



Helping you to  
deliver an LGBT+

INCLUSIVE  
CURRICULUM

Subject: Maths

Key Stage: 3

# PERCENTAGES

Original 'The Classroom' concept developed by Schools OUT UK



Schools  **OUT UK**  
The **LGBT Education Charity**

Charitable Incorporated Organisation Number 1156352

## Title: Percentages

### Curriculum links:

#### KS3 National curriculum

Work interchangeably with terminating decimals and their corresponding fractions.

Define percentage as ‘number of parts per hundred’, interpret percentages, express one quantity as a percentage of another.

### Lls:

Define percentage.

Convert between percentages, decimals and fractions.

Calculate the percentage of a value.

## Instructions for use:

Most tasks have been differentiated to three levels with the orange boxed task being the easier of the three and the grey being the more challenging.

For mixed ability classes we suggest keeping all tasks and directing your students towards their appropriate level. For setted classes you can delete the tasks you feel are not appropriate.

Throughout we have added questions in orange that can be used to prompt conversation, draw further information from your students and deepen their understanding.

Please feel free to edit the order of the slides so this lesson is consistent with your approach.

Additional information can be found in the notes section of each slide.

# STARTER



Convert the decimals to fractions and fractions to decimals

a)  $6/10 =$

b)  $1/2 =$

c)  $0.1 =$

d)  $0.4 =$

a)  $8/10 =$

b)  $2/5 =$

c)  $0.25 =$

d)  $0.33 =$

a)  $2/6 =$

b)  $15/5 =$

c)  $0.75 =$

d)  $0.45 =$

Convert the decimals to fractions and fractions to decimals

- a)  $6/10 = 0.6$
- b)  $\frac{1}{2} = 0.5$
- c)  $0.1 = \frac{1}{10}$
- d)  $0.4 = \frac{4}{10}$   
 $= \frac{2}{5}$

- a)  $8/10 = 0.8$
- b)  $2/5 = 0.4$
- c)  $0.25 =$   
 $\frac{25}{100} =$   
 $\frac{1}{4}$
- d)  $0.33 = \frac{1}{3}$

- a)  $2/6 = 0.33$
- b)  $15/5 = 3.0$
- c)  $0.75 =$   
 $\frac{75}{100} =$   
 $\frac{3}{4}$
- d)  $0.45 =$   
 $\frac{45}{100} =$   
 $\frac{9}{20}$

# BIG PICTURE



In 2018, 0.003% of viewers complained about the same-gender couples' dance. How many viewers complained?

ASK: Why do you think the BBC chose to include this dance?

ASK: Why do you think people complained about this dance?

# LEARNING INTENTIONS



Title: Percentages

Date: Monday, 05 February 2024

Define 'percentage'

Convert between percentages, decimals and fractions

Calculate the percentage of a value

# LITERACY



# PERCENTAGE

How many words can you  
think of with 'cent' in  
them?



# LITERACY

# PERCENTAGE



ASK: How many cents in a euro?

ASK: How many years in a century?



ASK: How many legs on a centipede?

Progress...

# LITERACY



# PERCENTAGE

= 100

A percentage is a number of parts per hundred

$$50\% = 50/100 = 0.5$$

ASK: Simplify the fraction

# REVIEW AND REFLECT



Complete the table

<u>Percentage</u>	<u>Fraction</u>	<u>Decimal</u>
10%		
35%		
45%		
80%		
100%		

Give the fraction in its simplest form

Progress...

# REVIEW AND REFLECT



<u>Percentage</u>	<u>Fraction</u>	<u>Decimal</u>
10%	$10/100 = 1/10$	0.1
35%	$35/100 = 7/20$	0.35
40%	$40/100 = 2/5$	0.4
80%	$80/100 = 4/5$	0.8
100%	$100/100 = 1$	1.0

# NEW MATERIAL



## How to calculate the percentage of a value using a calculator

- 1) Convert the percentage into a decimal
- 2) Multiply the decimal by the value given

E.g. calculate 35% of 750

$$35\% = 0.35$$

$$0.35 \times 750 = 262.5$$

# REVIEW AND REFLECT



<u>Question</u>	<u>Working out</u>	<u>Answer</u>
12.5% of 240		
2.5% of 342		
0.5% of 820		
89% of 1010		
22% of 45		

Progress...

# REVIEW AND REFLECT



<u>Question</u>	<u>Working out</u>	<u>Answer</u>
12.5% of 240	$0.125 \times 240$	30
2.5% of 342	$0.025 \times 342$	8.55
0.5% of 820	$0.05 \times 820$	41
89% of 1010	$0.89 \times 1010$	898.9
22% of 45	$0.22 \times 45$	9.9

# NEW MATERIAL



## How to calculate a percentage (non-calculator chunking method)

1) Break up the percentage asked into 10%, 5%, 1%

E.g. calculate 35% of 750

10% = 75

5% = 37.5

$$75 (10\%) + 75 (10\%) + 75 (10\%) + 37.5 (5\%) = 262.5 (35\%)$$



# REVIEW AND REFLECT



<u>Question</u>	<u>Working out</u>	<u>Answer</u>
15% of 240		
70% of 110		
45% of 90		
65% of 230		
11% of 580		

<u>Question</u>	<u>Working out</u>	<u>Answer</u>
65% of 230		
11% of 580		
13% of 630		
27% of 160		
39% of 410		

# REVIEW AND REFLECT

<u>Question</u>	<u>Working out</u>	<u>Answer</u>
15% of 240	$10\% = 24, 5\% = 12$ $24 + 12$	36
70% of 110	$10\% = 11$ $11 + 11 + 11 + 11 + 11 + 11 + 11$	77
45% of 90	$10\% = 9, 5\% = 4.5$ $9 + 9 + 9 + 9 + 4.5$	40.5
65% of 230	$10\% = 23, 5\% = 11.5$ $23 + 23 + 23 + 23 + 23 + 23 + 11.5$	149.5
11% of 580	$10\% = 58, 1\% = 5.8$ $58 + 5.8$	63.8

# REVIEW AND REFLECT

<u>Question</u>	<u>Working out</u>	<u>Answer</u>
65% of 230	$10\% = 23, 5\% = 11.5$ $23 + 23 + 23 + 23 + 23 + 23 + 11.5$	149.5
11% of 580	$10\% = 58, 1\% = 5.8$ $58 + 5.8$	63.8
13% of 630	$10\% = 63, 1\% = 6.3$ $63 + 6.3 + 6.3 + 6.3$	81.9
27% of 160	$10\% = 16, 5\% = 8, 1\% = 1.6$ $16 + 16 + 8 + 1.6 + 1.6$	43.2
39% of 410	$10\% = 41, 5\% = 20.5, 1\% = 4.1$ $41 + 41 + 41 + 20.5 + 4.1 + 4.1 + 4.1 + 4.1$	159.9

# DEEPEN YOUR UNDERSTANDING



13% of the cost of Brighton Pride is spent on the Police. Brighton Pride costs around £412,000. How much is spent on the Police?

Alex eats 25% of their 26 cakes.  
Their partner Ashley eats 45% of their 14 cakes.  
Who ate more cake?

Anna and Jane spent 67% of the £25,000 they had saved on their wedding. How much did they spend?  
Their honeymoon cost 33% of their remaining savings. How much did their honeymoon cost?

Progress...

# DEEPEN YOUR UNDERSTANDING



$$13\% \text{ of } \pounds 412,000 \\ = \pounds 53,560$$

$$25\% \text{ of } 26 = 6.5 \\ 45\% \text{ of } 14 = 6.3 \\ \text{Alex ate more cake}$$

$$67\% \text{ of } \pounds 25,000 = \\ \pounds 16,750$$

$$\pounds 25,000 - \pounds 16,750 \\ = \pounds 8250$$

$$33\% \text{ of } \pounds 8250 = \\ \pounds 2722.50$$

# BIG PICTURE



0.003% of viewers complained about the same-gender couples' dance. How many of the 8.2 million viewers complained?

$$0.003\% = 0.00003$$
$$8,200,000 \times 0.00003$$
$$= 246$$

ASK: What can we assume about the 8,199,754 viewers that did not complain?

