

# Year 5 Maths Knowledge Organiser - Summer 1



Key Vocabulary
acute
obtuse
reflex
degrees
regular irregular
axis
origin
vertices vertex
quadrant
translation

Acute angle	Right angle	Obtuse angle	
			Full turn = <b>360°</b> Half turn = <b>180°</b> Angles inside of a triangle = <b>180°</b> Angles inside of a quadrilateral = <b>360°</b> Straight line angle = <b>180°</b>
Less than 90°	Exactly 90°	More than 90° but less than 180°	

Equilateral triangle	Isosceles triangle	Scalene triangle	Right angled triangle
3 equal sides and 3 angles of 60°	2 equal sides and 2 equal angles	No equal sides or angles	One angle is a right angle (90°)

Parallelogram	Rhombus	Trapezium
Two pairs of parallel sides	All sides have the same length and are parallel	One pair of parallel sides

Regular and Irregular Polygons		
A shape is regular if its sides and angles are all equal. We can use this knowledge to decide whether shapes are regular or irregular.	Regular	Irregular

### Angles on a Straight Line

Angles on a straight line have a sum of 180°. We can use this knowledge to help us calculate missing angles.

$180^\circ - 151^\circ = 29^\circ$  so the missing angle is 29°.

### Angles on a Straight Line

Angles around a point have a sum of 360°. We can use this knowledge to help us calculate missing angles.

$360^\circ - 91^\circ - 72^\circ = 197^\circ$  so the missing angle is 197°.

Angles on straight lines must have a sum of 180° and opposite angles are equal on two straight lines that cross.

$a = 180^\circ - 113^\circ = 67^\circ$   
 $b = 180^\circ - 90^\circ - 65^\circ = 25^\circ$

### Position

To find the coordinates of a point, we start from the origin (0, 0) and count along the (horizontal) x-axis first. Then, we count along the (vertical) y-axis.

The coordinates of the vertices of the rectangle are: (3, 2), (3, 8), (6, 2) and (6, 8).

### Translation

Coordinates are fixed positions on the grid, but we can move plotted points into different positions.

"If a point moves 1 right, the x-axis coordinate will increase by 1. If it moves 1 left, the x-axis coordinate will decrease by 1."

"If a point moves 1 up, the y-axis coordinate will increase by 1. If it moves 1 down, the y-axis coordinate will decrease by 1."

Shape A was translated 3 right and 2 down to reach the position of shape B.

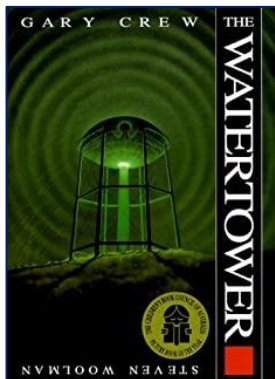


# Year 5 English Knowledge Organiser – Summer 1

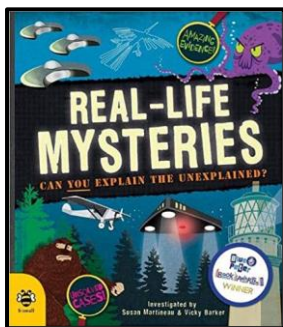


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## Core Texts



**The Watertower**  
Gary Crew



**Real-Life Mysteries**  
Susan Martineau

## Features of a Narrative

**Atmosphere** is created from the outset. Questions are planted in the reader's mind to create mystery and intrigue from the opening page. Vocabulary, punctuation, layout and sentence structure all contribute to mood and meaning.

The two main **characters** are established very quickly. Overt and implied stark contrasts (*in personality, appearance, speech, movement and behaviours*) between them, emphasise the vulnerability of 'Bubba', creating the suggestion/ foreshadowing that something bad is going to happen to him.

The water tower itself acts as an additional character or the 'baddy' of the narrative. It is given human-like characteristics, for example through the use of personification.

**Dialogue**, punctuated with inverted commas and the related punctuation, and using realistic, non-standard spoken forms (*such as contracted words, question tags and colloquialisms*), is used both to convey character and to advance the action.

## Features of an Information Text

Many information texts are written in the **present tense** to reflect the continuous nature of the topic. However, as most of the 'cases' in this book are historical, the text frequently uses past tense verb forms.

As with other informative texts, this book contains **technical vocabulary** related specifically to the subject.

This text, like other informative texts, is written from a **third person** point of view using an impersonal, **formal** tone.

**Informative** and **engaging detail** is provided through carefully selected grammar and vocabulary. For example, the use of expanded noun phrases provide detailed factual descriptions; a wide range of conjunctions present reasons and explanations; prepositions and adverbs/ fronted adverbials give detail about time and place; relative clauses and parenthesis are used to elaborate on ideas.

## Features of an Discussion Text

**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 ongoing or 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 of possibility** to express degrees of possibility; and the use of specific phrases to introduce new points.



# Year 5 Science Knowledge Organiser – Summer 1



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Key Vocabulary	
<b>friction</b>	a force that acts to slow a moving object down, or to prevent an object from moving
<b>fulcrum</b>	the fulcrum is the point where the lever pivots
<b>gears</b>	gears are simple machines. They are a set of wheels with teeth that slot together. Gears can be used to increase a turning force
<b>gravity</b>	the force that pulls you to the ground (to Earth). Everything that has a mass has a gravitational pull
<b>load</b>	the weight (the force) that is being moved
<b>mass</b>	how much matter something contains. Mass is measured in grams and kilograms, or pounds and ounces
<b>pivot</b>	the point at which something turns
<b>upthrust</b>	an upwards force that a liquid (and a gas) exerts on an object floating in it

## Gravity

- Gravity is a non-contact force that pulls all objects towards each other.
- Objects with a greater mass will have a greater gravitational pull.
- Weight is a force and is measured in newtons (N).
- The weight of the object depends on the gravitational pull. So, objects on the Moon will have a smaller weight than the same object on the Earth.

## Water Resistance

Water resistance is the force responsible for making it difficult for us to move through the water. It acts between a moving object and the water molecules around it, slowing the object down.



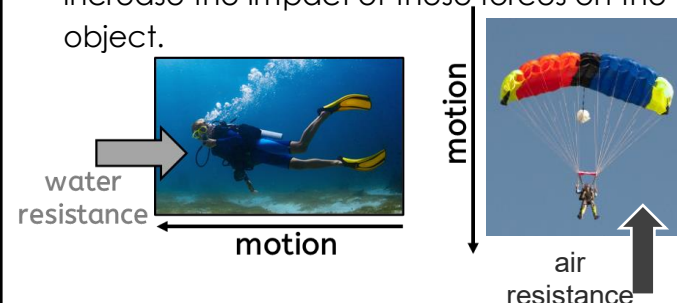
## Friction

Friction is a force created between two surfaces when they rub together. Friction creates heat and always slows down an object. Rough surfaces create more friction than smooth surfaces.

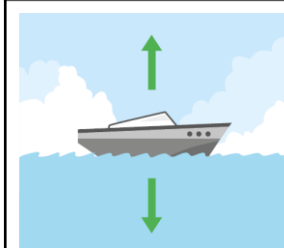


## Frictional Forces

- Air resistance and water resistance are both examples of frictional forces. Both forces act to slow objects down.
- Increasing the surface area of an object will increase the impact of these forces on the object.



## Floating and Sinking



When upthrust (an upwards force in a liquid) is equal to the weight of the object in the liquid, the object will float.

## Levers, Pulleys and Gears



Levers, gears and pulleys are simple machines that allow a smaller force to have a greater effect.



# Year 5 Geography Knowledge Organiser - Summer 1



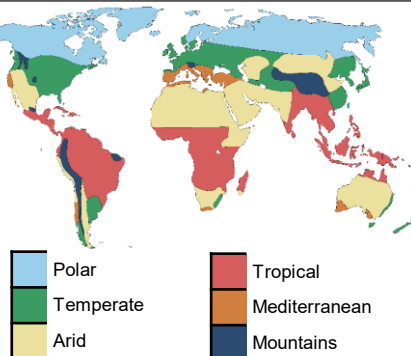
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Key Vocabulary	
<b>arid</b>	Very dry; and climate zone
<b>biomes</b>	areas in the world that, because of similar climates, have similar landscapes, animals and plants
<b>climate change</b>	the changes in the Earth's long-term weather patterns, which is being sped up due to global warming
<b>Fossil fuel</b>	a (chemical) store of energy, formed over millions of years from dead plants and animals.
<b>meridian</b>	the vertical lines that split the Earth into 24 time zones
<b>permafrost</b>	permanently frozen soil
<b>savanna</b>	a grassy plain biome with a tropical climate, few trees and distinct wet and dry seasons
<b>terrestrial</b>	on earth or on land
<b>tundra</b>	a biome with average temperatures below 10°C with frozen soils and a lack of trees

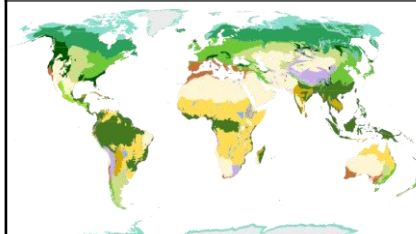
## Climate zones

**Climate zones** are areas in the world that have a similar climate. There are several major climate zones in the world. The main six are shown on this map.

The climate zones generally group together horizontally, following **lines of latitude**.



## Biomes and Vegetation Belts



**Biomes** are areas of the world that, because of similar **climates**, have similar landscapes and wildlife. Biomes are shown on the map

**Vegetation belts** are areas with distinct plant life within one or more biomes.

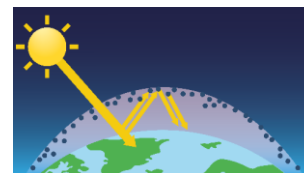
## Global Warming and Climate Change

The **greenhouse effect** is the **natural process** that has always taken place, which keeps the Earth warm. Without it, the Earth would be too cold to live on!

The Sun's rays are trapped in the atmosphere by greenhouse gases, like carbon dioxide. This warms the Earth.



The **enhanced greenhouse effect** causes the **unnatural increase in temperature**. Human activities (like burning fossil fuels, transport, waste, agriculture, deforestation), increase the amount of greenhouse gases in the atmosphere. The Earth warms more quickly. Global warming increases.



Accelerated global warming can also lead to other changes in the Earth's long-term weather patterns, such as precipitation, wind and storms. The changes to the Earth's wider climate – not just temperature – is called **climate change**.

Climate change can cause:

- More extreme weather events, like droughts and heatwaves.
- Melting sea ice and loss of habitats.
- Rising sea levels and the flooding of coastal areas.

Some biomes and species are more at risk of being impacted by climate change. These are called vulnerable biomes (like the tundra) or vulnerable species (like the dormouse).

