Reasoning and Problem Solving
Step 7: Order and Compare Decimals

National Curriculum Objectives:

Mathematics Year 5: (5F8) Read, write, order and compare numbers with up to three decimal places
Mathematics Year 5: (5F10) Solve problems involving number up to three decimal places

Differentiation:

Questions 1, 4 and 7 (Problem Solving)
Developing List 3 possible decimal numbers that can be made on a place value chart with a given number of counters. Numbers up to 2 decimal places without the use of 0 as a place holder. Decimals written as words and numerals.
Expected List 3 possible decimal numbers that can be made on a place value chart with a given number of counters. Numbers up to 3 decimal places, including the use of 0 as a place holder. Decimals written as words and numerals.
Greater Depth List 3 possible decimal numbers that can be made on a place value chart with a given number of counters. Numbers up to 3 decimal places, including the use of 0 as a place holder, including equations, e.g. 13.33 ÷ 10.

Questions 2, 5 and 8 (Problem Solving)
Developing List all possible numbers with 2 decimal places to complete a number sequence. Numbers up to 2 decimal places without the use of 0 as a place holder.
Expected List all possible numbers with 3 decimal places to complete a number sequence. Numbers up to 3 decimal places, including the use of 0 as a place holder, including mixed numbers.
Greater Depth List all possible numbers with 3 decimal places to complete a number sequence. Numbers up to 3 decimal places, including the use of 0 as a place holder, including mixed numbers and equations, e.g. 13.33 ÷ 10.

Questions 3, 6 and 9 (Reasoning)
Developing Explain whether a comparison of 2 decimal numbers is correct. Numbers up to 2 decimal places without the use of 0 as a place holder.
Expected Explain whether a comparison of 2 decimal numbers is correct. Numbers up to 3 decimal places, including the use of 0 as a place holder, including some conversions, e.g. 3.212km, 3202m.
Greater Depth Explain whether a comparison of 3 decimal numbers is correct. Numbers up to 3 decimal places, including the use of 0 as a place holder, including some mixed conversions, e.g. 3.212km, 3,202m and equations, e.g. 13.33 ÷ 10.

More Year 5 Decimals and Percentages resources.

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Reasoning and Problem Solving – Order and Compare Decimals – Teaching Information

1a. Oliver made a number between two and three tenths and 2.85 using counters on a place value mat.

1	0.1	0.01	0.001
●●			

Six of the counters have fallen off.

List 3 possibilities of what Oliver's number could be.

⭐D · PS

1b. Jamie made a number between 3.22 and 3.95 using counters on a place value chart.

1	0.1	0.01	0.001
●●●			

Five of the counters have fallen off.

List 3 possibilities of what Jamie's number could be.

⭐D · PS

2a. Look at this number sequence.

	2.98	3.39	3.56

1 **4** **5** **9**

Use the number cards to make all the possible numbers with 2 decimal places that can complete the sequence.

⭐D · PS

2b. Look at this number sequence.

2.39	3.67		3.95

3 **6** **7** **8**

Use the number cards to make all the possible numbers with 2 decimal places that can complete the sequence.

⭐D · PS

3a. Anika is comparing numbers. She says,

> I think that 3.21 > 3.14

Is Anika correct? Explain your answer.

⭐D · R

3b. Joshua is comparing numbers. He says,

> I think that 5.6 > 5.62

Is Joshua correct? Explain your answer.

⭐D · R

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4a. Tom made a number between 3.413 and four and six tenths, using counters on a place value mat.

1	0.1	0.01	0.001
●●●			

Six of the counters have fallen off.

List 3 possibilities of what Tom's number could be.

☆ⓔ   PS

4b. Beth made a number between 2.045 and 2.159 using counters on a place value chart.

1	0.1	0.01	0.001
●●			

Seven of the counters have fallen off.

List 3 possibilities of what Beth's number could be.

☆ⓔ   PS

5a. Look at this number sequence.

$3\frac{508}{1000}$ 3.67 [ ] $4\frac{561}{1000}$

| 1 | 3 | 4 | 7 |

Use the number cards to make all the possible numbers with 3 decimal places that can complete the sequence.

☆ⓔ   PS

5b. Look at this number sequence.

$8\frac{648}{1000}$ 7.67 [ ] $6\frac{961}{1000}$

| 5 | 6 | 7 | 9 |

Use the number cards to make all the possible numbers with 3 decimal places that can complete the sequence.

☆ⓔ   PS

6a. Dominic is comparing numbers. He says,

> I think that 3.218km > 3220m

Is Dominic correct? Explain your answer.

☆ⓔ   R

6b. Emily is comparing numbers. She says,

> I think that 328.8cm = 3.288m

Is Emily correct? Explain your answer.

☆ⓔ   R

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Reasoning and Problem Solving – Order and Compare Decimals – Year 5 Expected

7a. Molly made a number between 0.405 x 10 and 42.14 ÷ 10, using counters on a place value mat..

1	0.1	0.01	0.001
● ● ●			

Six of the counters have fallen off.

List 3 possibilities of what Molly's number could be.

⭐GD

PS

7b. Sam made a number between 28.29 ÷ 10 and 0.254 x 10 using counters on a place value chart.

1	0.1	0.01	0.001
● ●			

Seven of the counters have fallen off.

List 3 possibilities of what Sam's number could be.

⭐GD

PS

8a. Look at this number sequence.

$5 \frac{429}{1000}$ 52.1 ÷ 10   ☐ $4 \frac{261}{1000}$

5	4	3	1

Use the number cards to make all the possible numbers with 3 decimal places that can complete the sequence.

⭐GD

PS

8b. Look at this number sequence.

$6 \frac{648}{1000}$ 6.67   ☐   0.693 x 10

6	7	8	3

Use the number cards to make all the possible numbers with 3 decimal places that can complete the sequence.

⭐GD

PS

9a. Grace is comparing numbers. She says,

> I think that
> 5.219km > 5220m < 5.22km

Is Grace correct? Explain your answer.

⭐GD

R

9b. Maya is comparing numbers. She says,

> I think that
> 0.684 x 10 = 6.84 > 68.2 ÷10

Is Maya correct? Explain your answer.

⭐GD

R

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Reasoning and Problem Solving – Order and Compare Decimals – Year 5 Greater Depth

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Developing

1a. Various possible answers, for example: 2.33, 2.42, 2.51

2a. 1.45, 1.49, 1.54, 1.59, 1.94, 1.95

3a. Anika is correct.
Both numbers have 3 ones but 3.21 has 2 tenths whereas 3.14 has only 1 tenth so 3.21 is the greater number.

Expected

4a. Various possible answers, for example: 3.42, 3.501, 4.14, 4.23

5a. 3.714, 3.741, 4.137, 4.173, 4.317, 4.371

6a. Dominic is not correct.
3220m = 3.22km. Both 3.218km and 3.22km have 3 ones and 2 tenths but 3.22km has 2 hundredths whereas 3.218km has only one hundredth.

Greater Depth

7a. Various possible answers, for example: 4.051, 4.06, 4.15

8a. 4.315, 4.351, 4.513, 4.531, 5.134, 5.143

9a. Grace is not correct
5220m ÷ 1,000 = 5.22km. 5.22km has 2 hundredths so is greater than 5.219km which only has 1.

Developing

1b. Various possible answers for example: 3.23, 3.32, 3.41

2b. 3.68, 3.76, 3.78, 3.86, 3.87

3b. Joshua is not correct.
Both numbers have 5 ones but 5.62 has 2 hundredths whereas 5.6 has 0 hundredths so 5.6 is not the greater number.

Expected

4b. Various possible answers, for example: 2.052, 2.061, 2.07

5b. 7.659, 7.596, 7.569, 6.975

6b. Emily is correct
328.8 cm ÷ 100 = 3.288m

Greater Depth

7b. Various possible answers, for example: 2.601, 2.61, 2.7

8b. 6.738, 6.783, 6.837, 6.873

9b. Maya is correct.
0.684 x 10 = 6.84. 68.2 ÷10 = 6.82.
6.84 has 4 hundredths but 6.82 has only 2 so 6.84 is greater than 6.82.

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