## Fractions: Percentage Power

## Aim:

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.

I can recognise and write percentages.

| Success Criteria: <br> I can recognise the per cent symbol. <br> I can write the percentage that a <br> diagram represents. <br> I can represent a percentage with a diagram. | Resources: <br> Lesson Pack |
| :--- | :--- |
| Key/New Words: <br> Percentage, per cent, \%, per hundred, <br> fraction, equivalent. | Phiteboards and pens |
| Blank Hundred Squares - one per child |  |
| Differentiated Percentage Colouring Activity |  |
| Sheets - one per child |  |

Prior Learning:
It will be helpful if children have a good understanding that hundredths arise when dividing an object by one hundred and dividing tenths by ten.

## Learning Sequence

Tell Me: Elicit what children already understand about per cent using the symbol shown on the Lesson Presentation.
Identify that per means 'for each' or 'out of' and cent means 'one hundred' so per cent means 'for each hundred' or
out of one hundred'

## Exploreit

Collectit: Children collect examples of places where percentages are used (e.g. food packaging, discount offers).
Representit: Children use base ten resources to represent given percentages. The hundred square represents one whole, the tens sticks represent $10 \%$ and the ones cubes represent $1 \%$.


## Maths



Maths I Year 5 I Fractions I Understanding Percentages I Lesson 1 of 2: Percentage Power

## Percentage Power



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## Aim

- I can recognise and write percentages.


## Success Criteria

- I can recognise the per cent symbol.
- I can write the percentage that a diagram represents.
- I can represent a percentage with a diagram.


## Fraction Action!

Write down a fraction that fits this statement:



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## Percentage Diagrams



## Percentage Diagrams

Use your Blank Hundred Squares.
Shade in a grid to show:


## Percentage Diagrams

Here is a grid made of four equal squares. What percentage of the grid does each square represent?

There are 50 parts per hundred shaded, which is equivalent to



## Percentage Colouring



Diving into Mastery

Dive in by completing your own activity!


## Matching Hundredths



## Aim

- I can recognise and write percentages.


## Success Criteria

- I can recognise the per cent symbol.
- I can write the percentage that a diagram represents.
- I can represent a percentage with a diagram.


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| T | Teacher | I | Independent |
| :--- | :--- | :--- | :--- |
| PPA | Planning, Preparation and Assessment | AL | Adult Led |
| S | Supply | GP | Guided Practice |



Next Steps

- $\qquad$
- 

| T | Teacher | I | Independent |
| :--- | :--- | :--- | :--- |
| PPA | Planning, Preparation and Assessment | AL | Adult Led |
| Sntstupply | S.com | GP | Guided Practice |

Blank Hundred Squares



1) a) There are $\mathbf{1 2}$ parts per 100 shaded.

There is $\mathbf{1 2 \%}$ shaded.
b) There is $64 \%$ shaded.

2) Shape B will show $\mathbf{1 0 0 \%}$, with 25 more parts per hundred shaded.
3) Smallest to largest is: b (3\%), a (30\%), c (31\%), d (34\%)
4) Between 85-89 of the squares should be shaded.

1) a) False
b) True
2) a) True. As there are 47 squares coloured, this means between $45 \%$ and $50 \%$ of the squares are shaded.
b) False. If I shaded another 12 squares this would mean that $59 \%$ of the squares would have been shaded, not 60\%.
3) a) Various combinations are possible. Ensure all answers add to $\mathbf{1 0 0 \%}$.

- orange (75\%) + red (25\%)
- pink (10\%) + yellow (15\%) + orange (75\%)
- green (40\%) + pink (10\%) + blue (50\%)
b) Answers vary. Example answers shown:
- blue (50\%) + yellow (15\%) + black (5\%) + purple (30\%)
- blue (50\%) + purple (30\%) + black (5\%) + yellow (15\%)

1) Piece A could not have been from Dylan's square as we can see that approximately 69 of the pieces are not red and therefore Dylan could have only coloured in the remaining 31\% of this square.

Piece B could have been from Dylan's square as we can see that approximately 31 pieces are not red. This means that Dylan could have coloured in 65 of the other 69 pieces.
Piece C could have been from Dylan's square as we can see that approximately $\mathbf{2 4}$ pieces are not red. This means that Dylan could have coloured 65 of the other 76 pieces.

Piece $D$ could not have been from Dylan's square as we can see that at least 50 of the squares are not red so Dylan could only colour in the remaining 50\%.
2)

|  | Number sold | Percentage | Number left |
| :---: | :---: | :---: | :---: |
| Chocolate buns | $\mathbf{8 6}$ out of $\mathbf{1 0 0}$ | $\mathbf{8 6 \%}$ | $\mathbf{1 4}$ |
| Flapjack | $\mathbf{5 3}$ out of $\mathbf{1 0 0}$ | $53 \%$ | $\mathbf{4 7}$ |
| Gingerbread | 91 out of 100 | $\mathbf{9 1 \%}$ | $\mathbf{9}$ |

3) Both children have the same number of stickers.
4) Complete the statements and colour in the 100 square correctly.

a) There are $\qquad$ parts per 100 shaded.

There is $\qquad$ \% shaded.

b) There are 64 parts per 100 shaded.

There is $\qquad$ \% shaded.
2) Which square would show $100 \%$ if I shaded another 25 parts per hundred?
a)

b)

$\qquad$
3) Number the representations of percentages below from smallest to largest.
a)
b) $3 \%$
c)

d) 34 parts per 100
4) Colour in this 100 square so that it matches this statement: Between 84 parts per 100 and $90 \%$ of this 100 square are shaded.

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1) True or False?
a) $24 \%$ is shaded.
b) There are 22 parts per 100 shaded. $\qquad$

2) True or false? Explain your answer fully.

a) The percentage of squares shaded is between 45 parts per 100 and $50 \%$.
b) If I shaded another 12 squares I will have shaded $60 \%$ of the 100 square.
3) Isaac colours in $100 \%$ of this square in different colours. He is only allowed to use colours in the percentage amounts given below:

| $25 \%$ = red | 15 parts per hundred = yellow |
| :--- | :--- |
| $75 \%$ = orange | 10 parts per hundred = pink |
| $40 \%=$ green | 50 parts per hundred = blue |
| $5 \%=$ black | 30 parts per hundred = purple |


a) Find different ways that Isaac could colour in the whole 100 square using only 2 or 3 different colours. Give three examples.
$\qquad$
$\qquad$
$\qquad$
b) Find a way of colouring in $100 \%$ of the square that uses exactly 4 colours. Can you find more than one answer?
$\qquad$
$\qquad$
$\qquad$

1) By shading whole squares, Dylan had coloured red $65 \%$ of a 100 square before it got torn. Which of these torn pieces could have been from Dylan's 100 square? Which could not? Explain your answers fully.
a)

b)

c)

c)
d)

$\qquad$
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2) At the bake sale, the children made 100 of each item to sell. Complete the table.

|  | Number sold | Percentage | Number left |
| :---: | :---: | :---: | :---: |
| Chocolate buns |  |  | 14 |
| Flapjack |  | $53 \%$ |  |
| Gingerbread | 91 out of 100 |  |  |

3) Sticker books have spaces for 100 stickers. Bruno has filled in $71 \%$ of his book. Josie has 29 spaces left. Who has the most stickers? Explain your answer.
$\qquad$
$\qquad$
$\qquad$
4) Complete the statements and colour in the 100 square correctly.
a) There are $\qquad$ parts per 100 shaded.

There is $\qquad$ \% shaded.
b) There are 64 parts per 100 shaded.

There is $\qquad$ \% shaded.
2) Which square would show $100 \%$ if I shaded another 25 parts per hundred?
a)

b)

3) Put these percentages in order, from the smallest to the largest value percentage represented.
a) $\square$ b) $3 \%$
c)

d) 34 parts per 100
4) Colour in this 100 square so that it matches this statement:

Between 84 parts per 100 and $90 \%$ of this 100 square are shaded.

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| $5 \%$ = black | 30 parts per hundred = purple |

a) Find different ways that Isaac could colour in the whole 100 square using only 2 or 3 different colours. Give three examples.
b) Find a way of colouring in $100 \%$ of the square that uses exactly 4 colours. Can you find more than one answer?

1) True or False?
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1) By shading whole squares, Dylan had coloured red 65\% of a 100 square before it got torn.
Which of these torn pieces could have been from Dylan's 100 square? Which could not? Explain your answers fully.
a)

c)

b)

d)
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2) At the bake sale, the children made 100 of each item to sell. Complete the table.

|  | Number <br> sold | Percentage | Number <br> left |
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3) Sticker books have spaces for 100 stickers. Bruno has filled in $71 \%$ of his book. Josie has 29 spaces left. Who has the most stickers?
Explain your answer.
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Which of these torn pieces could have
been from Dylan's 100 square? Which could not?
Explain your answers fully.
a)

b)

c)

d)

5) At the bake sale, the children made 100 of each item to sell. Complete the table.

|  | Number <br> sold | Percentage | Number <br> left |
| :---: | :---: | :---: | :---: |
| Chocolate <br> buns |  | 14 |  |
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Explain your answer.

## Percentage Colouring

## I can recognise and write percentages.

What percentage of each grid is coloured in?
1.

2.

3.

4.

5.


Colour in the squares to represent the percentages shown.
6.
7.

8.


6\%

91\%

## Percentage Colouring Answers

What percentage of each grid is coloured in?
1.

$60 \%$

$7 \%$

$56 \%$

$24 \%$

$44 \%$

Colour in the squares to represent the percentages shown.
6.

30 squares should be coloured in
7.

19 squares should be coloured in
8.

72 squares should be coloured in
9.

6 squares should be coloured in
10.

91 squares should be coloured in


## Percentage Colouring Answers

## I can recognise and write percentages.

What percentage of each shape is coloured in?

$$
1
$$


$36 \%$
2.

$8 \%$
4.

$40 \%$
5.

$25 \%$
3.

$68 \%$

Colour in each shape to represent the percentage shown.
7.
67 of the squares
should be
coloured in
10.

2 of the squares should be coloured in
8.

23 of the squares should be coloured in
11.

7 of the rectangles should be coloured in
9.

7 of the squares should be coloured in
12.

4 of the pieces should be coloured in


## Percentage Colouring Answers

## I can recognise and write percentages.

What percentage of each shape is coloured in?

10.

64 of the squares should be coloured in
Colour in each shape to represent the percentage shown.

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7.
9 of the squares should be coloured in
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8. 

8 of the rectangles should be coloured in
11.

3 of the pieces should be coloured in
9. I of the triangles should be coloured in
12.

3 of the pieces should be coloured in

Fractions | Percentage Power

| I can recognise and write percentages. |  |  |
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| I can recognise the per cent symbol. |  |  |
| I can write the percentage that a <br> diagram represents. |  |  |
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