Reasoning and Problem Solving
Step 5: Thousandths as Decimals

National Curriculum Objectives:

Mathematics Year 5: (5F6b) Recognise and use thousandths and relate them to tenths, hundredths and decimal equivalents

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain which statement is correct. Includes numbers smaller than 1.
Expected Explain which statement is correct. Includes some numbers greater than 1 and zero as a place holder.
Greater Depth Explain which statement is correct. Includes numbers greater than 1, improper fractions and mixed numbers.

Questions 2, 5 and 8 (Problem Solving)
Developing Provide possibilities from the clues given. Includes numbers smaller than 1 and place value grids to support.
Expected Provide possibilities from the clues given. Includes some numbers greater than 1 and zero as a place holder.
Greater Depth Provide possibilities from the clues given. Includes numbers greater than 1, improper fractions and mixed numbers.

Questions 3, 6 and 9 (Reasoning)
Developing Explain if a fraction has been converted correctly. Includes numbers smaller than 1 and place value grids to support.
Expected Explain if a fraction has been converted correctly. Includes some numbers greater than 1 and zero as a place holder.
Greater Depth Explain if a fraction has been converted correctly. Includes numbers greater than 1, improper fractions and mixed numbers.

More Year 5 Decimals and Percentages resources.

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1a. Jack and Toby are expanding 0.385.

Jack says:

> 0.385 expanded is 0.3, 0.8 and 0.5

Toby says:

> 0.385 expanded is 0.3, 0.08 and 0.005

Who is correct? Explain your answer.

R

1b. Lily and Ivy are expanding 0.918.

Lily says:

> 0.918 expanded is 0.9, 0.01 and 0.008

Ivy says:

> 0.918 expanded is 0.9, 0.01 and 0.08

Who is correct? Explain your answer.

R

2a. Molly is thinking of a number.

It has:

O	t	h	th
	0.1 0.1 0.1 0.1 0.1 0.1 0.1	0.01 0.01 0.01	?

Write down 5 possibilities that Molly's number could be.

PS

2b. Rochelle is thinking of a number.

It has:

O	t	h	th
	0.1 0.1 0.1 0.1	0.01	?

Write down 5 possibilities that Rochelle's number could be.

PS

3a. Junaid is converting a fraction to a decimal.

He writes: $\dfrac{671}{1000} = 6.71$

O	t	h	th
	0.1 0.1 0.1 0.1 0.1 0.1	0.01 0.01 0.01 0.01 0.01 0.01 0.01	0.001

Is Junaid correct? Explain your answer.

R

3b. Iqra is converting a fraction to a decimal.

She writes: $\dfrac{132}{1000} = 1.32$

O	t	h	th
	0.1	0.01 0.01 0.01	0.001 0.001

Is Iqra correct? Explain your answer.

R

Thousandths as Decimals	**Thousandths as Decimals**

4a. Max and Isaac are expanding 2.491.

Max says:

> 2.491 expanded is 2, 0.4, 0.09 and 0.001

Isaac says:

> 2.491 expanded is 2, 0.4, 0.9 and 0.1

Who is correct? Explain your answer.

R

4b. Millie and Flo are expanding 9.529.

Millie says:

> 9.529 expanded is 9, 0.5, 0.2 and 0.9

Flo says:

> 9.529 expanded is 9, 0.5, 0.02 and 0.009

Who is correct? Explain your answer.

R

5a. Hafsa is thinking of a number.

> It has 5 ones.

> It has 2 tenths and 0 hundredths.

> It has an unknown amount of thousandths.

Write down 5 possibilities that Hafsa's number could be.

PS

5b. Jamal is thinking of a number.

> It has 2 ones.

> It has 8 tenths and 9 hundredths.

> It has an unknown amount of thousandths.

Write down 5 possibilities that Jamal's number could be.

PS

6a. Jake is converting a fraction to a decimal.

He writes:

$$\frac{207}{1000} = 0.027$$

Is Jake correct? Explain your answer.

R

6b. Lucy is converting a fraction to a decimal.

She writes:

$$\frac{67}{1000} = 0.67$$

Is Lucy correct? Explain your answer.

R

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Reasoning and Problem Solving – Thousandths as Decimals – Year 5 Expected

Thousandths as Decimals

7a. Arlo and Euan are expanding 12.107.

Arlo says:

> 12.107 expanded is 10, 2 , 0.1, and 0.007

Euan says:

> 12.107 expanded is 10, 2 , 0.01, and 0.007

Who is correct? Explain your answer.

R

Thousandths as Decimals

7b. Jess and Rosie are expanding 20.092.

Jess says:

> 20.092 expanded is 20, 0.9, and 0.02

Rosie says:

> 20.092 expanded is 20, 0.09, and 0.002

Who is correct? Explain your answer.

R

8a. Isla is thinking of a number.

> It has 52 ones.

> It has 30 hundredths.

> It has an odd amount of thousandths.

Write down 5 possibilities that Isla's number could be.

PS

8b. Yusuf is thinking of a number.

> It has 29 ones.

> It has 50 hundredths.

> It has an even amount of thousandths.

Write down 5 possibilities that Yusuf's number could be.

PS

9a. Joseph is converting a fraction to a decimal.

He writes:

$$\frac{4901}{1000} = 0.4901$$

Is Joseph correct? Explain your answer.

R

9b. Becky is converting a fraction to a decimal.

She writes:

$$\frac{2019}{1000} = 2.19$$

Is Becky correct? Explain your answer.

R

Reasoning and Problem Solving – Thousandths as Decimals – Year 5 Greater Depth

Developing

1a. Toby is correct because he has expanded 0.385 into tenths, hundredths and thousandths.

2a. Any 5 of the following: 0.731, 0.732, 0.733, 0.734, 0.735, 0.736, 0.737, 0.738, 0.739

3a. No. Junaid has written 6 ones, 7 tenths and 1 hundredth instead of 671 thousandths. The decimal should be 0.671

Developing

1b. Lily is correct because she has expanded 0.918 into tenths, hundredths and thousandths.

2b. Any 5 of the following: 0.611, 0.612, 0.613, 0.614, 0.615, 0.616, 0.617, 0.618, 0.619

3b. No. Iqra has written 1 one, 3 tenths and 2 hundredths instead of 132 thousandths. The decimal should be 0.132

Expected

4a. Max is correct because he has expanded 2.491 into ones, tenths, hundredths and thousandths.

5a. Any 5 of the following: 5.201, 5.202, 5.203, 5.204, 5.205, 5.206, 5.207, 5.208 and 5.209.

6a. No. Jake has written 27 thousandths instead of 207 thousandths. The decimal should be 0.207

Expected

4b. Flo is correct because she has expanded 9.529 into ones, tenths, hundredths and thousandths.

5b. Any 5 of the following: 2.891, 2.892, 2.893, 2.894, 2.895, 2.896, 2.897, 2.898, 2.899.

6b. No. Lucy has written 67 hundredths instead of 67 thousandths. The decimal should be 0.067

Greater Depth

7a. Arlo is correct because he has expanded 12.107 into tens, ones, tenths, hundredths and thousandths.

8a. 52.301, 52.303, 52.305, 52.307, 52.309

9a. No. Joseph has written the decimal ten times smaller than it should be. The decimal should be 4.901

Greater Depth

7b. Rosie is correct because she has expanded 20.092 into tens, hundredths and thousandths.

8b. 29.500, 29.502, 29.504, 29.506, 29.508

9b. No. Becky has written 2 ones, 1 tenth and 9 hundredths instead of 2 ones and 19 thousandths. The decimal should be 2.019

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