Ordering thousandths to three places

Teacher		**Class**	Year 5
Subject	Maths	**Topic**	Decimals up to three places
Date		**Room**	
Lesson length	60 minutes	**Country**	United States

Pupils learn to read, write, order and compare decimals to thousandths. They sort race-time cards and explain the order using place value.

Curriculum links

- read, write, order and compare numbers with up to 3 decimal places [2]
- recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents [2]

Learning objectives

- Students will read and write numbers with up to three decimal places accurately.
- Students will order decimals to three places from smallest to largest correctly.
- Students will compare decimals to three places using < and > signs.

Success criteria

- I can read 3.406 aloud correctly and write decimals in words.
- I can order decimals with thousandths from smallest to largest.
- I can compare two decimals with < or > and explain why.

What students already know

Show 0.45 and 0.54 on mini whiteboards: pupils write which is larger. Check they can compare numbers with the same number of decimal places up to 2 decimal places [2].

Key words

tenths	the first spot after the point, worth one share when a whole is split in ten [7]
hundredths	the second spot after the point, worth one share when a whole is split in a hundred [7]
thousandths	the third spot after the point, very tiny shares of a whole split in a thousand [2]
decimal point	the dot that splits whole amounts from small pieces of a whole [7]
ascending order	putting amounts in a line from least value to greatest value [7]
compare	saying which amount is larger, smaller, or if both are equal [7]

Materials

- Slides 1-4, 9-12
- Envelopes of number slips with 7.01, 7.008, 7.018, 7.808 and 7.81
- Place-value grids, mini whiteboards and pens

Before the lesson

- Print envelopes of number slips with 7.01, 7.008, 7.018, 7.808 and 7.81, one set per pair
- Print Worksheet Task B: Practice questions to practise reading, writing and comparing thousandths, one per pupil, and place-value grids for support

- Worksheet Task B: Practice questions to practise reading, writing and comparing thousandths for guided practice
- Pencils and paper for writing order and word forms
- Load Slides 1-4, 9-12 and check display; test whiteboard pens
- Set desks in pairs with space for silent sorting and pointing

Lesson outline

0–8 min **Starter** 8 min · Whole class

To recall comparing decimals to two places and hook pupils into silent ordering.

YOU DO

1. Show Slide 1 title and Slide 2 objectives and read them aloud with the class.
2. Ask the prior-check pair 0.45 and 0.54 and take quick whiteboard answers.
3. Give the hook in the exact words: No tablets, no talking — can you and your partner sort these numbers using only pointing?
4. Show the five slips will be 7.01, 7.008, 7.018, 7.808 and 7.81 and explain that smallest time wins.

STUDENTS DO

1. Read objectives aloud and repeat the hook challenge to a partner by mime.
2. Hold up whiteboards to compare 0.45 and 0.54 and explain choice.
3. Preview the five numbers on the board and predict the smallest.

Say: Today we will read and write decimals to 3 places. You will become expert sorters. In a few minutes you will order five numbers without talking, starting with the smallest, so watch how we compare digits.

Ask: When we compared 0.45 and 0.54, which place told us the answer? (Tenths, because 4 tenths is less than 5 tenths.) · What do you notice about 7.01 and 7.008? (They have a different amount of digits after the point.)

Check understanding: Scan whiteboards for 0.54 > 0.45. If many are unsure, quickly line up decimal points in a place-value table before moving on.

Support: Show 0.45 and 0.54 already lined up in a place-value table with decimal points in line. **Stretch:** Ask what number with three decimal places could sit between 0.45 and 0.46.

Use: Slides 1-2

8–20 min **Teaching** 12 min · Whole class

To model reading, writing and comparing decimals to three places by place value.

YOU DO

1. Show Slides 3-4 and model lining up decimal points neatly in a place-value table [7].
2. Think aloud reading 7.808 as seven point eight zero eight and writing digits under ones, tenths, hundredths, thousandths [2].
3. Model filling gaps with zero, so 7.81 becomes 7.810, then compare digits from the left [7].
4. Model the rule that a greater digit in a column means that the number is greater [7].

STUDENTS DO

1. Chant place values: ones, tenths, hundredths, thousandths with finger points.
2. Read 7.808 and 7.810 aloud with the teacher and copy the lined-up table.
3. Repeat the greater-digit rule to a partner.

Say: Line up the decimal points neatly. Check ones, then tenths, then hundredths, then thousandths. Add zeros so lengths match. The first column where digits differ tells you which is larger.

Worked example: Compare 7.810 and 7.808: line up points, ones 7=7, tenths 8=8, hundredths 1 and 0, and 1 is more than 0, so 7.810 > 7.808. Read aloud as seven point eight one zero and seven point eight zero eight. In words this proves 7.81 is larger even though it is shorter.

Ask: Why do we write 7.81 as 7.810 to compare with 7.808? (To fill any gaps with a zero so each digit is in the correct column [7].) · Which is larger, 7.810 or 7.808, and which digit proves it? (7.810, because 1 hundredth is more than 0 hundredths.)

Check understanding: Thumbs up or down: is 7.81 > 7.808? Ask two pupils to prove it digit by digit. Reteach adding zero if unsure.

Support: Keep a partly filled grid on the desk and point to each column as the teacher names it. **Stretch:** Ask pupils to predict which is larger: 7.765 or 7.756, before modelling.

Use: Slides 3-4

20–35 min **Guided practice** 15 min · Pairs

To practise reading, writing and comparing thousandths together before sorting alone.

YOU DO

1. Show Slide 11 question and ask pairs to discuss without writing first.
2. Hand out Worksheet Task B: Practice questions to practise reading, writing and comparing thousandths.
3. Circulate as pairs line up points, add zeros to make 2.500 and 2.505, and write < or >.
4. Take feedback and record the agreed comparison sentence on the board.

STUDENTS DO

1. Discuss Slide 11 question in pairs and show 2.500 < 2.505 on whiteboards.
2. Complete Worksheet Task B, reading each decimal aloud, writing word forms and comparing thousandths.
3. Explain to another pair why the order is correct using place-value language.

Say: Work with your partner on each question. Say the number aloud, write it, line up the points, then decide. You must be ready to prove your answer digit by digit.

Worked example: Is 2.5 bigger than 2.505? How can you prove it? [Slide 11] Write 2.500 and 2.505. Ones 2=2, tenths 5=5, hundredths 0=0, thousandths 0<5, so 2.500 < 2.505. So 2.5 is smaller than 2.505.

Ask: How do you read 2.505 so you do not miss the zero? (Two point five zero five, saying each digit after the point.) · Why does adding zeros not change the value? (Because 2.5 = 2.500, zeros on the right show the same amount [7].)

Check understanding: Check Worksheet Task B answers for reading, writing and comparing thousandths. If errors remain, remodel one Task B item lining up points.

Support: Provide a place-value grid and have pupils fill any gaps with a zero to keep columns lined up [7].
Stretch: Ask pairs to compare tricky numbers that use the same digits, such as 7.765, 7.675 and 7.756 [8].

Use: Slide 11, Worksheet Task B: Practice questions to practise reading, writing and comparing thousandths

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35–52 min **Main activity** 17 min · Pairs

To order five decimals to three places and read, write and compare them.

YOU DO

1. Show Slide 9 task and hand out envelopes of number slips for Silent Card Sort.
2. Remind pairs of the silent rule: sort by pointing only, then write the final order.
3. Monitor ordering of 7.01, 7.008, 7.018, 7.808 and 7.81 into order starting with the smallest [5].
4. Stop silence after sorting and ask pairs to read aloud, write in words and insert < signs.

STUDENTS DO

1. Silently sort slips showing 7.01, 7.008, 7.018, 7.808 and 7.81 into ascending order.
2. Write the final order on paper, write each number in words, and add < between neighbours.
3. Read the order aloud to another pair to check agreement and explain the choice.

Say: No talking while you sort. Point, swap and agree with your eyes. When you agree, write the order smallest first, write each in words, and be ready to explain digit by digit why it is correct.

Worked example: Final order: 7.008 < 7.01 < 7.018 < 7.808 < 7.81. Check: write as 7.008, 7.010, 7.018, 7.808, 7.810. Ones all 7, tenths all 0 except last two with 8, then compare hundredths and thousandths from the left [7]. Read 7.008 as seven point zero zero eight.

Ask: Which number is smallest and how do you know? (7.008, because after 7.00, 8 thousandths is less than 10 thousandths.) · How did adding a zero help with 7.01 and 7.81? (7.01 becomes 7.010 and 7.81 becomes 7.810 for direct column comparison [7].)

Check understanding: Visit each pair and ask them to point to the first differing column. If order is wrong, ask them to rewrite lined up with points in line and re-compare from the left.

Support: Add a zero in any gaps so 7.01 becomes 7.010 for direct column comparison [7]. **Stretch:** Put < or > signs between each neighbouring pair and add one more number that keeps the order correct.

Use: Slide 9

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52–60 min **Plenary** 8 min · Whole class

To check pupils can read, order and compare decimals to three places.

YOU DO

1. Show Slide 10 mindmap and ask pupils to say what they remember for each branch.
2. Show Slide 12 quiz and run the three questions as exit tickets on whiteboards.
3. Confirm answers: four point two zero seven; 3.65 because 3.650 is more than 3.605; order smallest first.
4. Link back to objectives and praise use of lining up points and adding zeros.

STUDENTS DO

1. Contribute to the mindmap: tenths, hundredths, thousandths, line up points, zeros help.
2. Answer the Slide 12 quiz on whiteboards: read aloud 4.207, compare 3.65 and 3.605, order set.
3. Self-assess against success criteria with thumbs.

Say: Let us prove what we know. Read the number exactly, compare by lining up points, and order smallest first. Show me on your board and be ready to explain your proof.

Worked example: Which is larger: 3.65 or 3.605? Write 3.650 and 3.605. Tenths 6=6, hundredths 5>0, so 3.65 is larger, because 3.650 is more than 3.605 [Slide 12].

Ask: How do you read aloud 4.207 correctly? (Four point two zero seven.) · What is the correct order for 7.008, 7.01, 7.018? (7.008, 7.01, 7.018, smallest first [5].)

Check understanding: Count correct whiteboards for all three quiz items. Re-teach any item below 80% correct tomorrow with number lines.

Support: Allow pupils to answer with the place-value grid in front of them and point to columns. **Stretch:** Ask pupils to write a new number between 7.01 and 7.018 and prove it fits.

Use: Slides 10, 12

Common mistakes

Mistake	How to spot it	How to fix it
Thinking a longer decimal is always larger, so 7.808 > 7.81.	Pupil orders 7.81 before 7.808 or says thousandths make it bigger.	Write both in a place-value table, fill gaps with zero to make 7.810 and 7.808, then compare digits from the left [7].
Missing zeros when reading, for example reading 7.008 as seven point eight.	Pupil reads aloud without saying zeros or writes wrong word form.	Practise saying each digit after the point and relating thousandths to tenths and hundredths [2].
Comparing from the right instead of the left, starting with thousandths.	Pupil points to last digits first and misorders 7.018 and 7.81.	Insist on lining up decimal points and comparing starting at the left with the greatest place value [7].

Support

- Add a zero in any gaps so 7.01 becomes 7.010 for direct column comparison [7].
- Use partly filled place-value grids with decimal points kept in line.

Stretch

- Put < or > signs between each neighbouring pair and add one more number that keeps the order correct.
- Compare tricky numbers that use the same digits in different positions, such as 7.765 and 7.756 [8].

For the LSE or teaching assistant

Stay with target pairs during guided practice and main sort. Prompt lining up points, adding zeros, and saying numbers digit by digit.

Check for understanding

Question	Answer
Read aloud 4.207.	four point two zero seven
Which is larger: 3.65 or 3.605?	3.65, because 3.650 is more than 3.605
Order smallest first: 7.018, 7.01, 7.008.	7.008, 7.01, 7.018

Homework

Write three decimals to three places in numerals and words, then order them smallest first.

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