

General Information

Lesson Parts & Duration

Total Duration: 1 hour

- Comparing Decimals Through the Thousandths Place

Subject(s)

- Place Value Through the Thousandths Place: Value of Digits and Comparing Numbers (5.NBT.3)

Objectives

- Students will read and write decimals to the thousandths place.
- Students will use place value to explain the value of digits through the thousandths.
- Students will compare two decimals or fractions to the thousandths place.

Materials

- blank paper
- pencil
- document camera or whiteboard
- **Optional Printable Student Resources:** “Exit Slips” (page 8) (1 copy per student), “Comparing Decimals Through the Thousandths Place” (page 9) (1 copy per student)
- **Optional Printable Teacher Resources:** “Break Up Your Day” brain/movement break ideas (page 10)

Instructional Setting

- Students should be seated so that they can easily work with a partner.

Throughout this lesson, you will find:

- ☀ **Scripted Text** indicates things that need to be said directly. Bullets starting with a “T” followed by *italicized type* indicate scripted text
- ☀ **Clarifiers** within scripted text are in orange
- ☀ **Teacher Directions** indicate things you should be doing
- ☀ **Side notes** provide helpful hints, ELL strategies, differentiation and information
- ☀ **Break Up Your Day** (Brain/Movement Breaks) are in green boxes (at the end)

Remember!

Quality over quantity. All components do not have to be accomplished; lessons may be ended at any time and resumed later.

Instructional Plan: 60 minutes

Introduction

- T* Knowing how to read and write decimals in a variety of ways will help you when you have a situation where you need to compare decimals.
- T* Who can think of a situation where a person might want to compare two decimals to see which one is larger and which one is smaller.

Provide a few moments for students to think.

- T* Turn and share with someone sitting next to or near you what a situation would be when someone would need to compare numbers containing decimals.

Provide a few minutes for students to share.

- T* Let's hear a few of the scenarios that you thought of. **Call on students to share with the class.**

Possible ideas may include: comparing pricing at stores to see which is the cheaper product, or comparing times of a race to see who had the fastest time and won.

- T* Being able to compare numbers containing decimals is an important skill to have.
- T* As I am sure you have previously learned there are several ways that numbers can be written.
- T* It is very important that you have the numbers you are comparing written in a common form before you are able to compare them properly.
- T* Since our focus today is decimals, you will want to make sure all numbers are written in number form containing a decimal and not a fraction.
- T* This way you can more easily compare the value of each digit.
- T* Let's take some notes so that you have an example to use later.

Pass out a piece of blank paper to each student for them to use as notes.

Whole Group **Setting up the Paper**

- T* Write your name and date in the top right-hand corner of your paper. **See example & model so students can follow.**
- T* We will title our notes, "Comparing Decimals." **See example & model so students can follow.**
- T* Below that let's write our learning target for today.
- T* Please write, "I can compare decimals to the thousandths place in word form, number form with fractions, and decimal form." **See example & model so students can follow.**
- T* Who can tell us what symbols we use when comparing things in math? **Call on students. Answer: > greater than, < less than, and = equal to.**
- T* Just below our learning target, let's write each of these symbols in our notes.
- T* The greater than symbol has what looks like a mouth opening up to the left, draw this and write "Greater Than" next to it. **See example & model so students can follow.**
- T* The less than symbol has what looks like a mouth opening up to the right, draw this and write "Less Than" next to it. **See example & model so students can follow.**
- T* Finally, the equal sign which looks like two horizontal parallel lines, draw this and write "Equal To." **See example & model so students can follow.**
- T* Knowing how to correctly read these symbols will help you when reading a comparison statement.
- T* For example, 5 is less than 7, or 6 is equal to $\frac{36}{6}$ or eight and two tenths is greater than seven and two tenths.

| |
|---|
| Name & Date |
| Comparing Decimals |
| I can compare decimals to the thousandths place in word form, number form with fractions, and decimal form. |
| Symbols Used: |
| > Greater Than |
| < Less Than |
| = Equal To |

- T* As I mentioned earlier, today you will be building on what you have already learned about reading and writing decimals in a variety of ways.
- T* Especially the skill of writing a decimal in expanded form.
- T* You will need to be able to compare the value of digits in specific places in order to determine which number is greater.
- T* There are 2 steps that I would like us to add to our notes to help us in this process.
- T* Step 1: is to convert to make the numbers the same. See example & model so students can follow.
- T* Below this step we will write, "Example: make both numbers look the same. Decimal and Decimal. Fraction and Fraction."
- T* We will use the following numbers as our example: 863.59 **eight hundred sixty-three and fifty-nine hundredths** and $863\frac{59}{100}$ **eight hundred sixty-three and fifty-nine thousandths** as a fraction. See example & model so students can follow.
- T* We will draw a circle between the two numbers to show that we are comparing them. See example & model so students can follow.
- T* I will now write out this comparison in 2 ways.

| Comparing Decimals | | | Name & Date |
|---|---|--|-------------|
| I can compare decimals to the thousandths place in word form, number form with fractions, and decimal form. | | | |
| Symbols Used: > Greater Than < Less Than = Equal To | | | |
| Step 1: Convert to make them the same Example: Make both numbers look the same. Decimal and Decimal or Fraction and Fraction. | | | |
| 863.59 | ○ | $863\frac{59}{1000}$ | |
| Option 1: 863.59 | ○ | 863.059 | |
| Option 2: $863\frac{59}{100}$ | ○ | $863\frac{59}{1000}$ | |
| Step 2: Compare- Determine which has a greater value | | | |
| Option 1: | | | |
| <ul style="list-style-type: none"> • First check the whole numbers • Then check the decimals: <ul style="list-style-type: none"> • the tenths place is like the dimes • the hundredths place is like the pennies • Comparing Order: tenths, then hundredths, last thousandths | | | |

Option 1:

- T* Option one will be converting both into decimal form and option two will be to convert both into fraction form. See example & model so students can follow.
- T* Using your knowledge about writing decimals in different ways, please write out these two options on your paper as well.
- T* Then below these two comparison statements I would like you to list some steps or things to consider when comparing using that option.
- T* Option 1: First check or compare the whole numbers. See example & model so students can follow.
- T* Always compare digit by digit starting in the highest place or the left side of the number.
- T* So, in this case we will start at in the hundreds place.
- T* Both numbers have an 8 in the hundreds place or a value of 800.
- T* Next, I will look at the tens place, both numbers contain a 6, giving them both a value of 60.
- T* Finally, I will check the ones places, both numbers have a 3 in the ones place, giving them each a value of 3.
- T* Since both whole numbers are equivalent, we must now check the decimals.
- T* Let's write another bullet point under Option 1 that says "Then check the decimals." See example & model so students can follow.
- T* Below that I want you to write a comparison to the value of the decimals with the value of coins.
- T* Please write, "the tenths place is like the dimes" and "the hundredths place is like the pennies." See example & model so students can follow.
- T* Also write, "Comparing Order: tenths, then hundredths, last thousandths."
- T* Just like comparing whole numbers the largest values of decimals are those that are closest to the decimal point.
- T* So, tenths are greater than hundredths, and hundredths are greater in value than thousandths.
- T* The closest place to the decimal is the tenths place.

- T** My first number has a 5 in the tenths place or a value of 0.5 or $\frac{5}{10}$ **five tenths**.
- T** The second number has a 0 in the tenths place giving it a value of 0.
- T** Because the first number has a larger value, you do not need to continue to compare the rest of the digits.
- T** As soon as you find one with a greater value you are done.
- T** So, I can now say that 863.59 **eight hundred sixty-three and fifty-nine hundredths** is greater than 863.059 **eight hundred sixty-three and fifty-nine thousandths**.

Option 2:

- T** Just like with comparing decimals, when we are comparing numbers containing fractions we will start by comparing the whole numbers. **See example & model so students can follow.**
- T** Since we are illustrating how to compare the same numbers, but in two different ways we will not go through and compare the whole numbers again.
- T** We already know they are equivalent.
- T** Now we must check the fractions.
- T** In order to compare fractions, we must have common denominators to compare. **See example & model so students can follow.**
- T** The denominator tells how many pieces 1 whole is cut into. **See example & model so students can follow.**
- T** The larger the denominator is, the more pieces that whole is cut into. **See example & model so students can follow.**
- T** Imagine two identical cakes.
- T** One is cut into 100 pieces and the other is cut into 1000 pieces.
- T** Both cakes are the same size, but the pieces are much smaller in the cake cut into 1000 pieces.
- T** So, one piece of a whole cut into tenths is much larger than 1 piece of a whole cut into 1000s. **See example & model so students can follow.**
- T** You must always convert to the larger of the two denominators.
- T** Our first number has $\frac{59}{100}$ fifty-nine hundredths and the second number has $\frac{59}{1000}$ fifty-nine thousandths.
- T** We can turn $\frac{59}{100}$ to $\frac{590}{1000}$, by multiply both our numerator and denominator by ten.
- T** When doing this, we are essentially adding a zero to the end of both our numerator and denominator.
- T** Now that both fractions share a denominator of 1000, which is greater, $\frac{590}{1000}$ or $\frac{59}{1000}$? **Call on students to answer. Answer: $\frac{590}{1000}$**
- T** So, I can now say that 863.59 **eight hundred sixty-three and fifty-nine hundredths** is greater than 863.059 **eight hundred sixty-three and fifty-nine thousandths**.
- T** Now you know two ways to compare decimals or whole numbers with fractional parts.
- T** I wanted you to see that comparing in both ways would get you the same answer, but today I would like us to focus on converting to decimals and comparing decimal places like in option 1.
- T** Let's turn our paper over and make some more comparisons.
- T** But first let's find a partner to practice with.

| Comparing Decimals | | | Name & Date |
|--|---|----------------------|-------------|
| I can compare decimals to the thousandths place in word form, number form with fractions, and decimal form. | | | |
| Symbols Used: | | | |
| > Greater Than | | | |
| < Less Than | | | |
| = Equal To | | | |
| Step 1: Convert to make them the same Example: Make both numbers look the same. Decimal and Decimal or Fraction and Fraction. | | | |
| 863.59 | ○ | $863\frac{59}{1000}$ | |
| Option 1: 863.59 | ○ | 863.059 | |
| Option 2: $863\frac{59}{100}$ | ○ | $863\frac{59}{1000}$ | |
| Step 2: Compare- Determine which has a greater value | | | |
| Option 1: | | | |
| • First check the whole numbers | | | |
| • Then check the decimals: | | | |
| • the tenths place is like the dimes | | | |
| • the hundredths place is like the pennies | | | |
| • Comparing Order: tenths, then hundredths, last thousandths | | | |
| Option 2: | | | |
| • First check the whole numbers | | | |
| • Then check the fractions: | | | |
| • Must have a common denominator to compare | | | |
| • The denominator tells how many pieces 1 whole is cut into | | | |
| • The more pieces, the smaller each piece is | | | |
| • 1 piece of a whole cut into tenths is much larger than 1 piece of a whole cut into 1000s | | | |

Partner Practice

- T* Please stand up and put your hand up.
T I would like you to walk all around the room until I say stop.
T When I say stop you will find the closest person to you.
T That will be your partner.
T You cannot walk alongside of someone else to try to guarantee they are your partner.
T If I see this you will automatically, NOT, be partners.
T Please take your paper and pencil with you.
T Ready, start walking until I say stop.

Partner Practice

1. 774.627 seven hundred seventy-four and sixty-two hundredths
2. 879.050 $362\frac{5}{100}$
3. 709.821 790.821
4. $267\frac{4}{1000}$ two hundred sixty-seven and four tenths
5. 875.541 875.514
6. 100.231 100.321
7. 741.4 741.004
8. 236.298 $236\frac{698}{1000}$
9. 658.397 68.397
10. $69\frac{821}{1000}$ 68.397

Watch for any students that may be pacing each other.

- T* Ok, stop!
T Please quickly and quietly partner up with the closest person to you.
T Then sit down and number the back side of your notes 1-10.
T We will do 10 practice comparisons and then you will continue to practice on your own.
T A great way to work with a partner is to first try to solve each on your own and then discuss.
T I will write the comparisons on the board for you to solve. **Partner Practice Problems found on the right.**
T Remember you need to first convert each into decimal form!

Write the 10 practice problems on the board or project them for students to copy. Then monitor and provide assistance as needed.

Allow 10-15 minutes for students to solve comparisons.

Differentiation:

Support: If students are struggling to convert to decimal form, you can convert for the student(s) and have them work on just comparing decimals. Also, lining decimals on top of each other can help students to more easily compare 1 place at a time.

Checking Answers

- T* Let's quickly go over these answers before you try some on your own!
T To help us practice reading our decimals and symbols we will read each one together as a class, if you say the wrong symbol please correct yours as we go.

Read each comparison slowly and encourage students to read them along with you each time. This will give them practice at reading decimals properly.

- T* #1 seven hundred seventy-four and six hundred twenty-seven thousandths is **greater than** seven hundred seventy-four and sixty-two hundredths. **Pause for students to correct their work.** $774.627 > 774.62$
T #2 eight hundred seventy-nine and fifty thousandths is **greater than** three hundred sixty-two and five hundredths. **Pause for students to correct their work.** $879.050 > 362.05$
T #3 seven hundred nine and eight hundred twenty-one thousandths is **less than** seven hundred ninety and eight hundred twenty-one thousandths. **Pause for students to correct their work.** $709.821 < 790.821$

- T** #4 two hundred sixty-seven and four thousandths is **less than** two hundred sixty-seven and four tenths. **Pause for students to correct their work.** $267.004 < 267.4$
- T** #5 eight hundred seventy-five and five hundred forty-one is **greater than** eight hundred seventy-five and five hundred fourteen. **Pause for students to correct their work.** $875.542 > 875.514$
- T** #6 one hundred and two hundred thirty-one thousandths is **less than** one hundred and three hundred twenty-one thousandths. **Pause for students to correct their work.** $100.231 < 100.321$
- T** #7 seven hundred forty-one and four tenths is **greater than** seven hundred forty-one and four thousandths. **Pause for students to correct their work.** $741.4 > 741.004$
- T** #8 two hundred thirty-six and two hundred ninety-eight thousandths is **less than** two hundred thirty-six and six hundred ninety-eight thousandths. **Pause for students to correct their work.** $236.298 < 236.698$
- T** #9 six hundred fifty-eight and three hundred ninety-seven thousandths is **greater than** sixty-eight and three hundred ninety-seven thousandths. **Pause for students to correct their work.** $658.397 < 68.397$
- T** #10 sixty-nine and eight hundred twenty-one thousandths is **greater than** sixty-eight and three hundred ninety-seven thousandths. **Pause for students to correct their work.** $69.821 > 68.397$
- T** Great job reading these decimal comparisons.

Independent Practice

If students seemed to struggle with the 10 practice problems you may choose to keep all of them or some of them in partners to continue to practice. You can also pull small groups of students to review the skill further.

- T** Now it is time for you to try out your skills independently.
- T** Please use both your notes and these examples to help you if you get stuck.
- T** If we have time, I will allow you to get back together with your partner and check your answers, or we will check them as a whole group.

Pass out “Comparing Decimals Through the Thousandths Place” (page 9) to each student or project it for them to copy. Allow about 10-15 minutes to complete.

If time allows either have students correct their work with their previous partner or correct it as a whole class. If there is no more time, please collect papers and leave them for their teacher to review.

Optional Assessment Component Exit Slip

*You may use the exit slip at the end of this lesson as a quick assessment of student understanding. Either print them out (page 8), or simply have students copy the problems on a half sheet of paper. Answer Key on next page.



Now is a great time to take a break and get students re-energized. See our list of engaging movement and brain break ideas to get your students moving and ready to refocus! (see page 10)

Name: ANSWER KEY

Comparing Decimals Through the Thousandths Place

Directions: Use $>$, $<$, or $=$ to compare the decimal pairs below.

- 630.042 $<$ six-hundred thirty and forty-two hundredths 630.42
- 362.359 $<$ $362\frac{89}{100}$ 362.89
- 31.087 $>$ 15.875
- $123\frac{82}{1000}$ 123.082 $<$ one hundred seventy-two and four hundred fifty-four thousandths 172.454
- 267.891 $>$ sixty-seven and three hundred seventy-two thousandths 67.372
- twenty-one and ninety-one hundredths 21.91 $<$ twenty-one and nine hundred ninety-one thousandths 21.991
- 863.94 $>$ eight hundred sixty-three and nine tenths 863.90
- 172.454 $=$ $172\frac{454}{1000}$ 172.454
- 810.054 $<$ 810.54 810.540
- $709\frac{821}{1000}$ 709.821 $>$ seventy-nine and eight hundred twenty-one thousandths 79.821
- 774.627 $>$ seven hundred seventy-four and six hundred seven thousandths 774.607
- seven and ninety-one hundredths 7.91 $<$ seventy and nine hundred ninety-one thousandths 70.991

Name: **ANSWER KEY** Date: _____

Exit Slip:
Comparing Numbers

Directions: Convert numbers as needed to help you compare. Use $>$, $<$, and $=$.

1. $223.16 > 223.016$

2. $863 \frac{94}{1000} < \text{eight hundred sixty-three and ninety-four hundredths}$

3. $\text{eight hundred ten and fifty-four thousandths} < 810.504$

4. $\text{sixty-seven and four thousandths} = 67 \frac{4}{1000}$

Name: _____ Date: _____

Exit Slip:

Comparing Numbers

Directions: Convert numbers as needed to help you compare. Use $>$, $<$, and $=$.

1. 223.16 223.016

2. $863\frac{94}{1000}$ eight hundred sixty-three and ninety-four hundredths

3. eight hundred ten and fifty-four thousandths 810.504

4. sixty-seven and four thousandths $67\frac{4}{1000}$

Name: _____ Date: _____

Exit Slip:

Comparing Numbers

Directions: Convert numbers as needed to help you compare. Use $>$, $<$, and $=$.

1. 223.16 223.016

2. $863\frac{94}{1000}$ eight hundred sixty-three and ninety-four hundredths

3. eight hundred ten and fifty-four thousandths 810.504

4. sixty-seven and four thousandths $67\frac{4}{1000}$

Name: _____

Comparing Decimals Through the Thousandths Place

Directions: Use $>$, $<$, or $=$ to compare the decimal pairs below.

1. 630.042 six-hundred thirty and forty-two hundredths

2. 362.359 $362 \frac{89}{100}$

3. 31.087 15.875

4. $123 \frac{82}{1000}$ one hundred seventy-two and four hundred fifty-four thousandths

5. 267.891 sixty-seven and three hundred seventy-two thousandths

6. twenty-one and ninety-one hundredths twenty-one and nine hundred ninety-one thousandths

7. 863.94 eight hundred sixty-three and nine tenths

8. 172.454 $172 \frac{454}{1000}$

9. 810.054 810.54

10. $709 \frac{821}{1000}$ seventy-nine and eight hundred twenty-one thousandths

11. 774.627 seven hundred seventy-four and six hundred seven thousandths

12. seven and ninety-one hundredths seventy and nine hundred ninety-one thousandths

Make sure to “Break Up Your Day!”

These can be used in the middle of a lesson or at the end of your lesson.
Here are a few engaging movement and brain break ideas to get your students moving and ready to refocus!



Break Up Your Day: Notation Kid!



- Challenge students to write as many expanded notation 5-digit numbers (to the ten thousands place) as possible in one minute. (example: $15,432 = 10,000 + 5,000 + 400 + 30 + 2$, etc.)
- Students trade papers with a shoulder buddy and the buddy counts the correct expanded notations.
- Whoever has the most correct expanded notations may share their facts with the class (if document camera is available) or they simply become the new Notation Kid!



Break Up Your Day: Math Outside!



- Students take scratch paper/pencil and find comparisons outside.
- Students draw and label numbers that can be compared. (examples: 2 slides $<$ 4 swings, 12 trees $>$ 2 basketball courts)
- Challenge: find anything that has a decimal or fractional part.



Break Up Your Day: Body Stretches!



10 minutes

FORMATION: Standing at desks

- Have students begin the day with a series of simple activities lasting 30 seconds or more: jumping jacks, knee lifts, flap arms like a bird, hopping, scissors (feet apart then cross in front, feet apart then cross in back)...
- Follow each activity with a basic stretching movement:
- Reach for the sky runner’s stretch
- Butterfly stretch (sit with bottom of feet together)
- Knee to chest, rotate ankles, scratch your back

Hold stretches for 10 - 30 seconds. Repeat a different simple activity followed by a new basic stretch as many times as desired.