Reasoning and Problem Solving
Step 8: Understand Percentages

National Curriculum Objectives:

Mathematics Year 5: (5F11) Recognise the per cent symbol (%) and understand that per cent relates to 'number of parts per hundred', and write percentages as a fraction with denominator 100, and as a decimal

Differentiation:

Questions 1, 4 and 7 (Reasoning)
Developing Explain the odd one out of percentage representations. Includes representing percentages using hundred grids.
Expected Explain the odd one out of percentage representations. Includes representing percentages using hundred and ten grids.
Greater Depth Explain the odd one out of percentage representations. Includes representing percentages using multiples of ten.

Questions 2, 5 and 8 (Problem Solving)
Developing Put the percentage statements in a given order. Includes representing percentages out of one hundred only.
Expected Put the percentage statements in a given order. Includes representing percentages out of one hundred and ten.
Greater Depth Put the percentage statements in a given order. Includes representing percentages using multiples of ten.

Questions 3, 6 and 9 (Reasoning)
Developing Explain if a given percentage is correct. Includes representing percentages using hundred grids.
Expected Explain which given percentage is correct. Includes representing percentages using ten grids.
Greater Depth Explain which given percentage is correct. Includes representing percentages using multiples of ten.

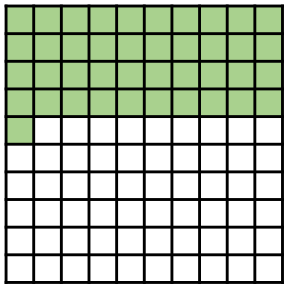
More Year 5 Decimals and Percentages resources.

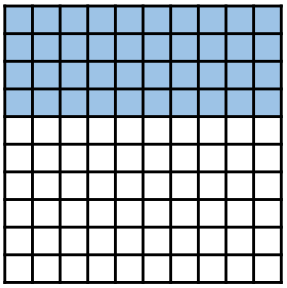
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Understand Percentages

1a. Circle the odd one out.

A 

B 

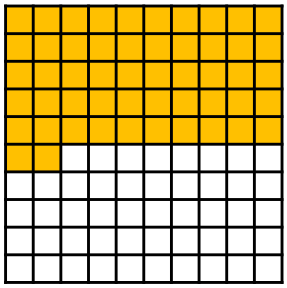
C 41%

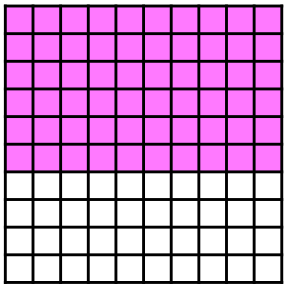
Explain your reasoning.

D R

Understand Percentages

1b. Circle the odd one out.

A 

B 

C 60%

Explain your reasoning.

D R

2a. Put the cards in order from smallest to largest.

35 parts per 100	5%	70 parts out of 100
50%	10%	90 parts per 100

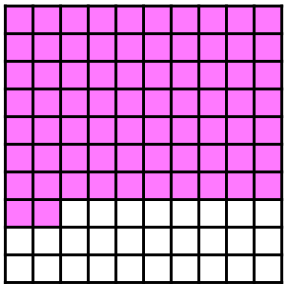
D PS

2b. Put the cards in order from largest to smallest.

20 parts per 100	15%	80 parts out of 100
40%	75%	60 parts per 100

D PS

3a. Lily is looking at the grid below.



Lily says,

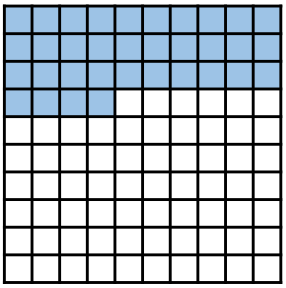


62% is shaded

Is she correct? Convince me.

D R

3b. Oscar is looking at the grid below.



Oscar says,



34% is shaded

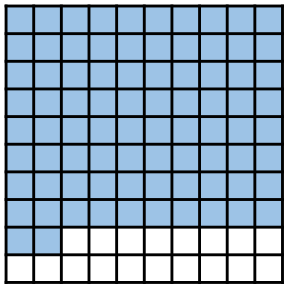
Is he correct? Convince me.

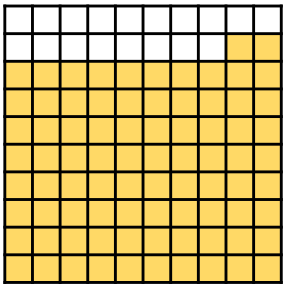
D R

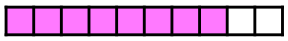
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Understand Percentages

4a. Circle the odd one out.

A 

B 

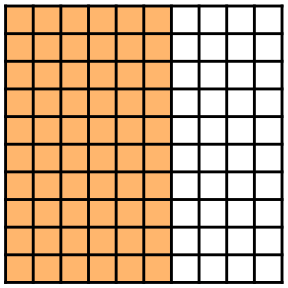
C 

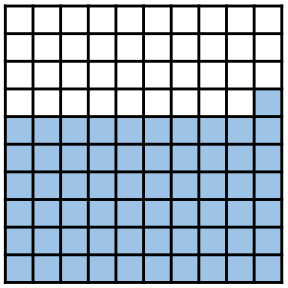
D 82%

Explain your reasoning.

E R

4b. Circle the odd one out.

A 

B 

C 

D 60%

Explain your reasoning.

E R

5a. Put the cards in order from smallest to largest.

51 parts per 100	84%	6 parts out of 10
27%	2 parts per 10	79 parts out of 100

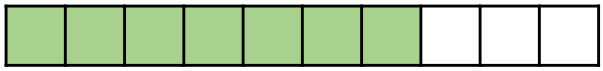
E PS

5b. Put the cards in order from largest to smallest.

64 parts per 100	38%	7 parts out of 10
90%	5 parts per 10	91 parts out of 100

E PS

6a. Tess and Dan are shown a bar model.



Tess says,



70% is shaded

Dan says,

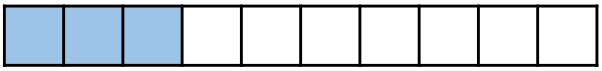
7% is shaded



Who is correct? Convince me.

E R

6b. Kat and Jake are shown a bar model.



Kat says,



3% is shaded

Jake says,

30% is shaded



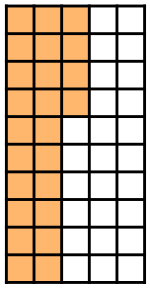
Who is correct? Convince me.

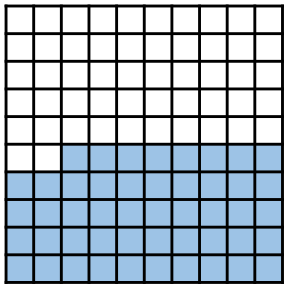
E R

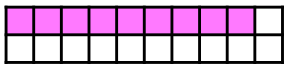
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Understand Percentages

7a. Circle the odd one out.

A 

B 

C 

D 48%

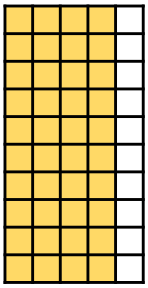
Explain your reasoning.

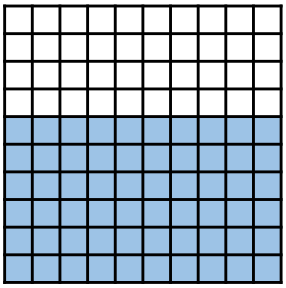
GD

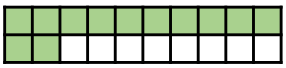
R

Understand Percentages

7b. Circle the odd one out.

A 

B 

C 

D 60%

Explain your reasoning.

GD

R

8a. Put the cards in order from smallest to largest.

14 parts per 50	51%	11 parts out of 20
27%	6 parts per 20	4 parts out of 10

GD

PS

8b. Put the cards in order from largest to smallest.

15 parts per 50	59%	4 parts out of 20
32%	7 parts per 20	6 parts out of 10

GD

PS

9a. Eve and Milo are shown a bar model.



Eve says,



50% is shaded

Milo says,

60% is shaded

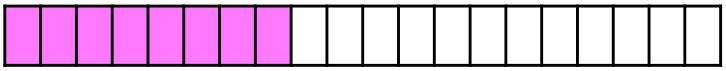


Who is correct? Convince me.

GD

R

9b. Kyra and Lee are shown a bar model.



Kyra says,



40% is shaded

Lee says,

80% is shaded



Who is correct? Convince me.

GD

R

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Reasoning and Problem Solving
Understand Percentages

Developing

1a. B is the odd one out because it represents 40%. A and C represent 41%.
2a. 5%, 10%, 35 parts per 100, 50%, 70 parts out of 100, 90 parts per 100
3a. Lily is not correct because 7 rows of 10 blocks and 2 individual blocks are shaded so 72% is shaded altogether.

Expected

4a. C is the odd one out because it represents 80%. A, B and D represent 82%.
5a. 2 parts per 10, 27%, 51 parts per 100, 6 parts out of 10, 79 parts out of 100, 84%
6a. Tess is correct because the bar model is split into 10 parts. Percentages are the number of parts out of 100 so 7 needs to be multiplied by 10 to find the percentage.

Greater Depth

7a. C is the odd one out because it represents 45%. A, B and D represent 48%.
8a. 27%, 14 parts per 50, 6 parts per 20, 4 parts out of 10, 51%, 11 parts out of 20
9a. Milo is correct because the bar model is split into 20 parts. Percentages are the number of parts out of 100 so 12 needs to be multiplied by 5 to find the percentage.

Reasoning and Problem Solving
Understand Percentages

Developing

1b. A is the odd one out because it represents 52%. B and C represent 60%.
2b. 80 parts out of 100, 75%, 60 parts per 100, 40%, 20 parts per 100, 15%
3b. Oscar is correct because 3 rows of 10 blocks and 4 individual blocks are shaded.

Expected

4b. B is the odd one out because it represents 61%. A, C and D represent 60%.
5b. 91 parts out of 100, 90%, 7 parts out of 10, 64 parts per 100, 5 parts per 10, 38%
6b. Jake is correct because the bar model is split into 10 parts. Percentages are the number of parts out of 100 so 3 needs to be multiplied by 10 to find the percentage.

Greater Depth

7b. A is the odd one out because it represents 80%. B, C and D represent 60%.
8b. 6 parts out of 10, 59%, 7 parts per 20, 32%, 15 parts per 50, 4 parts out of 20
9b. Kyra is correct because the bar model is split into 20 parts. Percentages are the number of parts out of 100 so 8 needs to be multiplied by 5 to find the percentage.

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