Year 5 Maths Knowledge Organiser – Autumn 2

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Key Vocabulary

- factor
- multiple
- common
- prime number
- square number
- cube number
- numerator
- denominator
- equivalent
- improper fraction

Square Numbers

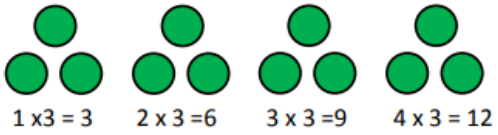
1^2	1 x 1	1	7^2	7 x 7	49
2^2	2 x 2	4	8^2	8 x 8	64
3^2	3 x 3	9	9^2	9 x 9	81
4^2	4 x 4	16	10^2	10 x 10	100
5^2	5 x 5	25	11^2	11 x 11	121
6^2	6 x 6	36	12^2	12 x 12	144

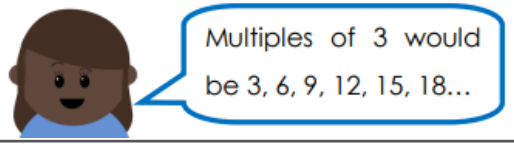
Cube Numbers

1^3	1 x 1 x 1	1
2^3	2 x 2 x 2	8
3^3	3 x 3 x 3	27
4^3	4 x 4 x 4	64
5^3	5 x 5 x 5	125

Multiples

Multiples are the result of multiplying two numbers together.



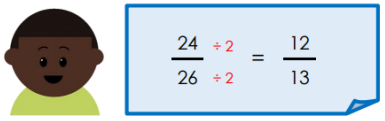


Equivalent Fractions

Equivalent fractions have different numerators and denominators but share the same value.

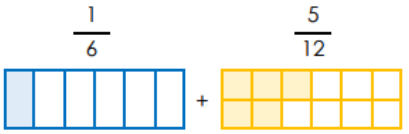
$$\frac{1}{2} = \frac{2}{4} = \frac{4}{8}$$

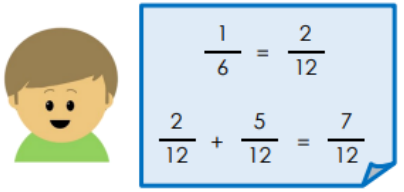
If you multiply or divide the numerator and denominator of a fraction by the same number, the new fraction will be equivalent.



Add Fractions

When we **add fractions** with **different denominators**, we need to find a common denominator.





Remember, when we have found the common denominator, we only need to add the numerators.

Improper Fractions and Mixed Numbers

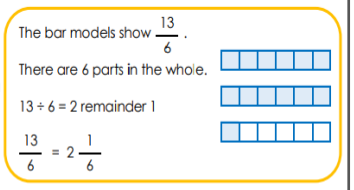
An **improper fraction** has a numerator which is greater than the denominator. For example:

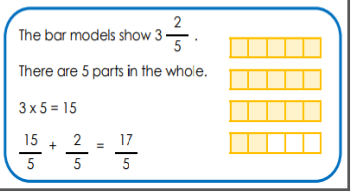
$\frac{3}{2}$ $\frac{7}{5}$ $\frac{13}{9}$ $\frac{28}{10}$

A **mixed number** is made up of an integer and a proper fraction. For example:

$1\frac{1}{2}$ $7\frac{3}{10}$ $15\frac{2}{3}$

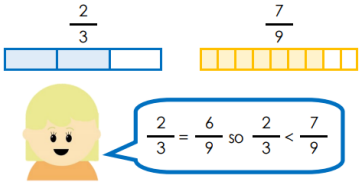
To **convert between improper fractions and mixed numbers**, we need to look at how many parts make up the whole.



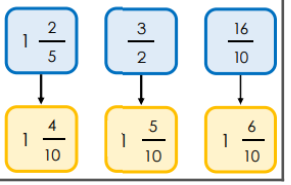


Compare and Order Fractions

To **compare** and **order** fractions, we need to find a common denominator or numerator.

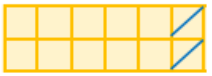


These fractions have been ordered from smallest to greatest. Their equivalent fractions using common denominators are shown beneath.

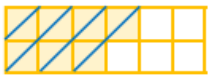


Subtract Fractions

To **subtract fractions with different denominators**, we again find a common denominator. We can convert mixed numbers to improper fractions when we need to exchange.



$$1\frac{7}{12} - \frac{3}{4} = 1\frac{7}{12} - \frac{9}{12}$$



$$1\frac{7}{12} - \frac{9}{12} = \frac{19}{12} - \frac{9}{12} = \frac{10}{12}$$

Prime Numbers up to 20

2 3 5 7 11 13 17 19

A prime number has exactly two factors

Year 5 English Knowledge Organiser – Autumn 2

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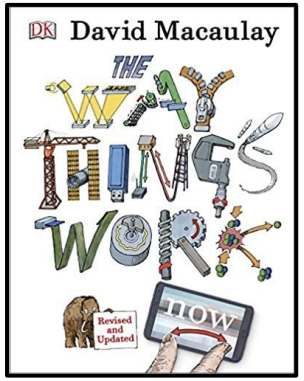
Core Texts

The Invention of Hugo Cabret
Brian Selznick



The Way Things Work
David Macaulay

Features of Text Type: Creating a New Chapter

In line with the purpose to **entertain**, the text evokes strong emotional responses in the reader and creates vivid images of characters, settings and events.

Characters are developed through the use of detailed descriptions of their physical features, movements and behaviours.

Dialogue, demarcated with inverted commas and the related rules, is used to both convey character and to advance the action of the narrative.

Broad and vivid images of **settings** are created using all five senses. Setting descriptions establish the mood and atmosphere.

Pace and **tension** are built into the narrative using a variety of techniques, such as through the use of rhetorical questions, careful vocabulary selection to emphasise key ideas, and through varying sentences lengths and types.

Cohesion is built within and across chapters, using a range of devices, for example through the use of adverbials, pronoun referencing and conjunctions.

Features of Text Type: Explanation Text

An opening paragraph introduces the general topic of the text and draws the reader in.

A range of layout devices (e.g. headings and sub-headings, images, lines and boxes, and the use of different font sizes and typographical emphasis) contribute to organisation and presentation.

Material is organised into paragraphs around a theme, often supported by the use of a 'topic sentence'.

A semi-formal, impersonal viewpoint is used in line with the purpose and audience.

Technical vocabulary, specific to the topic, is used to inform.

Causal language is used to link cause and effect.

Facts, figures, explanations and examples provide the reader with precise, informative detail.

Year 5 Science Knowledge Organiser – Autumn 2

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Key Vocabulary

battery	a chemical store of energy
calorie/kcal	a measure of how much chemical energy is stored in a food.
chemical energy store	an energy store like food, fuels and batteries.
coal	a fossil fuel that is a chemical store of energy
diet	the food and drink that an animal or person eats.
energy resource	something that is a source of energy, and that will run out.
energy store	a way in which energy is kept in a system
energy transfer	moving energy out of one store and into another.
food	what we eat, which is a chemical store of energy

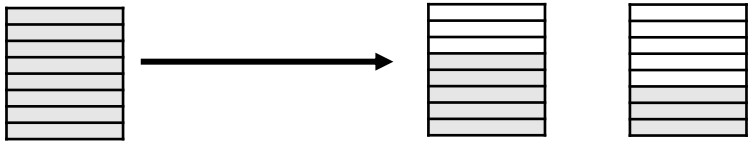
Energy stores

There are different types of energy stores. Two examples are:

- **chemical energy store**. Coal, oil, gas, the Sun, cells, and food are all chemical energy stores.
- **thermal energy store**. If the thermal energy store of the air increases, we will feel it become warmer.

Energy stores and transfers

Energy can be moved from one store to another. The energy removed from one store will be equal to the energy gained by another store or stores.



Energy store A (before) → **Energy store A (after)** **Energy store B (after)**

Feeding Relationships

The Sun is a **chemical energy store**. Light from the Sun travels to Earth, and producers use this light to produce their own food. This is their chemical energy store.

When consumers eat producers and other consumers, not all of the chemical energy is passed on along the food chain.

There are two reasons for this:

1. Not all of the organism is eaten
2. Some energy is transferred to the thermal energy store of the air. This happens when we move.

Can energy be used up?

Energy cannot be used up. An energy resource can be used up. For example, we will run out of fossil fuels one day.

Circuits

In a circuit that has a cell, the cell is the chemical store of energy. This store will decrease the longer the circuit is connected.

In a complete circuit with a bulb, the bulb gets hot. Energy is transferred to thermal energy store in the air surrounding it.

Year 5 History Knowledge Organiser – Autumn 2

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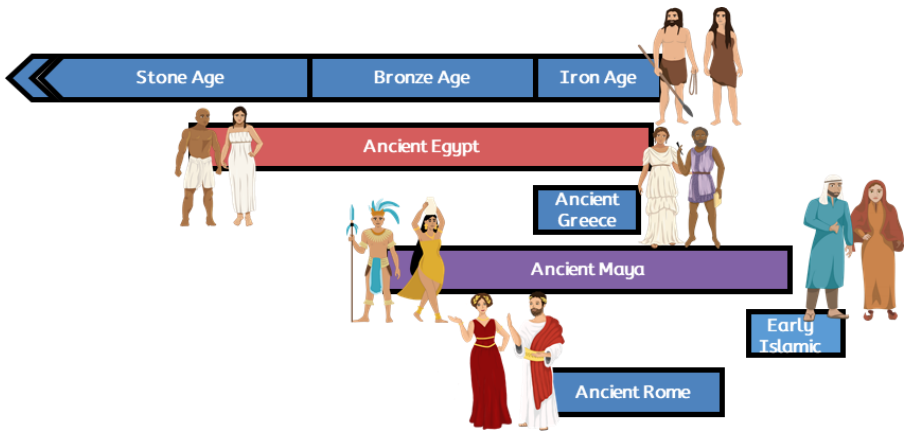
Key Vocabulary

aqueducts	man-made structures that transport water from one place to another, often using gravity
autocracy	a system of government where one person has absolute power
auxiliary	a Roman soldier who is not a citizen
consul	one of two leaders of the Roman republic
dictator	): a ruler who has got absolute power, usually obtained by force
democracy	a place where all people are involved in governing the country
persecution	cruel treatment of people based on their (religious) beliefs
republic	a system of government where power is held by a group of representatives

When did the Romans live?



Where did the Romans live?

At its peak, the Roman world covered parts of Europe, northern Africa and western Asia.

The 'Romans' were a diverse group

- The Roman empire covered a large area of land, which included lots of people. Many languages were spoken.
- The 'Romans' includes different groups of people, who would have all had different experiences:
  - **Citizens**, including **patricians** (richer), **plebeians** (poorer) and **legionary** soldiers
  - **Non-citizens**, including **auxiliary** soldiers and **slaves**, and other people who lived in lands taken over by the Romans.

How did ancient Rome change over time?

The Roman world changed over time:

- Its **government** changed. Kings was replaced by a republic, which was replaced by a dictatorship, which became an empire.
- Its **religious beliefs** changed. Early Roman religion drew on ancient Greek gods. Later, Christianity became the official religion of the empire.
- It developed ideas in **science and technology**, like roads and medicine – but Romans often borrowed and built upon the ideas of other civilisations!