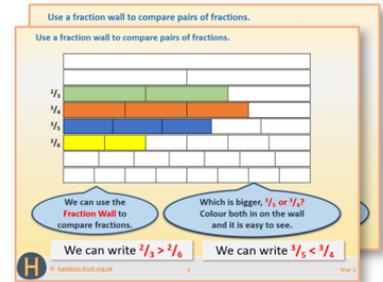


Week 8, Day 2

Equivalence between percentages and fractions.

Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. Start by reading through the **Learning Reminders**. They come from our *PowerPoint* slides.



2. Tackle the questions on the **Practice Sheet**. There might be a choice of either **Mild** (easier) or **Hot** (harder)! Check the answers.

Practice Sheet (Mild)

Place value addition and subtraction

1. $4.538 + 0.2$	2. $4.538 + 0.03$
3. $4.538 - 0.004$	4. $4.538 - 0.02$
5. $6.231 + 0.11$	6. $6.231 + 0.101$
7. $6.231 + 0.011$	8. $5.846 - 0.211$
9. $5.846 - 0.13$	10. $5.846 - 0.013$
11. $5.846 - 0.204$	12. $4.789 + 0.001$

Challenge

Start on 4.562.
Add tenths and hundredths to make an addition chain ending with the number 4.627.
Start on 10.769.
Subtract tenths, hundredths and thousandths to make a subtraction chain ending with the number 9.782.

3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**

Deduce the decimal

Work in pairs

Things you will need:

- 100 counters (numbered 1-100)
- 100 cards (numbered 1-100)
- 100 cards (numbered 1-100)

What to do:

- Without counting your partner, write down a number with three decimal places that the class can see.
- Use a hundred grid to show numbers on the place value chart which add to make the number.
- Show your partner the chart.
- Your partner asks on the shaded numbers and writes the completed number.
- Show what they have written, match your number!
- Swap roles and repeat.
- Use a different hundred grid to make numbers on the place value chart. Numbers should be added to be used.

100s	10s	1s	0.1s	0.01s

Learning intention

Use a hundred grid to make numbers on the place value chart.

Use a hundred grid to make numbers on the place value chart.

4. Think you've cracked it? Whizzed through the Practice Sheets? Have a go at the **Investigation**...

Learning Reminders

Equivalence between percentages and fractions.

It is helpful to **remember** common **equivalent fractions and percentages.**

$$\frac{1}{10} \equiv 10\%$$

$$\frac{1}{5} \equiv 20\%$$

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

$$\frac{1}{2} \equiv 50\%$$

If we remember that $\frac{1}{10} \equiv 10\%$, we can find other tenths by multiplying the percentage.

E.g. $\frac{3}{10} \equiv 30\%$ and $\frac{7}{10} \equiv 70\%$.

If $\frac{1}{4} \equiv 25\%$, $\frac{3}{4} \equiv 75\%$, since $3 \times 25 = 75$.

Learning Reminders

Equivalence between percentages and fractions.

A class of children are asked to choose between swimming, cycling and football. $\frac{1}{4}$ chose swimming. $\frac{3}{10}$ of them prefer cycling. What percentage chose football?

Put the information we have into a bar model and fill in the equivalent percentages for swimming and cycling

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

$$\frac{3}{10} \equiv 30\%$$

Class of children		
$\frac{1}{4}$ 25% Swimming	$\frac{3}{10}$ 30% Cycling	? Football

The percentages MUST add to 100% so that everyone in the class is included.

$$25\% + 30\% + ? = 100\%$$

So 45% chose football.

Practice Sheet Mild

Equivalent percentages

Complete the missing percentages.

Children were asked to vote for cycling, swimming or football as their favourite weekend activity	
Fraction	Percentage
$\frac{1}{2}$ children prefer swimming	
$\frac{1}{4}$ prefer cycling	
The rest prefer football	

Children were asked to vote for dogs, cats or rabbits as their ideal pet	
Fraction	Percentage
$\frac{1}{2}$ prefer dogs	
$\frac{3}{10}$ prefer cats	
The rest prefer rabbits	

Children were asked to vote for oranges, bananas or apples as their favourite fruit	
Fraction	Percentage
$\frac{4}{10}$ prefer bananas	
$\frac{3}{10}$ prefer apples	
The rest prefer oranges	

Practice Sheet Hot

Equivalent percentages

Complete the missing percentages.

Children were asked to vote for dogs, cats or rabbits as their ideal pet	
Fraction	Percentage
$\frac{1}{2}$ prefer dogs	
$\frac{1}{5}$ prefer cats	
The rest prefer rabbits	

Challenge

In another pet survey, fish were voted for by $\frac{1}{20}$ of children, while snakes got $\frac{1}{25}$ of the vote!
What percentages are these fractions?

Children were asked to vote for cycling, swimming or football as their favourite weekend activity

Fraction	Percentage
$\frac{1}{2}$ of children prefer swimming	
$\frac{3}{10}$ of children prefer cycling	
The rest prefer football	

Children were asked to vote for oranges, bananas or apples as their favourite fruit

Fraction	Percentage
$\frac{2}{5}$ of children prefer bananas	
$\frac{3}{10}$ of children prefer apples	
The rest prefer oranges	

Practice Sheets Answers

Equivalent percentages (mild)

Children were asked to vote for cycling, swimming or football as their favourite weekend activity	
Fraction	Percentage
$\frac{1}{2}$ children prefer swimming	50%
$\frac{1}{4}$ prefer cycling	25%
The rest prefer football	25%

Children were asked to vote for dogs, cats or rabbits as their ideal pet	
Fraction	Percentage
$\frac{1}{2}$ prefer dogs	50%
$\frac{3}{10}$ prefer cats	30%
The rest prefer rabbits	20%

Children were asked to vote for oranges, bananas or apples as their favourite fruit	
Fraction	Percentage
$\frac{4}{10}$ prefer bananas	40%
$\frac{3}{10}$ prefer apples	30%
The rest prefer oranges	30%

Equivalent percentages (hot)

Children were asked to vote for cycling, swimming or football as their favourite weekend activity	
Fraction	Percentage
$\frac{1}{2}$ children prefer swimming	50%
$\frac{3}{10}$ prefer cycling	30%
The rest prefer football	20%

Practice Sheets Answers

Equivalent percentages (hot) continued

Children were asked to vote for dogs, cats or rabbits as their ideal pet	
Fraction	Percentage
$\frac{1}{2}$ prefer dogs	50%
$\frac{1}{5}$ prefer cats	20%
The rest prefer rabbits	30%

Children were asked to vote for oranges, bananas or apples as their favourite fruit	
Fraction	Percentage
$\frac{2}{5}$ prefer bananas	40%
$\frac{3}{10}$ prefer apples	30%
The rest prefer oranges	30%

Challenge

Fish: $\frac{1}{20} = 5\%$

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

A Bit Stuck? Go for 100%

Work in pairs

Things you will need:

- Picture, fractions and percentages cards



What to do:

- Work together to match each 100 square picture to the matching fraction and percentage cards.
- Can you match 100% of the cards before time is up?

S-t-r-e-t-c-h:



Use the bar model to help you to work out 10%, 20% and 50% of £80.

Learning outcomes:

- I understand what percent means.
- I know the equivalent percentages for half and tenths.
- I am beginning to find 10%, 20% and 50% of amounts.

A Bit Stuck?
Go for 100%

The activity consists of a large dashed-line rectangle containing a 5x2 grid of 10 smaller 10x10 grids. Each small grid has a portion shaded green, representing a percentage. The shaded portions are as follows:

- Row 1: 10% (1 row shaded)
- Row 2: 20% (2 rows shaded)
- Row 3: 30% (3 rows shaded)
- Row 4: 40% (4 rows shaded)
- Row 5: 50% (5 rows shaded)
- Row 6: 60% (6 rows shaded)
- Row 7: 70% (7 rows shaded)
- Row 8: 80% (8 rows shaded)
- Row 9: 90% (9 rows shaded)
- Row 10: 100% (10 rows shaded)

Scissors icons are placed at the corners of the large dashed-line rectangle to indicate where to cut out the sheets.

A Bit Stuck?
Go for 100%



$\frac{1}{10}$	$\frac{2}{10}$
$\frac{3}{10}$	$\frac{4}{10}$
$\frac{1}{2}$	$\frac{6}{10}$
$\frac{7}{10}$	$\frac{8}{10}$
$\frac{9}{10}$	$\frac{10}{10}$





A Bit Stuck?
Go for 100%

10%

20%

30%

40%

50%

60%

70%

80%

90%

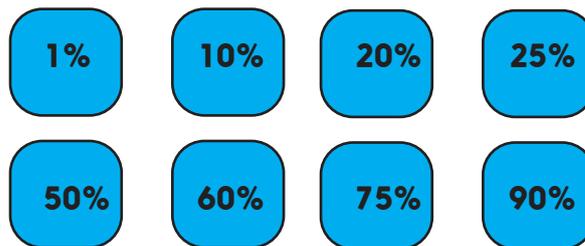
100%

Investigation

Percentage professionals

What to do:

- o Take an A4 piece of paper. Fold it in half, half again, half again and half again.
- o Open it. There should be 16 sections.
- o In the top 8 sections, write the following percentages:



- o In the other 8 sections, write a fraction equivalent to each of the percentages (you'll need $\frac{1}{100}$, $\frac{1}{10}$, $\frac{1}{5}$, $\frac{1}{4}$, $\frac{1}{2}$, $\frac{3}{5}$, $\frac{3}{4}$ and $\frac{9}{10}$).
- o Now cut up the sheet so you have 16 cards.

Try this...

- Without looking, remove one of the 16 cards.
- Spread out the remaining 15.
- How quickly can you figure out which one is missing?
- Repeat several times.
- Try removing 2 cards.

.. or play this game of *Percentage Pelmanism*

- Turn over all of the 16 cards and arrange in a 4 by 4 grid.
- Choose two cards to turn over.
- If they are a pair of equivalent fractions/percentages, keep them; if not, turn them over and choose two more.
- How many turns does it take to find all 8 pairs?

Challenge

Challenge an adult to play this game – take turns choosing two cards. The winner is the person who finds the most pairs!