



Compare and Order Numbers

Lesson Synopsis:

Students will use place value to compare and order numbers through 99 and identify patterns within the tens and ones place.

TEKS:

2.1 *Number, operation, and quantitative reasoning. The student understands how place value is used to represent whole numbers. The student is expected to use concrete models to represent, compare, and order whole numbers (through 999), read the numbers, and record the comparisons using numbers and symbols ($>$, $<$, $=$).*

2.1A Use concrete models of hundreds, tens, and ones to represent a given whole number (up to 999) in various ways.

2.1B Use place value to read, write, and describe the value of whole numbers to 999.

2.1C Use place value to compare and order whole numbers to 999 and record the comparisons using numbers and symbols ($<$, $=$, $>$).

2.5 *Patterns, relationships, and algebraic thinking. The student uses patterns in numbers and operations.*

2.5B Use patterns in place value to compare and order whole numbers through 999.

Process TEKS:

2.13 *Underlying processes and mathematical tools. The student communicates about Grade 2 mathematics using informal language.*

2.13A Explain and record observations using objects, words, pictures, numbers and technology.

2.13B Relate informal language to mathematical language and symbols.

2.14 *Underlying processes and mathematical tools. The student uses logical reasoning.*

2.14A The student is expected to justify his or her thinking using objects, words, pictures, numbers, and technology.

GETTING READY FOR INSTRUCTION

Performance Indicator(s):

- Read, write, and describe the concrete representation of given numbers and use place value to explain the relationship among the different representations on the given recording sheet. (2.1A, 2.1B)
ELPS: 1E, 2E, 2I, 3D, 3H, 4E, 5B, 5G
- Symbolically represent the comparison of two numbers on the given recording sheet. Describe the two numbers using comparative language and identify patterns in the numbers that were used to compare and order the values. (2.1C; 2.5B)
ELPS: 1E, 2E, 2I, 3D, 3H, 4E, 5B, 5G

Key Understandings and Guiding Questions:

- Numbers are compared using place value.
 - What does it mean to compare the value of two numbers?
- The value of a number depends on the position of the digits.
 - How did you determine who drew the small number?
 - How can you tell by looking at the digits in the tens place which number is the largest?
- Symbolic representation of ($<$, $>$, $=$), mathematically communicates the comparison of two numbers.
 - *Two numbers can be compared using symbols*
 - How could you write a comparison sentence without using words?
- Place value patterns can be used to compare and order numbers.
 - Did you notice a pattern among the numbers?
- Patterns can be identified in the tens place and/or ones place.

- Did you notice a pattern among the models?
- If so, what digit is changing?
- Our base-ten number system was created through patterns.
 - How can you tell by looking at the digits in the tens place which number is largest?

Vocabulary of Instruction:

- greater than “>”
- less than “<”
- equal to “=”

Materials:

- base-ten blocks
- white boards
- dry-erase markers
- construction paper (1 per student)
- decahedra dice
- lunch sacks (1 per student pair)
- number tiles (1-99)

Resources:

-  Spiraling Review
- Card Set: **Doubles** and **Doubles Plus/Minus One Flash Cards** (Unit 01 Lesson 01)

Advance Preparation:

1. **Number Sack:** Copy and cut apart number cards from attachment: **Number Sack Cards** and place a loose set in a lunch sack. (1 sack per student pair)
2. Handout: **Number Sack Recording Sheet** (1 per student)
3. Transparency: **Number Sack Recording Sheet** (1 per teacher)
4. Handout: **High Roller Recording Sheet** (1 per student.)
5. Transparency: **High Roller Recording Sheet** (1 per teacher)
6. **Practice Stations:** 1. High Roller; 2. Number Sacks; 3. Doubles and Doubles Plus/Minus One Flash Cards;
7. 4. Handout: **Number Strategies Story Problems 2** (1 per student); 5. Teacher’s Choice (A teacher lead station for intervention is suggested)
8. Handout: **Compare and Order Assessment Sheet** (1 per student)
9. Transparency: **Compare and Order Assessment Sheet** (1 per teacher)

Background Information:

Prior to this lesson, students have been working with tens and ones units. In Grade 1, students used comparative language. Comparative symbols are introduced in Grade 2.

GETTING READY FOR INSTRUCTION SUPPLEMENTAL PLANNING DOCUMENT

Instructors are encouraged to supplement, and substitute resources, materials, and activities to differentiate instruction to address the needs of learners. The Exemplar Lessons are one approach to teaching and reaching the Performance Indicators and Specificity in the Instructional Focus Document for this unit. A Microsoft Word® template for this planning document is located at www.cscope.us/sup_plan_temp.doc. If a supplement is created electronically, users are encouraged to upload the document to their Lesson Plans as a Lesson Plan Resource in your district Curriculum Developer site for future reference.

INSTRUCTIONAL PROCEDURES

Instructional Procedures

ENGAGE

1. Present the following question to the class.
 - **What does it mean to compare the value of two numbers?**
Answers may vary. Possible answers may include: It means to see which number is bigger and which number is smaller.
2. Invite students to provide examples in their own way. For example, acting it out, using manipulatives, drawing a picture, or an oral explanation.
3. Take time to encourage everyone to share.

Notes for Teacher

NOTE: 1 Day = 50 minutes
Suggested Day 1

SPIRALING REVIEW

MATERIALS

- manipulatives (base-ten blocks, white boards and markers, etc.) for students to model their examples.

Instructional Procedures

EXPLORE/EXPLAIN 1

1. Divide students into pairs.
2. Distribute a **Number Sack** and handout: **Number Sack Recording Sheet** to each student pair. Ask the person in each pair with the shortest hair to write his/her name above the first column and his/her partner's name above the second column. Model using transparency: **Number Sack Recording Sheet** on the overhead.
3. Explain to students they will each draw a card from the **Number Sack** and record the card and the number represented on the card under their name.
4. After both of the numbers are recorded on the recording sheet, students are to compare the two numbers and write the appropriate phrase that describes the comparison.
 - For example: *It means to see which number is bigger and which number is smaller.*

Sample cards:

Jamie	Symbol >, <, =	Kay
34	Is less than	43



5. Students will draw and record for two rounds.
6. Using the transparency: **Number Sack Recording Sheet**, explain that instead of writing out words to describe the comparison of the two cards, we could use symbols.
7. Introduce the “greater than” symbol, “>.” Explain that the open end of the symbol is always positioned toward the larger/greater number. For example, if I drew an eight card and a three card, I would say 8 is greater than 3 and record: $8 > 3$.
8. Next, introduce the “less than” symbol, “<.” Explain that the pointed end of the symbol is always positioned toward the smaller/lesser number. For example, if I drew a two card and a seven card, I would say 2 is less than 7 and record: $2 < 7$.
9. Finally, introduce the equal symbol, “=.” Explain that just as in a number sentence, the equal sign is used to show that both sides are the same or equal. For example, if I drew two cards that represented the number 5, I would say 5 is equal to 5 and record: $5 = 5$.
10. Continue to complete the last four rounds on the handout: **Number Sack Recording Sheet**. This time use a symbol to compare the two number cards drawn.
11. As student pairs are working visit with the small groups and ask the following guiding questions:
 - **Who drew the greater number?** *Answers may vary.*
 - **How did you determine who drew the small number?** *Answers may vary.*
 - **How could you write a comparison sentence without using**

Notes for Teacher

MATERIALS

- **Number Sack** (1 per student pair)
- Handout: **Number Sack Recording Sheet** (1 per student pair)
- Transparency: **Number Sack Recording Sheet** (1 per teacher)

TEACHER NOTE

If students are experiencing difficulty determining which direction the open end should face, model how to place two dots next to the larger/greater number and one dot next to the smaller/lesser number; then connect the dots to create the comparison symbol.

34 < 43

Instructional Procedures

words? *Answers may vary. I could use a pictorial; I could use a symbol, etc.*

- **How would you read this row on your recording sheet?** *Answers may vary.*

EXPLORE/EXPLAIN 2

1. Divide students into small groups of 3-4.
2. Distribute base-ten blocks to each table and a work mat (a piece of construction paper) to each student.
3. Write the following numbers on the board: 43, 53, 63, 73
4. Instruct each group to assign one of the numbers to each group member to model with base-ten blocks their assigned number on their work mat.
5. Once the models are complete, ask the following guiding questions:
 - **Do you notice a pattern among the models?** *Yes*
 - **What digit is changing?** *The first digit, (i.e., 4,5,6)*
 - **What place value does the changing digit represent?** *The tens place*
 - **How can you tell from the base-ten blocks which number is the greatest?** *(The number with the most 10-longs is the greatest number.)*
 - **How can you tell from the base-ten blocks which number is the smallest or less than the others in value?** *(The least number of 10-longs is the smallest number.)*
 - **How can you tell from the base-ten blocks which number is in the middle?** *(The number of 10-longs have to be less than the greatest and less than the smallest.)*
 - **What does “in the middle” mean?** *(It means that it is not the greatest or largest and it is not the least or smallest.)*
 - **How can you tell by looking at the digits in the tens place which number is the greatest, the least or in the middle?** *Answers may vary. The digit in the tens place determines in the value of the numbers; you have to look at the first digit, etc.*
6. Ask students to clear their mats and write the following set of numbers on the board: 32, 34, 36, 38.
7. Assign a number to each group member and model the assigned number using base-ten blocks.
8. When models are complete, ask the following guiding questions:
 - **Do you notice a pattern among the models?** *Yes*
 - **What digit is changing?** *The second or ones digit, (i.e., 2,4,6)*
 - **What place value does it represent?** *The ones place*
 - **How can you tell from the base-ten blocks which number is the greatest? Least? In the middle?** *Answers may vary. The number with the most units or ones is the greatest number; the number with the least number of units or ones is the smallest number, etc.*

EXPLORE/EXPLAIN 3

1. Divide students into groups of four.
2. Place a pair of decahedra dice/dice at each table and the handout: **High**

Notes for Teacher

Suggested Day 2

SPIRALING REVIEW

MATERIALS

- base-ten blocks
- construction paper (1 per student)

MATERIALS

- decahedra dice or dice
- Handout: **High Roller Recording**

Instructional Procedures

Roller Recording Sheet to each student.

3. Explain that today they will be playing a game called High Roller. To begin the game each student will have a chance to roll the dice and create the largest two-digit number possible from the two digits rolled. Everyone will record each player's roll. Once everyone has had a chance to roll the dice and all of the numbers have been recorded, students will then order the numbers from greatest to least on the handout: **High Roller Recording Sheet**.
4. Use the transparency: **High Roller Recording Sheet** to model the process. If there are no questions, invite the groups to begin play.
5. As groups are working, walk around and check for the students' use of place value to construct the largest two-digit number, their use of comparative language, and their process of ordering the results from greatest to least. Ask the following guiding questions:
 - **Why is this number greater?** *Answers may vary. The place with the largest number of tens is the greatest; it has more 10-longs, etc.*
 - **How did you determine the order of your numbers so quickly?** *Answers may vary. I look at the tens place; I look at the block,; etc.*
 - **Did you notice a pattern among the numbers? If so, what was it?** *Answers may vary.*

ELABORATE

1. Students will rotate in groups of four through a variety of practice stations.
2. Re-introduce the following activities. **High Roller**; **Number Sacks**; **Doubles and Doubles Plus/Minus Flash Cards** (located in Unit 01 Lesson 01); **Number Strategies Story Problems 2**; and **Teacher's Choice** (This would allow an activity to be differentiated to meet the needs of rotating groups).
3. Model expectations for each station and set norms.
4. After two station rotations, take up student recording sheets and explain that they will complete the rest of the stations tomorrow.
5. As a whole class, invite students to share what they learned from their station experience.

EVALUATE

1. Distribute a small sampling of number tiles and base-ten blocks to each table group and the handout: **Compare and Order Assessment Sheet** to each student.

Notes for Teacher

Sheet (1 per student)

- Transparency: **High Roller Recording Sheet** (1 per teacher)

TEACHER NOTE

Comparing and ordering two-digit numbers was a focal point in grade 1. If students struggle with this task it is important to provide Tier 1 reinforcement and Tier 2 intervention to construct an understanding of place value concepts.

Suggested Day 3 and 4

SPIRALING REVIEW

MATERIALS

- Number Sack (1 per station)
- Handout: **Number Sack Recording Sheet** (1 per student)
- decahedra dice or dice
- Handout: **High Roller Recording Sheet** (1 per student)
- Handout: **Doubles Flash Cards** (1 per student)
- Card Set: **Doubles Plus/Minus One Flash Cards** (1 per station) from Unit 01 Lesson 01
- Handout: **Flash Card Recording Sheet** (1 per student)
- Handout: **Number Strategies Story Problems 2** (1 per student)

TEACHER NOTE

Recall that **Number Strategies Story Problems 1** is located in Unit 01 Lesson 01. That is why this lesson has **Number Strategies Story Problems 2**.

Suggested Day 5

SPIRALING REVIEW

Instructional Procedures

2. Display the transparency: **Compare and Order Assessment Sheet** and select two number tiles. Model how to complete the handout.
3. Ask students to select two number tiles. Instruct students to record the two tiles drawn on the handout: **Compare and Order Assessment Sheet** and construct a model to represent the value of each tile. Explain that they are to record a written and symbolic comparison statement using the two numbers drawn and a sketch of their models.
4. Ask students to complete the handout individually.

Notes for Teacher

MATERIALS

- number tiles (1-99)
- base-ten blocks
- Handout: **Compare and Order Assessment Sheet** (1 per student)
- Transparency: **Compare and Order Assessment Sheet** (1 per teacher)

TEACHER NOTE

This assessment is intended to evaluate the following Performance Indicator:

- Symbolically represent the comparison of two numbers on the given recording sheet. Describe the two numbers using comparative language and identify patterns in the numbers that were used to compare and order the values.

Number Sack Cards

Thirteen	57	$50 + 7$	Twenty-three	24
6 tens 7 ones	...	61	Seventy	$30 + 4$
..	6 tens 1 one	nineteen	Eighty-five	Forty-six
32	.	Fifty-five	55	Five tens Five ones
19	One ten Three ones	85	Forty-two	61
3 tens 2 ones	1 ten 9 ones	67	$40 + 6$	7 tens No ones



Number Sack Recording Sheet **KEY**

Name: Student 1	Greater than ">" Less than "<" Equal to "="	Name: Student 2
<p style="text-align: center;">42</p> <p style="text-align: center;"> . .</p>	<p style="text-align: center;"><</p> <p style="text-align: center;">Less than</p>	<p style="text-align: center;">55</p> <p style="text-align: center;">Five tens Five ones</p>
<p style="text-align: center;">34</p> <p style="text-align: center;">30 + 4</p>	<p style="text-align: center;">></p> <p style="text-align: center;">Greater than</p>	<p style="text-align: center;">32</p> <p style="text-align: center;">32</p>
<p style="text-align: center;">85</p> <p style="text-align: center;">85</p>	<p style="text-align: center;">Equal to</p> <p style="text-align: center;">=</p>	<p style="text-align: center;">Eighty-five</p> <p style="text-align: center;">85</p>



Number Sack Recording Sheet

Name:	Greater than ">" Less than "<" Equal to "="	Name:

High Roller Recording Sheet **KEY**

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
<u>83</u>	<u>30</u>	<u>65</u>	<u>74</u>	<u>83, 74, 65, 30</u>

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	_____

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	_____

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	_____



High Roller Recording Sheet

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	

1 st Roller	2 nd Roller	3 rd Roller	4 th Roller	Numbers from Greatest to Least
_____	_____	_____	_____	



Number Strategies Story Problems 2 **KEY**

Directions: Solve the story problem by applying your knowledge of doubles, near doubles, and make ten strategies, and write an appropriate number sentence. Record the name of the strategy used.

1. Alicia ate nine marshmallows and three graham crackers. How many pieces of food did she eat?

Strategy: Make Ten

$$\begin{aligned}9 + 3 &= ? \\9 + 1 + 2 &= ? \\10 + 2 &= 12\end{aligned}$$

2. Rebecca placed six books on the first shelf and eight books on the second shelf. What is the total number of books on the shelves?

Strategy: Make Ten

$$\begin{aligned}6 + 8 &= ? \\4 + 2 + 8 &= ? \\4 + 10 &= 14 \\ \text{Or} \\6 + 4 + 4 &= ? \\10 + 4 &= 14\end{aligned}$$

3. Mac ate eight bowls of cereal on Monday and eight more on Tuesday. How many bowls of cereal did he eat?

Strategy: Doubles

$$8 + 8 = 16$$

4. A pack of Pokémon® cards contained eight energy cards and seven potion cards. How many cards were in the pack?

Strategy: Near Doubles

$$\begin{aligned}8 + 7 &= ? \\1 + 7 + 7 &= ? \\1 + 14 &= 15\end{aligned}$$

Number Strategies Story Problems 2

Directions: Solve the story problem by applying your knowledge of doubles, near doubles, and make ten strategies, and write an appropriate number sentence. Record the name of the strategy used.

1. Alicia ate nine marshmallows and three graham crackers. How many pieces of food did she eat?

2. Rebecca placed six books on the first shelf and eight books on the second shelf. What is the total number of books on the shelves?

3. Mac ate eight bowls of cereal on Monday and eight more on Tuesday. How many bowls of cereal did he eat?

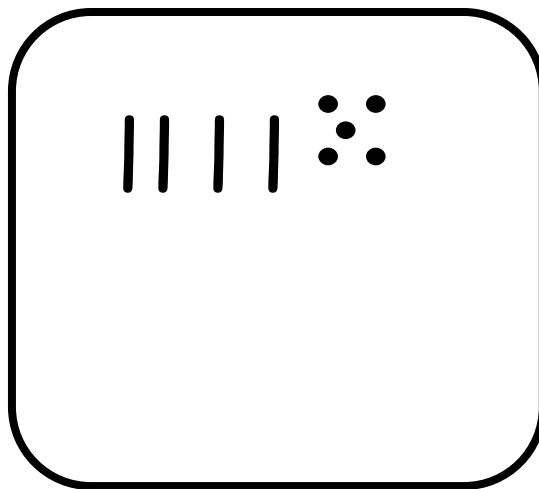
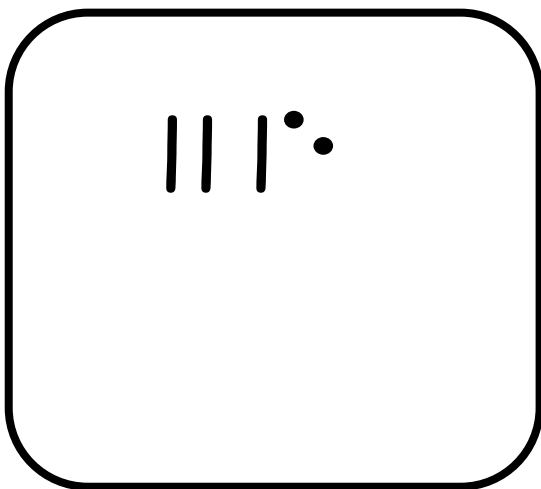
4. A pack of Pokémon® cards contained eight energy cards and seven potion cards. How many cards were in the pack?

Compare and Order Assessment Sheet **KEY**

1. Tile Numbers



Tile Models



2.

Comparison statements:

Written **32 is less than 45**

Symbolic (<, >, =) **32 < 45**

3. Write the following numbers in order from Greatest to Least: 57, 77, 37, 97

Greatest to Least: **97, 77, 57, 37**

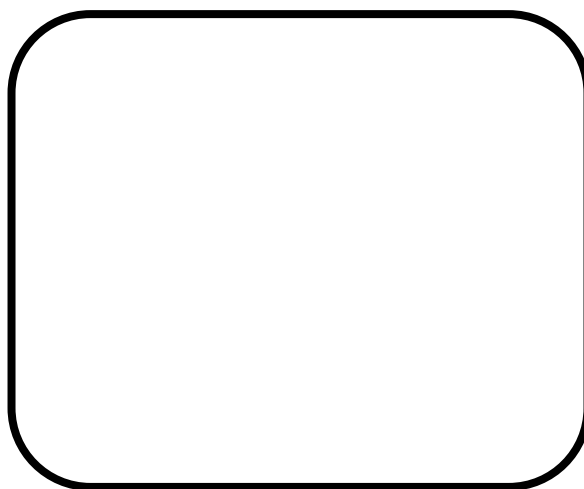
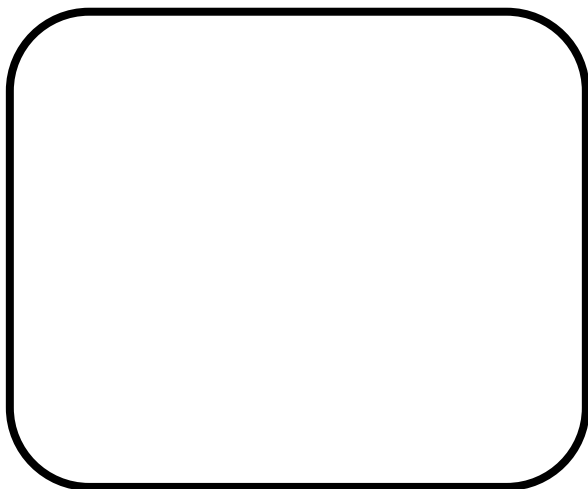
What pattern did you notice? **Answers may vary. There is a 7 in the ones place; They decrease by 20.**

Compare and Order Assessment Sheet

1. Tile Numbers



Tile Models



2.

Comparison statements:

Written: _____

Symbolic (<, >, =): _____

3. Write the following numbers in order from Greatest to Least: 57, 77, 37, 97

Greatest to Least: _____

What pattern did you notice? _____
