Year 6 Maths Knowledge Organiser - Spring 1

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Key Vocabulary

- decimal
- fraction
- equivalent
- integer
- tenths
- hundredths
- thousandths
- numerator
- denominator
- colon
- quantity
- percentage
- convert
- value

Three Decimal Places

"There are 2 ones, 1 tenth, 3 hundredths and 6 thousandths. The number is 2.136"

Multiply and Divide by 10, 100 and 1,000

When we multiply by 10, each digit moves 1 place to the left. When we multiply by 100, each digit moves 2 places to the left. When we multiply by 1,000 each digit moves 3 places to the left.

0.824 × 1,000 = 824

100s	10s	1s	0.1s	0.01s	0.001s
		0	8	2	4
8	2	4			

When we divide by 10, 100 and 1,000 each digit moves the same number of places to the right.

759 ÷ 1,000 = 0.759

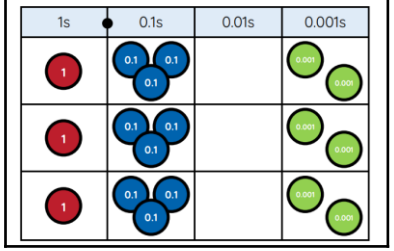
100s	10s	1s	0.1s	0.01s	0.001s
7	5	9			
		0	7	5	9

We use 0 as a place holder where needed.

Multiply Decimals by Integers

Concrete resources can help us to multiply decimals with integers.

1.302 × 3 = 3.906



Divide Decimals by Integers

Concrete resources can help us to divide decimals with integers.

4.084 ÷ 2 = 2.042

We can also divide using written methods and apply our skills in context. This example links to the measure of length.

Percentage of an amount

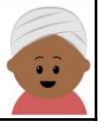
We can apply our knowledge of fraction equivalences to find percentages of amounts.

50% is equivalent to one half, so to find 50% of an amount, we divide by 2.

25% is equivalent to one quarter, so to find 25% of an amount, we divide by 4.

10% is equivalent to one tenth, so to find 10% of an amount, we divide by 10.

How would you find 5% of 240?



"To find 5% of 240, we first find 10% (240 ÷ 10 = 24) then divide by 2 (24 ÷ 12). To find 15% of an amount, we can add 10% and 5% together."

Ordering Fractions, Decimals and Percentages

We can convert between fractions, decimals and percentages to compare and order them.

"Convert each number to the same form so that you can put them in order more easily."

Let's order the amounts from smallest to largest, using percentages:

$\frac{4}{5}$ 0.9 65%

$\frac{4}{5} = \frac{80}{100} = 80\%$ 0.9 = 90%

65% < 80% < 90% so the correct order is:

65% $\frac{4}{5}$ 0.9

Calculate Ratio

We can build on our understanding of ratio by calculating ratios for different purposes.

A gardener plants some flowers. For every 2 pansies, she plants 5 tulips. She plants 28 flowers in total.

To work out the number of each flower that is planted, we first need to find the total number of 'parts' in the ratio.

2 + 5 = 7 so there are 7 'parts'

$\frac{2}{7}$ are pansies and $\frac{5}{7}$ are tulips.

Next, we divide the total by the number of parts.

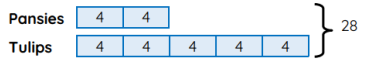
28 ÷ 7 = 4 so each 'part' is worth 4

Now, we multiply the value of each part by each number in the ratio.

There are 8 pansies because 4 × 2 = 8.

There are 20 tulips because 4 × 5 = 20.

Bar models can help us to visualise the calculation.



A baker mixes 3 parts of flour with 2 parts of sugar in a cake recipe. He uses 18 parts of flour in total.

To work out the parts of sugar used, we first divide the number of parts used for the flour by the number representing flour in the ratio:

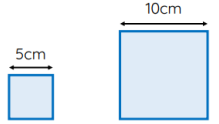
18 ÷ 3 = 6 so the number of parts is 6 × greater

We can then multiply the number representing sugar in the ratio by the same amount:

6 × 2 = 12 so 12 parts of sugar is used

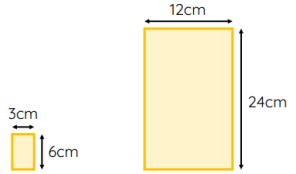
Scale Factors

We can enlarge shapes using scale factors. If we enlarge a shape by scale factor 2, for example, we would make it twice as big as shown below.



If we enlarge a shape by scale factor 3, we would make it 3 times as big, and so on...

We can use this knowledge to calculate the scale factor of similar shapes.

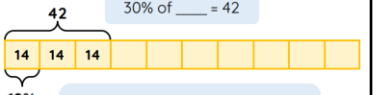


12 ÷ 3 = 4 and 24 ÷ 6 = 4 so the shape has been enlarged by scale factor 4

"It is important to know that the word 'similar' in this context means that the bigger shape is an exact enlargement of the smaller one."

Find Missing Values

Now, we can find the missing whole when other values are given. Bar models can be used to help.



30% of ____ = 42

42 ÷ 3 = 14 and 30% ÷ 3 = 10%
10% × 10 = 100% so 14 × 10 = 140
30% of **140** = 42

Convert Fractions to Percentages

Percent means 'out of 100'. We can find equivalent fractions with a denominator of 100 to help us convert fractions to percentages.

$\frac{7}{25} = \frac{28}{100} = 28\%$ $\frac{18}{50} = \frac{36}{100} = 36\%$

Remember, we need to multiply the numerator and the denominator by the same amount.

Equivalent Fractions Decimals and Percentages

Now, we can use our knowledge of equivalent fractions and decimals to find equivalent percentages.

$0.29 = \frac{29}{100} = 29\%$ $0.07 = \frac{7}{100} = 7\%$

Fraction	Decimal	Percentage
$\frac{1}{100}$	0.01	1%
$\frac{1}{20}$	0.05	5%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{2}$	0.5	50%
$\frac{3}{4}$	0.75	75%
1	1	100%
$\frac{2}{5}$	0.4	40%
$\frac{4}{5}$	0.8	80%

Year 6 English Knowledge Organiser - Spring 1

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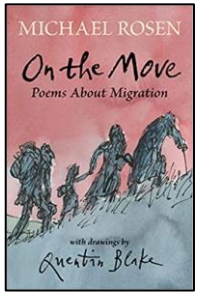
Core Texts

The Arrival
Shaun Tan



On the Move
Michael Rosen

Little Leaders
Vashti Harrison

Features of Text Type: Multi-Text Storytelling

Multi-Text (or epistolary) narratives are stories that are told using a variety of different text types in addition to, or instead of, the typical narrative conventions.

Texts such as diary entries and letters are used to add realism to a narrative by mirroring 'real-life' character behaviours. The use of different text types allows the author to bring another dimension to the storytelling – for example by adding a sub-plot; by expressing raw and honest emotions from the first-person viewpoint of the characters; and by allowing the reader to hear from different perspectives.

Features of Text Type: Poems

Structure – lines of poetry are usually structured into verses or stanzas. Each line in poetry often starts with a capital letter.

Rhythm – the rhythmic structure of a poem is called the metre.

Rhyme – some poems use rhyme to contribute to rhythm and to engage the listener.

Language – in poetry, vocabulary is carefully selected to create imagery and for maximum impact on the audience. Poetic devices can be used to intensify meaning, mood and rhythm.

Features of Text Type: Biographies

The primary purpose of a biography is to **inform** the reader about the subject. Biographies often also **entertain** with anecdotes and expressions of emotions.

Both biography and autobiography **recount** the key events of a person's life in report form. A biography is told through from a **third-person viewpoint.**

As a recount, a biography uses mostly **past tense verb forms**. Occasionally, the present tense is used to express the subject's current life or how they affect the present world.

cohesion within and across paragraphs:

e.g.

-**adverbials** signpost and guide the reader through the text
-**pronouns** relate back to previously mentioned nouns
-**conjunctions** link ideas within and across sentences.

An **introduction** draws the reader in, briefly summarising who the subject is and why they are a prominent or important figure.

The key events of the individual's life (or life so far) are told in **chronological order.** Sometimes, this order is interposed by a flashback or anecdote.

Key experiences and events are separated into **paragraphs** and elaborated with additional information, examples and explanation.

A **concluding paragraph** details how the person is or will be remembered if they are no longer alive, or where they are now and what they are doing/ will do in the future if still living.

The **passive voice** can be used in biography and autobiography to emphasise the importance of the subject and to create an impersonal tone.

Brackets, dashes and commas are used to create **parenthesis** *(adding additional information, explanation or afterthought to a sentence without affecting its sense or meaning).*

Relative clauses *(using the relative pronouns who, that, which, when, whose)* give the reader further detail about a noun.

Year 6 Science Knowledge Organiser - Spring 1

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Key Vocabulary

absorption	this is when the light waves are not reflected off an object
emit	produce and give off something. Sources of light, such as the Sun, emit light
iris	the coloured part of the eye that surrounds the pupil
luminous	something that gives off light
nonluminous	cannot produce light
lens	a part of the eye directly behind the pupil that helps focus light rays on the back of the eye
longsighted	being able to see things that are far away clearly, but not things that are near
short sighted	being able to see things close to you clearly, but not things that are far away
periscope	an instrument made of a tube and mirrors that allow you to see things that are otherwise out of sight, such as around corners or over obstacles.
pupil	the round black area in the centre of the eye
visible spectrum	the range of colours that we can see when white light is separated.

Why do shadows form?

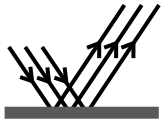
Light travels in straight lines.

A shadow forms because the object blocks the light rays and prevents them from passing through the object. The shadow that forms will be the same shape as the object that casts it. Ray diagrams explain how shadows form.

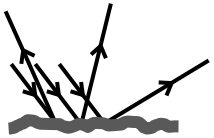
Reflection

When light bounces off the surface of an object, this is called reflection.

On a flat surface, all light meeting a surface from one direction will be reflected in the same direction. This is known as **specular reflection.**



On a rough surface, light will be reflected in all directions. This is known as **diffuse reflection**



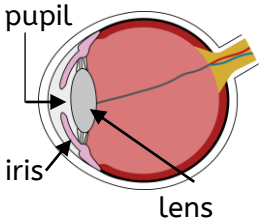
The Eye

Light enters the eye through the pupil.

The size of the pupil – and so how much light can enter – is controlled by the iris, which is the coloured part of the eye.

As the iris gets bigger, the pupil gets smaller.

Light is focused on the back of the eye by the lens, which is a transparent disc.



Colour Vision

Humans can see in colour because white light is made up of a **spectrum** of colours.

We can see these colours if we pass white light through a prism.

A coloured object appears coloured because it **reflects** that light and **absorbs** the others.

Black objects **absorb** all light and white objects **reflect** all light.