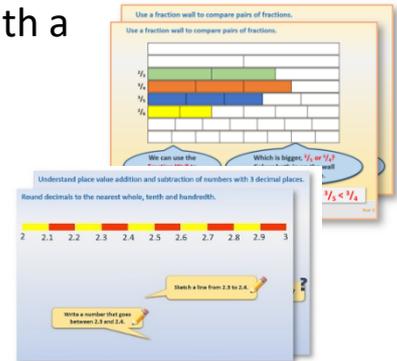


Week 8, Day 3

Use equivalent fractions to find percentages.

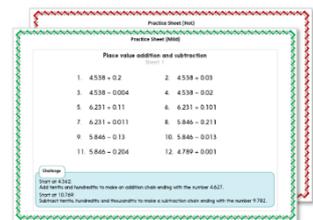
Each day covers one maths topic. It should take you about 1 hour or just a little more.

1. If possible, watch the **PowerPoint presentation** with a teacher or another grown-up.



OR start by carefully reading through the **Learning Reminders**.

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

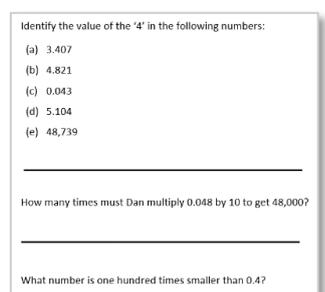


3. Finding it tricky? That's OK... have a go with a grown-up at **A Bit Stuck?**



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

5. Have I mastered the topic? A few questions to **Check your understanding**. Fold the page to hide the answers!



Learning Reminders

Use equivalent fractions to find percentages.

Unit fractions always have a numerator of 1, e.g. $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{10}$.

Remember we can find **unit fractions** of a number by dividing by the **denominator** (bottom number) of the fraction.

To find $\frac{1}{4}$ of 80 divide 80 by 4. $\frac{1}{4}$ of 80 = 20.

Non-unit fractions always have a **numerator** (top number) of more than 1, e.g. $\frac{3}{4}$, $\frac{2}{5}$, $\frac{7}{10}$.

Remember we can find **non-unit fractions** of a number by dividing by the denominator, then multiplying by the numerator of the fraction.

To find $\frac{2}{5}$ of 30 divide 30 by 5 then multiply by 2.
 $\frac{1}{5}$ of 30 = 6, $\frac{2}{5}$ of 30 = 12.

Learning Reminders

Use equivalent fractions to find percentages.

Hamilton Primary school has a £500 grant to spend to improve the outside space. All 200 children were asked to vote for what they would like. 50% voted for a wildlife pond, 25% voted for a climbing frame, and 25% voted for friendship benches.

We can use **equivalent fractions** to help find **percentages!**

How can we find 50% of 200?

50% is equivalent to $\frac{1}{2}$, so we can find $\frac{1}{2}$ of 200.

100 children voted for a wildlife pond.

How can we find 25% of 200?

25% is equivalent to $\frac{1}{4}$, so we can find $\frac{1}{4}$ of 200.

50 children voted for a climbing frame and 50 for friendship benches.

Learning Reminders

Use equivalent fractions to find percentages.

Moreton Primary also has £500 grant. They have 150 children. 10% voted for the friendship benches, 20% for a climbing frame and 70% for a wildlife pond.

How can we find
10% of 150?

10% is
equivalent to
 $\frac{1}{10}$, so we can
find $\frac{1}{10}$ of 150.

$\frac{1}{10}$ of 150 = $150 \div 10 = 15$.
15 children voted for
friendship benches.

To find 20% double the answer for
10%. Double 15 = 30.
30 children voted for a climbing
frame.

To find 70% multiply the answer for
10% by 7. $15 \times 7 = 105$.
105 children voted for a wildlife
pond.

Practice Sheet Mild

Comparing percentages

The following new woodlands have been planted:

Burley Common

100 trees

50% oak, 20% ash, 15% beech, 15% willow

Merttens Meadow

300 trees

20% oak, 20% hazel, 40% willow, 20% beech

Chidgey Common

200 trees

40% oak, 30% beech, 10% ash, 20% sweet chestnut

Holes Hollow

200 trees

25% oak, 10% hazel, 20% willow, 15% beech, 30% ash

Calculate how many trees of each type there are in each of the four woodlands.

Practice Sheet Hot

Comparing percentages

The following new woodlands have been planted:

Burley Common

100 trees

50% oak, 20% ash, 15% beech, 15% willow

Merttens Meadow

150 trees

20% oak, 20% hazel, 40% willow, 20% beech

Chidgey Common

200 trees

40% oak, 30% beech, 10% ash, 20% sweet chestnut

Holes Hollow

120 trees

25% oak, 10% hazel, 15% willow, 30% beech, 20% ash

Calculate how many trees of each type there are in each of the four woodlands.

Challenge

In Weston Wood, there are 280 trees, as follows:

14 holly

126 lime

84 beech

56 silver birch.

What percentages do these numbers represent?

Practice Sheets Answers

Comparing percentages (mild)

Burley Common has:

50 oak, 20 ash, 15 beech and 15 willow.

Merttens Meadow has:

60 oak, 60 hazel, 120 willow and 60 beech.

Chidgey Common has:

80 oak, 60 beech, 20 ash and 40 sweet chestnut.

Holes Hollow has:

50 oak, 20 hazel, 40 willow, 30 beech and 60 ash.

Comparing percentages (hot)

Burley Common has:

50 oak, 20 ash, 15 beech and 15 willow.

Merttens Meadow has:

30 oak, 30 hazel, 60 willow and 30 beech.

Chidgey Common has:

80 oak, 60 beech, 20 ash and 40 sweet chestnut.

Holes Hollow has:

30 oak, 12 hazel, 18 willow, 36 beech and 24 ash.

Challenge

14 holly = 5%

126 lime = 45%

84 beech = 30%

56 silver birch = 20%

A Bit Stuck?

Linking fractions and division

$40 \div 5 = \boxed{}, \text{ so}$

$\frac{1}{5}$ of 40 is

$\frac{4}{5}$ of 40 is

$40 \div 10 = \boxed{}, \text{ so}$

$\frac{1}{10}$ of 40 is

$\frac{7}{10}$ of 40 is

$\frac{3}{10}$ of 40 is

$40 \div 8 = \boxed{}, \text{ so}$

$\frac{1}{8}$ of 40 is

$\frac{5}{8}$ of 40 is

$\frac{8}{8}$ of 40 is

A Bit Stuck? Answers

Linking fractions and division

$$40 \div 5 = 8, \text{ so}$$

$$40 \div 10 = 4, \text{ so}$$

$$40 \div 8 = 5, \text{ so}$$

$$\frac{1}{5} \text{ of } 40 \text{ is } 8$$

$$\frac{1}{10} \text{ of } 40 \text{ is } 4$$

$$\frac{1}{8} \text{ of } 40 \text{ is } 5$$

$$\frac{4}{5} \text{ of } 40 \text{ is } 32$$

$$\frac{7}{10} \text{ of } 40 \text{ is } 28$$

$$\frac{5}{8} \text{ of } 40 \text{ is } 25$$

$$\frac{3}{10} \text{ of } 40 \text{ is } 12$$

$$\frac{8}{8} \text{ of } 40 \text{ is } 40$$

Investigation

Percentage puzzles

1. Find 10% of £40.
Find 40% of £10.
Compare these amounts.
2. Find 20% of £60.
Find 60% of £20.
Compare these amounts.
3. Find 15% of £50.
Find 50% of £15.

Discuss what you have noticed.
Can you explain this?

Find the matching question for each of these:

25% of £40
? % of £?

30% of £90
? % of £?

5% of £50
? % of £?

Challenge

A shopkeeper has some coats he wants to sell. He can give each coat a price anywhere between £30 and £100 but he must make sure he sells each coat for at least £40. If he wants it to look good, what is the best way of advertising a percentage reduction?

Check your understanding

Questions

Is 10% larger or smaller than $\frac{1}{5}$? Explain your answer with a picture or calculation.

Write the missing percentage in each of the bar models:

60 children		
Walk 20%	Cycle 50%	Drive ?

24 children	
Crisps 75%	Fruit ?

Now write the numbers of children in each category.

Write 10% of each price, then calculate 40% of each price.

£3.40

£12.00

£9.90

£5.10

Check your understanding

Answers

Is 10% larger or smaller than $\frac{1}{5}$?

10% means 10 out of 100, or 1 in every 10. 10% is smaller than $\frac{1}{5}$, which is the same as 1 in every 5. Would you rather have 10% or $\frac{1}{5}$ of £100?

Write the missing percentage in each of the bar models:

60 children		
Walk 20%	Cycle 50%	Drive 30%

24 children	
Crisps 75%	Fruit 25%

The percentages should total 100.

Now write the numbers of children in each category.

60 children		
Walk 12	Cycle 30	Drive 18

24 children	
Crisps 18	Fruit 6

Write 10% of each price, then work out 40% of each price.

£3.40

£5.10

£12.00

£9.90

£3.40 10% = £0.34 (or 34p), so 40% = £1.36

£5.10 10% = £0.51 (or 51p), so 40% = £2.04

£12.00 10% = £1.20, so 40% = £4.80

£9.90 10% = £0.99 (or 99p), so 40% = £3.96