

# Year 6 Maths Knowledge Organiser - Spring 1



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.

$$0.824 \times 1,000 = 824$$

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

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

$$759 \div 1,000 = 0.759$$

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

We use 0 as a place holder where needed.

## Multiply Decimals by Integers

Concrete resources can help us to multiply decimals with integers.

$$1.302 \times 3 = 3.906$$

1s	0.1s	0.01s	0.001s
1	0.1	0.1	0.001
1	0.1	0.1	0.001
1	0.1	0.1	0.001

$65\% < 80\% < 90\% \text{ so the correct order is: } 65\%, \frac{4}{5}, 0.9$

## Divide Decimals by Integers

Concrete resources can help us to divide decimals with integers.

1	1	0.01	0.01	0.01	0.01
1	1	0.01	0.01	0.01	0.01
1	1	0.01	0.01	0.01	0.01

$4.084 \div 2 = 2.042$

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% ( $240 \div 10 = 24$ ) then divide by 2 ( $24 \div 2 = 12$ ). 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%
$\frac{4}{5} = \frac{80}{100} = 80\%$	$0.9 = 90\%$	

$65\% < 80\% < 90\% \text{ so the correct order is: } 65\%, \frac{4}{5}, 0.9$

## 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.

$2 + 5 = 7 \text{ so there are 7 'parts'}$   
 $\frac{2}{7} \text{ are pansies and } \frac{5}{7} \text{ are tulips.}$

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

$28 \div 7 = 4 \text{ so each 'part' is worth 4}$

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

There are 8 pansies because  $4 \times 2 = 8$ .  
There are 20 tulips because  $4 \times 5 = 20$ .

Bar models can help us to visualise the calculation.

Pansies: 4 4  
Tulips: 4 4 4 4 4 } 28

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

## 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.

$12 \div 3 = 4 \text{ and } 24 \div 6 = 4 \text{ so the shape has been enlarged by scale factor 4}$

"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.

$30\% \text{ of } \underline{\quad} = 42$

14 14 14 } 42  
10% 42  $\div 3 = 14$  and  $30\% \div 3 = 10\%$   
 $10\% \times 10 = 100\%$  so  $14 \times 10 = 140$   
 $30\% \text{ of } 140 = 42$

## 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.

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

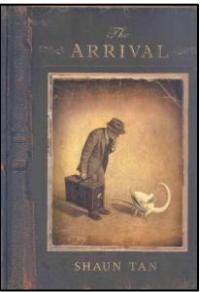
Remember, we need to multiply the numerator and the denominator by the same amount.

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%

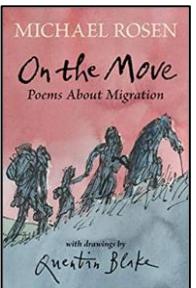
# Year 6 English Knowledge Organiser - Spring 1



## 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 subplot; 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.

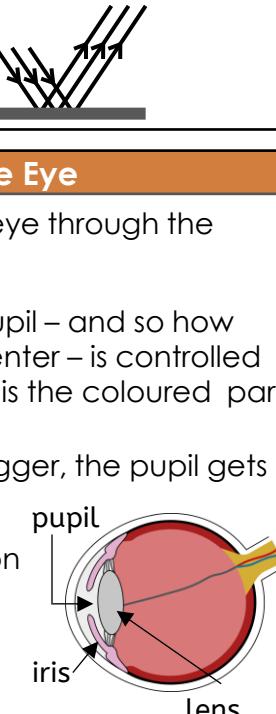
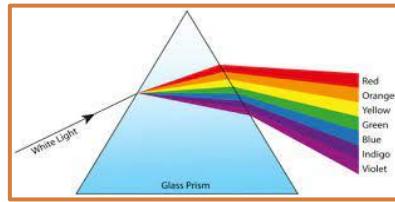
-**adverbials** signpost and guide the reader through the text  
-**pronouns** relate back to previously mentioned nouns  
-**conjunctions** link ideas within and across sentences.

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

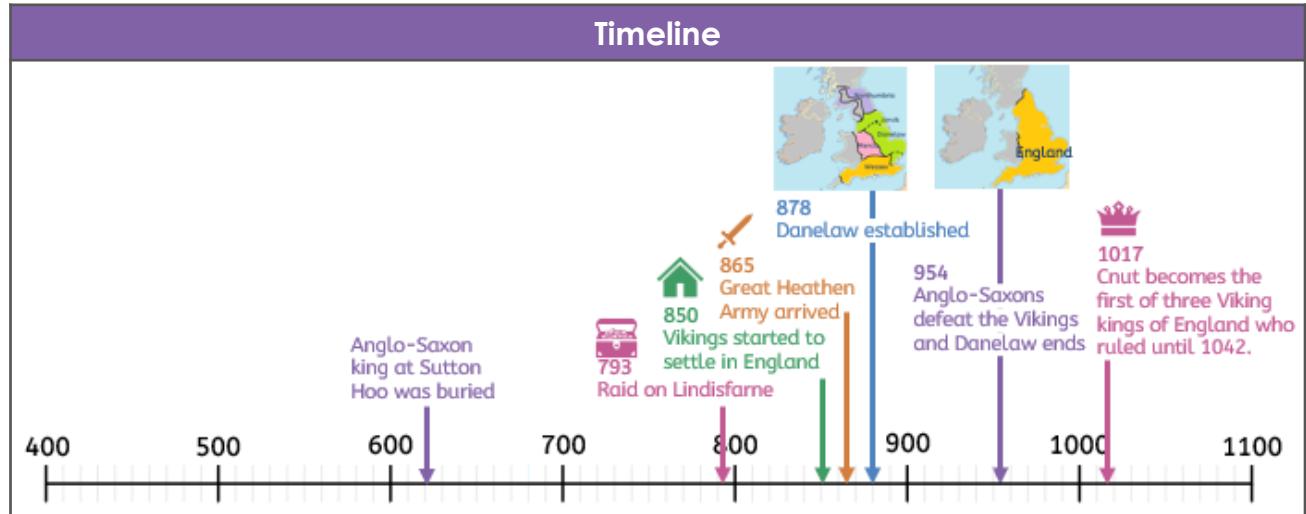


Key Vocabulary		Why do shadows form?	Reflection	The Eye	Colour Vision
<b>absorption</b>	this is when the light waves are not reflected off an object	Light travels in straight lines.	On a flat surface, all light meeting a surface from one direction will be reflected in the same direction. This is known as <b>specular reflection</b> .	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.	Humans can see in colour because white light is made up of a <b>spectrum</b> of colours. We can see these colours if we pass white light through a prism. A coloured object appears coloured because it <b>reflects</b> that light and <b>absorbs</b> the others.
<b>emit</b>	produce and give off something. Sources of light, such as the Sun, emit light	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.	On a rough surface, light will be reflected in all directions. This is known as <b>diffuse reflection</b>		
<b>iris</b>	the coloured part of the eye that surrounds the pupil	When light bounces off the surface of an object, this is called reflection.			
<b>luminous</b>	something that gives off light				
<b>nonluminous</b>	cannot produce light				
<b>lens</b>	a part of the eye directly behind the pupil that helps focus light rays on the back of the eye				
<b>longsighted</b>	being able to see things that are far away clearly, but not things that are near				
<b>short sighted</b>	being able to see things close to you clearly, but not things that are far away				
<b>periscope</b>	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.				
<b>pupil</b>	the round black area in the centre of the eye				
<b>visible spectrum</b>	the range of colours that we can see when white light is separated.				

# Year 6 History Knowledge Organiser - Spring 1



Key Vocabulary	
<b>Danelaw</b>	the part of Britain that was controlled by the Vikings from 878 to 954
<b>Lindisfarne</b>	a small island off the northeast coast of England, which was once home to a monastery that was raided by the Vikings in 793
<b>longhouse</b>	a Viking house
<b>longship</b>	Viking ships that were long and shallow, and so easy to sail and to travel up rivers
<b>Norse</b>	someone who comes from Scandinavia / describing something that comes from Scandinavia
<b>raid</b>	to surprise an enemy with an attack, and often to steal from them
<b>Scandinavia</b>	a group of countries in northern Europe that includes Denmark, Norway and Sweden
<b>thing</b>	a Viking assembly that was the system of administration and justice



Key Knowledge	
<ul style="list-style-type: none"> <li>The Vikings were groups of people from Scandinavia who were most active in 9th and 10th centuries. Most were farmers who lived in longhouses.</li> <li>The Vikings were very successful sailors and sailed in longships all around Europe and Asia and as far as North America.</li> <li>The Vikings believed in multiple gods, like Odin, Thor and Loki. They believed these gods lived in Asgard.</li> <li>The Vikings believed in an afterlife for warriors called Valhalla, which would end one day. They were buried with grave goods that could be used in Valhalla.</li> <li>The Vikings gradually converted to Christianity</li> <li>The Vikings made and traded goods across Europe and beyond, and they participated in a slave trade</li> <li>The Vikings could be presented as violent warriors or noble explorers, depending on who was writing and when. But really, not all Vikings were the same and, in reality, they probably had bits of brutal and bits of peaceful!</li> </ul>	