



Year 6: Autumn term 2

Topics studied this half term:

- Fractions, decimals and percentages

Within fractions, decimals and percentages, your children will be learning to:

- Calculate with decimals with up to three decimal places
- Multiply and divide integers and decimals by 10, 100 and 1000
- Multiply and divide decimals by integers
- Use division to solve problems
- Convert from decimals to fractions
- Convert from fractions to decimals
- Convert from fractions to percentages
- Identify equivalent fractions, decimals and percentages
- Order fractions, decimals and percentages
- Find a percentage of an amount
- Use percentages to find missing values

Tips for good homework habits:

Choose a quiet place to work, preferably sitting at a table, where your child can work comfortably without being disturbed.

Fractions

HERE'S THE MATHS

Your child is practising adding and subtracting fractions with different denominators and mixed numbers, using the concept of equivalent fractions. In order to add or subtract fractions, they need to be changed to an equivalent fraction with the same denominator,

e.g. $\frac{1}{3} + \frac{3}{8} = \frac{8}{24} + \frac{9}{24} = \frac{17}{24}$. Answers are best expressed in their simplest form,

e.g. an answer of $\frac{6}{8}$ should be simplified to $\frac{3}{4}$.

ACTIVITY

1 $\frac{1}{4}$	2 $\frac{4}{5}$	3 $\frac{3}{8}$	4 $\frac{7}{8}$
5 $\frac{1}{8}$	6 $\frac{3}{5}$	7 $\frac{1}{2}$	8 $\frac{5}{8}$
9 $\frac{1}{5}$	10 $\frac{3}{4}$	11 $\frac{2}{5}$	12 $\frac{3}{2}$

What to do

- One person shuffles the cards, and turns over 3 cards. In the table above, they find the fraction represented by the cards. They add the fractions by finding a common denominator and simplifying the answer if possible.
- The second person checks the addition.
- Change roles. Repeat twice more.
- Keep a note of all 6 answers.
- Race one another to put the fractions in increasing order.

You will need:

- pack of playing cards with the Kings removed (Jack represents 11, Queen 12)

QUESTIONS TO ASK

What is an improper fraction? (*fraction with the numerator bigger than the denominator*)

Change $\frac{14}{4}$ to a mixed number in its simplest form. ($\frac{31}{2}$)

Simplify $\frac{9}{45} \cdot \left(\frac{1}{5}\right)$

Fractions

HERE'S THE MATHS

Your child is learning to multiply simple pairs of fractions, writing the answer in its simplest form. To multiply fractions, multiply the numerators of the fractions to find the new numerator and multiply the denominators of the fractions to find the new denominator. To remember the method, it can help to carry out the simplest possible calculation, i.e. $\frac{1}{2} \times \frac{1}{2}$ because this is easy to visualise as $\frac{1}{4}$. To reduce or simplify a fraction, you need to find the common factors of the numerator and denominator, e.g. $\frac{9}{15}$: the common factor of 9 and 15 is 3 so it can be simplified to $\frac{3}{5}$.

ACTIVITY

What to do

- Take turns to generate fractions to multiply.
- Roll the dice to make a proper fraction (if they are the same, re-roll one dice), e.g. 4 and 3 gives $\frac{3}{4}$.
- Roll them again to give a second fraction, e.g. 5 and 2 gives $\frac{2}{5}$.
- Multiply the pair of fractions, e.g. $\frac{3}{4} \times \frac{2}{5} = \frac{6}{20}$.
- Simplify the answer: $\frac{6}{20} = \frac{3}{10}$.
- Put the answer on a number line from 0 to 1.
- The largest and the smallest fractions are the winning ones. If you have one each, it's a draw!

You will need:
• two 1–6 dice

Variation

- Use digit cards 1–9 to increase the range of possible fractions.

QUESTIONS TO ASK

What is $\frac{1}{4}$ of $\frac{1}{2}$? ($\frac{1}{8}$)

Calculate $\frac{1}{2} \times \frac{3}{5} \cdot (\frac{3}{10})$

What is $\frac{6}{10} \times \frac{2}{3}$ in its simplest form? ($\frac{2}{5}$)

Fractions (including decimals and percentages)

HERE'S THE MATHS

Your child is learning to solve problems involving the calculation of percentages and the use of percentages for comparison. They should know that 1% is $\frac{1}{100}$, 10% is $\frac{1}{10}$, 25% is $\frac{1}{4}$, 50% is $\frac{1}{2}$, and 75% is $\frac{3}{4}$. To calculate 35% of an amount they can calculate 10%, multiply that by 3 and add half of 10%. Another way would be to find the value of 1% and multiply that by 35.

ACTIVITY

Player 1	Player 2
<input type="text"/> <input type="text"/> % of <input type="text"/> <input type="text"/> 0 0	<input type="text"/> <input type="text"/> % of <input type="text"/> <input type="text"/> 0 0

You will need:

- 0–9 digit cards from a pack of playing cards (use Jacks to represent zero)
- pencil and paper

What to do

- Player 1 shuffles the cards and turns over four cards to fill the spaces.
- Calculate the percentage, using an appropriate method.
- Player 2 has a turn.
- The player with the larger number scores a point.
- Repeat with new cards.
- The winner is the first person to reach 5 points.

Variation

- To make it easier, find 1-digit percentages of a 3-digit number using:
 % of 0

QUESTIONS TO ASK

What is 1% of 570? (5.7)

How would you find 15% of 340? What is the answer? (51)

How would you find 35% of 280? What is the answer? (98)

Which is bigger? 25% of 300 or 40% of 200? (40% of 200 = 80 whereas 25% of 300 is 75)

What percentage is 30 of 150? (20%)