

Number

Spring Term

Fractions

Topics

- Fractions of amounts
- Equivalent fractions
- Fraction operations

What do I need to be able to do?

- Find equivalent fractions
- Find a fraction of an amount
- Multiply, divide, add and subtract fractions with the same and different denominators

Key Vocabulary

Fraction	A numerical quantity that is not a whole number
Numerator	The number above the line in a fraction
Denominator	The number below the line in a fraction
Whole	A number without a fractional part
Equivalent	The same as (equal to)
Product	Multiply together
Mixed Number	A number that has a whole part and a fractional part
Quotient	A division

Career Links

Being able to confidently work with numbers is a great skill to have and has lots of links with a number of careers such as:

- Accountancy/banking
- Insurance
- Chef
- Construction
- Hairdressing

4 Rules Fractions

+ $\frac{3}{5} + \frac{2}{7}$
 Make the denominators the same
 $\frac{3}{5} + \frac{2}{7} = \frac{3 \times 7}{5 \times 7} + \frac{2 \times 5}{7 \times 5} = \frac{21}{35} + \frac{10}{35} = \frac{31}{35}$

- $\frac{3}{5} - \frac{2}{7}$
 $\frac{3}{5} - \frac{2}{7} = \frac{3 \times 7}{5 \times 7} - \frac{2 \times 5}{7 \times 5} = \frac{21}{35} - \frac{10}{35} = \frac{11}{35}$

× $\frac{3}{5} \times \frac{2}{7}$
 Just multiply the tops and bottoms
 $\frac{3}{5} \times \frac{2}{7} = \frac{3 \times 2}{5 \times 7} = \frac{6}{35}$

÷ $\frac{3}{5} \div \frac{2}{7}$
 Flip the second fraction and change to a times
 $\frac{3}{5} \times \frac{7}{2} = \frac{21}{10}$

Mixed numbers

These are made up of a whole number and a fraction.

$$4 \frac{3}{5}$$

$$= \frac{4 \times 5 + 3}{5}$$

$$= \frac{23}{5}$$

$$\frac{1}{4} = \frac{2}{8} = \frac{3}{12} = \frac{4}{16}$$



Fraction Grid.

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

Year 7 –
Knowledge
Organiser



Definition

Characteristics

Word

Examples

Non-Examples

Topics

- Algebraic Vocabulary
- Simplifying – addition/subtraction
- Index laws

What do I need to be able to do?

- Identify an expression/equation/formula/identity from a list
- Manipulate and simplify algebraic expressions by collecting 'like' terms
- Use index notation and the index laws

ALGEBRA

Spring term

Algebra 1

Key Vocabulary

Expression	Numbers, symbols and operators (such as + and ×) grouped together that show the value of something
Equation	An equation says that two things are equal. It will have an equals sign "="
Identity	An equation that is true no matter what values are chosen
Formula	A rule or fact written with mathematical symbols
Simplify	In general, an expression is in simplest form when it is easiest to use
Index	The index of a number says how many times to use the number in a multiplication
Like terms	Terms whose variables (such as x or y) with any exponents (such as the 2 in x^2) are the same

Career Links

Being able to confidently work with numbers is a great skill to have and has lots of links with a number of careers such as:

- Accountancy/banking
- Insurance
- Chef
- Construction
- Hairdressing

$$4x^2 + 3xy - 14x + 7xy + x^2$$
$$5x^2 + 10xy - 14x$$

Index Laws

Simplify the following: $a^3 \times a^4$

If we start by writing it out in full:

$$a^3 = a \times a \times a$$

$$a^4 = a \times a \times a \times a$$

$$\therefore a \times a \times a \times a \times a \times a \times a = a^7$$

To multiply together two identical values or variables (letters) that are presented in index form, add the powers.

Simplify the following:

$$\frac{m^5}{m^3}$$

If we start by writing it out in full:

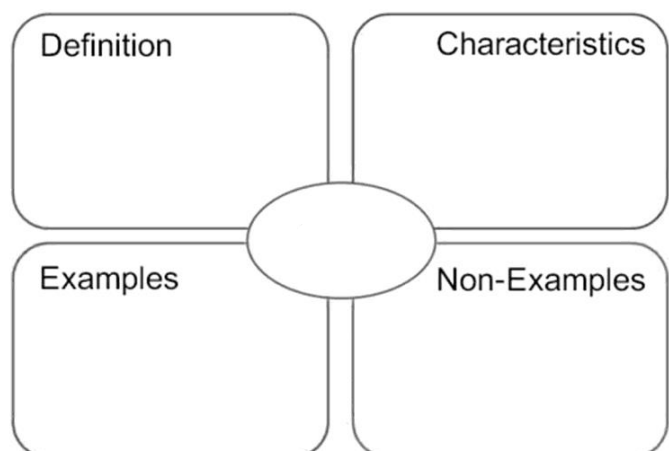
$$m^5 = m \times m \times m \times m \times m$$
$$m^3 = m \times m \times m \times m \times m$$
$$\therefore \frac{m \times m \times m \times m \times m}{m \times m \times m} = m^2$$

To divide two identical values or variables (letters) that are presented in index form, subtract the powers

Simplify the following:

$$(m^7)^3 = m^{21} \quad (n^6)^{-4} = n^{-24}$$

To raise a value or variable (letter) presented in index form to another index, multiply the powers together



Year 7 – Knowledge
Organiser

