1

Whole Numbers

Seeing Dots

How Many?

Number Path

Counting Sets

More or Less

Who's First?

Number Slap

A Ten Count!

Number Jingle!

SEEING DOTS

Objective

Students will use mental imagery to tell how many dots are on a card.

Anticipatory Set

Show students a photo of one object. Hold it up for 3 seconds, and then place it facedown so students cannot see it. Ask students to name what they saw. Discuss how we can look at something quickly and identify it.

Purpose

Tell students they are going to practice identifying how many dots are on a card. Explain that they should try to find the card as quickly as they can.

Input

Subitizing is best practiced with dot card patterns, rather than with manipulatives, to enhance imagery and eliminate counting by ones.

Before the activity, make a class set of the **Dot Cards reproducibles (pages 4–5).** Cut out each set of cards, and paperclip each set together. Show one card from a set to students, and ask them to say how many dots are on the card. Repeat with other cards from the set. It is important that you only briefly show each card so students do not rely on counting to identify the number of dots. Hold up each card for about 3 seconds.

Modeling

Tell students you are going to give them a set of dot cards. Explain that you will call out a number, and they will quickly find the card that has that number of dots. Model laying out the dot cards faceup. Then say "four," and pick up the dot card with four dots. Hold the card in the air and show students. Say, "I did not count the dots on each card. I quickly glanced at all the cards and picked up the one that had four dots."

Checking for Understanding

Be sure that students understand that they are trying to identify and pick up the correct card as fast as they can.

Guided Practice

Distribute the sets of dot cards. Start out by giving students dot cards 1 through 6. Have students lay their cards faceup. Call out a number between 1 and 6, and ask students to show you that card. Quickly scan the room to see which students are choosing the correct card. Repeat the steps until most students are correctly identifying the cards. Then have students place those

cards aside, give them dot cards 7 through 12, and repeat the activity. As students become more proficient, randomly choose any set of six dot cards.

Closure

Tell students to think about what they learned today. Ask them if they had to count the number of dots on each card each time they looked for the matching card or if they just looked at the cards. Invite students to write or dictate one important thing they learned in their math journals.
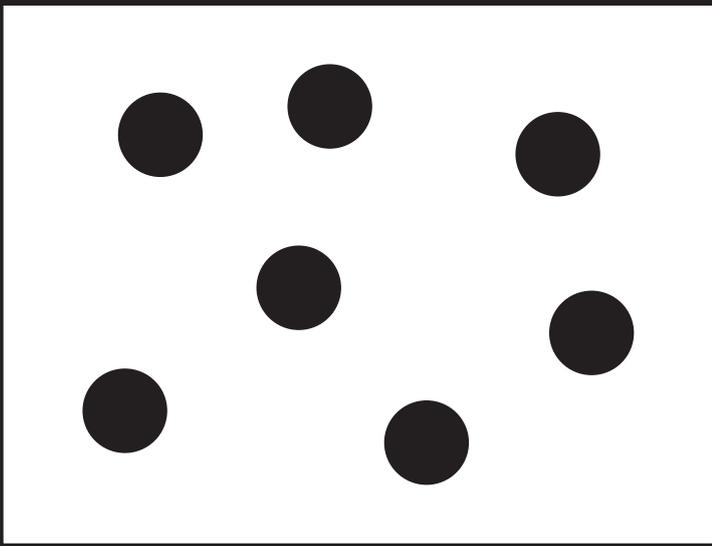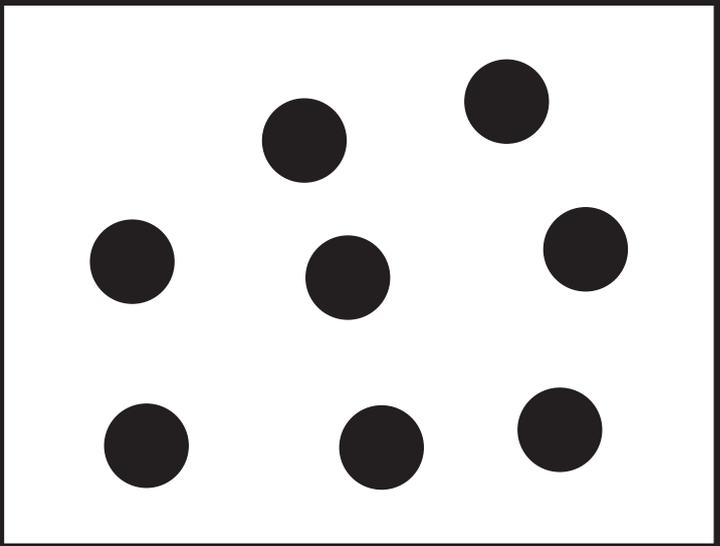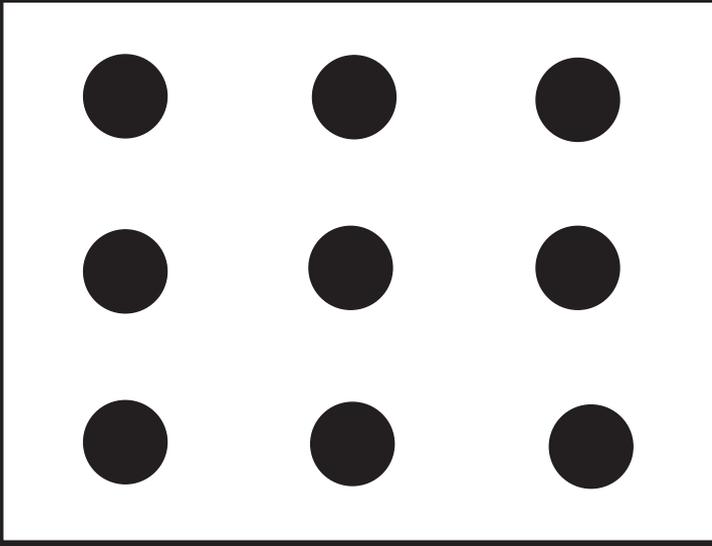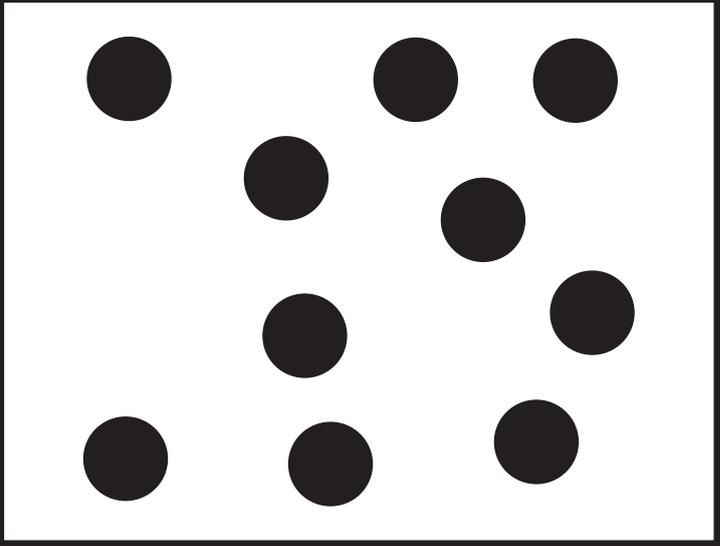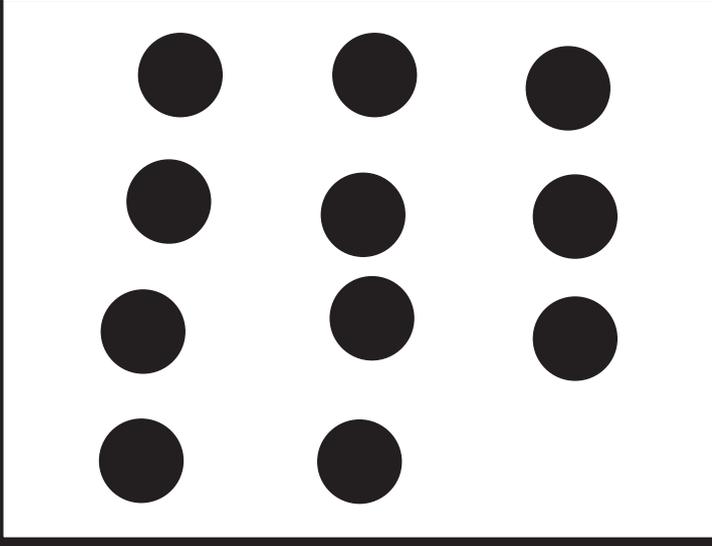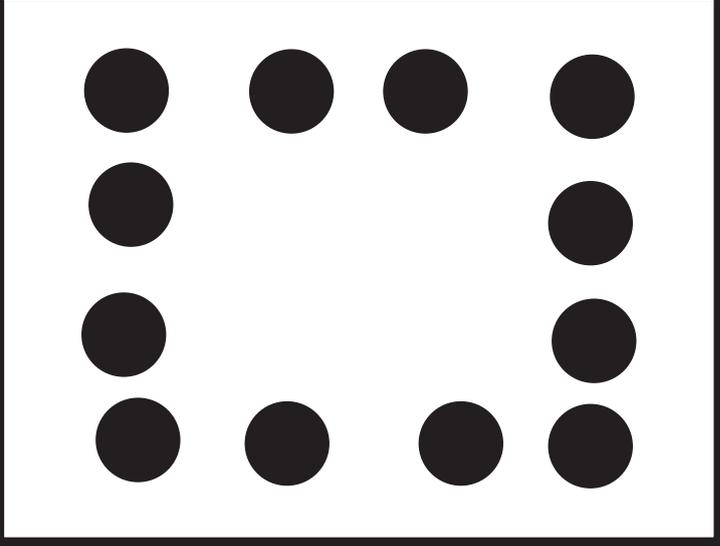
Independent Practice

Have students place a set of dot cards facedown on their desks. Have them flip over a card and say how many dots are on the card. Have them continue until they have practiced each card a few times.

Dot Cards

Dot Cards

HOW MANY?

Objective

Students will count objects using one-to-one correspondence.

Anticipatory Set

Ask one student who is wearing a shirt with buttons to stand up. Point out the buttons and ask aloud, "I wonder how many buttons are on this shirt." Explain that one way to find out is to count the buttons. Point to each button as you count it aloud.

Purpose

Tell students that they will count objects to find out how many there are.

Input

Remind students that when we count objects, we count each object only one time.

Modeling

Use two-sided color chips, or glue two different-colored sheets of construction paper back-to-back, and then cut the paper into small squares. Lay five chips in a row on a table. Have the same color of each chip facing up. Then flip over each chip as you count aloud. Ask students, "How many chips are there? I counted five chips."

Checking for Understanding

Make sure that students understand that the last number counted represents the amount. Flip over three cards. Ask students to point to the square that identifies the quantity.

Guided Practice

Give each student a set of 10 chips. Ask students to place their chips in a row with the same color showing on each chip. Tell students to count the chips. Tell them to turn over each chip as they count it. When they get to the fourth chip say, "Stop." Then ask students, "How many chips did you count?" Repeat the process, stopping at different amounts. Then have students pick up a handful of the chips and count the chips in their hands. Ask them to put their hands behind their backs and ask, "How many chips did you count?"

Using chips with different-colored sides can enhance students' understanding of the cardinal principle.

Closure

Tell students to follow the directions you give them. Say, "Clap five times." Have students clap and count to five. Repeat with other directions such as, *Stomp your feet four times, Jump up and down six times,* and *Touch your toes three times.* Then ask students to draw a small set of objects in their math journals and count the number of objects. Have them write and complete the sentence frame, "I counted [number of items] [name of item]."

Independent Practice

Give each student a copy of the **Counting Objects reproducible (page 8)** to complete individually. Tell students that they will count the number of objects in each set and then write the number. The objects being counted are of various sizes and in various configurations to represent the concept that number words describe *how many* objects and not their arrangement or size.

Counting Objects

Directions: Write how many objects are in each set.
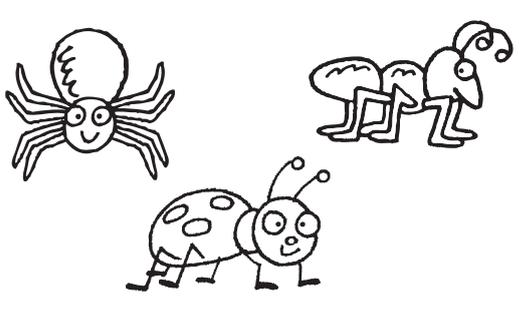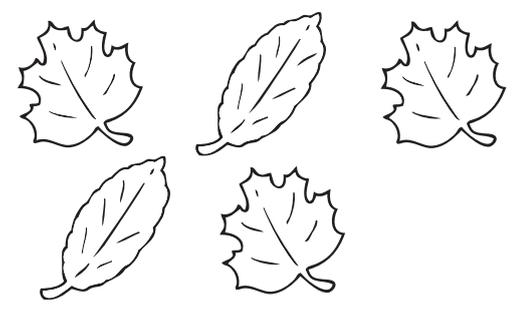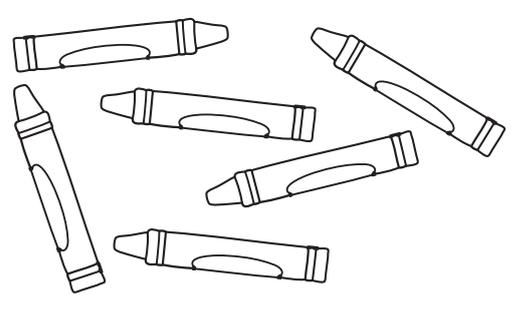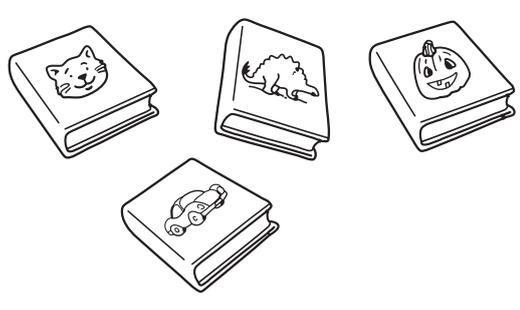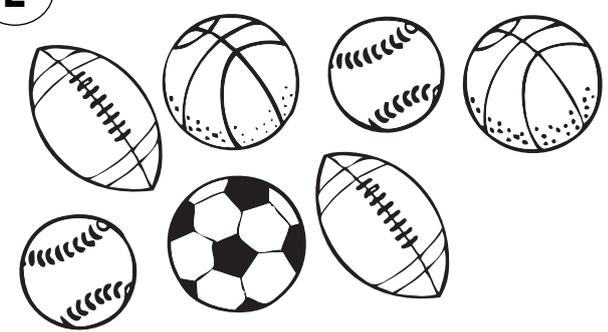
A	B
_____	_____
C	D
_____	_____
E	F
_____	_____
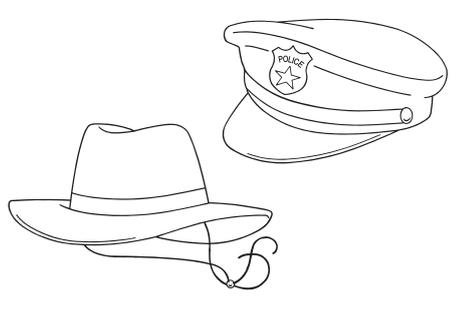
NUMBER PATH

Objectives

Students will practice counting forward and backward.

Students will follow navigational directions.

Anticipatory Set

Stand facing the front of the room, and tell students that you will walk forward. Then model walking forward. Now tell them that you will walk backward. Then model walking backward. Next, invite a volunteer to come to the front of the classroom. Invite him or her to suggest another way to move forward and backward, such as skipping, sliding, or hopping. Ask him or her to act out one of these movements along with you.

Purpose

Tell students they will practice counting from 1 to 10 and then backward from 10 to 1.

Input

Review the numerals *1* through *10* and number words *one* through *ten* with students.

Modeling

Write the numerals *1* through *10* on separate index cards or large squares of construction paper. Lay each card in numerical order on the floor to create a path. Step on the first card, and say, "1." Then continue walking on the number path, and count aloud as you step on each card. Stop when you get to the 10th card. Tell students, "I counted from 1 to 10. Now I will walk backward to practice counting backward." Take a step backward, and say, "9, 8, 7," and so on, until you get back to "1."

Checking for Understanding

Make sure students understand that they are to count forward when walking forward and backward when walking backward.

Guided Practice

Divide the class into pairs. Have pairs practice counting and walking on the number path. Afterward, give each pair a **Number Path reproducible (page 11)** and a marker (such as a game piece or a dry bean). Have each pair place its marker on the Start box. Tell students, "Move your marker forward six

places." Have partners move their marker six places forward on the game board. Then tell them to move four places backward. Encourage them to count backward aloud. Repeat using different numbers to give students practice moving and counting forward and backward.

Closure

Ask students, "What happened when we moved forward?" (*The numbers got bigger.*) and "What happened when we moved backward?" (*The numbers got smaller.*). Invite them to dictate or write in their math journals about how walking the path helped them to remember to count up or down. Then ask them to write the number words and numerals from 1 through 10.

Independent Practice

Give each student a Number Path reproducible, a die, and a game marker. Tell students to roll their dice and move their markers that many spaces forward. Then have them roll the dice again, and have them move that many spaces backward. Encourage students to continue playing the game until they reach the end of their number paths.

Name_____ Date_____

Number Path

Start

| 1 | 2 | 3 | 4 | 5 | 6 |

7

8

| 13 | 12 | 11 | 10 | 9 |

| 14 |

| 15 |

| 16 | 17 | 18 | 19 | 20 |

COUNTING SETS

Objective

Students will produce sets of objects when given a specific number.

Anticipatory Set

Show students a box of crayons. Explain how crayons come in sets of a given number. Explain that other products, such as packs of gum and boxes of pencils, also come in sets. Explain that the workers who pack these items need to count how many items go in each set.

Purpose

Tell students that they will create sets of objects for a given number.

Input

Remind students that when they count objects for a set, they should count each item only once.

Modeling

Show a paper cup with the number 5 written on it. Arrange several small manipulatives (e.g., counters, buttons, or dried beans) on a table. Count out five manipulatives, and place them in the cup. Then show students a paper cup with the number *7* written on it. Count out seven manipulatives, and place them in that cup.

Checking for Understanding

Make sure students understand how to count objects using one-to-one correspondence. Give each student six crayons, and have them count them for you.

Guided Practice

Divide the class into groups of three or four students. For each group, write a different numeral on each of five separate paper cups. Choose numbers appropriate for your class.

Give each group a set of paper cups and several small manipulatives. Tell groups of students to count the correct number of objects for each cup. When students are finished, have students check to make sure that they have counted correctly by recounting the manipulatives in each cup.

Closure

Ask students to think about why it is important to make sure they count each object only once when counting objects for a set. Have them dictate or write their responses in their math journals.

Independent Practice

Have students fold pieces of paper in fourths. Then have them number the boxes *2* through *5* (top to bottom, right to left). Have students count cereal pieces and glue the correct number of pieces in each box. Encourage more proficient students to use larger numbers.

For more practice, place paper cups numbered *1* through *10* in the math center, along with a bag of dried beans or other small manipulatives. Encourage students to visit the center and work with partners to count the correct number of beans in each cup. Ask partners to check each other's work.

MORE OR LESS

Objective

Students will compare sets of objects and order them using cardinal numbers.

Anticipatory Set

Show students a penny, and tell them, "This is a penny. It is worth 1 cent." Then display 5 pennies and say, "I have 5 pennies. They are worth 5 cents." Explain that pennies are money and can be used to buy things. Say, "If something costs 10 cents, I can pay using 10 pennies."

Purpose

Tell students that they are going to count the number of items in two sets and decide which set has more and which less.

Input

Remind students that *more* means that there will be a larger number of objects and *less* means that there will be a smaller number of objects.

Modeling

Show students a set of five objects and another set of two objects. Count aloud the objects in the first set, and tell students, "There are five objects in this set." Then count the objects in the second set, and say, "There are two objects in this set." Ask students, "Which set has more objects?" Then repeat the numbers *five* and *two,* and say, "Five is more than two, so there are more objects in the first set." Repeat the process with three and four objects. Ask students which set has fewer objects.

Checking for Understanding

Make sure students understand the concept of more or less. Show one finger on your right hand and four fingers on your left hand. Ask students to point to the hand that is showing more fingers. Repeat with three and five fingers, and ask which hand is showing fewer fingers.

Guided Practice

Ask two volunteers to stand next to each other at the front of the classroom. Give one student five pennies and the other student two pennies. Have them hold their coins in one hand and show them to the rest of the class. Ask, "Who has more money?" Then repeat the activity with other volunteers and different numbers of pennies.

Closure

Ask students, "Would you rather have 10 pennies or 7 pennies?" Encourage them to discuss their answers with partners. Then ask students the following question: "A nickel is worth five cents. Write how many pennies you would have if you had two nickels. Draw the number of pennies in your math journal."

Independent Practice

Give students copies of the **More or Less reproducible (page 16).** Tell students that for problems 1 and 2 they should count the number of objects and then draw sets of objects to show more than the given set. For problems 3 and 4, they will draw sets of objects that have less than the given set.

More or Less

Directions: Draw a set of objects that has **more** than the given set.
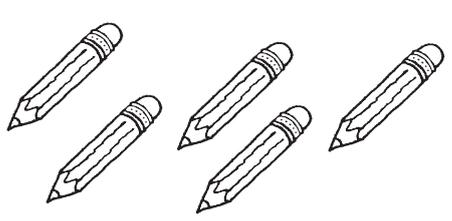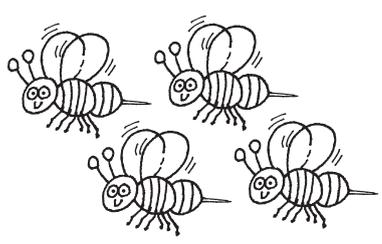
A		This set has more.
B		This set has more.

Directions: Draw a set of objects that has **less** than the given set.
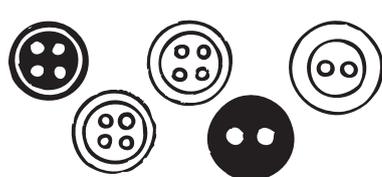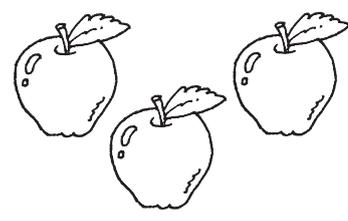
C		This set has less.
D		This set has less.

WHO'S FIRST?

Objective

Students will compare and order sets using ordinal numbers.

Anticipatory Set

Tell students that sometimes we order the steps we use to make something. For example, if we are making a peanut butter and jelly sandwich, first we spread peanut butter on a piece of bread. Second, we spread jelly on top of the peanut butter. Third, we place another piece of bread on top to finish the sandwich.

We also keep track of the order of things. For example, in a race we note who finished first, second, and third. Ask five students to stand in a line. Point to the first person, and explain that he or she is the first one in line. Then repeat by pointing to the second and third students. Ask each of these students to name one thing they do in steps at home or in school. Students might suggest getting ready for bed, setting the table for dinner, and brushing their teeth.

Purpose

Tell students they are going to put items in order using ordinal numbers.

Input

Explain to students that ordinal numbers are similar to cardinal numbers, but we add letters to the end. Write the numerals *1* through *5* on the board. Next to these numbers, write the ordinal numbers 1st, 2nd, 3rd, 4th, and 5th. Point to each number, and say it aloud.

Modeling

Draw the following objects in a row on the board: star, circle, heart, square, and triangle. Tell students as you point to each picture, "The first item is a star. The second item is a circle. The third item is a heart. The fourth item is a square, and the fifth item is a triangle." Then say, "I will erase the fourth item." Erase the square. Say, "Now I will erase the third item." Erase the heart. Finally, say, "I will erase the first item," and erase the star.

Checking for Understanding

Make sure students understand ordinal numbers. Have them clap their hands once, touch their noses, and then stomp their feet. Ask students to repeat the series of actions a few times. Then ask, "What did we do first? What did we do second? What did we do third?" Allow students to respond.

Guided Practice

Give each student five different-colored pieces of O-shaped cereal. Then tell students they are going to place the cereal pieces in a specific order. Direct them to place the green cereal O first. Then tell them to place the yellow cereal O second, the blue cereal O third, the red cereal O fourth, and the purple cereal O fifth. Check that all students correctly ordered their cereal.

Then tell students that they are going to eat the cereal in a specific order. Instruct students to eat the yellow cereal O first, and watch as they eat it. Repeat with the remaining colored cereal pieces. If students are having difficulty with ordering, have them practice just first, second, and third places.

Closure

Tell students to think about the following question: "If you are standing in line waiting to go into a movie theater, would you rather be the first person in line or the fourth person?" Have them explain their answers by writing or dictating a sentence in their math journals.

Independent Practice

Give students drawing paper and crayons. Invite them to draw a line of three characters or animals and explain each one's order in line.

NUMBER SLAP

Objective

Using a number line, students will compare and order whole numbers.

Anticipatory Set

Think of a number between 1 and 10. Without giving any clues, allow one student to try to guess the number. After he or she has guessed the number, ask the class if they think it would have been easier to guess the number if you would have provided them with clues.

Purpose

Tell students that understanding *greater than* and *less than* may seem difficult but that it is just a way of comparing numbers. Then tell them that they are going to practice comparing by numbers by playing a game with a number line and flyswatters.

Task-related talking is important for learning the vocabulary of mathematics.

Input

Teach students terms such as *greater than, less than, before,* and *after,* and talk about how they would have helped students identify the number more easily during the guessing activity. Teach them the mathematical symbols for *greater than* and *less than.* Draw the symbols on the board, and discuss their meaning. Provide various examples of simple number riddles, such as, Which number is greater than six and less than eight? (*seven*).

Modeling

Draw a large number line on the board. Ask volunteers to help you order the number line from 0 to 20. Make a copy of the **Symbol Swatters reproducible (page 21)** onto cardstock. Tape the greater than symbol to one flyswatter and the less than symbol to another flyswatter.

Tell students that you are going to choose one number between 0 and 20 as your secret number. Their job is to guess the number. To help them guess the number, you will assign two students to be number line "slappers." Slappers will be given the symbol swatters. As numbers are guessed, they will move up and down the number line, helping students to track the secret number.

Model an example. Choose the secret number *9* in your head. Then choose two students to come forward and stand at the start and end of the number line.

Ask a volunteer from the class to guess the number. The volunteer might say the number *3.* Tell the class that *3* is less than your secret number. Guide the student with the less than swatter to slap the number *3* and hold the swatter there. Now students know that the number is between 3 and 20. Perhaps the next student will guess the number *15.* Tell the class that *15* is more than

your secret number. Guide the student with the more than swatter to slap *15* and hold the swatter there. Now students know that the number is between 3 and 15. Repeat until the secret number is guessed.

Ask questions that help students understand that using the greater than and less than hints allows them to guess the secret number more quickly.

Guided Practice

Guide students using multiple examples of Number Slap. Always use "greater than" and "less than" to describe the location of your secret number. Allow each student to have a turn being a slapper, and call on different students to guess your number. Increase difficulty by asking volunteers to add more numbers to the number line until you reach the number *100.*

Independent Practice

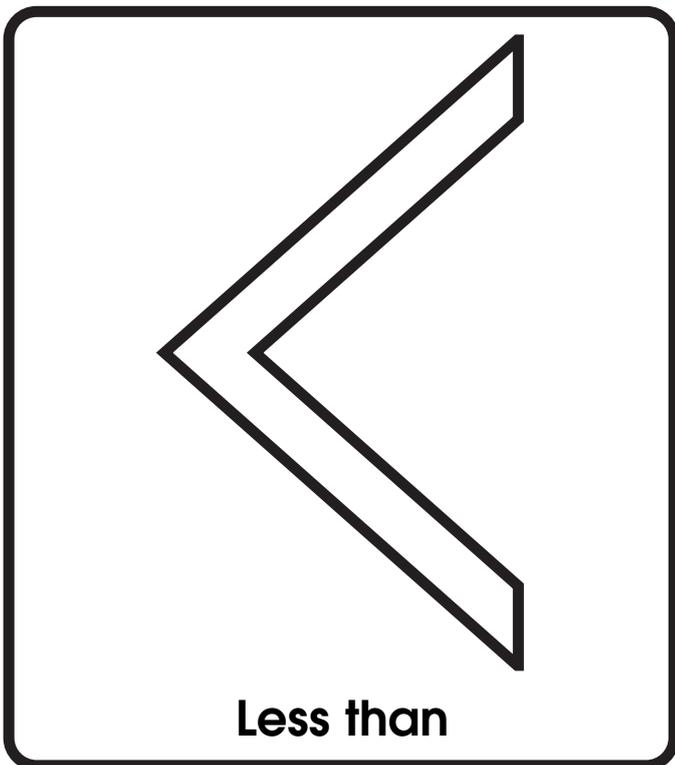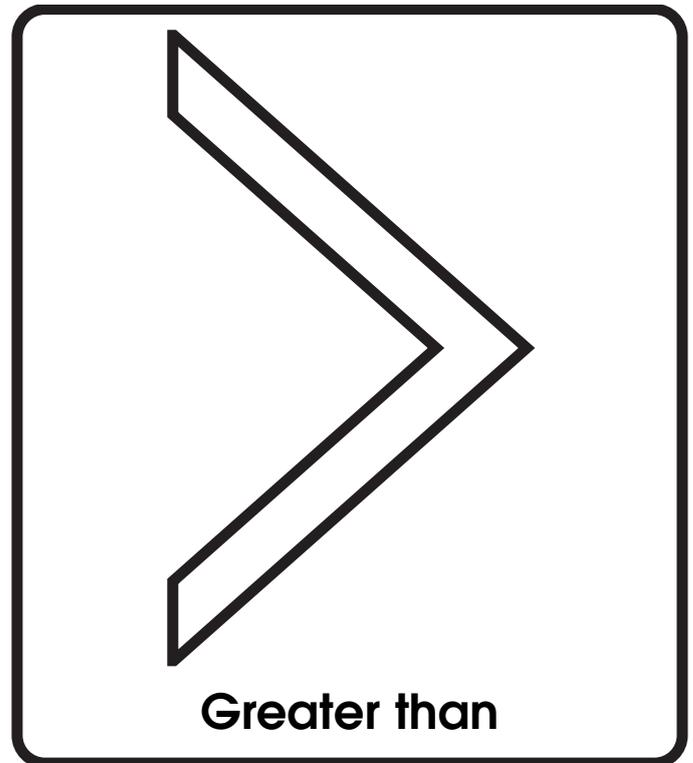Distribute the **Greater Than, Less Than reproducible (page 22),** and have students complete it independently. Encourage them to refer to the number line as needed.

Closure

Invite students to respond to the three journal questions from page 179. Encourage them to think about how greater than and less than will help them with other math problems.

Symbol Swatters
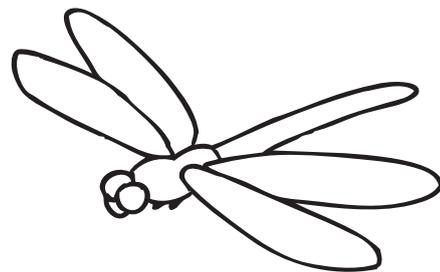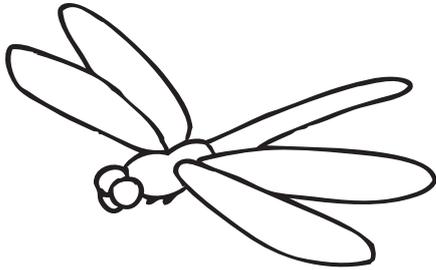
Greater than

Less than

Greater Than, Less Than

Directions: Complete the following problems with < or >.

A. 33 ◯ 4   B. 52 ◯ 19

C. 66 ◯ 93   D. 21 ◯ 81

E. 25 ◯ 27   F. 71 ◯ 10

G. 46 ◯ 51   H. 60 ◯ 17

I. 90 ◯ 92   J. 65 ◯ 77

K. 42 ◯ 29   L. 16 ◯ 58

A TEN COUNT!

Objective

Students will count and group by tens and ones.

Anticipatory Set

Hold up a bunch of 24 flowers, and smell them as you circulate around the room. Let the students smell the flowers while you talk about how multiple flowers are put together in a bunch. Count the flowers aloud. Ask a volunteer to place a rubber band around 10 of the flowers. Ask another volunteer to place a rubber band around 10 more of the flowers. Now count by tens, then ones: "10, 20, 21, 22, 23, 24." Discuss the grouping of tens and ones.

Purpose

Tell students that they are going to practice counting and grouping by tens and ones.

Input

Remind students of the correlation between tens and whole numbers that are divisible by ten. Do this by discussing how many groups of ten can be found in these whole numbers: *10, 20, 30, 40, 50, 60, 70, 80, 90,* and *100.*

Modeling

Model counting and grouping tens and ones using straws or toothpicks. Write the number *36* on the board. Count out 36 straws, then divide them into groups of 3 tens and 6 ones. Use rubber bands or tape to bundle the 3 tens groups together. Make a copy or overhead transparency of the **A Ten Count reproducible (page 25),** and model how to complete the activity. Record the number *36* in the number column. Count the groups of 10 straws, and record that number on the corresponding tens line. Count the single straws, and record that number on the corresponding ones line. Continue to model counting and grouping tens and ones using the numbers *21, 42,* and *59.*

Activities that are challenging and meaningful develop students' cognitive strengths and raise motivation.

Checking for Understanding

Ask students to come forward and count and group a number using straws. Remind them that for every 10 straws, they must create a bundle (1 "ten"). Record their answers on the reproducible. Answer any questions that remain.

Guided Practice

Distribute a copy of the A Ten Count reproducible to each student along with approximately 50 straws. Alternatively, you could group students in pairs

or in small groups of mixed ability levels. Instruct students to decide on a number greater than 10 and write it in the Number column. Then they will count out straws to match the number and group them into tens and ones. They will record the number of tens groups and number of ones on the appropriate lines.

Attaching meaning greatly increases the probability that the learning will be remembered.

Closure

Ask students to write about how grouping by tens and ones might be useful in other parts of their lives.

A Ten Count

Directions: Write the number you chose in the Number column. Sort and record the straws by tens and ones.

Number		
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones
	_____ tens	_____ ones

NUMBER JINGLE!

Objective

Students will use musical rhythmic skills to count by twos, fives, and tens.

Anticipatory Set

Getting students' attention for a lesson in mathematics means trying to find an emotional link to the day's learning objective.

Get a set of cheerleading pom-poms, and chant, "Two, four, six, eight! Who do I appreciate? My students! My students! Yeah, students!" Using a similar number pattern with twos, fives, and tens, allow students to create their own chants, for example, "0, 10, 20, 30! I think my socks are dirty! Oh, my! Oh, my! Oh, my!"

Purpose

Tell students that they are going to practice counting by twos, fives, and tens. Tell them that they are going to do this playing a fun singing game.

Input

Explain to students that there are many ways to count other than counting by ones. Counting by twos, fives, or tens can save time. Ask them to tell you about how skip counting is helpful (*telling time, counting money*).

Modeling

Ask the class to sit in a large circle. Begin by teaching students how to clap and then slap their knees in a rhythmic fashion (clap, slap, clap, slap, etc.). Then teach the children the following jingle: "Counting, counting, is so fun! I'm going to count . . . count by ones!"

(clap hands)	(slap knees)
Count-	ing
count-	ing
is	so
fun! (hold)	I'm
going	to
count (hold)	count
by	ones!

Checking for Understanding

Ask students to clap their hands if they know what to do. Provide additional explanation for students who do not clap.

Guided Practice

Guide children through the jingle as they clap their hands and slap their knees. Then explain that this jingle is telling them to count by ones. Explain how the starting student will say "one" on the next clap after the jingle ends. Students will slap their knees, and then the next player to the right will say "two" on the clap, and so on. Use the ones jingle as your warm-up. Then guide students to sing the song and count by twos, fives, and tens (substitute the word *two, five,* or *ten* for the word *one*). As an alternative, say the numbers together as a class.

Closure

In their math journals, have students answer the following question: "What number patterns for counting did you learn today?" Tell students to write some of the patterns in their journals. Use the journal prompts from page 179.

Independent Practice

Have children complete the **Two, Fives, and Tens reproducible (page 28).**

Twos, Fives, and Tens

Directions: Write the missing numbers by counting by twos, fives, and tens.

A. 2, 4, 6, _____, _____, _____, __14__, _____, _____,

_____, __22__, _____, _____, _____, __30__, _____,

_____, _____, _____, __40__

B. 5, 10, 15, 20, _____, _____, __35__, _____, _____,

_____, _____, _____, _____, __70__, _____, _____,

_____, __90__, _____, _____

C. 10, 20, _____, _____, _____, __60__, _____, _____,

_____, _____