Fractions: Race to 100%

Aim:	**Success Criteria:**	**Resources:**
Solve problems which require knowing percentage and decimal equivalents of halves, quarters and fifths and fractions with a denominator of a multiple of 10 or 25. I can find and use fraction, percentage and decimal equivalents to solve problems.	I can find fraction, percentage and decimal equivalents. I can solve problems using fraction, percentage and decimal equivalents.	**Lesson Pack** Whiteboards and pens – class set
	Key/New Words: Per cent, percentage, decimal, tenth hundredth, fraction, denominator, equivalent.	**Preparation:** **Equivalents Loop Cards** – one class set or one per group Differentiated **Race to 100% Game Cards** – one set per group **Race to 100% Activity Sheet** – one per child

Prior Learning: It will be helpful if children have a good understanding of percentage, decimal and hundredths fractions equivalents.

Learning Sequence

Loopy Percentages: Complete the **Equivalents Loop Cards** as a class or a group to rehearse identifying decimal and fraction equivalents for percentages.

Who Has the Most? Identify which of the fractions, decimals and percentages in the problems shown on the **Lesson Presentation** has the greatest value.

Race to 100%: Distribute the differentiated **Race to 100% Game Cards**. Children play the game in small groups, solving problems involving fractions, percentage and decimal equivalents.

How to Play: Place the differentiated **Race to 100% Game Cards** face down. Each child in the group chooses a card. The children compare the fractions, decimals and percentages shown. The child with the highest value wins the round and colours in that percentage of their **Race to 100% Activity Sheet**. The first child to colour in 100% wins. They may go over 100% on their last go.

The **Race to 100% Cards** include percentages, decimal numbers and fractions with denominators of 4, 5, 10, 20, 25, 50 and 100.

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The **Race to 100% Cards** include percentages, decimal numbers and fractions with denominators of 4, 5, 20, 25, 30, 40, 50, 60, 70, 75, 80 and 90.

Diving into Mastery: Schools using a mastery approach may prefer to use the following as an alternative activity. These sheets might not necessarily be used in a linear way. Some children might begin at the 'Deeper' section and in fact, others may 'dive straight in' to the 'Deepest' section if they have already mastered the skill and are applying this to show their depth of understanding.

Children use bar models and number lines to help them convert between fractions, decimals and percentages.

Children recognise where fractions, decimals and percentages fit on a number line. They use their reasoning skills to decide whether a statement related to equivalent fractions and decimals is correct or not.

Children solve multi-step problems which require conversion between fractions, decimals and percentages.

Equivalents Dash: The teacher or another child chooses a criteria for each round. Examples could include less than ½, greater than 60%, equivalent to 0.2. Each team discusses which (if any) of the fractions, decimals and percentages on the **Lesson Presentation** fit the criteria. Each team sends a member up to the board to tap a correct answer. Correct answers win a point.

Exploreit

Playit: Children use the **Converting Fractions, Decimals and Percentages Fortune Teller** to practise identifying percentage, fraction and decimal equivalents.

Makeit: Children make the **Lift the Flap Fraction Wall** and then add decimals and percentages to as many of the blocks as they can. Children will need to round some of the decimals and percentages to an appropriate number of decimal places.

Maths

Fractions

Race to 100%

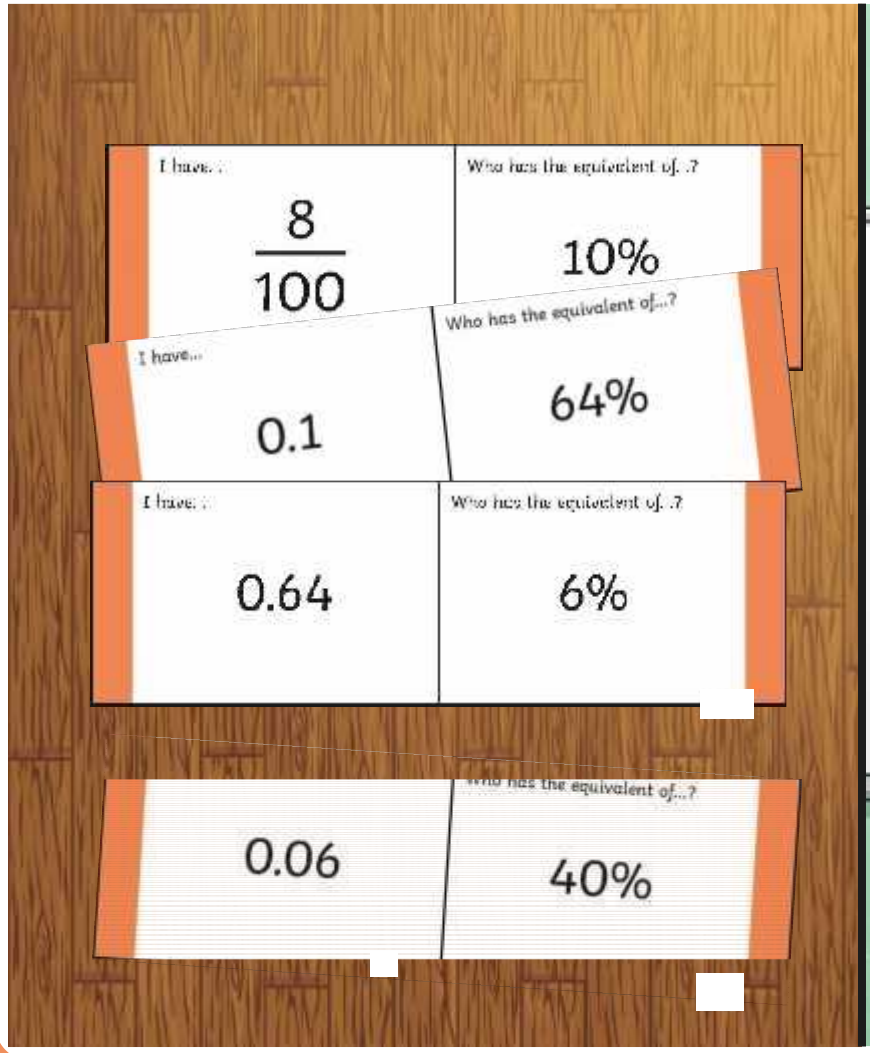
Aim

- I can find and use fraction, percentage and decimal equivalents to solve problems.

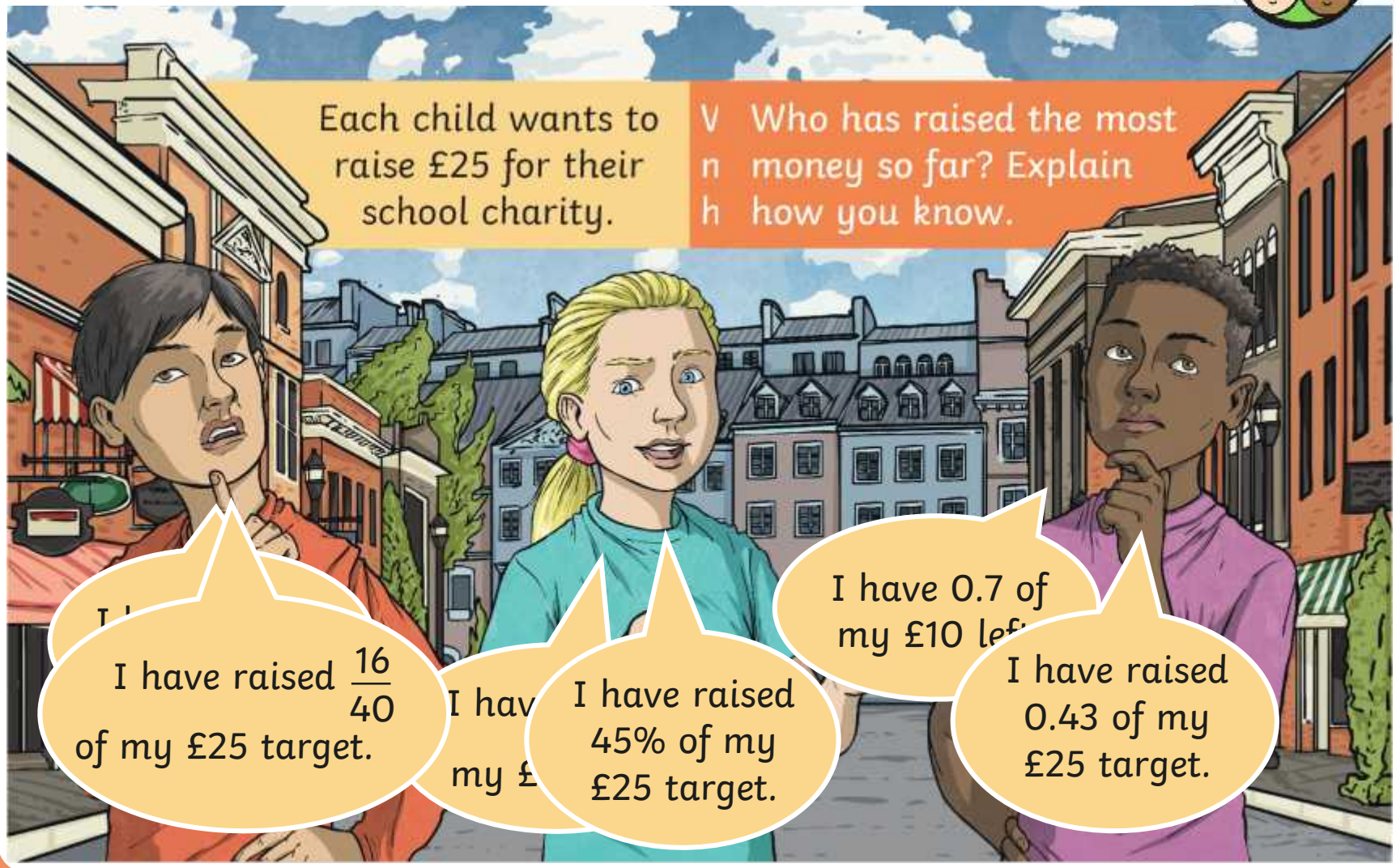
Success Criteria

- I can find fraction, percentage and decimal equivalents.
- I can solve problems using fraction, percentage and decimal equivalents.

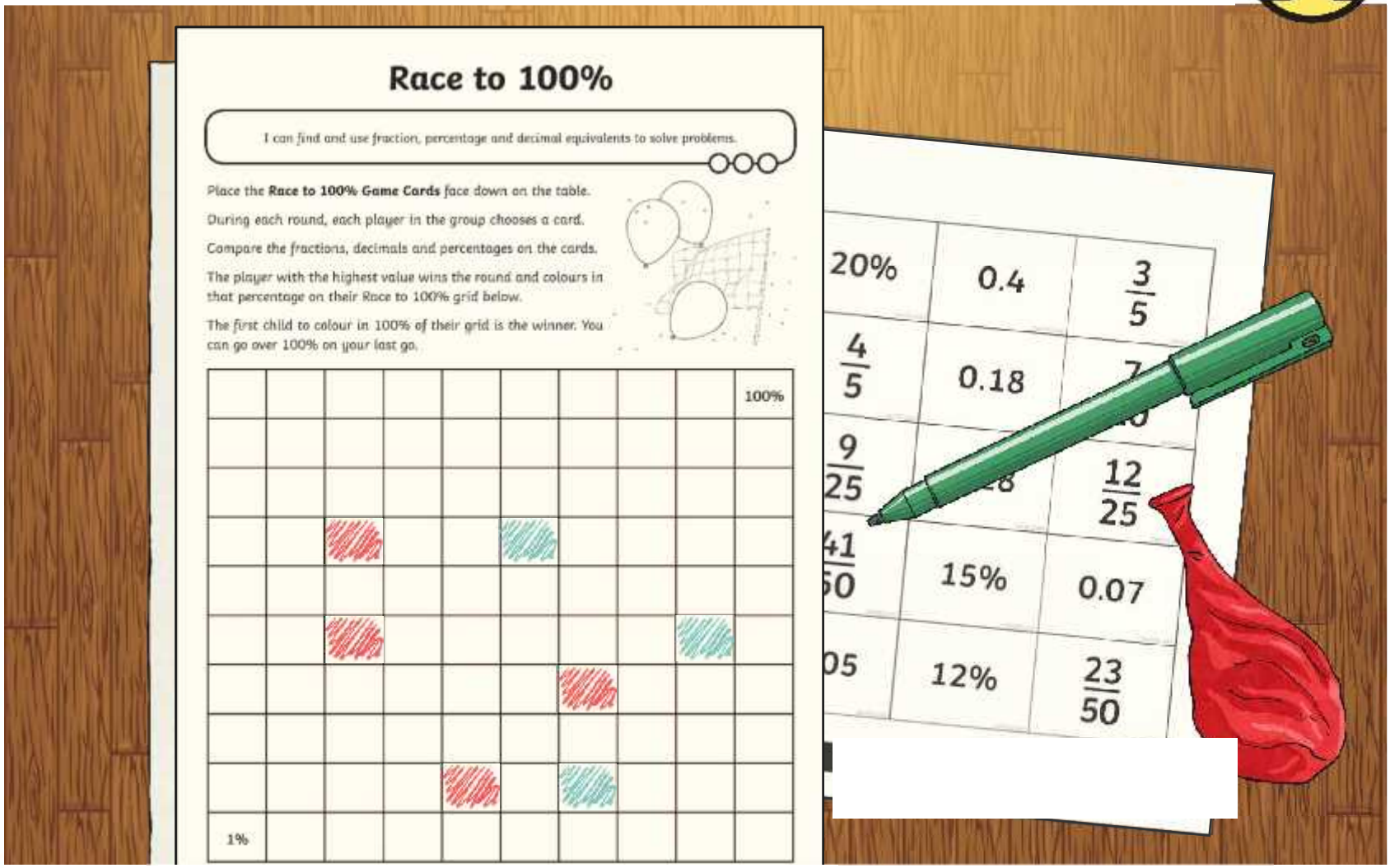
Loopy Percentages



Who Has Most?

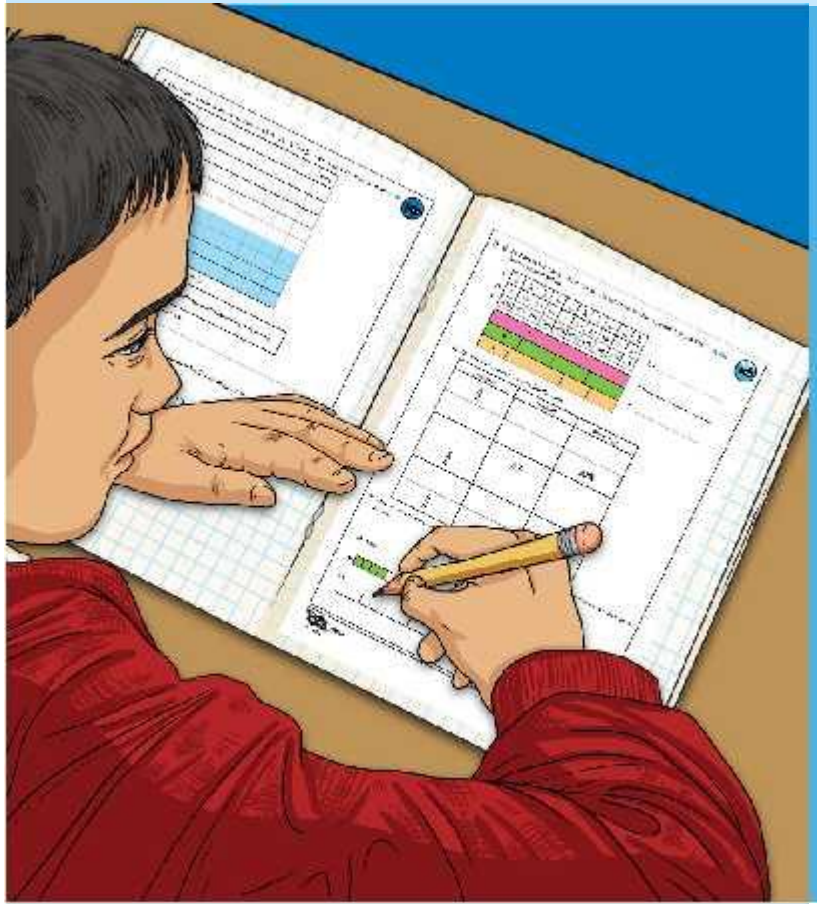

Whole Class
Each child wants to raise £25 for their school charity.
Who has raised the most money so far? Explain how you know.
I have raised 16/40 of my £25 target.
I have raised 45% of my £25 target.
I have 0.7 of my £10
I have raised 0.43 of my £25 target.

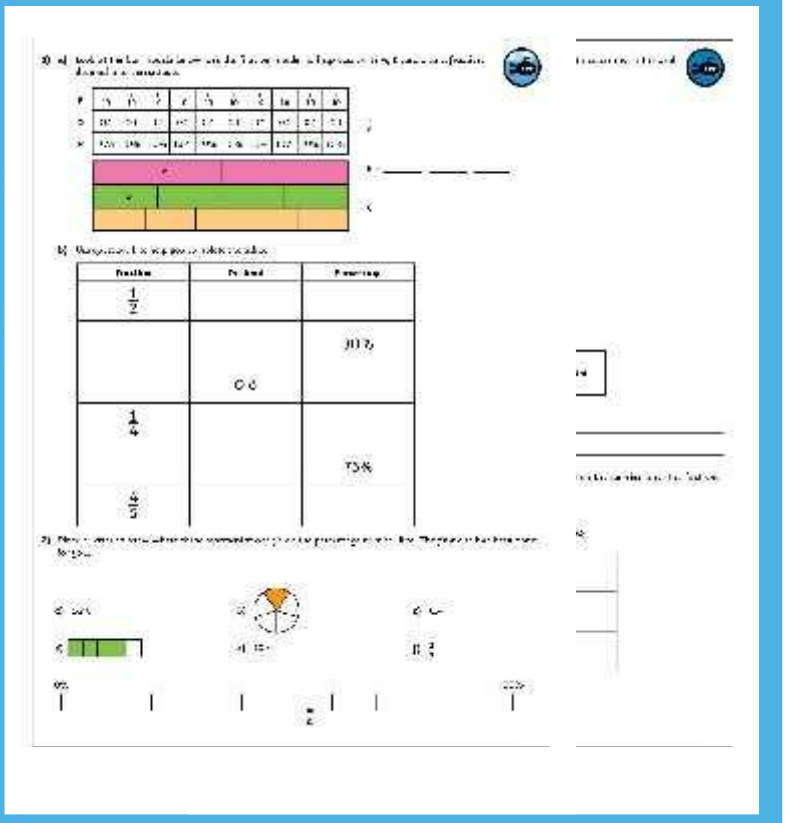
Race to 100%


Race to 100%
I can find and use fraction, percentage and decimal equivalents to solve problems.
Place the **Race to 100% Game Cards** face down on the table.
During each round, each player in the group chooses a card.
Compare the fractions, decimals and percentages on the cards.
The player with the highest value wins the round and colours in that percentage on their Race to 100% grid below.
The first child to colour in 100% of their grid is the winner. You can go over 100% on your last go.
100%
1%
20%
0.4
$\frac{3}{5}$
$\frac{4}{5}$
0.18
$\frac{9}{25}$
$\frac{12}{25}$
15%
0.07
12%
$\frac{23}{50}$

Diving into Mastery

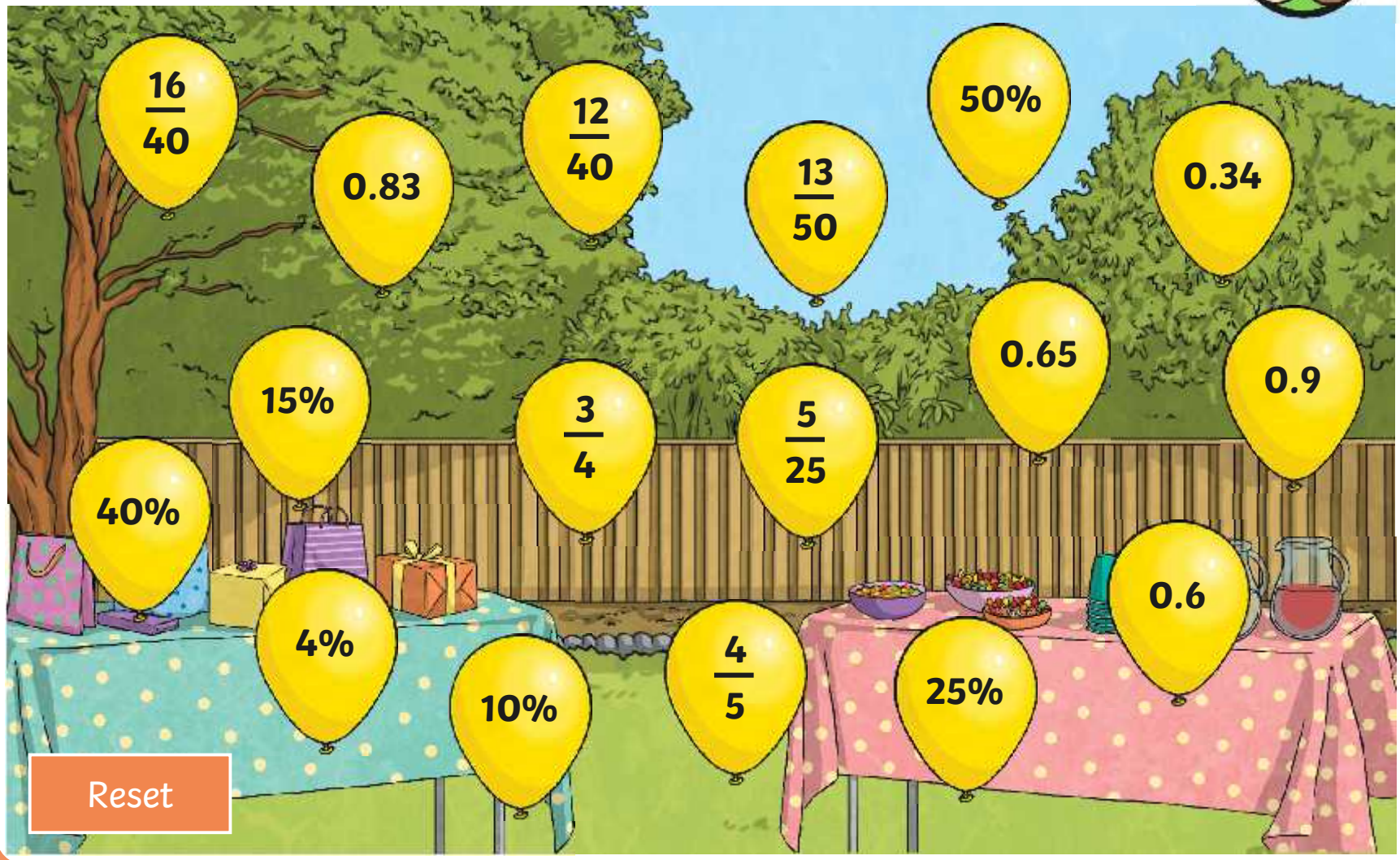
Dive in by completing your own activity!





Equivalents Dash

Equivalents Dash

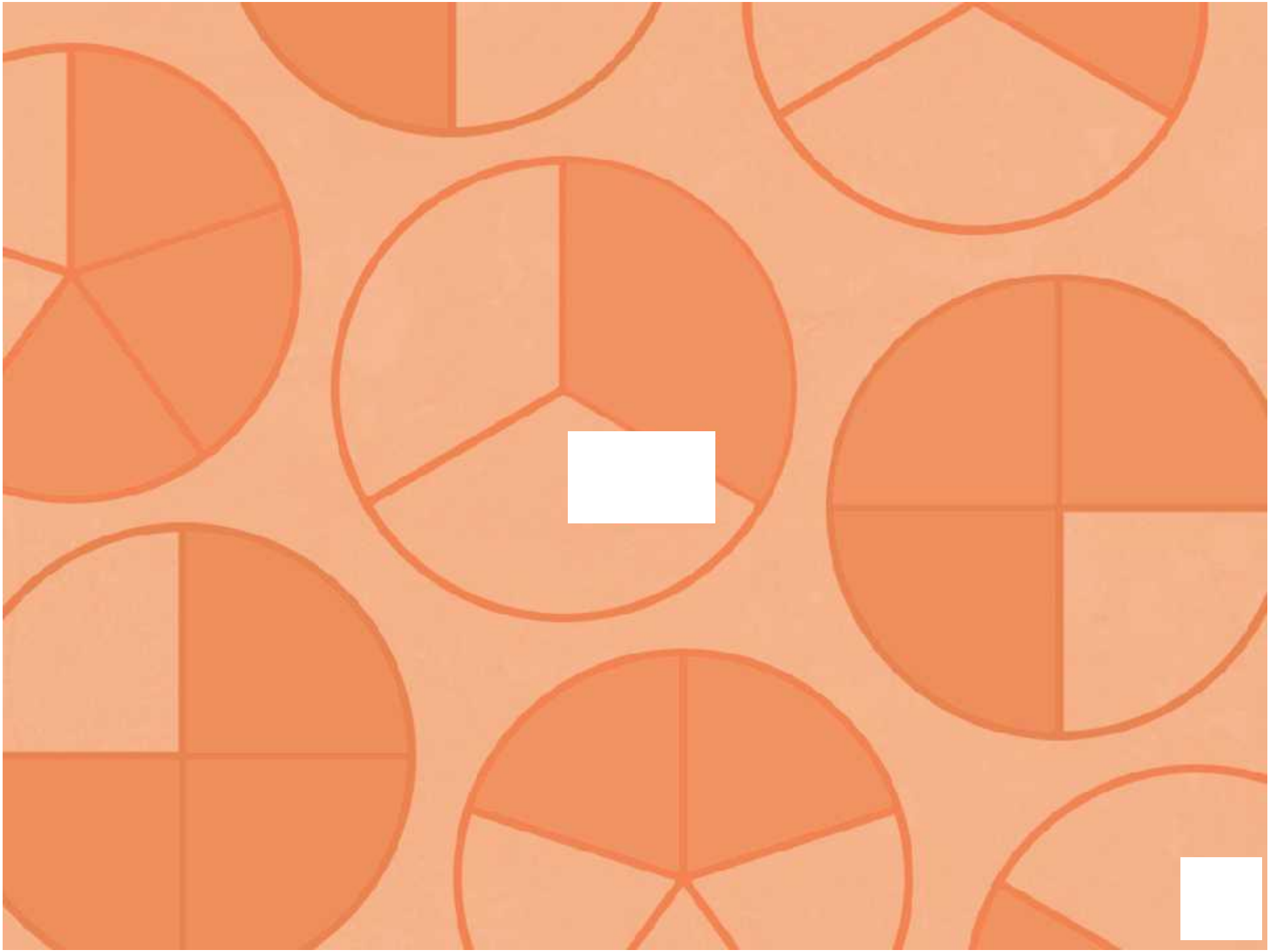


Aim

- I can find and use fraction, percentage and decimal equivalents to solve problems.

Success Criteria

- I can find fraction, percentage and decimal equivalents.
- I can solve problems using fraction, percentage and decimal equivalents.



Aim: I can find and use fraction, percentage and decimal equivalents to solve problems.				**Date:**					
				Delivered By:			**Support:**		
Success Criteria	**Me**	**Friend**	**Teacher**	**T**	**PPA**	**S**	**I**	**AL**	**GP**
I can find fraction, percentage and decimal equivalents.				**Notes/Evidence**					
I can solve problems using fraction, percentage and decimal equivalents.									

Next Steps

- _____
- _____

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

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Next Steps

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T	Teacher	**I**	Independent
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50%	0.25	$\frac{3}{4}$	20%	0.4	$\frac{3}{5}$
10%	0.3	90%	$\frac{4}{5}$	0.18	$\frac{7}{10}$
45%	$\frac{11}{20}$	8%	$\frac{9}{25}$	0.28	$\frac{12}{25}$
4%	0.32	0.16	$\frac{41}{50}$	15%	0.07
24%	$\frac{27}{100}$	22%	0.05	12%	$\frac{23}{50}$

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0.5	$\frac{1}{4}$	75%	$\frac{1}{5}$	0.8	$\frac{2}{5}$
60%	$\frac{7}{20}$	0.65	90%	85%	$\frac{11}{25}$
0.16	32%	$\frac{19}{20}$	$\frac{9}{30}$	42%	$\frac{23}{25}$
0.12	28%	0.22	$\frac{13}{50}$	0.05	2%
$\frac{28}{40}$	$\frac{27}{100}$	0.15	19%	$\frac{4}{40}$	0.06

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$\frac{36}{80}$	0.72	7%	$\frac{26}{50}$	0.38	16%
0.55	29%	$\frac{18}{30}$	43%	$\frac{2}{40}$	0.32
$\frac{13}{20}$	0.25	15%	$\frac{3}{4}$	0.49	$\frac{7}{50}$
74%	$\frac{4}{5}$	0.01	17%	$\frac{14}{40}$	21%
$\frac{3}{30}$	0.7	$\frac{7}{25}$	0.34	66%	$\frac{6}{75}$

3%	$\frac{63}{70}$	50%	$\frac{9}{25}$	0.12	22%
$\frac{18}{60}$	0.18	26%	0.04	40%	$\frac{18}{90}$
0.27	11%	$\frac{18}{75}$	2%	0.42	23%

1) a) **A = $\frac{1}{2}$, 0.5, 50%**

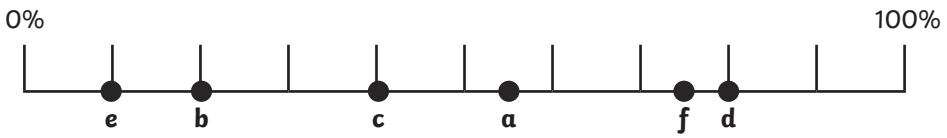
B = $\frac{1}{4}$, 0.25, 25%

C = $\frac{1}{5}$, 0.2, 20%

b)

Fraction	Decimal	Percentage
$\frac{1}{2}$	**0.5**	**50%**
$\frac{30}{100}$ or $\frac{3}{10}$	**0.3**	30%
$\frac{60}{100}$ or $\frac{6}{10}$ or $\frac{3}{5}$	0.6	**60%**
$\frac{1}{4}$	**0.25**	**25%**
$\frac{75}{100}$ or $\frac{15}{20}$ or $\frac{3}{4}$	**0.75**	75%
$\frac{4}{5}$	**0.8**	**80%**

2)



1) **Charmaine is incorrect.**

There is already 40% shaded.

$\frac{6}{25}$ = $\frac{24}{100}$ = 24%

40% + 24% = 64% = 0.64

0.64 has been shaded, this is less than 0.75.

2) a)

$\frac{20}{50}$	**A**	0.8	**C**
one-quarter	**A**	sixty-hundredths	**B**
$\frac{4}{5}$	**C**	0.09	**A**

b) **Multiple answers possible.**

Fraction greater than $\frac{1}{2}$, less than 1	**Decimal greater than 0.75, less than 1**

1) a) Petra's present cost more than Jake's present.

True / False

Petra:
40% = £20 10% = £20 ÷ 4 = £5
60% = £5 × 6 = £30 (cost of present)
Jake:
£18 = 0.3 0.1 = £18 ÷ 3 = £6
0.7 = £6 × 7 = £42 (cost of present)

b) The amount the two children took shopping was less than 0.8 of £150.

True / False

Petra:
10% = £5 100% = £5 × 10 = £50 (amount taken shopping)
Jake: 0.1 = £6 100% = £6 × 10 = £60 (amount taken shopping)
Total : £50 + £60 = £110
0.1 of £150 = £150 ÷ 10 = £15
0.8 of £150 = £15 × 8 = £120

2) Day 1:

25% = $\frac{1}{4}$

$\frac{1}{4}$ of 6000m = 1500m

$\frac{4}{5}$ of 1500m = 1500m ÷ 5 = 300m × 4 = 1200m

0.9km = 900m

1500m + 1200m + 900m = 3600m = 3.6km

Left to complete: 6000m – 3600m = 2400m

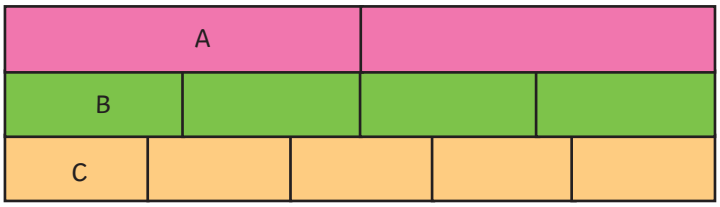
10% of 6000m = 600m

30% of 6000m = 1800m

Toni has more than 30% of her target left to complete.

1) a) Look at the bar models below. Use the first bar model to help you write A, B and C as a fraction, decimal and percentage.

F	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$	$\frac{1}{10}$
D	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
P	10%	10%	10%	10%	10%	10%	10%	10%	10%	10%



A = _____ _____ _____

B = _____ _____ _____

C = _____ _____ _____

b) Use question 1 to help you complete the table.

Fraction	Decimal	Percentage
$\frac{1}{2}$		
		30%
	0.6	
$\frac{1}{4}$		
		75%
$\frac{4}{5}$		

2) Place a letter to show where these representations fit on the percentage number line. The first one has been done for you.

a) 55%

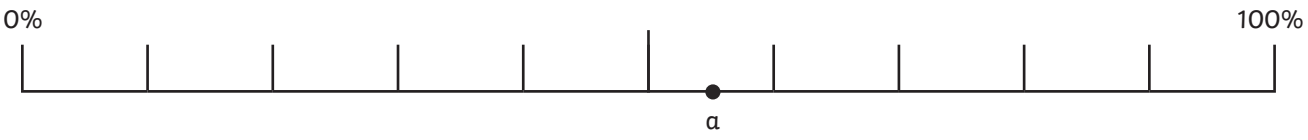
b)

c) 0.4

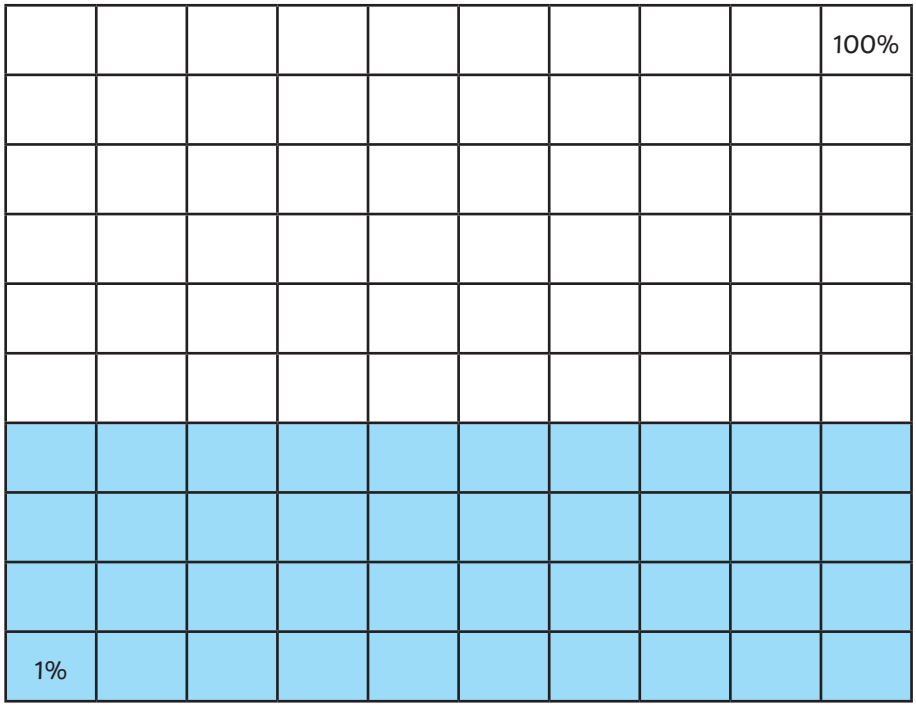
d)

e) 10%

f) $\frac{3}{4}$



1) Charmaine is playing the game, 'Race to 100%'. This is how far she has got with colouring in the grid.

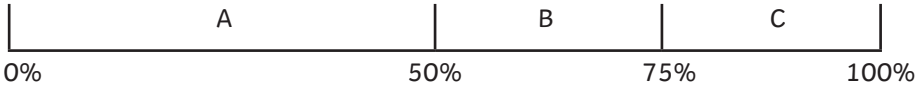


The next card that Charmaine turns over is $\frac{6}{25}$.

After shading $\frac{6}{25}$, I will have shaded more than 0.75 in total.

Is Charmaine correct? Explain how you know.

2) **a)** Fill in the blanks with A, B or C to show where each fraction would appear on the number line. The first one has been done for you.



$\frac{20}{50}$	**A**	0.8	
one-quarter		sixty-hundredths	
$\frac{4}{5}$		0.09	

b) Write a different fraction and decimal that would fit in space C.

1) 2 friends had some money to buy a present for their friend, Carlos.

Petra

I bought Carlos a present. I have spent 60% of my money and I have £20 left.

Jake

I bought Carlos a present. I have £18 left, this is 0.3 of the money I started with.

Circle true or false for each statement and write calculations to show how you know.

a) Petra's present cost more than Jake's present.

True/False

b) The total amount of money Petra and Jake started with was less than 0.8 of £150.

True/False

2) Toni has set herself a target of running at least 6km over 4 days. This is how much she has ran so far:

Day 1: 25% of the target

Day 2: $\frac{4}{5}$ of the distance covered on Day 1

Day 3: 0.9km

Key fact: 1km = 1000m

Has Toni got more or less than 30% of her target to complete? Show how you know.

I have...	Who has the equivalent of...?
$\frac{8}{100}$	10%

I have...	Who has the equivalent of...?
0.1	64%

I have...	Who has the equivalent of...?
0.64	6%

I have...	Who has the equivalent of...?
0.06	40%

I have...

0.4

Who has the equivalent of...?

76%

I have...

$\frac{76}{100}$

Who has the equivalent of...?

15%

I have...

$\frac{15}{100}$

Who has the equivalent of...?

1%

I have...

0.01

Who has the equivalent of...?

50%

I have...	Who has the equivalent of...?
$\frac{50}{100}$	33%

I have...	Who has the equivalent of...?
0.33	7%

I have...	Who has the equivalent of...?
0.07	21%

I have...	Who has the equivalent of...?
$\frac{21}{100}$	3%

I have...

$\frac{3}{100}$

Who has the equivalent of...?

46%

I have...

$\frac{46}{100}$

Who has the equivalent of...?

5%

I have...

$\frac{5}{100}$

Who has the equivalent of...?

20%

I have...

$\frac{20}{100}$

Who has the equivalent of...?

53%

I have...	Who has the equivalent of...?
0.53	60%

I have...	Who has the equivalent of...?
0.6	9%

I have...	Who has the equivalent of...?
0.09	30%

I have...	Who has the equivalent of...?
$\frac{30}{100}$	4%

I have...	Who has the equivalent of...?
0.04	90%

I have...	Who has the equivalent of...?
0.9	2%

I have...	Who has the equivalent of...?
$\frac{2}{100}$	78%

I have...	Who has the equivalent of...?
0.78	80%

I have...	Who has the equivalent of...?
$\frac{80}{100}$	17%

I have...	Who has the equivalent of...?
0.17	99%

I have...	Who has the equivalent of...?
0.99	70%

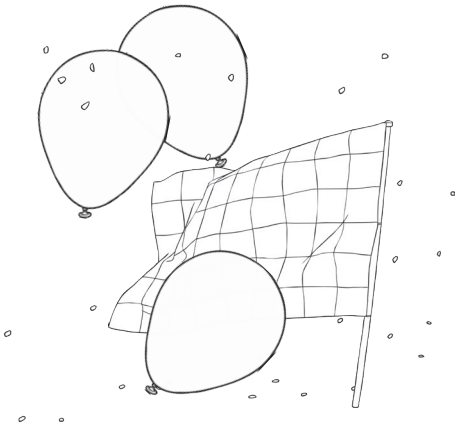
I have...	Who has the equivalent of...?
0.7	97%

I have...	Who has the equivalent of...?
$\frac{97}{100}$	82%

I have...	Who has the equivalent of...?
$\frac{82}{100}$	8%

Race to 100%

I can find and use fraction, percentage and decimal equivalents to solve problems.



Place the **Race to 100% Game Cards** face down on the table.

During each round, each player in the group chooses a card.

Compare the fractions, decimals and percentages on the cards.

The player with the highest value wins the round and colours in that percentage on their Race to 100% grid below.

The first child to colour in 100% of their grid is the winner. You can go over 100% on your last go.

									100%
1%									

Fractions | Race to 100%

I can find and use fraction, percentage and decimal equivalents to solve problems.		
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I can solve problems using fraction, percentage and decimal equivalents.		

Fractions | Race to 100%

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