How do you know it is the largest number you can make with the cards?

Draw a picture and write the number that is *ten less* than the number you made with the number cards.

Picture of Number



number word

Smallest Number

Reporting Category	Number and Number Sense
Topic	Count and group objects into tens and ones (place value)
Primary SOL	1.1 The student will <ol style="list-style-type: none">count from 0 to 100 and write the corresponding numerals; andgroup a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value.
Related SOL	1.18

Materials

- Cubes
- Number cards 0–9
- Hundred chart
- Recording sheets
- Pencils

Vocabulary

more, less, counting up, counting back, number words, ten less, ten more, numerals, Hundred chart

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Begin the activity by having the students compare two numbers, such as 16 and 61. Ask, “How could you build 16 using cubes? How do you know you have the correct amount of cubes to show 16? How could you build 61 using cubes? How do you know you have the correct amount of cubes to show 61? Which number is larger? How do you know? Which number is smaller? How do you know?”
2. After students determine which number is smaller and why, ask them to assess what number would be *ten more*. Students can use materials of their choice (e.g., cubes, Hundred chart, 10-frames).
3. Walk around and monitor students’ strategies for solving the problem.
4. After they have explored what *ten more* would be, discuss the strategies they used. Ask, “How did you know what number was *ten more*? What did you do to figure this out?” Record student strategies on chart paper/board. Compare the various strategies. Ask, “What is similar? What is different?”
5. Ask students to determine which number would be *ten less*. Students can use materials of their choice (e.g., cubes, Hundred chart, 10-frames).
6. Walk around and monitor students’ strategies for solving the problem.

7. After they have explored what *ten less* would be, discuss the strategies they used. Ask, “How did you know what number was *ten less*? What did you do to figure this out?” Record student strategies on chart paper/board. Compare the various strategies. Ask, “What is similar? What is different?”
8. Next, have students work with a partner or in small groups. Each group needs a set of number cards.
9. Have each group choose two number cards and record the two numbers they selected on the recording sheet.
10. Students then need to use the two cards they chose to make the smallest two-digit number they can.
11. Have students construct their number using cubes and record a picture of their number.
12. Next, they should write the number word for the number they made.
13. On the recording sheet, have students use pictures, numbers, and words to explain how they know they’ve made the smallest number they could with the cards selected.
14. Have students construct and write the number that would be *ten more* than the number they have made. Have them record a picture of the number that is *ten more* and write the number on the record sheet.
15. Pull students together as a class to discuss the strategies they used to construct the smallest number from the cards. Ask, “How did you decide which number is *ten more*?”

Assessment

- **Questions**

- How could you build the number _____ using cubes?
- How do you know you used the correct number of cubes to show the number?
- Which number is larger? Smaller? How do you know?
- What is the smallest number you can make with the two cards? How do you know?
- What strategies did you use to figure this out?
- Which number would be *ten more* than the number? How do you know?
- Which number would be *ten less* than the number? How do you know?
- What did your representation of the number look like? How does it relate to the number word that you wrote to tell how many?

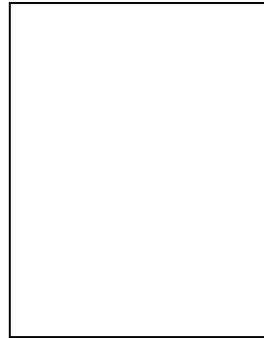
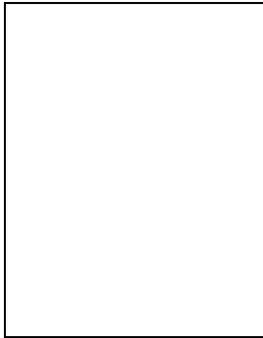
Variations:

- Students could use three cards to make the smallest three-digit number from the cards.
- Students could find what number is *20 more*, *20 less*, *15 more*, and *15 less*

Name _____

Smallest Number

Pick two cards and write the numbers you chose on each rectangle below. Then use the cards for the following problems.



Make the smallest two-digit number you can using the number cards. Draw a picture of the number and write the number word for it.

_____ smallest number

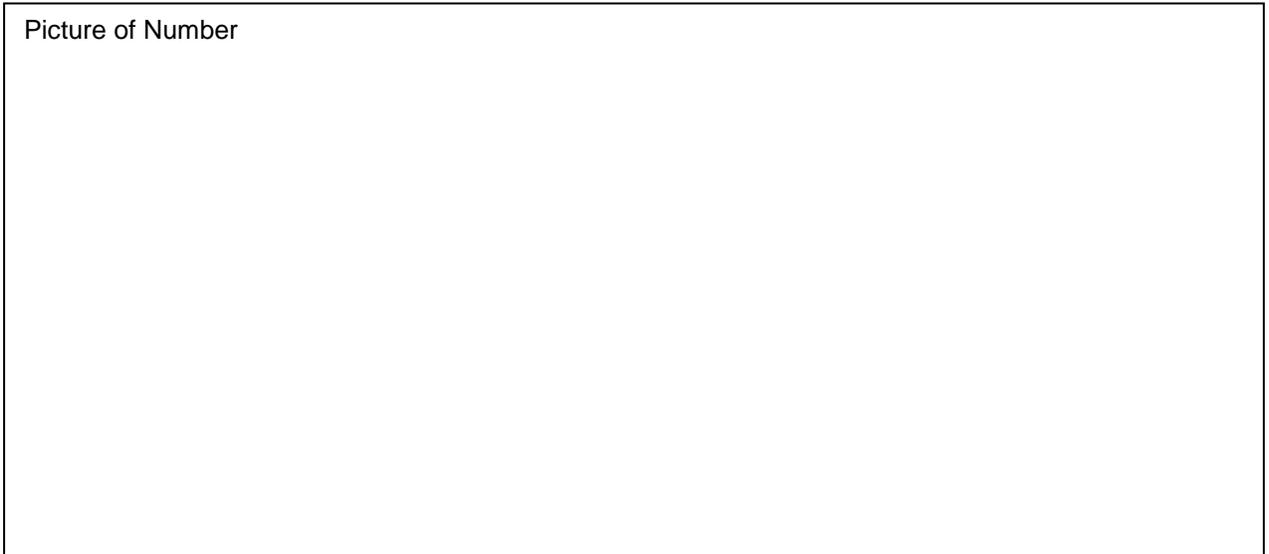
Picture of smallest number

_____ number word

How do you know it is the smallest number you can make with the cards?

Draw a picture and write the number that is *ten more* than the number you made with the number cards.

Picture of Number



number word

About How Many?

Reporting Category	Number and Number Sense
Topic	Group objects into tens and ones (place value) and count by ones, twos, fives, and tens
Primary SOL	1.1 The student will b) group a collection of up to 100 objects into tens and ones and write the corresponding numeral to develop an understanding of place value. 1.2 The student will count forward by ones, twos, fives, and tens to 100 and backward by ones from 30.
Related SOL	1.18, 1.19

Materials

- Objects to count (e.g., bears, cubes, golf balls, beans, pom-pom balls, cotton balls)
Number cards 0–9
- Clear container
- Chart with headings “too small,” “about right,” and “too large”
- Markers for recording
- Sticky notes

Vocabulary

counting, estimate, group, objects, size, small, large, about, how many, most, least, benchmark

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. In preparation for this lesson, fill a clear container with objects to count, such as bears, cubes, or pom-pom balls. Count the objects as you place them in the container so you know how many objects are in the container.
2. Show students the container and explain that you need their help in figuring out how many objects are in it. “About how many _____ are in the container? Do you think there are more/fewer than 10? How do you know? Do you think there are more/fewer than 100? How do you know? How could we figure out how many _____ are actually in the container?” Record student ideas on chart paper or the board.
3. Show the students a group of 10 objects as a reference for estimating how many objects are in the container. Have them write on a sticky note about how many objects they think are in the container based on the group of 10 that you’ve shown them.
4. Have students refer to the chart of ideas recorded in Step 2 and try several. (If they suggest counting by ones, then have students count the objects by ones. If they suggest other ways of counting, have them try a few of their ideas.)

5. After they have determined how many objects are in the container, discuss the various ways that they counted the objects. “How did you count the objects? Were any of the ways that you counted the objects easier? Why did it seem that way? Were any of the ways that you tried to count the objects hard? Why did it seem that way?”
6. Have students refer back to their original estimates. Construct the following chart:

Too Small	About Right	Too Large

Ask the following questions: “What makes an estimate too small? What makes an estimate too large? What makes an estimate about right? How do you know?”

7. After discussion of the chart, have students post their original estimates according to the parameters that they as a class agreed would constitute an estimate for each category.
8. Review the information on the estimate chart and have students discuss it. Ask, “What do you notice about our estimates? Which category/group has the most? Which category/group has the least? Were any of our estimates about right? Why is estimation important? How could we make better estimates?”

Assessment

- **Questions**

- About how many _____ are in the container?
- Do you think there are more/fewer than 10? How do you know?
- Do you think there are more/fewer than 100? How do you know?
- How could we figure out how many _____ are actually in the container?
- How did we count the objects?
- Were any of the ways that we counted the objects easier? Why did it seem that way?
- Were any of the ways that we tried to count the objects harder than others? Why did it seem that way?
- What makes an estimate too small?
- What makes an estimate too large?
- What makes an estimate about right? How do you know?
- What do you notice about our estimates?
- Which category/group has the most?
- Which category/group has the least?
- Were any of our estimates about right?
- Why is estimation important?
- How could we make better estimates?

Variations:

- Use fewer or more objects in the container, depending on student needs.

- Each group could have a container with the same number of objects but different objects in each. (For example, Group 1: pom-pom balls, Group 2: cotton balls, Group 3: cubes). The groups could then compare the similarities and differences among the objects in their containers.

Fractions to Share and Fractions to Spare

Reporting Category	Number and Number Sense
Topic	Identify halves, thirds and fourths
Primary SOL	1.3 The student will identify the parts of a set and/or region that represent fractions for halves, thirds, and fourths and write the fractions.

Materials

- Oranges, cookies, brownie, or candy bar pieces
- Recording sheet
- Pencil

Vocabulary

equal, fair shares, parts, whole, total, fraction

Student/Teacher Actions (what students and teachers should be doing to facilitate learning)

1. Introduce the activity by dividing the orange, cookie, brownie, or candy bar into different sized parts so the students can see. Pose the question, “If I give everyone a piece of the _____, will this be an equal way of sharing the _____? Why or why not? How could the _____ be shared equally?” Have students brainstorm and discuss their ideas. (Students should realize that the parts are not equal-sized and thus not an equal way of sharing.)
2. Divide a second orange, cookie, brownie, or candy bar into equal shares using one of the student’s strategies for division, and let the students enjoy the treat while you begin the next part of the activity.
3. Next, explain to the students that they will be working with a partner or in a small group to solve the following problem: *There are two children who want to share one orange so that each child gets the same amount. Show how many orange pieces each child can have. Explain your thinking using pictures, numbers, and words.*
4. Discuss the problem with students. Ask, “What are we trying to figure out? How many children are sharing? How many oranges are they sharing? What are some ways we could show our work on this problem?”
5. Set the small groups to work and remind students that they need to draw pictures to show how many parts one child will get if they share the orange equally.
6. Allow students to work on the problem and then explain their thinking.
7. Monitor students as they work to see how they are approaching the problem. What strategies are they using? Are they sharing the oranges equally among the children in the problem? Do their pictures accurately represent equal parts? What difficulties are they having? What are students doing well? How are they recording to show how many orange pieces one child will get?

8. After students have had time to explore the problem, pull the whole class back together to discuss the strategies students used to determine how many orange pieces each child would get if sharing the orange equally. Ask, “How did you solve the problem? How many orange pieces did the children have to share? Did you use the whole orange without throwing any of it away? Did the children get equal parts? How do you know? Is there another way to solve this problem? How did you record your thinking? What numbers did you use to show how much one child will get? Does anyone know what the pieces/parts are called?”
9. Record various students’ solutions on chart paper or the board during the whole class discussion. Be sure to discuss the various strategies students used to solve the problem.

Assessment

- **Questions**

- What are we trying to determine with the oranges?
- How many children are sharing?
- How many oranges are they sharing?
- What are some ways you could show your work on this problem?
- How did you solve the problem?
- Did you use the whole orange(s) without throwing any parts away?
- Did each of the children get an equal part? How do you know?
- Is there another way to solve this problem?
- Did anyone have a different picture for your solution?
- How did you record your thinking?
- What numbers did you use to show how much one child will get?
- Does anyone know what the pieces/parts are called?

Variations:

- There are four children who want to share two oranges so that each gets the same amount. Show how many orange pieces one child will get. Explain your thinking using pictures, numbers, and words.
- Use different numbers based on the needs of students.
- Try using numbers that involve each child receiving a whole orange and part of another orange (e.g., four children could be sharing six oranges) to observe strategies students use to solve the problems and share the oranges equally.