Comparing and Ordering Decimals

Lesson Organizer

Quick Lesson Overview

Objective Write, compare, and order decimals to hundredths.

Math Understanding You can use place value to compare and order decimals.

Professional Development Note

How Children Learn Math For linguistic learners, it may be helpful to point out that when comparing decimals such as 0.6 and 0.63, they can think of the decimals as six tenths and six tenths plus three hundredths rather than sixty-three hundredths.

Getting Started

Spiral Review

Problem of the Day

How did the number of animals examined by Dr. King change over the week? (Hint: Make a bar graph.)

<table>
<thead>
<tr>
<th>Dr. King</th>
<th>Monday</th>
<th>Tuesday</th>
<th>Wednesday</th>
<th>Thursday</th>
<th>Friday</th>
</tr>
</thead>
<tbody>
<tr>
<td>30</td>
<td>25</td>
<td>30</td>
<td>20</td>
<td>25</td>
<td>15</td>
</tr>
</tbody>
</table>

Topics Reviewed

- Making and reading bar graphs
- Problem-Solving Strategy: Make a Graph

Answer The number of animals examined increased on Tuesday. Then it decreased each day until it reached the fewest examined on Friday.

Spiral Review and Test Prep 11-3

1. Write 2,395 as a fraction in simplest form.
2. Write the word form for 5,003 and tell the value of the underlined digit.
3. Find six and fifty-one hundredths, 3 tenths.
4. Tell whether at least is greater than or less than an estimate of 2.26.
5. Estimate: yes
6. Write a decimal for each fraction:
5. $\frac{1}{4}$, $\frac{3}{5}$, and $\frac{7}{8}$
7. Write the product of 12 and 50.

Estimating Products

- Adding fractions with unlike denominators
- Polygons
- Decimals and fractions
- Decimal place value
- Exact answer or estimate

Investigating the Concept

Finding a Great Place

Logical/Mathematical

Materials (per student) index card

<table>
<thead>
<tr>
<th>Material</th>
<th>Number of Materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Index card</td>
<td>1</td>
</tr>
</tbody>
</table>

What to Do

- Write 0.1, 1.25, and 0.17 on the board in a decimal place-value chart.
- When you compare decimals, you start with the greatest place. How can you tell which is the greatest number? (1.25 is the greatest number, because it is the only one with a value in the ones place.) How can you decide which number is the next greatest? (Look at the tenths place. The values are the same, so look at the hundredths place.) What is the order of numbers from greatest to least? (1.25, 0.17, 0.1)

- Have each student write a decimal between zero and 2, in tenths or hundredths. Have group members order their decimals.

Ongoing Assessment

- Number Sense: What place would you look at to compare 0.54 and 0.57? Why? (The hundredths place; because the tenths are the same)

NCTM Standards

- Number and Operations
  (For a complete correlation to the NCTM Standards and Grades 3–5 Expectations, see pages 622G–H.)

630A LESSON 11-3

From Scott Foresman - Addison Wesley

Grade 4
Reaching All Learners

Reading in Math

Using Picture Clues

5-10 MIN Visual/Spatial

- You can find a lot of information without reading any words.
- Have students look at page 630. What symbols do you see on this page? (Greater than, less than, and equal to symbols) What could you tell from the symbols and the numbers without reading any words? (That the page was about comparing decimals)
- What diagrams do you see on the page? (Grids and a number line) What do the grids show? (Hundredths) What does the number line show? (The order of numbers)
- What do the photos show? (Fishing lures and their weights)

Comparing and Ordering

10-15 MIN Auditory/Visual/Spatial

- Read aloud the lesson title and initial question on page 630. Focus attention on Example A.
- Have students listen and follow along as you walk them through Example A. Pause to ask questions such as: How many decimals are being compared? Which grid shows a greater number? Which numbers are the same when you line them up for place value?
- Encourage students to ask for clarification or repetition as needed.
- Which way of comparing two decimals is easier? Why do you think so?

Reteaching

Greater Than or Less Than

15-20 MIN Visual/Spatial/Kinesthetic

Materials (per pair) Decimal Models (Teaching Tool 8); construction paper; scissors, glue or tape; markers

- Have each pair cut out and shade models to represent two decimals less than 1 and glue the models to construction paper.

How can you tell which decimal is greater? (The decimal model that has the greater shaded area)

How can you tell which symbol to use to compare them? (The open end should face the greater number; the point should face the lesser number.)

Math and Social Studies

Exchange Rates

10-15 MIN Logical/Mathematical

Materials (per class) Newspaper with currency-exchange rates; world map

- You can use the exchange rates to find out how much of another currency 1 U.S. Dollar is worth.
- Give current rates or these 2002 rates.
- Locate the countries on a map. Ask: What is the order of the countries from the least exchange rate to the greatest exchange rate? (United Kingdom, France, Canada, Australia, Argentina)

<table>
<thead>
<tr>
<th>Exchange Rates for 1 U.S. Dollar</th>
</tr>
</thead>
<tbody>
<tr>
<td>Country</td>
</tr>
<tr>
<td>France</td>
</tr>
<tr>
<td>Canada</td>
</tr>
<tr>
<td>United Kingdom</td>
</tr>
<tr>
<td>Australia</td>
</tr>
<tr>
<td>Argentina</td>
</tr>
</tbody>
</table>

LESSON 11-3 630B
Objective Write, compare, and order decimals to hundredths.

1 Warm Up

Activate Prior Knowledge Review place value for decimal numbers. What is the greatest place in any of these numbers? (The ones place)

2 Teach

LEARN Review the greater than and less than symbols. When have we used these symbols before? (When we compared whole numbers and compared fractions)

Example B Mention that the number line shown is just a part of the number line between 0 and 1.

Ongoing Assessment Talk About It: Question 1 students answer with a number instead of a name for the fishing lure, then ask them to look back and check their answer. Which weight is the least? (0.44 oz) Which fishing lure has that weight? (Deep Crankbait lure)

Answers
28. Tenths, hundredths; I compare the first place where the digits are different.
29. Eight million, two hundred seventy-three thousand, five hundred twenty-one; hundred thousands
30. Nineteen hundredths; hundredths
31. Two and sixty-four hundredths; tenths
32. Thirty-five and four tenths; tenths

3 Warm Up

Tell the value of the red digit for each number.
1. 0.46 2. 0.79
4 tenths 9 hundredths
0.46 0.79
3. 0.83
1 ones 3 hundredths
0.83
4. 8 hundredths

Example A Which lure is heavier, Yellow Minnow or Diving Crankbait?
Compare 0.63 ounce and 0.69 ounce.

One Way: Use grids.

Another Way: Use place value. Begin at the left and find the first place where the digits are different. Compare.
0.63 < 0.69

63 hundredths < 69 hundredths
0.63 < 0.69

The Diving Crankbait lure is heavier than the Yellow Minnow lure.

Talk About It
1. Which weight is the least? The Deep Crankbait fishing lure

4 Practice

Comparing and Ordering Decimals

Compare (0.87) to (0.85).

Find the first place where the numbers are different:
2. 0.85
The numbers are the same in the tenths place, so look in the next place:
3. 0.87
The hundredths place:
0.87 > 0.85

Example B Put the weights of the fishing lures in order from least to greatest.

0.44

0.5

0.61

0.63

0.70

From least to greatest, the weights are 0.44, 0.5, 0.63, 0.69.

5 Test Prep

12. Which group of numbers is ordered from least to greatest?
A. 0.2, 0.15, 0.14, 0.25
B. 0.14, 0.15, 0.25
C. 0.2, 0.15, 0.25
D. 0.14, 0.15, 0.15

Sample answer: D. 0.14, 0.15, 0.15

13. Writing in Math: Order the numbers 7.29, 7.32, 7.37, and 7.3 from greatest to least. Use this number sentence to explain your work. Compare: 7.37 > 7.32...

Sample answer: No: 7.52 is greater than 7.25, so they should be in reverse order.
CHECK

1. 0.56 < 0.71
2. 1.48 > 0.49
3. 3.76 > 3.67
4. 0.30 > 0.3

Order the numbers from least to greatest.

5. 0.85, 0.89, 0.9, 0.83
6. 0.25, 0.4, 0.04, 0.35
7. 1.07, 1.071, 1.75
8. Number Sense Which is greater, 0.9 or 0.99? Explain; 0.9 has a 9 in the tenths place, 0.99 has a zero in the tenths place, 0.9 is greater than 0.09.

PRACTICE

A Skills and Understanding

Compare, Write >, <, or = for each.

9. 0.81 > 0.76
10. 0.36 < 0.39
11. 2.98 = 3.79
12. 3.24 = 3.42
13. 8.32 < 7.46
14. 4.01 > 4.1
15. 6.19 < 5.19
16. 7.6 = 7.6

Order the numbers from least to greatest.

17. 3.5, 2.2, 1.9
18. 4.7, 5.6, 3.8
19. 1.54, 1.45, 1.58
20. 2.24, 2.28, 2.21
21. 0.7, 0.9, 0.75, 0.78
22. 0.62, 0.6, 0.5, 0.67
23. Number Sense Which is greater, 15.99 or 16?
24. Fish A or B
25. Fish B or C
26. Fish C or D
27. Show all the fish sizes on a number line.
28. Writing in Math What place would you use to compare 2.77 and 2.57? What about 2.77 and 2.75? Explain. See margin.

B Reasoning and Problem Solving

Length of Fish Caught

Fish A: 11.75 inches
Fish B: 12.5 inches
Fish C: 11.5 inches
Fish D: 11.25 inches

29. 8,273,521
30. 0.19
31. 2.64
32. 35.4
33. Round 765,293 to the nearest ten thousand.
A. 765,290
B. 760,000
C. 770,000
D. 800,000

Exercise 28 Remind students to make their answers concise, clarifying which pair of numbers they are referring to as they write their explanation.

Leveled Practice

Below Level Ex. 9-23 odd, 24, 26, 28-33
On Level Ex. 10-22 even, 24-26, 28-33
Above Level Ex. 13-23 odd, 24-33

Early Finshers For Exercises 17-19, have students show the decimals on a number line. Ask them to use a separate number line for each exercise.

Assess

Journal Idea Ask students to explain how to order the decimals 0.8, 1.25, and 0.87 from least to greatest.

Comparing and Ordering Decimals

Problem Solving

Name: Morgan

1. Who is taller, Morgan or Tory? Tory
2. Who is shorter, Aron or Aaron? Aron
3. Who is taller, Aaron or Sam? Tory
4. Who is shorter, Sam or Ben? Ben
5. Writing in Math: Sometimes a 4.4 or 4.5 is not the answer or larger than Tory's. Tanso is taller; Sample answer: 4.74 is greater than 4.52 because of the 4 in the tenths place.