


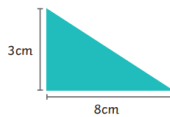
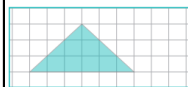




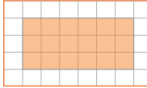
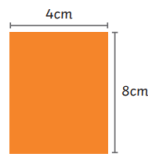
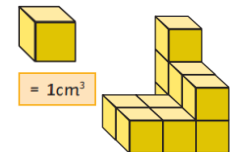

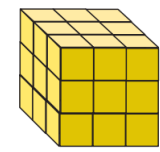
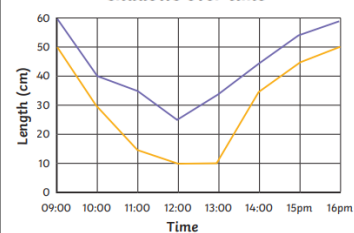


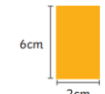
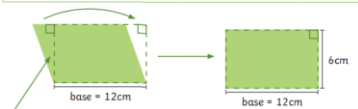



# Year 6 Maths Knowledge Organiser - Spring 2



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Key Vocabulary	<h3>Find a rule</h3> <p>Function machines perform operations on an input to produce an output. We can use function machines with one step:</p> <p>input <math>\rightarrow</math> <math>\times 7</math> <math>\rightarrow</math> output</p> <p>We can use function machines with more than one step:</p> <p>input <math>\rightarrow</math> <math>\times 7</math> <math>\rightarrow</math> <math>+ 5</math> <math>\rightarrow</math> output</p> <p>If we know the input to this two-step function machine, we can calculate the output.</p> <p> "If the input is 6, then the output is 47 because <math>6 \times 7 = 42</math> and <math>42 + 5 = 47</math>"</p> <p>If we know the output, we can calculate the input by using inverse operations.</p> <p> "If the output is 26, then the input is 3 because <math>26 - 5 = 21</math> and <math>21 \div 7 = 3</math>"</p>	<h3>Formulae</h3> <p>A formula is a way to represent calculations. It is a factor or rule that uses mathematical symbols.</p> <p>It usually has an equals sign and two or more algebraic values.</p> <p>Some formulae are used for different areas of mathematics. For example...</p> <p>perimeter of rectangle = <math>(2 \times \text{length}) + (2 \times \text{width})</math></p> <p><math>P = 2l + 2w</math></p> <p>We can also use formulae to work out values in everyday contexts.</p> <p> "My older sister has a part time job. She gets paid £5 per hour and works 4 hours over the weekend."</p> <p><math>P = \text{pay}</math> <math>h = \text{number of hours}</math></p> <p><math>P = £5 \times h</math> <math>£20 = £5 \times 4</math></p>	<h3>Find Pairs of Values</h3> <p>Our knowledge of substitution can be used to find the possible values of pairs of values. It is best to find one of the possible values first then work out what the other value would be.</p> <p>A trial and improvement approach can be used but working systematically is much more efficient.</p> <p><math>a - b = 3</math></p> <p>Here are three possible solutions:</p> <table><tr><th>a</th><th>b</th></tr><tr><td>10</td><td>7</td></tr><tr><td>9</td><td>6</td></tr><tr><td>8</td><td>5</td></tr></table> <p>Now, we can explore equations with multiples of one or more unknown values. There may also be rules for the values which restrict the possibilities.</p> <p><math>2c + 8 = d</math></p> <p>c is an odd number; d is a multiple of 10</p> <p>Here are three possible solutions:</p> <table><tr><th>c</th><th>d</th></tr><tr><td>1</td><td>10</td></tr><tr><td>11</td><td>30</td></tr><tr><td>21</td><td>50</td></tr></table>	a	b	10	7	9	6	8	5	c	d	1	10	11	30	21	50	<h3>Area of a Triangles</h3> <p>base <math>\times</math> perpendicular height <math>\div 2</math> = area of a triangle</p> <p> <math>8\text{cm} \times 3\text{cm} \div 2</math> area = <math>12\text{cm}^2</math></p> <p>perpendicular height = 5cm</p> <p><math>6\text{cm} \times 5\text{cm} \div 2</math> area = <math>15\text{cm}^2</math></p> <p> Counting squares: 6 whole squares = <math>6\text{cm}^2</math> 6 half squares = <math>3\text{cm}^2</math> <math>6\text{cm}^2 + 3\text{cm}^2 = 9\text{cm}^2</math> area = <math>9\text{cm}^2</math></p> <p>Using formula: <math>6\text{cm} \times 3\text{cm} \div 2 = 9\text{cm}^2</math></p>	<h3>Pie Charts</h3> <p>Pie charts represent discrete data.</p> <p>A circle is divided into segments, where each segment represents a data category. The size of each segment matches its proportion of the total amount.</p> <p>A pie chart to show children's favourite sports</p> <p> Key swimming netball football gymnastics</p> <p>24 children were asked in total.</p> <p>Swimming = <math>\frac{1}{2}</math> so <math>\frac{1}{2}</math> of 24 = 12 children</p> <p>Netball = <math>\frac{1}{4}</math> so <math>\frac{1}{4}</math> of 24 = 6 children</p> <p>Football = <math>\frac{1}{8}</math> so <math>\frac{1}{8}</math> of 24 = 3 children</p> <p>Gymnastics = <math>\frac{1}{8}</math> so <math>\frac{1}{8}</math> of 24 = 3 children</p>
a	b																				
10	7																				
9	6																				
8	5																				
c	d																				
1	10																				
11	30																				
21	50																				
algebra																					
formulae																					
express																					
equation																					
function																					
statistics																					
perimeter																					
area	<h3>Form Expressions</h3> <p>In addition to numerical inputs in function machines, we can use simple algebraic inputs.</p> <p>Instead of a given number, we can use a letter to represent the input, e.g. 'y'. If we need to multiply the input, we put the number we are multiplying by in front of the letter.</p> <p>input <math>\rightarrow</math> <math>\times 3</math> <math>\rightarrow</math> <math>+ 4</math> <math>\rightarrow</math> output</p> <p></p> <p>The expression to match the two-step function machine would be: <math>3y + 4</math></p>	<h3>One-Step Equations</h3> <p>We can build on our knowledge of forming expressions to form one-step equations.</p> <p>It is important to recognise and understand the difference between <b>expressions</b> such as <math>y + 4</math> (which can take different values depending on the value of y) and <b>equations</b> such as <math>y + 4 = 11</math> (where y has a specific value).</p> <p> "I think of a number. I add 6. My answer is 13."</p> <p><math>y + 6 = 13</math></p> <p>Now that we understand how equations are formed, we can solve one-step equations. We can use a balancing method with inverse operations.</p> <p>"y equals 7 because <math>13 - 6 = 7</math>"</p> <p></p>	<h3>Area of Rectangles</h3> <p>length <math>\times</math> width = area of a rectangle</p> <p> Counting squares: area = <math>18\text{cm}^2</math></p> <p>Use formula: <math>6\text{cm} \times 3\text{cm}</math> area = <math>18\text{cm}^2</math></p> <p> <math>8\text{cm} \times 4\text{cm}</math> area = <math>32\text{cm}^2</math></p>	<h3>Volume - Counting Cubes</h3> <p> = <math>1\text{cm}^3</math></p> <p> <math>11\text{cm}^3</math></p> <p> <math>27\text{cm}^3</math></p>	<h3>Volume - Counting Cubes</h3> <p>Line graphs are used to show changes to a measurement over time.</p> <p>Data shown in a line graph is continuous.</p> <p>A line graph to show the length of shadows over time</p> <p></p>																
volume																					
cubic units																					
cuboid																					
frequency table																					
continuous data																					
discrete data																					
interpret	<h3>Substitution</h3> <p>If we are given the value of the letters in an expression, we can substitute them to work out the value of the expression.</p> <p><math>a = 6</math> <math>b = 10</math> <math>c = \frac{1}{2}</math></p> <p><math>2a + b = 12 + 10 = 22</math></p> <p><math>4a - 8c = 24 - 4 = 20</math></p> <p>If we change the value of the letters, we need to substitute them again to work out the new value.</p>	<h3>Two-Step Equations</h3> <p>We can apply the same balancing method with inverse operation to solve two-step equations</p> <p><math>4y + 5 = 17</math></p> <p> <math>17 - 5 = 12</math> and <math>12 \div 4 = 3</math>, so <math>y = 3</math></p>	<h3>Perimeter of Rectangles</h3> <p>perimeter = length + width + length + width or <math>(\text{length} + \text{width}) \times 2</math></p> <p> <math>5\text{cm} + 4\text{cm} + 5\text{cm} + 4\text{cm}</math> area = <math>18\text{cm}^2</math></p> <p> <math>(6 + 2) \times 2</math> area = <math>16\text{cm}^2</math></p>	<h3>Area of Parallelograms</h3> <p>base <math>\times</math> perpendicular height = area of a parallelogram</p> <p>A parallelogram can be transformed into a rectangle.</p> <p> base = 12cm perpendicular height = 6cm <math>12\text{cm} \times 6\text{cm} = 72\text{cm}^2</math></p>	<h3>Volume of a Cuboid</h3> <p>length <math>\times</math> width <math>\times</math> height</p> <p> height length width</p>																

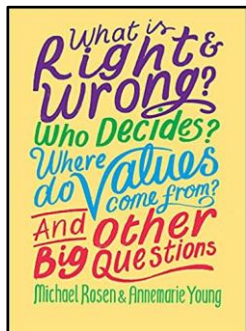


# Year 6 English Knowledge Organiser - Spring 2



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## Core Texts



**What is Right and Wrong? Who Decides? Where Do Values Come From? And Other Big Questions**  
Michael Rosen & Annemarie Young



**Moth: An Evolution Story/ Fox: A Circle of Life Story**  
Isabel Thomas

## Features of Text Type: Discussion

**Discussion texts** are designed to examine both sides of an argument impartially, carefully presenting information on different points of view.

In order to remain neutral and discuss the argument objectively, a **third person, impersonal voice** and a **formal tone** is used.

The **present tense** is usually used in discussion texts to reflect the fact that the subject is current and topical.

**Conjunctions** and **relative pronouns** are used to make logical connections and to provide evidence and justification.

Specific 'discussion language' is included, such as the use of **rhetorical questions** to engage the reader in the text; the use of **modal verbs** and **adverbs** to express degrees of possibility; and the use of specific phrases to introduce new points.

## Features of Text Type: Narrative Non-Fiction (About the texts)

Both 'Moth: An Evolution Story' and 'Fox: A Circle of Life Story' are narrative non-fiction picture books, written by award-winning science author, Isabel Thomas, and illustrated by Daniel Egnéus.

They each cleverly incorporate complex themes, scientific facts and technical vocabulary into a simple, memorable narrative, making them accessible, on different levels, to children of all ages.

The sparse, lyrical text engages the reader in the facts of the 'story', whilst the beautiful, muted illustrations and use of layout devices, add meaning, exemplifying the words in the text and providing additional detail.

## Features of Text Type: Narrative Non-Fiction

In line with the book's primary purpose of informing, the narrative contains facts and technical vocabulary.

In line with the book's primary purpose of informing, the narrative contains facts and technical vocabulary.

Sentence structures are simple, and vocabulary is precise and concise. Questions and interjections using imperative verbs, are used in lieu of dialogue to activate the reader's own thoughts and actively engage them in the text.

A wide range of literary devices (such as rhyme, repetition, simile, metaphor and onomatopoeia) are used to engage the reader in the text.

Hyphens are used to avoid ambiguity.

DEVICE	PURPOSE	EXAMPLE
Rhetorical questions	to engage the audience	'how would you feel if...?'
Emotive language	to 'tug on the heartstrings'	'poor, innocent creatures'
Repetition	to emphasise a point	'over and over again'
Rule of three	to emphasise a point	'reduce, reuse, recycle'
Statistics	to back up claims	'75% agree'

# Year 6 Science Knowledge Organiser - Spring 2



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## Key Vocabulary

<b>annelids</b>	annelids are animals that do not have a backbone
<b>arachnids</b>	arachnids are animals that do not have a backbone
<b>arthropods</b>	a group of animals that include insects, spiders, crustaceans and myriapods.
<b>bacteria</b>	micro-organisms that consists of just one cell. Some are harmful to our bodies, and some are not.
<b>classification</b>	sorting or grouping things according to their characteristics
<b>exoskeleton</b>	a skeleton that is on the outside of the body
<b>dichotomous key</b>	a set of questions that helps identify a living thing or which group it belongs to by answering questions about it.
<b>endoskeleton</b>	a skeleton that is on the inside of the body
<b>exoskeleton</b>	a skeleton that is on the outside of the body
<b>flowering plants</b>	plants that produce flowers that contain the sexual organs of the plant
<b>non-flowering plants</b>	plants that do not produce flowers. These include ferns, mosses and conifers
<b>fungi</b>	a type of organism – including mushrooms – that varies in shape and size, some are classed as micro-organisms
<b>virus</b>	a type of microorganism

## Invertebrates

Group	Features
Molluscs	Internal or external shell and a muscular foot
Echinoderms	Five-part symmetry often have a hard spiny covering
Sponges	No organs, very simple animals
Cnidaria	Distinct body shape (medusa or polyp) have nematocysts (stinging cells)
Annelid	Segmented body and movable bristles
Platyhelminthes	Flat bodies
Arthropods	Segmented bodies and exoskeletons There are four main types: Insects, arachnids, crustaceans and myriapods

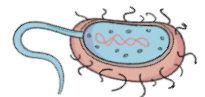
## Fungi

**Fungi** are different to plants and animals. They cannot make their own food (like animals) but cannot move (like plants) Some **fungi** are microorganisms (yeast), but not all are (mushrooms).



## Micro-organisms

Micro-organisms are organisms that are so small that we cannot see them with our eyes alone. Bacteria and viruses are examples of microorganisms. Some bacteria can cause disease. Others are helpful, like those that help break down food in our digestive system or the bacteria we use to make yoghurt and cheese.



# Year 6 Geography Knowledge Organiser - Spring 2



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## Key Vocabulary

<b>host country</b>	where people migrate to
<b>pull factor</b>	a reason for moving to a new place (which are usually social or economic)
<b>push factor</b>	a reason for moving away from a place
<b>source country</b>	where people migrate from
<b>describing people who migrate</b>	
<b>voluntary migrant</b>	someone who chooses to move from one place to another, usually for social or economic reasons
<b>internally-displaced person</b>	someone who has been forced to move from one place to another place in the same country
<b>asylum seeker</b>	someone who has been forced to move from one place to another place in a different country. They have not yet had their asylum claim approved.
<b>refugee</b>	someone who has been forced to move from one place to another place in a different country. They were an asylum seeker but have now had their claim approved
<b>emigrant</b>	someone who moves away from their country
<b>immigrant</b>	someone who moves to a new country
<b>types of migration</b>	
<b>internal/national</b>	movement from one place to another in the same country
<b>international</b>	movement from one country to another
<b>forced</b>	where the person has no choice but to leave their home for their own survival
<b>voluntary</b>	where the person could stay in their home but chooses to leave, usually for social and economic reasons

## Voluntary Migration

Migrants usually choose to migrate because of economic push and pull factors (e.g. wages, job opportunities) and social push and pull factors (e.g. crime rates, better schools).

From 2004, many Polish people migrated to the UK for jobs and higher wages. Now, Polish people are returning to Poland, partly because the Polish economy is stronger than it was.



## Forced Migration

People are forced to migrate either because of conflict and violence (e.g. war, persecution) or because of physical disasters (e.g. flood, storms, earthquakes) – or both.



Since 2011, war in Syria has forced 6.6m to leave Syria. Most now live in the neighbouring countries of Turkey, Lebanon, Jordan and Iraq. Some travel to Europe and to countries like UK. The UK grants refugee status to some asylum seekers.

## Benefits of Migration

For the **host** country, benefits include more people doing jobs that need doing (like in healthcare or education), more taxes going to the government, and a sharing of cultures (like food, festivals and music).

For the **source** country, benefits include some money being sent home by migrants, and the chance for some migrants to return with new skills, experiences and cultures.

