Overview

Lesson Plan #1 Title: Ace it! Lesson One

Attached Supporting Documents for Plan #1:

Teacher's Manual and reproductions of student worksheets to support the following lesson objective:

• Order and write numerals through 999 and use > or < to compare

Lesson Plan #2 Title: Ace it! Lesson Three

Attached Supporting Documents for Plan #2:

Teacher's Manual and reproductions of student worksheets to support the following lesson objective:

• Understand and identify place value through 999. Understand the concept of equivalence, exchanging 10 ones for one ten and 10 tens for one hundred.

Lesson Plan #3 Title: Ace it! Lesson Twenty-eight

Attached Supporting Documents for Plan #3:

Teacher's Manual and reproductions of student worksheets to support the following lesson objective:

• Use picture and bar graphs to solve word problems .

lesson one

LESSON OBJECTIVE:

Order and write numerals through 999 and use > or < to compare.



Lesson:

- □ Student Resource Books: Student Resource Sheets (Lesson 1)
- Dry-erase boards and dry-erase markers





Fact Practice:

(Select one of these sets of materials for the Math Facts Games.)

- Individual Student Flashcards
- Buzz
- Math War or Salute!
 - Playing cards
- Soccer Ball Facts
 - Soccer ball
- Math Scramble
 - Index cards, each with a number 0-9; cards with the operations
- BINGO
 - Flashcards
 - BINGO boards, and tokens or colored squares
- Around the World
 - Triangle or regular flashcards

Vocabulary Definitions:

This lesson assumes that students know the following vocabulary words:

- count
- hundred
- zero

greater than — A larger amount than. Example: 20 > 15.

less than — A smaller amount than. Example: 15 < 20.

Welcome:



Greet students by name and take attendance.

Introduction:



A. Access Prior Knowledge

Everyone, on your dry-erase board:

- Write the number, 39. When I snap my fingers, show me your board. (39)
- Write the number, 68. When I snap my fingers, show me your board. (68)
- Write the number, 91. When I snap my fingers, show me your board. (91)
- Write the number, 19. When I snap my fingers, show me your board. (19)

Raise a hand to tell me:

- What number comes after 39? (40)
- What number comes before 70? (69)
- What number comes between 89 and 91? (90)
- What number comes after 19? (20)

B. Explain Connection to New Skill

You already know how to count and order the numbers from zero to 100.

- Raise a hand to count from zero to 20 out loud.
 (0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20)
- *Raise a hand to count from 50 to 60 out loud.* (50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60)

C. State Lesson Objective

During today's lesson we are going to order and write numbers up to 999. We are also going to compare numbers using the mathematical symbols for greater than and less than.

Direct Skill Instruction and Guided Practice:

25 mins. In your Student Resource Book, Lesson One, below the Lesson Objective, you will see a Vocabulary Box that lists two vocabulary terms and their definitions. Let's take a look at these terms together.

• *Raise a hand to tell me what I mean when I say that 20 is greater than 15.* (That 20 is a bigger number than 15; 20 is more than 15.)

If I wanted to use a mathematical symbol to show that 20 is a larger amount than 15, I would write this: 20 > 15. NOTE: On the board, write 20 > 15.

The open part of the symbol opens toward the larger number, and the pointed part of the symbol points to the smaller number.

- *Raise a hand to tell me why you think this is.* (The open part of the symbol is larger than the pointed part of the symbol, so it opens toward the larger amount.)
- *Raise a hand to tell me what I mean when I say that 15 is less than 20.* (That 15 is a smaller number than 20; 15 is not as much as 20.)
- Raise a hand to show me on your dry-erase board how you would use the mathematical symbol to show that 15 is less than 20. (15 < 20)

Good. The smaller end of the symbol points toward the smaller amount.

Now let's talk about counting up to 999.

• *Raise a hand if you can tell me what a pattern is.* (Something that is repeated over and over.)

In counting, there are many patterns. After you reach the number, 100, all of the numbers from 1 through 99 are repeated over again. The only difference is that 100 comes first. For example, instead of 1, I say 101. Instead of 20, I say 120. Let's try some together.

- When I snap my fingers, count with me from 100 to 110. (100, 101, 102, 103, 104, 105, 106, 107, 108, 109, 110) <u>NOTE:</u> Say each number slowly and clearly out loud.
- Now let's count from 125 to 135. (125, 126, 127, 128, 129, 130, 131, 132, 133, 134, 135) <u>NOTE:</u> Say each number slowly and clearly out loud.
- Raise a hand to tell me what number you think comes after 199. (200)

Correct, it's 200. And guess what! The pattern starts all over again, only this time, 200 comes before each number from 1 to 99.

- Raise a hand if you can tell me what number comes after the number, 200. (201)
- *Raise a hand if you would like to try counting from 201 to 205.* (201, 202, 203, 204, 205)
- Raise a hand if you can tell me what number comes after the number, 229. (230)
- Raise a hand if you can tell me what number comes between the numbers, 256 and 258. (257)
- Raise a hand if you can tell me what number comes before the number, 220. (219)
- *Raise a hand if you can tell me what number comes after the number, 299.* (300)

Correct, it's 300. And now you have discovered another pattern in the numbers from zero to 999. As you count up in the hundreds, each new group of hundreds starts with the next number from 1 to 9.

- Raise a hand if you can tell me what group of hundreds comes after the 300s. (400s)
- Raise a hand if you can tell me what group of hundreds comes after the number, 899. (900s)

lesson one

Divide into pairs. You will work with your partner to solve a few problems together. In your Student Resource Book, Lesson One.

 Look at the first group of numbers in the Guided Practice section, Part I. Discuss with your partner which number fits in the blank space. When you are done, raise your hands. Be prepared to explain how you figured out your answer.
 (It's 450. We know this because we know that 50 comes after 49 and before 51. I know that this pattern is repeated when I count in

the hundreds.)

- Look at the second group of numbers in the Guided Practice section Part I. Again, discuss with your partner which number fits in the blank space. When you are done, stand up. <u>NOTE:</u> Wait for all pairs to stand up before you ask the next question.
- If 600 is the number that fits in the blank space, sit down. (All students should sit down.)
- *Raise a hand to tell me how you know that 600 fits in the blank space.* (I know that anytime I see the numbers, 99, a new group of hundreds begins and follows the pattern of 1 through 9. So, after the 500s comes the 600s.)
- Look at the next set of numbers in the Guided Practice section, Part I. Work with your partner to write the mathematical symbol in the blank space that shows which number is the larger amount. When you are done, raise your hand. Be prepared to explain how you figured out your answer.

(The answer is 645 > 328. We know this because we know that 645 is a larger amount than 328 and the open part of the symbol always points towards the larger number.)

In your Student Resource Book, complete the problems in the Guided Practice section, Parts II and III.

Summary/Closure:



10 mins. A. Define Vocabulary Words

Look at the Summary/Closure section for Lesson One in your Student Resource Book. You will see today's vocabulary terms. Write a sample problem for each term, using the mathematical symbol that represents greater than or less than.

B. Summarize What We Learned Today

Let's review what we've discussed today. In your Student Resource Book, in the Summary/Closure section, write the numbers from 698 to 703, in order. You can use this example of counting in the hundreds when you need to remember counting patterns in the future.

C. Apply Skill

• Everyone, with your hands, make a greater than or less than symbol after each sentence I say.

<u>NOTE:</u> Demonstrate how to make a greater than symbol by placing palms together and opening out the fingers, and a less than symbol by placing the tips of fingers together and the palms facing out.

- Is 543 greater than or less than 421? (Greater than symbol.)
- Is 375 greater than or less than 832? (Less than symbol.)
- Is 289 greater than or less than 167? (Greater than symbol.)
- Is 653 greater than or less than 600? (Greater than symbol.)

Fact Practice:

7 mins. Operation: Addition

Fact Activity:

Count/Record Tokens:

5 mins. Count and record tokens in Student Resource Book.

lesson one - teacher resource sheet

Lesson Objective: Order and write numerals through 999 and use > or < to compare.





- I. <u>Directions</u>: Fill in each blank space with the correct number or symbol.
 - 1. 449, ___(*450*)____, 451
 - 2. 599, ___ (600) ____, 601
 - 3. 645 _____ 328
- **II.** <u>Directions</u>: Fill in each blank space with the correct number.
 - 1. 389, 390, __*(391)*____
 - 2. 199, ___(*200*)____, 201, 202, ___(*203*)____
 - 3. 530, 531, 532, __(*533*) ____, __(*534*) ____, 535

III. <u>Directions</u>: Write in the correct symbol to show greater than or less than.

- 1. 971 _____ 983 2. 399 _____ 410 3. 155 _____ 100
- 4. 875 ____ 797



A. Vocabulary Words

Directions: Write a sample problem for each vocabulary term.

1. Greater than _____ (*Possible answer: 20 > 15*) _____

2. Less than _____ (*Possible answer: 15 < 20*) _____

B. Summarize What We Learned Today

Directions: Write the numerals from 698 to 703, in order.

(698, 699, 700, 701, 702, 703)

lesson one – student resource sheet

Lesson Objective: Order and write numerals through 999 and use > or < to compare.





- I. <u>Directions</u>: Fill in each blank space with the correct number or symbol.
 - 1. 449, _____, 451
 - 2. 599, _____, 601
 - 3. 645 _____, 328
- **II.** <u>Directions</u>: Fill in each blank space with the correct number.
 - 1. 389, 390, _____
 - 2. 199, _____, 201, 202, _____
 - 3. 530, 531, 532, _____, 535

III. <u>Directions</u>: Write in the correct symbol to show greater than or less than.

- 1. 971 _____ 983
- 2. 399 _____ 410
- 3. 155 _____ 100
- 4. 875 _____ 797



A. Vocabulary Words

Directions: Write a sample problem for each vocabulary term.

- 1. Greater than _____
- 2. Less than _____

B. Summarize What We Learned Today

Directions: Write the numerals from 698 to 703, in order.

B 1

lesson three

LESSON OBJECTIVE:

Understand and identify place value through 999. Understand the concept of equivalence, exchanging 10 ones for one ten and 10 tens for one hundred.



Lesson:

- □ Student Resource Books: Student Resource Sheets (Lesson 3)
- Dry-erase boards and dry-erase markers
- Place value charts
- Base ten blocks
- □ Several sets of index cards with the digits 0 9





Fact Practice:

(Select one of the sets of materials for the Math Facts Games):

- Individual Student Flashcards
- Buzz
- Math War or Salute!
 - Playing cards
- Soccer Ball Facts
 - Soccer ball
- Math Scramble
 - Index cards each with a number 0-9; cards with the operations
- Bingo
 - Flashcards
 - BINGO boards, and tokens or colored squares
- Around the World
 - Triangle or regular flashcards

Vocabulary Definitions:

This lesson assumes that students know the following vocabulary words:

- digit
- number
- position

ones place — The position of the last or only digit in a number, where the number is equal to its regular value. Example: In the number, 128, 8 is in the ones place, so eight ones equal eight.

tens place — The position of the second to last digit in a number, where the number is equal to ten of its value. Example: In the number, 128, 2 is in the tens place, so two tens equal 20.

hundreds place — The position of the third to last digit in a number, where the number is equal to one hundred of its value. Example: In the number, 128, 1 is in the hundreds place, so one hundred equals 100.

B 3

Welcome:

3 mins.

Greet students by name and take attendance.

Introduction:



A. Access Prior Knowledge

Everyone, on your dry-erase board, write the number, 225.

- On the count of three, show me your boards. One, two, three! (225)
- When I say go, tell me the first digit. Go! (2)
- Raise a hand to tell me the second digit. (2)
- *Everyone, whisper the third digit.* (5)

I am going to write some numbers on the board. Then, I am going to name the number. If I say a number that matches the number on the board, stand up. If I say a number that does not match the number on the board, stay seated or sit down.

NOTE: Write the number, 344, on the board.

- The number is 344. (Students should stand.)
- Raise a hand to tell me the name of the first digit in the number, 344. (3)

lesson three

NOTE: Write the number, 119, on the board.

- The number is 129. (Students should sit down.)
- *Raise a hand to tell me the number on the board.* (119)

NOTE: Write the number, 658, on the board.

- The number is 618. (Students should stay seated.)
- *Raise a hand to tell me the number on the board.* (658)
- Raise a hand to tell me the name of the last digit in the number 658. (8)

NOTE: Write the number, 982, on the board.

- The number is 982. (Students should stand.)
- Raise a hand to tell me the name of the second digit in the number 982.
 (8)

B. Explain Connection to New Skill

You know how to recognize and name numbers up to 999. You also know that numbers have different values. Some numbers show a small amount and some numbers show a large amount.

- Raise a hand to tell me which number is a larger amount: 200 or 600? (600)
- Raise a hand to tell me how you know that 600 is a larger number than 200.

(6 is greater than 2, so 600 is greater than 200.)

C. State Lesson Objective

During today's lesson, we are going to learn more about numbers and their values. We are going to study the different positions of digits in numbers and learn what the position of a digit in a number tells us about the digit's value. We are talking about place value. We will also learn how many ones make ten, and how many tens make one hundred.

Direct Skill Instruction and Guided Practice:



In your Student Resource Book, below the lesson objective, you will see a 25 mins. Vocabulary Box that lists three vocabulary words and their definitions. Let's look at these words together.

NOTE: Write the number, 128, on the board.

Raise a hand to tell me:

- What digit is in the ones place in the number, 128? (8)
- Is the digit in the ones place equal to its regular value or is it equal to more than its regular value? (It's equal to its regular value.)
- What digit is in the tens place in the number, 128? (2)
- Is the digit in the tens place equal to its regular value or is it equal to an amount more than its regular value? (It's equal to more than, or ten, of its regular value.)
- What digit is in the hundreds place in the number 128? (1)
- Is the digit in the hundreds place equal to its regular value or is it equal to an amount more than its regular value? (It's equal to more than, or one hundred, of its regular value.)

<u>NOTE</u>: Display base ten blocks and place value charts. Put one place value chart on the table facing the students. Hold up the different kinds of base ten blocks as you explain them.

This is a place value chart. These are base ten blocks. There are three different kinds of blocks.

The first block is the individual square that is used to show the value of a digit in the ones place of a number.

<u>NOTE:</u> Place eight individual base ten blocks in the ones place on the place value chart facing the students.

The second block is a rod of 10 squares, joined together, that is used to show the value of a digit in the tens place of a number.

<u>NOTE:</u> Place two ten rods in the tens place on the place value chart facing the students.

lesson three

The third block is a large square containing 100 smaller squares, joined together, that is used to show the value of a digit in the hundreds place of a number.

<u>NOTE:</u> Place a one hundred block in the hundreds place on the place value chart facing the students.

<u>NOTE:</u> Place an index card with the number, 8, on top of the ones column on the place value chart facing the students. Place an index card with the number, 2, on top of the tens column on the place value chart facing the students. Place an index card with the number, 1, on top of the hundreds column on the place value chart facing the students.

• Raise a hand to tell me what number I just made with the base ten blocks on the place value chart. (128)

Everyone, tell me in a whisper:

- What digit is in the ones place? (8)
- What digit is in the tens place? (2)
- What digit is in the hundreds place? (1)
- Raise a hand to tell me what two tens equals. (20)
- Raise a hand to tell me what one one hundred equals? (100)
- Raise a hand if you think that you know how we will be using the base ten blocks and the place value charts in our lesson today. (To show what numbers look like, to learn the value of digits in numbers.)

Divide into pairs. You and your partner will need some base ten blocks, index cards with the digits zero through 9, and a place value chart to practice recognizing the value of digits in the ones place, the tens place, and the hundreds place.

NOTE: Write the number, 537, on the board.

First partner: Put an index card with the number, 7, over the ones column on your place value chart.

Next partner: Put an index card with the number, 3, over the tens column on your place value chart.

First partner: Put an index card with the number, 5, over the hundreds column on your place value chart.

Work together with your partner to show the number, 537, with base ten blocks on your place value chart. Take turns filling in the columns on your chart.

• *Raise a hand if you want to share your work.* (Five hundred blocks in the hundreds column under the digit, 5; three ten rods in the tens column under the digit, 3; seven individual squares in the ones column under the number, 7.)

Everyone, show me with your fingers:

- *How many ones are there?* (7)
- How many tens are there? (3)
- *How many hundreds are there?* (5)

Everyone, show me a "thumbs up" or a "thumbs down":

- *Three tens is equal to 30.* (Thumbs up)
- *Five hundreds is equal to 50.* (Thumbs down)
- Raise a hand to tell me what five hundreds equals. (500)
- Raise a hand to tell me what would happen if you put three more individual squares in the ones column with the seven that are already there? (You would have 10 ones altogether.)
- Look at the digits on the index cards. Raise a hand to tell me if we can put the digit, 10, over the ones column. Explain your answer. (No, we can't because each place in a number can only be filled by the digits, zero through 9.)
- So, if we have 10 ones, what block do we use instead of ones? Raise a hand to tell me. (We use a ten rod block in the tens place.)
- Knowing that we can trade 10 ones for one ten, what do you think happens when you have 10 tens? Raise your hand to answer. (We trade them for one hundred because ten tens equals one hundred.)

lesson three

With your partner, count out 10 tens, by tens, with me. Each pair needs 10 ten rods.

<u>NOTE:</u> Count out 10 tens, by tens, with the students: 10, 20, 30, 40, 50, 60, 70, 80, 90, 100.

Look at the number, 819, in your Student Resource book.

Work with your partner to make the number, 819, on your place value chart with base ten blocks. Use index cards to show the digit for each column. Take turns filling in the columns with base ten blocks on your chart. Then, fill in the blanks in your Student Resource Book with the digits that tell how many ones, tens, and hundreds there are in the number, 819.

Everyone, tell me in a whisper:

- How many ones are there in the number, 819? (9)
- How many tens are there? (1)
- How many hundreds are there? (8)

Everyone, show me a thumbs up or a thumbs down:

- *Eight hundreds is equal to eight hundred.* (Thumbs up)
- One ten is equal to one. (Thumbs down)
- Raise a hand to tell me what one ten equals. (10)
- How many more ones do I need in this number to trade in for another ten? (1)
- How many more tens do I need in this number to trade in for another hundred? (9)

In your Student Resource Book, look at the next number, 483.

• Work with your partner to show the number, 483, on your place value chart using the base ten blocks. Use index cards to show the digit for each column. Take turns filling in the columns on your chart. Then, fill in the blanks in your Student Resource Book with the digits that tell how many ones, tens, and hundreds there are in the number, 483. When you and your partner have finished, stand up. Be prepared to explain your work.

(The number, 483, has three ones, eight tens, and four hundreds.)

In your Student Resource Book complete the problems under the Guided Practice section for Lesson 3.

Summary/Closure:



10 mins. A. Define Vocabulary Words

In your Student Resource Book (Lesson 3), in the Summary/Closure section, you will see today's vocabulary words. There is a number next to each word. Circle the digit in each number that matches the vocabulary word.

B. Summarize What We Learned Today

Let's sum up the skill that we have been working on today. In your Student Resource Book in the Summary/Closure Section, write down a three-digit number with a one in the hundreds place. Then, draw small squares to show how many ones are in your number. Draw rows of 10 small squares to show how many tens are in your number. Draw one large square, made up of 10 rows of 10 squares, to show how many hundreds are in your number. This example problem will help you when you need to remember how to understand place value in the future.

• Raise a hand to share your number and drawing with the class.

C. Apply Skill <u>NOTE:</u> Write the number, 791, on the board.

When I point to the board, show the number, 791, on your place value chart with base ten blocks and index cards.
 (Seven hundreds blocks, nine ten rods, and one one.)

Fact Practice:



Operation: Addition



Fact Activity:

Count/Record Tokens:

5 mins. Count and record tokens in Student Resource Book.

Lesson Objective: Understand and identify place value through 999. Understand the concept of equivalence, exchanging 10 ones for one ten and 10 tens for one hundred.



tens place — The position of the second to last digit in a number, where the number is equal to ten of its value. Example: In the number, 128, 2 is in the tens place, so two tens equal 20.

hundreds place — The position of the third to last digit in a number, where the number is equal to one hundred of its value. Example: In the number, 128, 1 is in the hundreds place, so one hundred equals 100.

lesson three – teacher resource sheet



Directions: Work with your partner to complete the following problems.

- I. Use base ten blocks and place value charts to show the following numbers and fill in the blanks.
- 1.819

How many ones are in 819? ____ (9) ____

How many tens are in 819? ____(1) ____

How many hundreds are in 819? ___ (8) ___

2. 483

How many ones are in 483? ____(3) ____

How many tens are in 483? ____(8) ____

How many hundreds are in 483? ____ (4) ____

II. Write the number that matches the picture of base ten blocks.

1. ____ (627) _____



















lesson three – teacher resource sheet

III. Circle the base ten blocks needed for the following numbers.

1. **165**

(Answer: One hundreds square is circled, six ten rods are circled, and five individual square blocks are circled.)







2. **350**

(Answer: Three hundreds squares are circled, five ten rods are circled, and zero individual square blocks are circled.)



IV.Write in the number that answers the question.

Look at the number **487**.

- 1. How many more ones do you need to make another ten? _____ (3)
- 2. How many more tens do you need to make another hundred? _____ (2)

lesson three – teacher resource sheet



Summary/Closure

A. Vocabulary Words

Directions: Circle the digit in each number that shows the meaning of the vocabulary word.

1. ones place:	175	(The 5 is circled.)
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- 2. tens place: 914 (The 1 is circled.)
- 3. hundreds place: 654 (The 6 is circled.)

B. Summarize What We Learned Today

Directions: Write a three-digit number using a 1 in the hundreds place.

(1)

Draw individual squares to show how many ones are in your number. Then, draw rows of 10 squares to show how many tens are in your number. Then, draw one large square made up of 10 rows of 10 small squares to show how many hundreds are in your number.

lesson three – student resource sheet

Lesson Objective: Understand and identify place value through 999. Understand the concept of equivalence, exchanging 10 ones for one ten and 10 tens for one hundred.



ones place – The position of the last or only digit in a number, where the number is equal to its regular value. Example: In the number, 128, 8 is in the ones place, so eight ones equal eight.

tens place – The position of the second to last digit in a number, where the number is equal to ten of its value. Example: In the number, 128, 2 is in the tens place, so two tens equal 20.

hundreds place – The position of the third to last digit in a number, where the number is equal to one hundred of its value. Example: In the number, 128, 1 is in the hundreds place, so one hundred equals 100.



Directions: Work with your partner to complete the following problems.

- I. Use base ten blocks and place value charts to show the following numbers and fill in the blanks.
 - 1. 819

How many ones are in 819? _____

How many tens are in 819? _____

How many hundreds are in 819? _____

2. **483**

How many ones are in 483? _____

How many tens are in 483? _____

How many hundreds are in 483? _____

lesson three – student resource sheet

- **II.** Write the number that matches the picture of base ten blocks.
 - 1. _____











2. _____



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lesson three – student resource sheet

III. Circle the base ten blocks needed for the following numbers.

1. **165**









2. 350



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IV.Write in the number that answers the question.

Look at the number **487**.

- 1. How many more ones do you need to make another ten?
- 2. How many more tens do you need to make another hundred? _____



A. Vocabulary Words

<u>Directions</u>: Circle the digit in each number that shows the meaning of the vocabulary word.

1. ones place: 175

2. tens place: 914

3. hundreds place: 654

lesson three – student resource sheet

B. Summarize What We Learned Today

Directions: Write a three digit number using a one in the hundreds place.

Draw individual squares to show how many ones are in your number. Then, draw rows of 10 squares to show how many tens are in your number. Then, draw one large square made up of 10 rows of 10 small squares to show how many hundreds are in your number.

LESSON OBJECTIVE:

Use picture graphs and bar graphs to solve word problems.



Lesson:

Student Resource Books: Student Resource Sheets (Lesson 28)
 Dry-erase boards and dry-erase markers





Fact Practice:

(Select one of these sets of materials for the Math Facts Games.)

- Individual Student Flashcards
- Buzz
- Math War or Salute!
 - Playing cards
- Soccer Ball Facts
 - Soccer ball
- Math Scramble
 - Index cards, each with a number 0–9; cards with the operations
- BINGO
 - Flashcards
 - BINGO boards, and tokens or colored squares
- Around the World
 - Triangle or regular flashcards

Vocabulary Definitions:

This lesson assumes that students know the following vocabulary words:

- comparison terms, such as most, least, greatest, more, less, fewer
- height
- customary units of measurement
- graph

data — Facts or information. Examples: Your grades on some math tests; the number of games your baseball team won and lost.

pictograph — A graph that uses pictures to show data. Example:



KEY: equals 3 games won

bar graph — A graph that uses bars to show data. Example:



B 28

Welcome:

Greet students by name and take attendance.

Introduction:

5 mins.

3 mins.

A. Access Prior Knowledge

<u>NOTE:</u> Before class begins, draw a copy of this table on your dryerase board.

Favorite Season				
Season	Number of Votes			
Spring	9			
Summer	15			
Fall	4			
Winter	6			

Show the table to the students. Explain that you asked some students in your school to name their favorite season. Tell students that you recorded the results in this table.

Use the table to answer some questions. Raise a hand to tell me:

- How many votes did spring get? (9)
- How many votes did summer get? (15)
- How many votes did fall get? (4)
- How many votes did winter get? (6)
- Which season got the largest number of votes? (Summer)
- Which season got the smallest number of votes? (Fall)

<u>NOTE:</u> Ask students to choose their own favorite season. Then challenge students to make comparison statements about this class vote, such as summer got the most votes.

B. Explain Connection to New Skill

We just used a table to find information and answer questions. We also can use graphs to find information and solve problems.

• Raise a hand to tell me, where have you seen graphs in your daily lives?

(Possible answers include: in school or textbooks, on TV, in newspapers and magazines, and on the Internet.) <u>NOTE:</u> Take multiple responses.

C. State Lesson Objective

During today's lesson, we will use picture graphs and bar graphs to solve word problems.

Direct Skill Instruction and Guided Practice:



25 mins. In your Student Resource Books, Lesson Twenty-Eight, below the Lesson Objective, you will see a Vocabulary Box that lists three vocabulary words and their definitions. Let's look at those words together.

Today's lesson is about graphs. All graphs show data.

Raise a hand to tell me:

- What are data? (Facts or information.)
- What are some number facts about you? (Possible responses include: age, height, weight, number of siblings, and number of pets.) <u>NOTE</u>: Take multiple responses.

There are many kinds of graphs, but we will be using only two kinds of graphs today—pictographs and bar graphs.

Everyone, point to the pictograph in your Vocabulary Box.

Raise a hand to tell me:

- Why is it called a pictograph? (It uses pictures to show data.)
- What kind of data does this pictograph show? (How many games some baseball teams won.)
- What picture does this graph use to show the data? (A baseball.)

Everyone, point to the bar graph in your Vocabulary Box.

Raise a hand to tell me:

- Why is it called a bar graph? (It uses bars to show data.)
- What kind of data does this bar graph show? (The heights of some trees.)
- Do the heights of the bars match the heights of the trees? (Yes)

You can find all kinds of information on graphs. But first you need to know how to read the graphs.

Let's start by learning how to read a pictograph. Everyone, look at the pictograph in your Vocabulary Box.

The first thing you should do when you read any graph is to read its title. The title tells you what the graph is about.

• *Raise a hand to tell me the title of this graph.* (Baseball Games Won)

So, you know that this pictograph gives you information about how many games some baseball teams won. Each team has its own column in the pictograph.

• Raise a hand to tell me how many teams are described on this graph? (5)

This pictograph uses pictures of balls to show how many games each team won. So, to read the graph, we need to know what each picture of a ball means. Everyone, look at the bottom of your pictograph. You will see a key there. A graph key is just like a door key. It lets you unlock the graph. In other words, it tells you the secret way to read the graph.

• *Raise a hand to tell me what one picture of a ball means on this* **pictograph.** (Three games won.)

Now we know how to read the pictograph. When we see one ball, we count it as three games won!

Look for a row on the pictograph that has only one ball.

Everyone whisper the answer:

- Which team has only one picture of a ball? (The Lions.)
- And what does one ball mean? (Three games won.)
- So, how many games did the Lions win? (Three games.)

Everyone, look at the row for the Rockets on your pictograph.

Tell me in a whisper:

- How many balls are in that row? (2)
- What is 3 ×2? (6) <u>NOTE:</u> You may want to remind students that they can add 3 + 3 to find this total.
- So, how many games did the Rockets win? (6)

Everyone, look at the row for the Eagles on your pictograph.

Tell me in a whisper:

- How many balls are in that row? (3)
- What is 3 × 3? (9) <u>NOTE:</u> You may want to remind students that they can add 3 + 3 + 3 to find this total.
- So, how many games did the Eagles win? (9)

Raise a hand to tell me:

- How many games did the Tigers win? (12)
- How many games did the Bears win? (15)

Great! So, now we know how to read a pictograph. Let's try using a different pictograph. Everyone divide into pairs. Then turn to the Guided Practice section, Part I, in your Student Resource Book for Lesson Twenty-Eight. Let's look at this pictograph together.

Raise a hand to tell me:

- What data does this pictograph show? (Possible response: The number of books some students in the book club read.)
- What picture is used to show the data? (A book.)
- What does one picture of a book mean? (Two books read.)

Work with your partner to solve the four problems. Use the **pictograph** *to solve each problem. Remember to use the key!* <u>NOTE:</u> Give students about five minutes to answer all the questions. Then review their answers.

Now let's learn how to read a bar graph. Everyone, look at the bar graph in your Vocabulary Box.

• *Raise a hand to tell me the title of this* bar graph. (Tree Heights)

So, you know that this graph gives you information about how tall some trees are. Each tree has its own bar on the graph.

• Raise a hand to tell me how many trees are described on this bar graph. (4)

Everyone, look at the bottom of your graph. It tells you what kinds of trees are described in this graph.

• *Raise a hand to tell me the four kinds of trees described on this* **bar graph.** (Elm, maple, oak, and pine.)

Everyone, look at the left side of your graph. It tells you how the heights of the trees are described.

• Raise a hand to tell me what unit is used to measure the tree heights. (Feet)

Everyone, look at the numbers along the left side of your graph.

Tell me in a whisper:

- What is the smallest number? (Zero)
- What is the greatest number? (10)

We can use these numbers on the **bar graph** to find the height of each tree. Let's find the height of the elm tree.

Everyone, put your finger on the word, Elm, along the bottom of the graph. Move your finger up to the top of that tree's bar. Now move your finger left until you reach the numbers on the side. You can see that your finger lands on 6. This tells you that the elm tree is six feet tall.

Raise a hand to tell me:

- How tall is the maple tree? (8 feet) <u>NOTE:</u> Remind students to include the unit, feet, in their answers.
- *How tall is the pine tree?* (9 feet)

If you want to know which tree is tallest, all you have to do is find the tree with the tallest bar on the graph.

Everyone, tell me in a whisper:

- Which tree has the tallest bar? (Pine)
- So, which tree is tallest? (Pine)
- Which tree has the shortest bar? (Oak)
- So, which tree is shortest? (Oak)

So, now we know how to read a bar graph. Let's try using a different bar graph. Everyone stay in your pairs. Turn to the Guided Practice section, Part II, in your Student Resource Book, Lesson Twenty-Eight. Let's look at this bar graph together.



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Raise a hand to tell me:

- What data does this bar graph show? (Possible response: How students voted for their favorite pet.)
- How many pets are shown on the graph? (5)
- What do the numbers along the side of the graph tell you? (Possible response: How many votes each pet got.)

Work with your partner to solve the five problems. Use the bar graph to solve each problem.

<u>NOTE:</u> Give students about five minutes to answer all the questions. Then review their answers.

Summary/Closure:



10 mins. A. Define Vocabulary Words

In your Student Resource Book, Lesson Twenty-Eight, in the Summary/Closure section, there are some sentences using today's vocabulary words. Take a few minutes to complete the sentences.

B. Summarize What We Learned Today

Let's summarize the skill that we have been working on today. In your Student Resource Book, in the Summary/Closure section, write two sample problems to show what we did today. These problems will be your "help sheet" when you need to remember how to do these types of problems in the future.

C. Apply Skill

Everyone, look at the pictograph in Part I of your Guided Practice section.

Raise a hand to tell me:

- How many books did David read? (4)
- Who read more books than Miguel? (Jack)
- How many books did David and Sara read altogether? (8)

Everyone, look at the bar graph in Part II of your Guided Practice section.

Raise a hand to tell me:

- How many votes did hamsters get? (6)
- Which pet got the most votes? (Dog)
- How many votes did cats get? (14)

Fact Practice:



Operation: Multiplication

Fact Activity: _____

Count/Record Tokens:

5 mins.

Count and record tokens in Student Resource Book.



Lesson Objective: Use picture graphs and bar graphs to solve word problems.





<u>Directions</u>: Complete these practice problems with your partner. Your teacher will review the answers.

I. Use this pictograph to solve each problem.



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II. Use this bar graph to solve each problem.





A. Vocabulary Words

Directions: Fill in the blanks.

- 1. All graphs show ______, or information. (Data)
- 2. A ______ uses bars to show data. (Bar graph)
- 3. The ______ tells what each picture means on a pictograph. *(Key)*
- 4. A ______ uses pictures to show data. (Pictograph)

B. Summarize What We Learned Today

1. Look at the pictograph in Part I in the Guided Practice section. Write a question about the data on that graph. Then use the graph to answer the question.

Problem:		
	?	E
Answer:		

(Problems and answers will vary but should correctly reflect the data given in each graph.)

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2. Look at the bar graph in Part II in the Guided Practice section. Write a question about the data on that graph. Then use the graph to answer the question.

Problem:	
	?
Answer:	

(Problems and answers will vary but should correctly reflect the data given in each graph.)

Lesson Objective: Use picture graphs and bar graphs to solve word problems.





<u>Directions</u>: Complete these practice problems with your partner. Your teacher will review the answers.

I. Use this pictograph to solve each problem.

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		David	Jack	Miguel	Sara
		BOOKS RE	AD IN BOOP	< CLUB	
equals 2 books read 1. How many books did Angela read?					

- 2. Who read eight books? _____
- 3. Which two people read the same number of books?

4. Who read the most books? _____

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II. Use this bar graph to solve each problem.



Favorite Pet Survey

1. How many votes did birds get? _____

2. Which pet got 14 votes? _____

3. Which pet got the largest number of votes? _____

4. Which pet got the smallest number of votes? _____

5. How many more votes did hamsters get than fish? _____



A. Vocabulary Words

Directions: Fill in the blanks.

- 1. All graphs show _____, or information.
- 2. A ______ uses bars to show data.
- 3. The ______ tells what each picture means on a pictograph.
- 4. A ______ uses pictures to show data.

B. Summarize What We Learned Today

1. Look at the pictograph in Part I in the Guided Practice section. Write a question about the data on that graph. Then use the graph to answer the question.

Problem:	
?	
Answer:	

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2. Look at the bar graph in Part II in the Guided Practice section. Write a question about the data on that graph. Then use the graph to answer the question.

Problem:_____

_____?

Answer: