Reasoning and Problem Solving
Step 10: Decimals as Fractions 2

National Curriculum Objectives:

Mathematics Year 5: (5F6a) **Read and write decimal numbers as fractions [for example, 0.71 = 71/100]**
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 fraction or decimal is the odd one out. Includes tenths and hundredths only and decimals <1 that are multiples of 5.
Expected Explain which fraction or decimal is the odd one out. Includes tenths and hundredths only, decimals that are >1 and some expanded decimal and fraction forms.
Greater Depth Explain which fraction or decimal is the odd one out. Includes tenths and hundredths only, decimals that are >1, unconventional partitioning and expanded decimal and fraction forms.

Questions 2, 5 and 8 (Problem Solving)
Developing Write a decimal or fraction in at least 2 different ways using numerals and words. Includes tenths and hundredths only and decimals that are <1 and are multiples of 5.
Expected Write a decimal or fraction in at least 4 different ways using words, expanded fractions or decimals and unconventional partitioning. Includes tenths and hundredths only and decimals >1.
Greater Depth Write a decimal or fraction in at least 4 different ways using words, expanded fractions or decimals and unconventional partitioning. Includes tenths and hundredths only and decimals >1.

Questions 3, 6 and 9 (Reasoning)
Developing Explain errors when converting fractions and decimals. Includes tenths and hundredths only and decimals that are <1 and are multiples of 5.
Expected Explain errors when converting fractions and decimals. Includes tenths and hundredths only, decimals that are >1 and some expanded decimal and fraction forms.
Greater Depth Explain errors when converting fractions and decimals. Includes tenths and hundredths only, decimals that are >1, unconventional partitioning and expanded decimal and fraction forms.

More Year 4 and Year 5 Decimals resources.

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1a. Spot the odd one out.

A. $\frac{50}{100}$	B. 5.0
C. 0.5	D. $\frac{5}{10}$

Explain your answer.

5   R

1b. Spot the odd one out.

A. three ones and 5 tenths	B. $\frac{35}{100}$
C. 0.35	D. zero point three five

Explain your answer.

5   R

2a. Obi thinks he can write the following decimal number in at least 2 different ways.

0.55

Prove it.

5   PS

2b. Alana thinks she can write the following decimal number in at least 2 different ways.

0.75

Prove it.

5   PS

3a. Toni has been converting fractions and decimals. She says,

0.65 can be converted to $\frac{65}{10}$.

Is she correct? Explain why.

5   R

3b. Leo has been converting fractions and decimals. He says,

0.85 can be converted to $\frac{85}{100}$.

Is he correct? Explain why.

5   R

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Reasoning and Problem Solving – Decimals as Fractions 2 – Year 5 Developing

4a. Spot the odd one out.

A.

$$2 \frac{64}{100}$$

B.

$$2 + \frac{6}{10} + \frac{4}{100}$$

C.

2 + 0.06 + 0.04

D.

2.64

Explain your answer.

☆ E

5 R

4b. Spot the odd one out.

A.

$$7 + \frac{9}{10} + \frac{2}{100}$$

B.

$$7 \frac{29}{100}$$

C.

7.92

D.

7 + 0.9 + 0.02

Explain your answer.

☆ E

5 R

5a. Toby thinks he can write the following decimal number in at least 4 different ways.

4.18

Prove it.

☆ E

5 PS

5b. Mandy thinks she can write the following decimal number in at least 4 different ways.

9.06

Prove it.

☆ E

5 PS

6a. Hari has been converting fractions and decimals. She says,

> 2 ones and 3 hundredths can be converted to $2 \frac{3}{10}$.

Is she correct? Explain why.

☆ E

5 R

6b. Aaron has been converting fractions and decimals. He says,

> 6 ones, 3 tenths and 7 hundredths can be converted to $63 \frac{7}{100}$.

Is he correct? Explain why.

☆ E

5 R

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Reasoning and Problem Solving – Decimals as Fractions 2 – Year 5 Expected

7a. Spot the odd one out.

A.
$8 + 0.5 + 0.29$

B.
$8 + \frac{4}{10} + \frac{39}{100}$

C.
$8 + \frac{6}{10} + \frac{9}{100}$

D.
$8 + 0.6 + 0.19$

Explain your answer.

5 R

7b. Spot the odd one out.

A.
$6 + \frac{1}{10} + \frac{27}{100}$

B.
$6 + \frac{37}{100}$

C.
6 ones and 37 hundredths

D.
$6 + 0.03 + 0.07$

Explain your answer.

5 R

8a. Connah thinks he can write the following decimal number in at least 4 different ways.

4.36

Prove it.

5 PS

8b. Carla thinks she can write the following decimal number in at least 4 different ways.

7.93

Prove it.

5 PS

9a. Jorelle has been converting fractions and decimals. She says,

> Nine ones, four tenths and twelve hundredths can be converted to $9\frac{62}{100}$.

Is she correct? Explain why.

5 R

9b. Noah has been converting fractions and decimals. He says,

> Six ones, fourteen tenths and eight hundredths can be converted to $6\frac{22}{100}$.

Is he correct? Explain why.

5 R

Reasoning and Problem Solving – Decimals as Fractions 2 – Year 5 Greater Depth

Reasoning and Problem Solving
Decimals as Fractions 2

Developing

1a. B is the odd one out as all of the others are equivalent to 0.5 or $\frac{5}{10}$.

2a. Various answers that include words, fractions and maybe expanded forms e.g. $\frac{55}{100}$, 5 tenths and 5 hundredths etc.

3a. Toni is incorrect as 0.65 = $\frac{65}{100}$.

Expected

4a. C is the odd one out as all of the others are equivalent to 2.64 or $2\frac{64}{100}$.

5a. Various answers that include words, decimals, expanded decimal or fractions and unconventional partitioning. e.g. 4 + 0.1 + 0.08, 4 + 0.18, $4\frac{18}{100}$ $4 + \frac{1}{10} + \frac{8}{100}$

6a. Hari is incorrect. 2 ones and 3 hundredths = $2\frac{3}{100}$.

Greater Depth

7a. C is the odd one out as all of the others are equivalent to 8.79 or $8\frac{79}{100}$.

8a. Various answers that include words, decimals, expanded decimal or fractions and unconventional partitioning. e.g. 4 ones + 3 tenths + 6 hundredths, 4 + 0.36, $4 + \frac{3}{10} + \frac{6}{100}$, $4 + \frac{1}{10} + \frac{26}{100}$

9a. Jorelle is incorrect. Nine ones, four tenths and twelve hundredths = $9\frac{52}{100}$.

Developing

1b. A is the odd one out as all of the others are equivalent to 0.35 or $\frac{35}{100}$.

2b. Various answers that include words, fractions and maybe expanded forms e.g. $\frac{75}{100}$, 7 tenths and 5 hundredths etc.

3b. Leo is correct.

Expected

4b. B is the odd one out as all of the others are equivalent to 7.92 or $7\frac{92}{100}$.

5b. Various answers that include words, decimals, expanded decimal or fractions and unconventional partitioning. e.g. 9 + 0.06, $9\frac{6}{100}$, $9 + \frac{6}{100}$, 9 ones and 6 hundredths

6b. Aaron is incorrect. 6 ones, 3 tenths and 7 hundredths = $6\frac{37}{100}$.

Greater Depth

7b. D is the odd one out as all of the others are equivalent to 6.37 or $6\frac{37}{100}$.

8b. Various answers that include words, decimals, expanded decimal or fractions and unconventional partitioning. e.g. 7 ones + 9 tenths + 3 hundredths, 7 + 0.93, 7 + 0.9 + 0.03, 7 + 0.8 + 0.13, $7 + \frac{9}{10} + \frac{3}{100}$

9b. Noah is incorrect. Six ones, fourteen tenths and eight hundredths = $7\frac{48}{100}$.

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