

Name: _____



Knowledge
Organisers



Terms 5 - 6
Year 8

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 - English
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How to learn over time

Successful Learning Takes Place Over Time

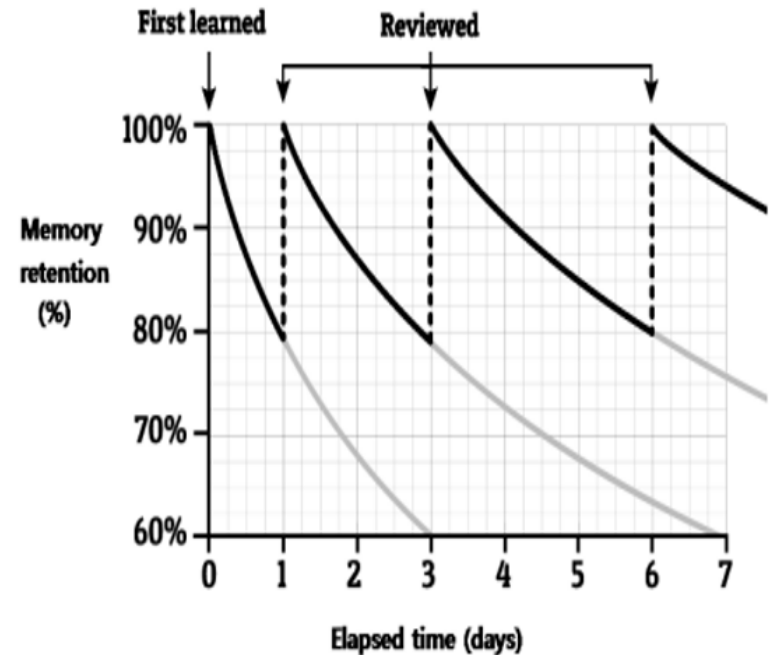


It's rare for anyone to be completely comfortable with something they learn for the first time. This could be a new piece of music, dance move, language or chemistry. We all have to practice. In most instances, the aim is to be at your optimum on the day it matters, e.g. the performance, race or exam. Everything leading up to this point is part of the process of improving. It's about the long-term rather than the short-term, which also means there are no quick fixes. During this period, it's okay to make mistakes; it's okay to feel frustrated. What matters is what you do about it.

Space out your learning on a subject



Spacing out your learning over time is far more effective than last-minute cramming. This is based on research into how we forget and how we remember. The speed at which we forget something will depend on many factors such as the difficulty of the material, how meaningful it was to us, how we learned it and how frequently we relearn or remember it. The last factor tells us that when we learn something for the first time, we need to review it quickly afterwards. The more times we force ourselves to remember something, the longer the gap between reviews, which the diagram below illustrates nicely. The Leitner system and Cornell Notes mentioned earlier provides a wonderful way of achieving this, but the principle applies to all of the learning strategies mentioned in this booklet.



Revision Strategies

List It



This is a simple free recall task that is very versatile. It can feel challenging, but this is a good thing, and it provides clear feedback on what you do and don't know. Choose a topic, set yourself a time limit and...

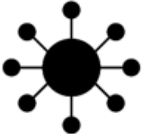
- List as many keywords as you can
- List as many facts as you can
- List as many key events/quotes/individuals as you can
- List as many causes of X as you can
- List as many consequences of Y as you can

Flashcards



Flashcards have the potential to be a powerful learning aid. However, how successful this is will depend on the thought you put into making them in the first place and then how they're used. It's very important to remember that they're for testing, not summarising.

Mapping



Mapping is a brilliant way of organising and learning information, demonstrated on various pages in this booklet. It helps you break down complex information, memorise it, and see the connections between different ideas.

Self-testing



Research has shown that every time you bring a memory to mind, you strengthen it. And the more challenging you make this retrieval, the greater the benefit. Self-testing improves the recall of information, transfer of knowledge and making inferences between information. Equally, there are many indirect effects, such as a greater appreciation of what you do and don't know, which helps you plan your next steps.

Flashcards



Flashcards are small sheets of paper or card with matching pieces of information on either side. They are a useful tool for learning facts and allow you to quickly check whether you have remembered something correctly.

When making and using flashcards:

- | | |
|--|--|
| <p>Do:</p> <ul style="list-style-type: none"> ✓ ...make flashcards quickly. ✓ ...put a single piece of information of each flashcard. ✓ ...sort your flashcards according to your confidence with them (see below). ✓ ...test yourself on the flashcards from memory. | <p>Don't:</p> <ul style="list-style-type: none"> X ...spend more time making flashcards than actually using them. X ...put lots of information onto each flashcard. X ...revise the flashcards in the same order every time that you use them. X ...only read through flashcards. |
|--|--|

1861	groynes	osmosis	Where is the pharmacy?
Pasteur published his paper about germ theory.	A low wall on the coastline which slows longshore drift	Net movement of water from a high concentration to low concentration across a partially permeable membrane	Où est la pharmacie?

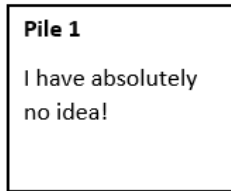
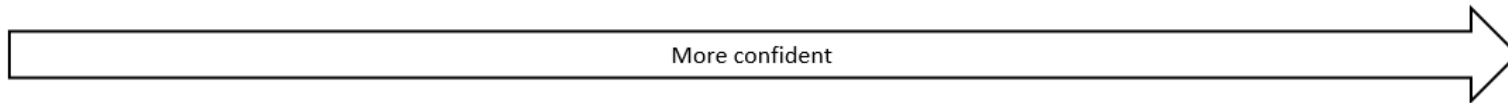
How to make flashcards:

- You can buy a set of flashcards or use a free website such as Quizlet.
- Find the information you want to put onto flashcards using your existing revision resources (e.g. a knowledge organiser).
- Fold a piece of A4 paper into 10.
- Write the questions on the top half of the paper.
- Write the answers on the bottom half of the paper.
- Cut the paper along the dotted lines shown here.
- Fold the strips of paper so that the writing is on either side.

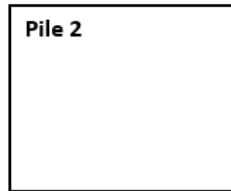
Definition 1	Definition 2	Definition 3	Definition 4	Definition 5
Answer 1	Answer 2	Answer 3	Answer 4	Answer 5

How to use flashcards:

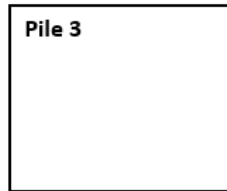
1. Test yourself using the flashcards.
2. As you test yourself, sort the flashcards into up to five piles according to how confident you are with the content.
3. Put the piles into numbered envelopes (1-5).
4. Test yourself on the different piles on different days (see below):



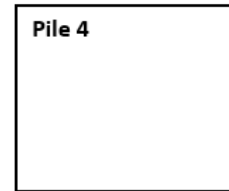
Practise **every** day.



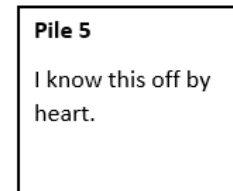
Practise every **other** day.



Practise every **three** days.

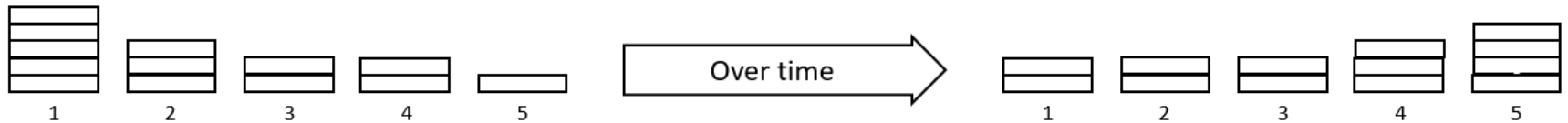


Practise every **four** days.



Practise every **five** days.

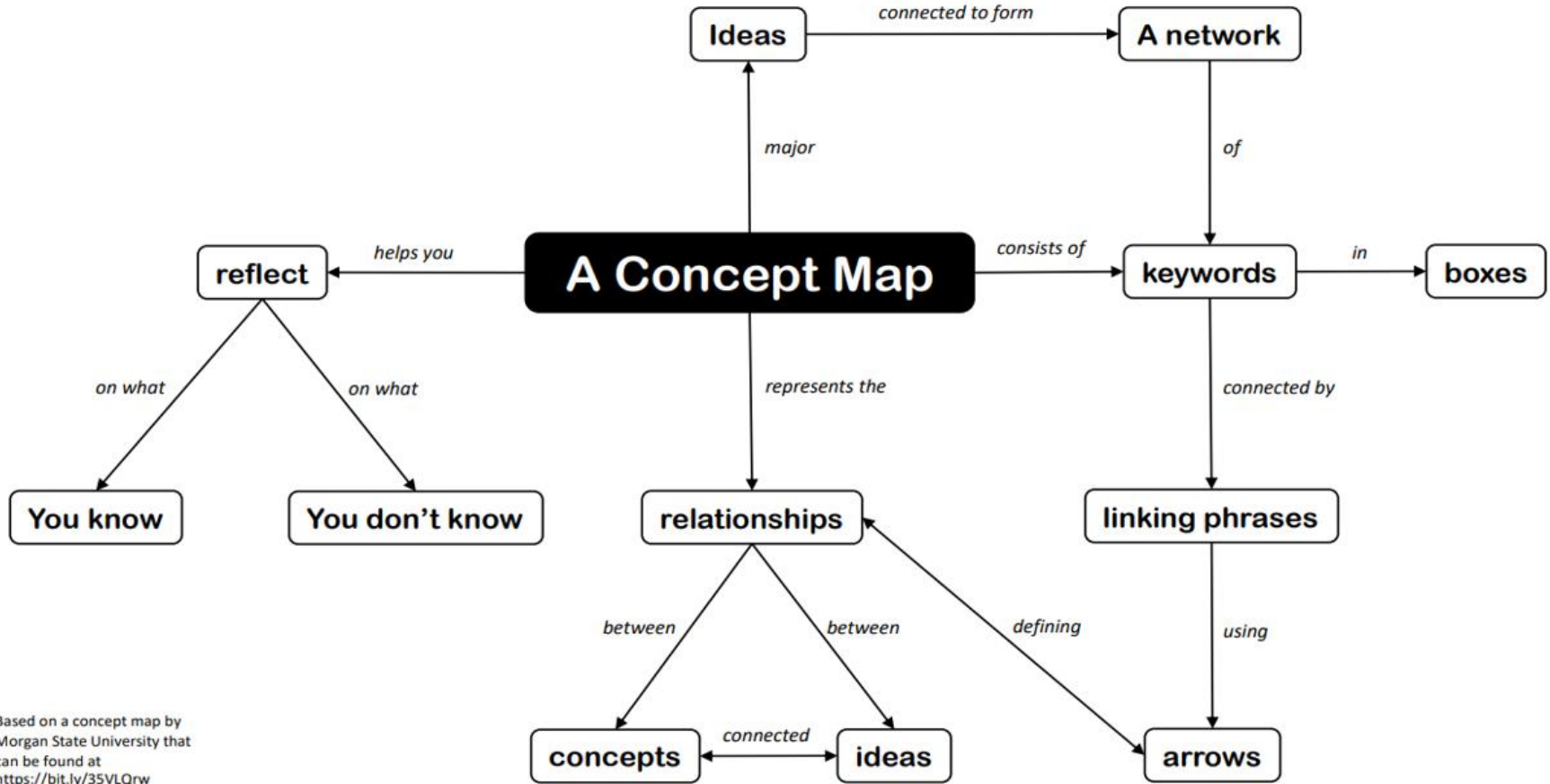
5. As you test yourself on the different piles, move the cards into different piles as you become more confident.



Useful resources:

www.quizlet.com – This free website allows you to quickly create flashcards which you can print, use on a computer, or use on your phone.

Mapping



Based on a concept map by Morgan State University that can be found at <https://bit.ly/35VLQrw>

Origins of Gothic Horror

Gothic literature is a genre of fiction which first became popular during the 18th century. Although many of the most famous Gothic novels were written during the Victorian times, conventions of the Gothic genre are still featured in popular culture today.

The term 'Gothic' originates from the name of an ancient Germanic tribe (The Goths) who are thought to have contributed to the fall of the Roman Empire. They had a reputation for being barbaric and later a form of **architecture** was named after them as sort of insult.

The term Gothic first became linked to literature with Horace Walpole's 1764 novel *The Castle of Otranto*, later subtitled *A Gothic Story*. This term was probably given because of the book's medieval Gothic architecture and setting. Unlike horror stories, Gothic stories tend to create an atmosphere of tension and suspense for the reader. For example, the novel *The Castle of Otranto* is set in a castle with mysterious, supernatural events and an innocent female victim.



Conventions of Gothic Horror

Subterranean passageways	Secret tunnels and passages can often act as a means of escape or secret entry to buildings.
Abandoned buildings	Houses which no-one lives in and may be in ruins are often settings for gothic stories
Gloom and horror	Characters are often in a depressed emotional state -gloomy
Isolated bleak settings	Events take place in areas where there are not many people or dwellings
Sublime	Of great beauty- usually used to describe landscapes
Supernatural	A vision/apparition which cannot be accounted for scientifically
Women in distress	Female characters are often passive so they rely on other characters to rescue them or to give them information
Dominant, tyrannical male	Male characters are often powerful and take charge of situations and people.
Unreliable narrator	The character who tells the story may not have all the information needed
Outsiders	A character who does not belong with others; they remain apart and separate.

Key Words

Supernatural	A vision/apparition which cannot be accounted for scientifically
Ominous	The sense that something awful or threatening is going to happen
Foreboding	The impression that something terrible will happen in the future.
Submissive	Someone weak or quiet; without authority
Isolation	Being kept apart or alone from others
Dominance	Having power and influence over others
Tyrannical	Using power in a cruel way; by making others scared
Archetype	A typical exam of someone or something
Convention	A way in which something is usually done
Atavistic	Characteristic of something ancestral or primitive
Palpable	A feeling or atmosphere so intense it is as if you can touch it
Confine	To keep something within its limits
Subterranean	Occurring or existing under the ground

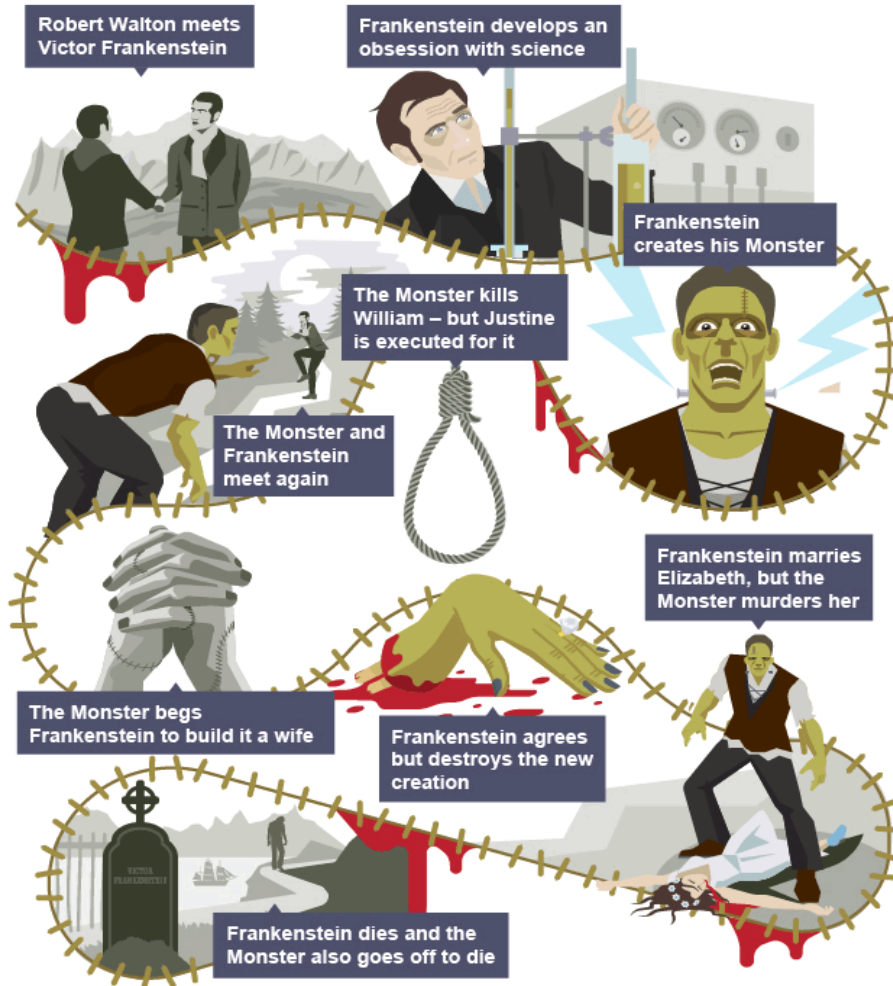


Techniques

Symbolism The use of an image to represent an idea	Pathetic fallacy The idea that the weather reflects emotions
Motif A repeated image in a text	Imagery Words or phrases create pictures in the imagination
Personification Inanimate object described as having human characteristics	Juxtaposition Opposite ideas placed side-by-side

Frankenstein: The Modern Prometheus by Mary Shelley

Key plot details



Context



The novel was first published in 1818. It was inspired by a dream that Mary Shelley had. She produced it in response to a challenge by Lord Byron who she was on holiday with as a form of entertainment.

- Frankenstein was set at the end of the enlightenment and romanticism period.
- Rather than following religious teachings, enlightenment thinkers turned to scientific study.
- In the 18th century, people were very religious so the idea of a character playing God was scary to them, so Shelley used this idea to create Frankenstein.
- Frankenstein deals with loss, which Shelley knows a lot about since many people in her life died

The Tell Tale Heart by Edgar Allen Poe

- "The Tell-Tale Heart" is told by an unnamed narrator.
- The old man, with whom the narrator lives, has a clouded, pale, blue "vulture-like" eye, which distresses the narrator so much that they plot to murder the old man
- For seven nights, the narrator opens the door of the old man's room to shine a sliver of light onto the "evil eye."
- On the eighth night, the old man awakens after the narrator's hand slips and makes a noise. The narrator, after some time, decides to open the lantern. A single thin ray of light shines out and lands precisely on the "evil eye," revealing that it is wide open.
- The narrator hears the old man's heart beating. This increases the narrator's anxiety. He jumps into the room and the old man shrieks before he is killed.
- The narrator then dismembers the body and conceals the pieces under the floorboards.
- The old man's scream during the night causes a neighbour to report it to the police, who the narrator invites in to look around. The narrator claims that the scream heard was their own in a nightmare and that the old man is absent.
- Confident that they will not find evidence of the murder, the narrator brings chairs for them and they sit in the old man's room. The chairs are placed on the very spot where the body is concealed; the narrator has a pleasant and easy manner.
- The narrator begins to feel uncomfortable and notices a ringing in his ears. As the ringing grows louder, the narrator concludes that it is the heartbeat of the old man coming from under the floorboards.
- The sound increases steadily to the narrator, though the officers do not seem to hear it. Terrified by the violent beating of the heart, the narrator breaks down and confesses.
- The narrator tells them to tear up the floorboards to reveal the remains of the old man's body.

Context

1809	Poe was born and his father disappears. His mother dies shortly afterwards. Poe is fostered.
1826	Poe attended school in England and then enrolled at the University of Virginia in 1826, but he was forced to leave after two terms.
1830s	He was a magazine editor, a poet, a short story writer, a critic, and a lecturer. He introduced the British horror story, or the Gothic genre, to American literature
1845	He writes and publishes The Raven – a poem that made him famous
1849	Poe dies at the age of 40



The Red Room by H.G. Wells

- A main character chooses to spend the night in an allegedly haunted room, coloured bright red in Lorraine Castle.
- He intends to disprove the legends surrounding it.
- Despite warnings from the three caretakers who live in the castle, the narrator walks to "the Red Room" to begin his night's watch.
- At first, he is confident, but the narrator becomes increasingly uneasy in the room.
- He attempts to conquer his fear by lighting candles, but keeping the candles lit in the draughty room becomes an ongoing battle. Each time a candle is snuffed out, the narrator's fear and paranoia increases.
- He begins to imagine that the drafts are guided by an evil intelligence.
- As the narrator's fear intensifies, he stumbles onto a large piece of furniture (possibly the bed), and bounces off the walls in a blind panic, hitting his head and eventually falling unconscious.
- The caretakers, who find him in the morning, feel vindicated when the narrator agrees that the room is haunted.
- They are eager to hear a description of the phantom, but he surprises them by explaining that there is no ghost residing in the room. The room is haunted by fear.



Context



H.G. Wells, in full Herbert George Wells

He was a scientific rationalist and author.

He was famous for the novels *The War of the Worlds*, *The Invisible Man*, *The Time Machine* and many other works.

In 1894 he wrote the gothic horror story, popular during the Victorian era, 'The Red Room'.

The Woman in Black by Susan Hill

- On Christmas Eve Arthur Kipps' stepchildren invite him to tell a ghost story. He has one but is too disturbed to tell it, so he writes it down.
- In the story, a young Arthur Kipps is sent by his employer to settle the affairs of Mrs Alice Drablow, of Eel Marsh House. The house is cut off from the mainland at high tide. At her funeral, Arthur sees a sickly-looking young woman dressed in black. No one else sees her.
- Keckwick, the caretaker, drives Arthur to Eel Marsh House where he sees the woman again. He finds piles of Mrs Drablow's papers to sort and is haunted by the sound of a pony and trap.
- He stays overnight at the house and is persuaded by Samuel Daily, a local landowner, to take his dog, Spider, for company. The dog and Arthur are spooked by rumblings, cries and bumps in the night.
- A locked door becomes mysteriously unlocked and Arthur finds a nursery filled with toys and a rocking chair in motion.
- Samuel Daily rescues Arthur from the house and eventually tells him how a child dies by accident each time the woman in black is seen.
- Arthur returns to London with his fiancée Stella. They are soon married and have a child together.
- Arthur sees the woman in black again in London and moments later his wife and child die.

Context

- Although Susan Hill wrote *The Woman in Black* in 1983, the novella is set in the Edwardian era.
- In Edwardian society, the ideal woman was one whose moral values were strong.
- It was not considered 'proper' for a woman to have a child outside of marriage.
- A woman who did so, risked being cut-off by her family.



Poetry



A **quantity** is an *unknown* or *variable* amount which can be measured or counted.

Two quantities are related if knowing/measuring one of them, allows us to find the other.

If two quantities are related, we can use **algebra** to show their relationship: we can write one quantity **in terms of** the other.

A **ratio** is a (multiplicative) relationship between two quantities.

$$a : b$$

For every a in the first, there are b in the second.

Two quantities are said to be **directly proportional** if they are in a **multiplicative relationship**.

If two quantities are **directly proportional**, then

- when one doubles, the other one doubles as well,
- when one halves, the other one halves as well
- when one becomes one-fifth, the other becomes one-fifth
- ...

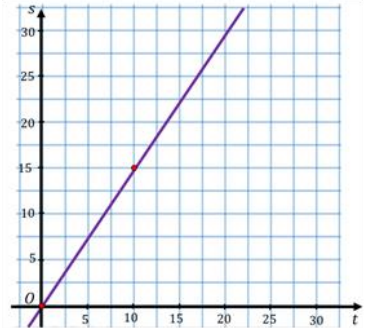
If two quantities are directly proportional, they can be plotted as a **linear graph**.

s and t are directly proportional. When s is 15, t is 10. Draw the graph of s in terms of t

$$15 : 10 \\ s : t = 3 : 2$$

$$s = \frac{3}{2}t$$

Equation of a line passing through the origin with gradient $\frac{3}{2}$



$$a : \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} \quad a : b \\ b : \begin{array}{|c|c|c|c|} \hline & & & \\ \hline \end{array} \quad 3 : 1$$

If we know b

$$\begin{array}{|c|} \hline \\ \hline \end{array} = b$$

a in terms of b

$$a = 3b$$

If we know a

$$\begin{array}{|c|} \hline \\ \hline \end{array} = \frac{a}{3}$$

b in terms of a

$$b = \frac{1}{3}a$$

$$y : \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} \quad y : x \\ x : \begin{array}{|c|c|c|c|} \hline & & & \\ \hline \end{array} \quad 3 : 5$$

y in terms of x

$$y = \frac{3}{5}x$$

y is $\frac{3}{8}$ of the total

x in terms of y

$$x = \frac{5}{3}y$$

x is $\frac{5}{8}$ of the total

y and w are directly proportional. When y is 12, w is 8.

$$y : \begin{array}{|c|c|c|c|} \hline & & & \\ \hline \end{array} = 12 \\ w : \begin{array}{|c|c|c|} \hline & & \\ \hline \end{array} = 8$$

y in terms of w

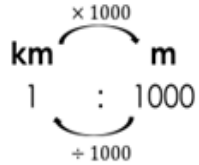
$$y = \frac{3}{2}w$$

w in terms of y

$$w = \frac{2}{3}y$$

$$y : w = 3 : 2$$

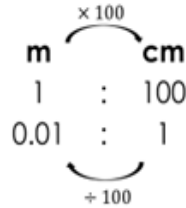
kilo (k) = thousands



Convert **1.4km** into **m**
 $1.4 \times 1000 = 1400m$

Convert **32.1m** into **km**
 $\frac{32.1}{1000} = 0.0321km$

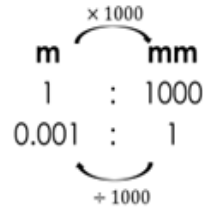
centi (c) = hundredths
 (century)



Convert **34.1m** into **cm**
 $34.1 \times 100 = 3410cm$

Convert **4.5cm** into **m**
 $\frac{4.5}{100} = 0.045m$

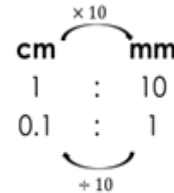
milli (m) = thousandths
 (millennium)



Convert **0.89m** into **mm**
 $0.89 \times 1000 = 890mm$

Convert **182mm** into **m**
 $\frac{182}{1000} = 0.182m$

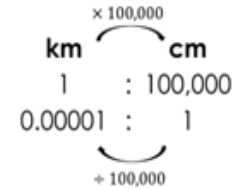
There are 10mm in 1cm



Convert **47.8cm** into **mm**

$47.8 \times 10 = 478mm$
 Convert **9.3mm** into **cm**
 $\frac{9.3}{10} = 0.93cm$

There are 100,000cm in 1km



Convert **32km** into **cm**
 $32 \times 100,000$
 $= 3,200,000cm$
 Convert **400,000cm** into **km**
 $\frac{400,000}{100,000} = 4km$

Alternatively, we can convert between units by moving the decimal point to the appropriate column.

Convert 2.3cm into m

kilo				centi	milli
k-				c-	m-
			m		
				2	3
			0	0	23

Convert 1.56kg into mg

kilo				centi	milli
k-				c-	m-
			g		
1	5	6			
1	5	6	0	0	00

These conversions work also for mass, volume and other quantities.

For example:

Mass is measured in grams *g*
 $1kg : 1000g$
 $1g : 1000mg$

Volume (capacity) can be measured in litres *L*
 $1L : 100cL$
 $1L : 1000mL$

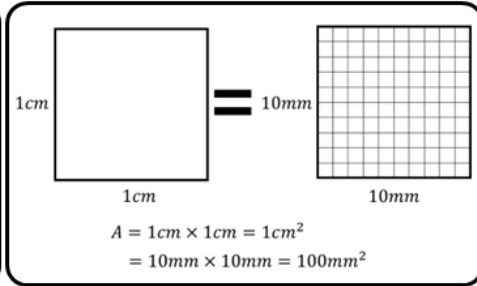
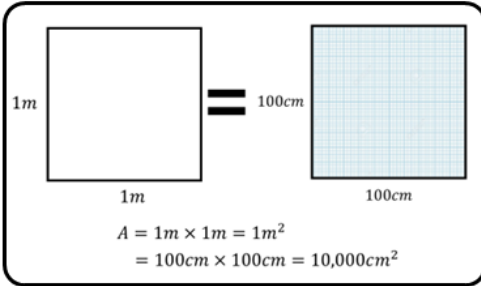
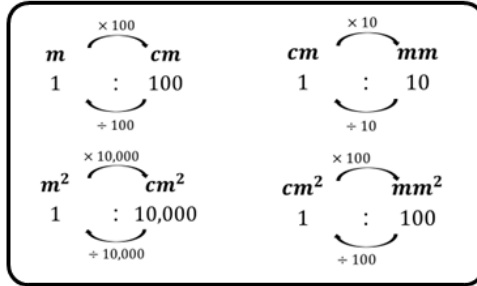
Area Conversions

Area conversions

The **area** A of a shape is how much flat space the shape occupies.

To measure the area of a shape we count how many **square units** we need to cover it.

When converting between area units we are changing the size of the square units we use to cover the shape.

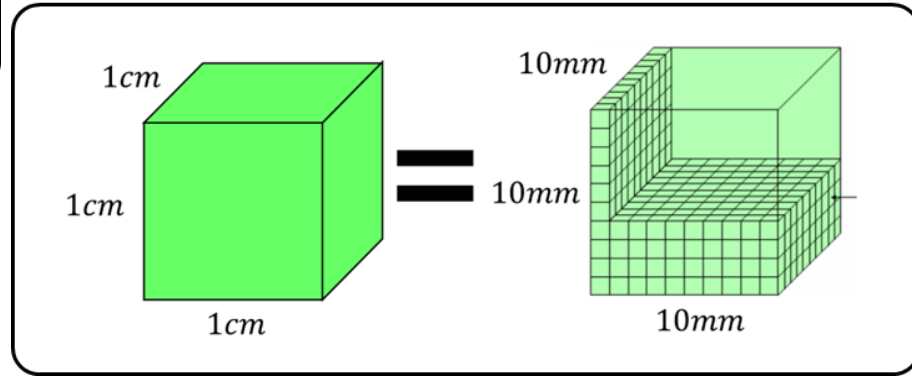
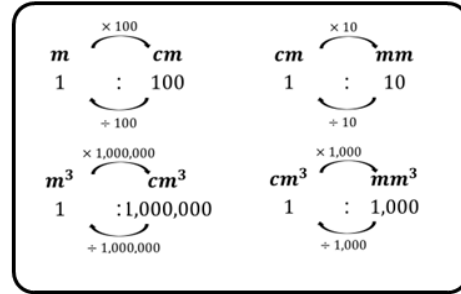


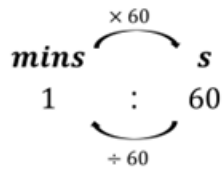
Volume conversions

The **volume** V of an object is how much 3D space the object occupies.

To measure the volume of a shape we count how many **cube units** we need to fill it up.

When converting between volume units we are changing the size of the cube we use to fill the object up.

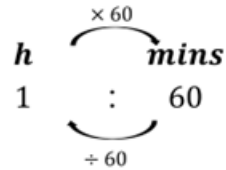




Convert **23 mins** into **s**
 $23 \times 60 = 1380s$

Convert **270s** into **mins**

$$\frac{270}{60} = 4.5 \text{ mins}$$



Convert **16 h** into **mins**
 $16 \times 60 = 960\text{mins}$

Convert **435mins** into **h**

$$\frac{435}{60} = 7.25 \text{ h}$$

When converting between *h* and *s*, we can convert into *mins* first, then convert *mins* into *s* or *h*.

Convert **2.5h** into **s**

$$2.5 \times 60 = 150\text{mins}$$

$$150 \times 60 = 9000s$$

Convert **11520s** into **h**

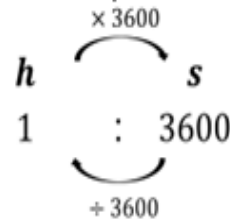
$$\frac{11520}{60} = 192\text{mins}$$

$$\frac{192}{60} = 3.2\text{h}$$

When using time units, it is common to use a mixture of units rather than decimal numbers.

It is convenient to convert the decimal part into a fraction.

We can also convert between *h* and *s* in one step



Convert **270s** into **mins**

$$\frac{270}{60} = 4\text{mins } 30s$$

as the remainder of the division is 30.

Write **7.4mins** as **mins** and **s**

$$0.4\text{mins} = 0.1\text{mins} \times 4 = 6 \times 4 = 24s$$

$$7\text{mins } 24s$$

Write **2.35h** as **h** and **mins**

$$0.35\text{h} = 0.25\text{h} + 0.1\text{h}$$

$$= 15\text{mins} + 6\text{mins} = 21\text{mins}$$

$$7\text{h } 21\text{mins}$$

$$0.5\text{h} = \frac{1}{2}\text{h} = 30\text{mins}$$

$$0.25\text{h} = \frac{1}{4}\text{h}$$

$$= 15\text{mins}$$

$$0.75\text{h} = \frac{3}{4}\text{h}$$

$$= 45\text{mins}$$

$$0.1\text{h} = \frac{1}{10}\text{h} = 6\text{mins}$$

$$0.5\text{min} = \frac{1}{2}\text{min}$$

$$= 30s$$

$$0.25\text{min} = \frac{1}{4}\text{min}$$

$$= 15s$$

$$0.75\text{min} = \frac{3}{4}\text{min}$$

$$= 45s$$

$$0.1\text{min} = \frac{1}{10}\text{min}$$

$$= 6s$$

Convert **34d** into **h**

$$34 \times 24 = 816\text{h}$$

Convert **53h** into **d**

$$\frac{53}{24} = 2\text{d } 5\text{h}$$

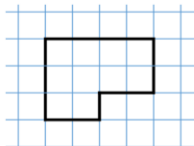
as the remainder of the division is 5.

Perimeter and Area

The **perimeter** P of a shape is the total length around the shape.

The **area** A of a shape is how much flat space the shape occupies.

To measure the area of a shape we count how many **square units** we need to cover it.



$$P = 14 \text{ units}$$

$$A = 10 \text{ units}^2$$

Rectangles
The perpendicular sides of a rectangle are called **base** b and **height** h .

$$A = bh$$

base
 $b = 6 \text{ units}$

height
 $h = 4 \text{ units}$

$$P = 2b + 2h =$$

$$= 2 \times 6 + 2 \times 4 =$$

$$= 12 + 8 =$$

$$= 20 \text{ units}$$

$$A = bh =$$

$$= 6 \times 4 =$$

$$= 24 \text{ units}^2$$

6m

9m

$h = 9\text{m}$

$$A = 45\text{m}^2$$

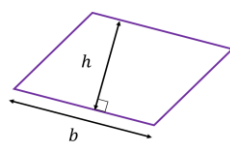
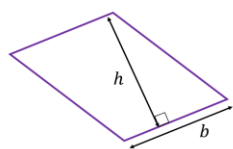
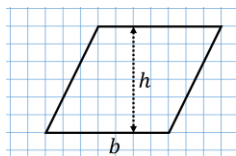
$$A = bh$$

$$45 = b \times 9$$

$$b = \frac{45}{9} = 5\text{m}$$

Parallelograms

The **height** of a parallelogram is the distance between the base and its parallel side.



$$A = bh$$

$$b = 4 \text{ units}$$

$$h = 3 \text{ units}$$

$$A = bh =$$

$$= 4 \times 3 =$$

$$= 12 \text{ units}^2$$

11m

$?$

$$A = 55\text{m}^2$$

$$h = 11\text{m}$$

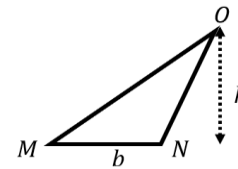
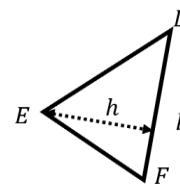
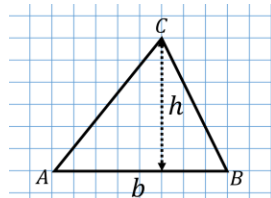
$$A = bh$$

$$55 = b \times 11$$

$$b = \frac{55}{11} = 5\text{m}$$

Triangles

The **height** h of a triangle is the distance between the base (any of the three sides) and its opposite vertex.



$$A = \frac{bh}{2}$$

$b = 6 \text{ units}$

$h = 3 \text{ units}$

$$A = \frac{bh}{2} =$$

$$= \frac{6 \times 3}{2} =$$

$$= \frac{18}{2} = 9 \text{ units}^2$$

8cm

6cm

$?$

$$A = 20 \text{ units}^2$$

$$b = ?$$

$$h = 8 \text{ units}$$

$$2A = bh$$

$$2 \times 20 = b \times 8$$

$$40 = b \times 8$$

$$b = \frac{40}{8} = 5 \text{ units}$$

Circles

A circle is the shape closed by a curved line called **circumference**, whose points are **at the same distance** from the centre.

The **radius** is the distance from the centre to the circumference.

The **diameter** is the distance from one point on the circumference to another, passing through the centre.

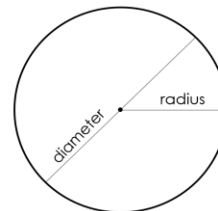
π

Reads "pi".

It is an *irrational* number related to circles.

**NOT terminating
NOR recurring**

3.14159265358979323846264338327950288419716939937510582
0974944592307816406286208998628034825342117067982148
0865132823066470938446095523217253594081281811745
028410270193521055594462294895939389642883017956
6593346128475482337867821527201909145485669234603
48610454266482339360726024914127324597006060635588
17488152092096282925409171536436789259036001133053054
8820466521384146951945116094330572703657599195309218
611738193261179310518548074462379962749567318857527248
9122793818301949129836733624406564430860213949463952
2473719070217860943702770539217176293176752384648184
67694905132005881274526356082778577134757789609173
6571787246840301228534301465493857105079227398925
89235420199561121292021660864034418159819503747739996
0518702113499999983797804995105973732816096531829502
44594534690830264252230823344685035261931881710100
03137838752886587533028384206177669147302598254904
2875546873159562863882353787593751957781857780532171226
80661300192787661119590921642019893809525720106548586
327886936153818279682303019520353018259689957736229



$$d = 2r$$

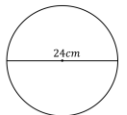
$$\pi \sim 3.1415$$

Circumference and area of a circle, 3D shapes

The **perimeter** of a circle is the length of the **circumference**.
To construct the **circumference** C , it takes π lots of the **diameter**.

$$C = \pi d$$

Calculate the circumference. **Truncate** your answer to 3d.p.



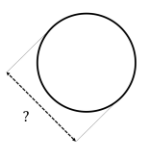
$d = 24\text{cm}$

$$C = \pi d = \pi \times 24 = 24\pi = 75.39822369 \dots \text{cm} = 75.398\text{cm}$$

$C = 47.1239\text{m}$

$$C = \pi d$$

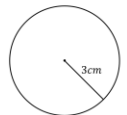
$$47.1239 = \pi \times d$$

$$d = \frac{47.1239}{\pi} = 15\text{m}$$


The **area** of a circle is equal to π lots of the radius squared.

$$A = \pi r^2$$

Calculate the area. **Truncate** your answer to 2d.p.



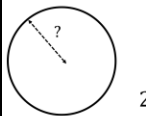
$r = 3\text{cm}$

$$A = \pi r^2 = \pi \times 3^2 = 9\pi = 28.27433388 \dots \text{cm}^2 = 28.27\text{cm}^2$$

$A_O = 201.0619\text{cm}^2$

$$A_O = \pi r^2$$

$$201.0619 = \pi \times r^2$$

$$r^2 = \frac{201.0619}{\pi} = 64 \quad r = 8\text{cm}$$


Area of shapes: *sum m ary.*

RECTANGLE	PARALLELOGRAM
$A_{\square} = bh$	$A_{\parallel} = bh$
TRIANGLE	CIRCLE
$A_{\triangle} = \frac{bh}{2}$	$A_{\circ} = \pi r^2$

In geometry, **three-dimensional** (3D) **shapes** (or **solid figures**) are geometrical objects that have three dimensions such as **length**, **width** and **height**. Whereas 2D shapes have only two dimensions, i.e. length and width.

3D-shapes have a **volume** which is the space they occupy (2D-shapes have an **area** which is the *flat space* they occupy).

3D-shapes have

- **Faces:** flat or curved surfaces that enclose the shape. Faces are two-dimensional and therefore have an area.
- **Edges:** line segments where two faces meet. Edges are one-dimensional and therefore have a length.
- **Vertices:** points where three or more edges meet.

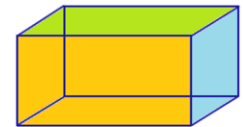
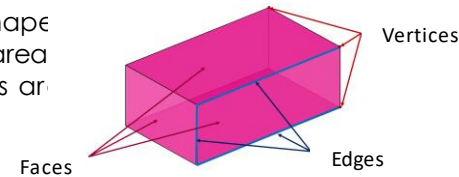
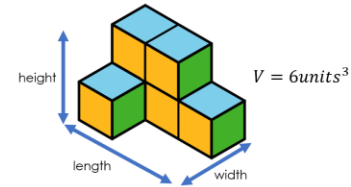
3D-shapes can be **polyhedrons** or **curved solids**.

Polyhedrons

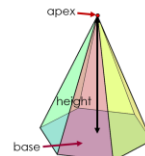
A **polyhedron** is a 3D-shape **enclosed** by flat **faces**.

The most common polyhedrons are

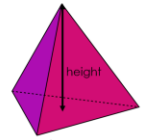
- **Cuboids:** solids with **6 rectangular faces**, 12 edges and 8 vertices. A **cube** is a cuboid where all the faces are **squares**.
- **Pyramids:** solids with a **polygon base** and **triangular side faces** meeting in a vertex called **apex**. The perpendicular distance of the apex from the base is the **height**. A **tetrahedron** is a pyramid where all faces (including the base) are **equilateral triangles**; in a tetrahedron each face is a base and each vertex is an apex.
- **Prisms:** solids with **two identical and parallel polygon bases** and **parallelograms** (or rectangles) as **side faces**. Each **cross-section** of a prism is identical to the bases. The distance between the bases is the **height**.



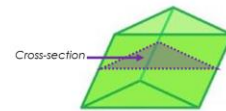
Cuboid



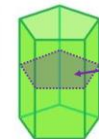
Pyramid



Regular pyramid: tetrahedron



Oblique triangular prism



Cross section

Pentagonal prism

Curved solids and Angles

A **curved solid** is a 3D-shape **enclosed** by curved **faces**.

The most common curved solids are

- **Sphere**: All points on the surface of the sphere are equidistant from a point called the centre. The distance of each point on the surface from the centre is the **radius**. The distance between two points on the surface passing by the centre is the **diameter**. A sphere has one face, no edges, no vertices.
- **Cone**: solids with a **circular base** and an **apex**. The perpendicular distance of the apex from the base is the **height**.
- **Cylinder**: solids with **two identical and parallel circular bases** connected through a curved surface. The curved face is a rectangle with two opposite sides joined together. A cylinder has a constant cross-section like a prism. The distance between the bases is the **height**.

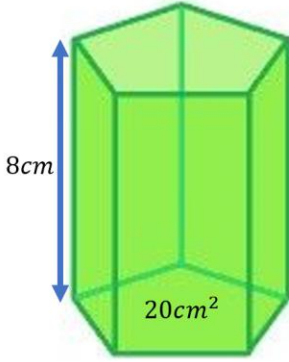
Volume

Cuboids, prisms, cylinders: the area of the base tells us how many unit cubes we can fit onto it, the height tells us how many layers we can fit into it the solid.

$$V = A_{base} \times h$$

For a **cuboid**, as the base is a rectangle $A_{base} = l \times w$, one has

$$V_{cuboid} = l \times w \times h$$



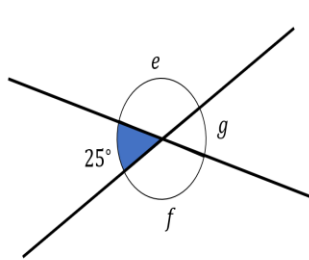
$h = 8\text{cm}$

$A_{base} = 20\text{cm}^2$

$V = A_{base} \times h$
 $= 20 \times 8$
 $= 160\text{cm}^3$

An **angle** is a measure of turn between two **lines** or two **line segments** with a point in common called **vertex**. Angles are measured in degrees.

Two intersecting lines form four angles. **Opposite** angles are equal. Two **adjacent** angles (angles with a side in common) add up to 180° (as they are on a straight line).

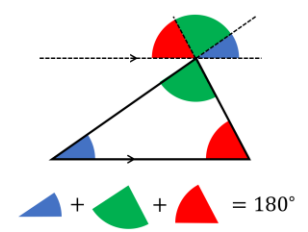


$25^\circ = g$ g is opposite to 25°

$25^\circ + e = 180^\circ$ 25° and e are on a straight line

$e = 180^\circ - 25^\circ$
 $= 155^\circ$

$f = 155^\circ$ f is opposite to e



$\text{blue} + \text{green} + \text{red} = 180^\circ$

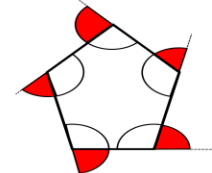
Angles in a triangle add up to 180° .

An **exterior angle** in a polygon is the angle **on a straight line** with the interior angle.

The exterior angles are the red angles.

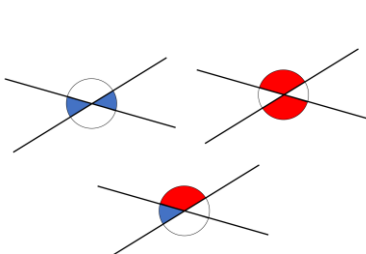
Each pair interior-exterior is 180° .

Adding all of these pairs up and taking away the total of the interior angles we find the total of the exterior angles.



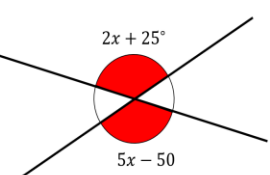
Exterior angles add up to 360° .

$180^\circ \times n - (180^\circ \times n - 360) = 360^\circ$



Angles of different colour are **adjacent**.

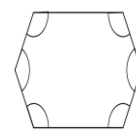
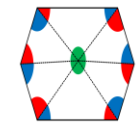
Find the value of x



They are equal as they are opposite

$2x + 25 = 5x - 50$	-2x	$25 = 3x - 50$	+50
$25 = 3x - 50$	+50	$75 = 3x$	+3
$75 = 3x$	÷3	$25 = x$	

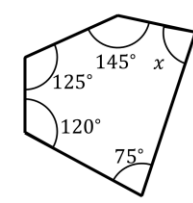
Angles in a n -sided polygon.

We split the polygons in triangles: one triangle per side so that we have n triangles. To find the total sum of all interior angles, we add up all angles in the triangles ($n \times 180^\circ$) and take away the 360° angle made by the green triangles:

$180^\circ \times n - 360^\circ$

Find the value of x



Sum of interior angles: $5 \times 180^\circ - 360^\circ = 540^\circ$

$x + 145^\circ + 125^\circ + 120^\circ + 75^\circ = 540^\circ$
 $x + 465^\circ = 540^\circ$
 $x = 540^\circ - 465^\circ = 75^\circ$



Pythagoras' Theorem

Squares and square roots



This can also be written as 6^2

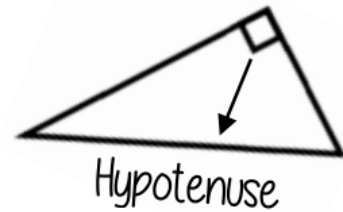
$\sqrt{\quad}$ is the square root symbol

eg $\sqrt{64} = 8$
Because $8 \times 8 = 64$

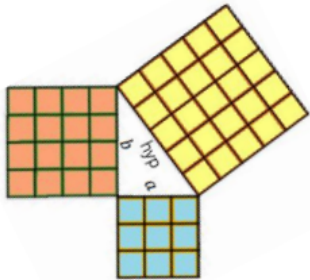
1 x 1	2 x 2	3 x 3	4 x 4	5 x 5	6 x 6	7 x 7	8 x 8	9 x 9	10 x 10
1	4	9	16	25	36	49	64	81	100

Square numbers

Identify the hypotenuse



Determine if a triangle is right-angled



$a = 3$ $b = 4$ $c = 5$

If a triangle is right-angled, the sum of the squares of the shorter sides will equal the square of the hypotenuse.

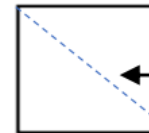
$$a^2 + b^2 = \text{hypotenuse}^2$$

eg $a^2 + b^2 = \text{hypotenuse}^2$

$$\left. \begin{aligned} 3^2 + 4^2 &= 5^2 \\ 9 + 16 &= 25 \end{aligned} \right\}$$

Substituting the numbers into the theorem shows that this is a right-angled triangle

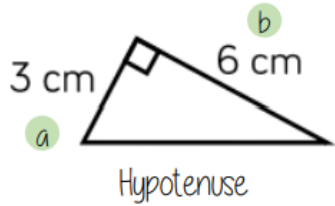
The hypotenuse is always the longest side on a triangle because it is opposite the biggest angle



Polygons can still have a hypotenuse if it is split up into triangles and opposite a right angle

Pythagoras' Theorem

Calculate the hypotenuse



Either of the short sides can be labelled a or b

$$a^2 + b^2 = \text{hypotenuse}^2$$

1 Substitute in the values for a and b

$$3^2 + 6^2 = \text{hypotenuse}^2$$

$$9 + 36 = \text{hypotenuse}^2$$

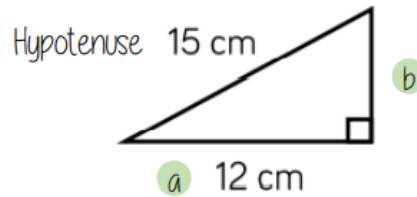
$$45 = \text{hypotenuse}^2$$

2 To find the hypotenuse square root the sum of the squares of the shorter sides

$$\sqrt{45} = \text{hypotenuse}$$

$$\mathbf{6.71\text{ cm}} = \text{hypotenuse}$$

Calculate missing sides



Either of the short sides can be labelled a or b

$$a^2 + b^2 = \text{hypotenuse}^2$$

$$12^2 + b^2 = 15^2$$

1 Substitute in the values you are given

$$144 + b^2 = 225$$

-144 -144

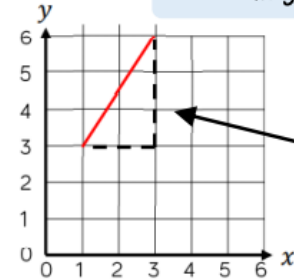
Rearrange the equation by subtracting the shorter square from the hypotenuse squared

Square root to find the length of the side

$$\left\{ \begin{array}{l} b^2 = 111 \\ b = \sqrt{111} = 10.54 \text{ cm} \end{array} \right.$$

Pythagoras' theorem on a coordinate axis

Find the **length** of the line segment



The segment can be made into a right-angled triangle by adding the sides on the diagram

The line segment is the **hypotenuse**

$$a^2 + b^2 = \text{hypotenuse}^2$$

The lengths of a and b are the sides of the triangle.

Be careful to check the scale on the axes

1. Composition of the Earth

The Earth's crust, its atmosphere and the oceans are the only sources of natural resources for human life!

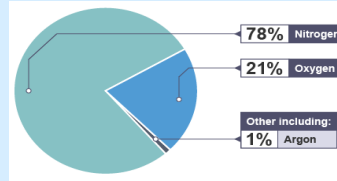
The Earth has four layers:

- Crust (thin and rocky)
- Mantle (properties of solid but flows easily)
- Outer core (made from nickel and iron)
- Inner core (made from nickel and iron)



4. Composition of the Today's Atmosphere

Nitrogen is the most abundant gas in today's atmosphere at 78%. Today's atmosphere contains 21% Oxygen and 1% Argon.

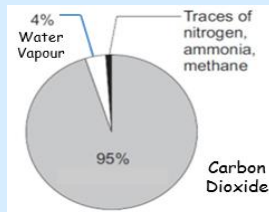


5. Fossil Fuels

About three-quarters of the electricity generated in the UK comes from power stations fuelled by fossil fuels. Energy from the burning fuel is used to boil water. The steam turns turbines, and these turn electrical generators.

2. Composition of the Early Atmosphere

The Earth's early atmosphere was composed of 95% carbon dioxide, 4% water vapour and 1% of trace gases which included Nitrogen, Ammonia and Methane.



KS3 Science Earth & Atmosphere

6. Generating Electricity

Crude oil, coal and gas are fossil fuels. They were formed over millions of years from the remains of dead organisms. Coal was formed from dead trees and plant matter. Crude oil and gas were formed from dead marine organisms.

3. Evolution of Atmosphere

In the 4.5 billion years since the Earth formed its atmosphere has changed considerably. This has happened in three main stages:

Stage 1 – Volcanoes:

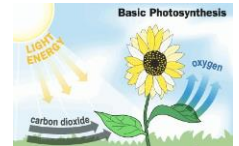
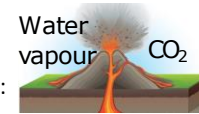
The majority of the early atmosphere was carbon dioxide and water vapour. This was produced by volcanoes. After a time the water vapour condensed and formed the oceans.

Stage 2 – Green plants:

Green plants and algae evolved and used the carbon dioxide for photosynthesis. They also produced oxygen. Basic organisms evolved that were able to use the oxygen.

Stage 3 – Complex animals:

The oxygen allowed more complex organisms to form. The ozone layer formed and this allowed further evolution of complex organisms.



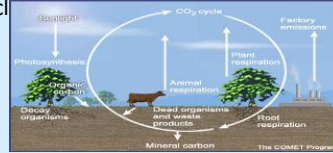
7. Non Renewable Energy Sources

Non renewable energy sources include fossil fuels such as coal, oil and natural gas. These sources are a finite resource, which means when they have been used up, they cannot be replaced. Worryingly, humans are using them faster than they are forming!



10. Carbon Cycle

All cells - whether animal, plant or bacteria - contain carbon. Carbon is passed from the atmosphere (as carbon dioxide) to living things, passed from one organism to the next and returned to the atmosphere as carbon dioxide again. This is known as the carbon cycle.



12. Carbon Cycle

Step 3: Passing carbon from one organism to next
When an animal eats a plant, carbon from the plant becomes part of the fats and proteins in the animal. Microorganisms and some animals feed on waste material from animals, and the remains of dead animals and plants. The carbon then becomes part of these microorganisms and detritus feeders.

Step 4: Returning carbon dioxide to the atmosphere
When fossil fuels are burned (combustion) in factories or transportation, carbon is released into the atmosphere as carbon dioxide gas.

8. Renewable Energy Sources

Scientists are trying to find alternative methods of generating electricity using renewable energy sources.

These are energy sources that will not run out or produce carbon dioxide and other greenhouse gases. They are 'cleaner' and more sustainable although they do come with advantages and disadvantages.

9. Renewable Energy Resources

Resource	Adv.	Disadv.
Wind	no CO ₂	Unreliably, not always windy
Solar	No CO ₂	Expensive, not always sunny
Hydroelectric	No CO ₂	Destroys habitat
Geothermal	No CO ₂	Specific locations

11. Carbon Cycle

Step 1: Removing carbon dioxide from atmosphere
Green plants remove carbon dioxide from the atmosphere by photosynthesis. The carbon becomes part of complex molecules such as proteins, fats and carbohydrates in the plants.

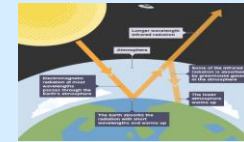
Step 2: Returning carbon dioxide to atmosphere
Organisms return carbon dioxide to the atmosphere by respiration. It is not just animals that respire. Plants and microorganisms do, too.



KS3 Science Earth & Atmosphere

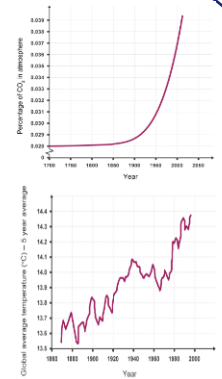
13. Greenhouse Effect

The greenhouse effect is when greenhouse gases (carbon dioxide, methane and water vapour) in the Earth's atmosphere trap radiation from the sun and heat up the planet. Without the greenhouse effect the Earth would be too cold for us to survive on it.



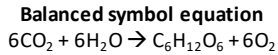
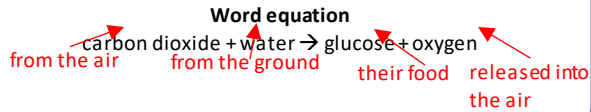
14. Global Warming

The extra greenhouse gases released by human activity lead to the enhanced greenhouse effect. More heat is trapped by the atmosphere, causing the planet to become warmer than it would be naturally. The increase in global temperature this causes is called global warming.



1. Photosynthesis in Plants

Animals need to eat food to get their energy. But green plants and algae do not. Instead they make their own food in a process called **photosynthesis**. Almost all life on Earth depends upon this process. Photosynthesis is also important in maintaining the levels of oxygen and carbon dioxide in the atmosphere.



2. Location of photosynthesis in plants

Photosynthesis takes place inside the **chloroplasts** of the plant cells, these contain a green pigment, **chlorophyll**. This absorbs the light energy needed to make photosynthesis happen. The leaf is a plant organ adapted to carry out photosynthesis. The table describes some of its adaptations:

Thin	a short distance for CO ₂ to move by diffusion
Chlorophyll	Absorbs light
Stomata	Allows CO ₂ to move in by diffusion
Guard cells	open and close the stomata depending on the conditions
Tubes	To transport water (xylem) and glucose (phloem)

3. Measuring the effect of light intensity on photosynthesis

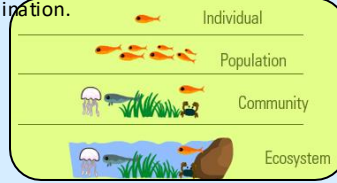
Method:

1. Leave for five minutes for the pondweed to acclimatise to the new
2. Count the number of bubbles given off in one minute.
3. Move the light 10 cm further back.
4. Leave for five minutes for the pondweed to acclimatise again.
5. Count the number of bubbles given off in one minute.
6. Repeat by moving the lamp away by 10 cm intervals until 50 cm is reached.



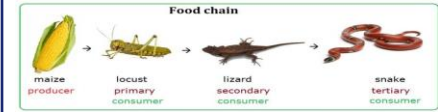
4. Habitats and Ecosystems

An **ecosystem** consists of **communities** of different living things, in single species **populations** living in their habitats. Examples of these include habitats include coral reefs, marshes and lakes. All the living things (**biotic factors**) and non-living things (**abiotic factors**) in an ecosystem depend upon each other for survival. This interdependence includes through feeding, pollination.



6. Food Chains/Biomass

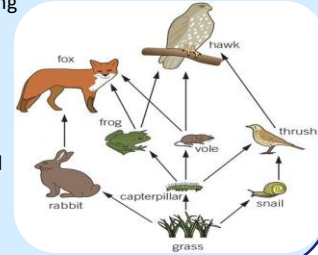
A food chain shows the different species of an organism in an ecosystem, and what eats what. Organisms at each level have different terms:



The population of each organism in a food chain can be shown in a bar chart called a pyramid of numbers or a pyramid of biomass where the bars are drawn to scale. Energy is lost to the surroundings as we go from one level to the next, so there are usually fewer organisms at each level in this food chain.

7. Food Webs

When all the food chains in an ecosystem are joined up together, they form a **food web**. Although it looks complex, it is just several food chains joined together. This leads to some interesting effects if the population in the food web decreases. Some animals can just eat more of another organism if food is in short supply, while others may starve and die. This in turn can affect the populations of other organisms in the food web.



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KS3 Science
Photosynthesis and Ecosystems

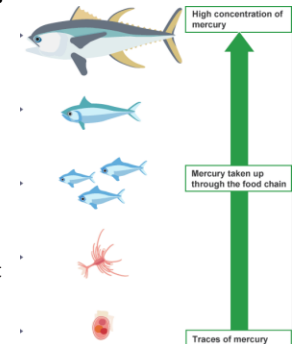
5. Sampling Techniques

Sampling is done to look at the organisms in a population within an ecosystem in a practical way as counting each one individually is not always feasible. This is usually done using quadrats which marks off small areas to then use to estimate the population. A quadrat is usually a square made of wire. It may contain further wires to mark off smaller areas inside, such as 5 × 5 squares or 10 × 10 squares. The organisms underneath, usually plants, can be identified and counted. Quadrats may also be used for slow-moving animals, eg slugs and snails.



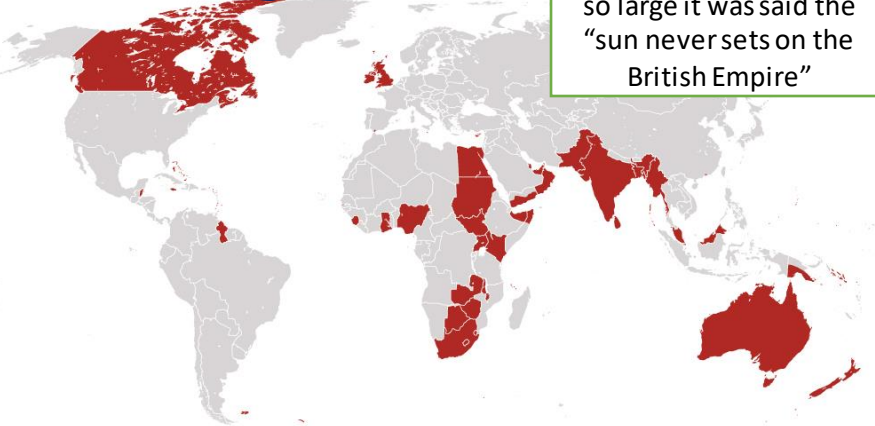
8. Pollution and Pesticides

Some pollutants (including pesticides) quickly break down in the environment whilst others do not. These bio-accumulate in the food chain and damage the organisms in it. The predators at the end of the chain are most affected because compounds cannot be excreted and travel up the food chain.



We need to talk about The British Empire

The British Empire was so large it was said the "sun never sets on the British Empire"



1500s – England begins to establish itself as a naval power and looks to control more land

1833 – Britain abolished slavery

1857 – The Indian Mutiny and the start of the British Raj in India

1919 – Amritsar massacre

1997 – Hong Kong was handed back to China.

1770 – Captain James Cook landed his ship in Australia

1842 – Britain took control of Hong Kong after the opium wars with China

1901 – Australian independence

1947 – Indian independence

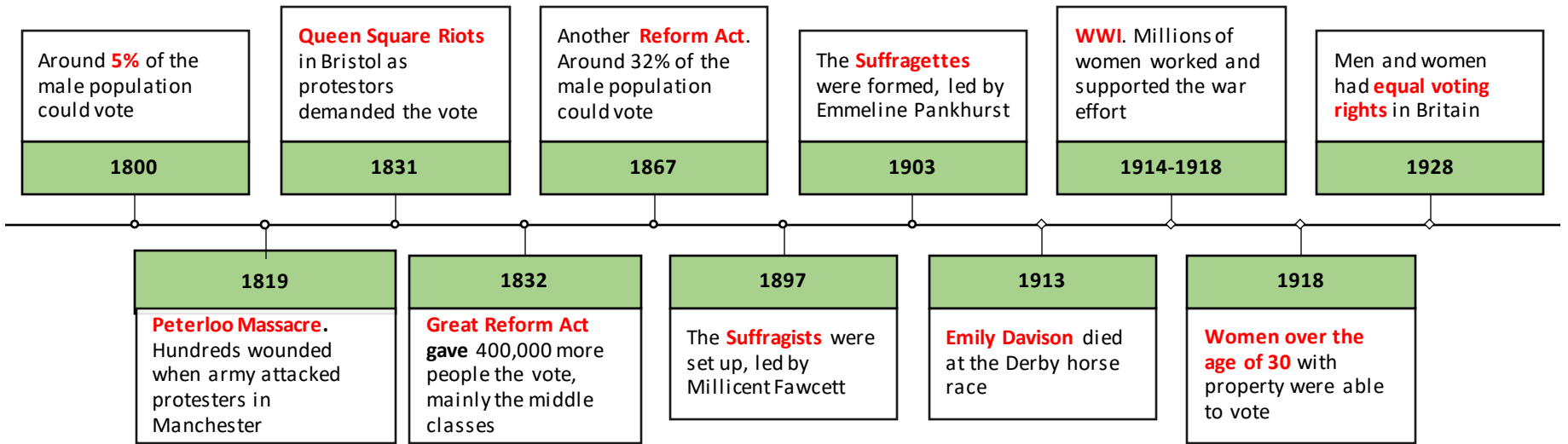
Key terms for this unit

Empire	When countries are ruled/controlled by another country.
Colony	A country that is controlled by an empire. Eg. India, South Africa, Australia, Canada.
Imperialism	When a country wants to extend their power, usually by force
Decolonisation	When colonies got their independence (freedom) and were no longer controlled by an Empire
Indian Mutiny	When Indians fought back against British rule in India
"Jewel in the Crown"	The phrase used to describe India, the most important and valuable British colony
Penal colony	When convicts (criminals) were sent to Australia
Aboriginals	The people native to Australia. They have lived there for over 60,000 years
Opium	A drug

Reasons for wanting an Empire (there are others)

<p><u>Trade (and money)</u> The British could make huge amounts of money from trading across the Empire. They could also access resources which otherwise were not available to them.</p>	<p><u>Warfare</u> The British used soldiers from around the Empire in their army.</p>	<p><u>Political power and influence</u> The British became one of the most powerful countries in History. Even today, Britain is far more powerful than it's size suggests.</p>	<p><u>Religion</u> The British tried to spread Christianity across the Empire, often ignoring local religions and cultures.</p>
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Democracy in Britain c.1800-1928



	Emmeline Pankhurst , leader of the Suffragettes
	Millicent Fawcett , leader of the Suffragists
	Emily Davison , a suffragette who was hit by the King's horse at the Derby and died
	Henry Hunt , A radical reformer and orator who wanted more men to be able to vote

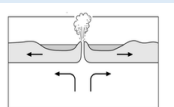
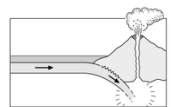
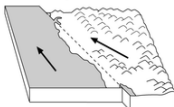
Key terms for this unit

Democracy A system where everyone is represented in government	Suffrage The right to vote in elections <i>"People in the 1800s campaigned for suffrage"</i>	Enfranchised To give the vote to people <i>"Women were enfranchised in 1928"</i>
Suffragists A group who wanted women's suffrage. They tended to use non-violent methods	Suffragettes A group who wanted women's suffrage. They were willing to use violence to be heard	Reform Change. People in the 1800s wanted political reform
Orator A good public speaker	The Derby A prestigious horse race ran every year	Radicals The name given to those who wanted change in the 1800s
Parliament Made up of the House of Commons and the House of Lords, this is where laws are made and passed	MPs Members of Parliament. Today there are 650 MPs who represent their local area in Parliament	Canaries The nickname for women who worked in WWI factories making bullets, this was because their skin often turned yellow

Geography

Keywords

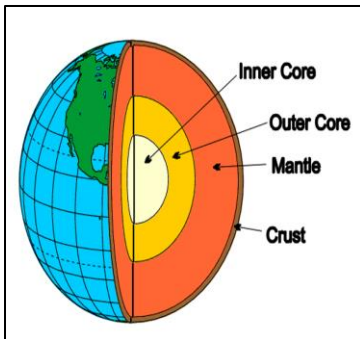
Natural hazard	A natural process that poses a threat to people and property
Tectonic hazard	A hazard caused by tectonic plate movement
Atmospheric hazard	A hazard in the atmosphere (hurricane, thunder and lightning, drought)
Tropical storm	A very powerful, low-pressure weather storm (e.g. hurricanes, typhoons and cyclones)
Multi hazard zone	A location where two or more hazards can occur
Plate boundary	The line between two plates, also known as a fault line

Name of plate margin	Movement of plates	Hazards that occur
Constructive		Volcanoes, earthquakes
Destructive		Volcanoes, earthquakes
Conservative		Earthquakes

Year 8 Geography

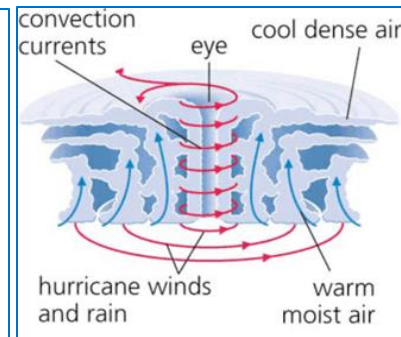
Why do people live in the danger zone?




Earth's structure



Typhoons

- Large storms that can have winds up to 320mp/h
- Form in the tropics where the ocean is over 27°C.
- Warm air rises and the Earth's spin causes the swirling pattern of clouds



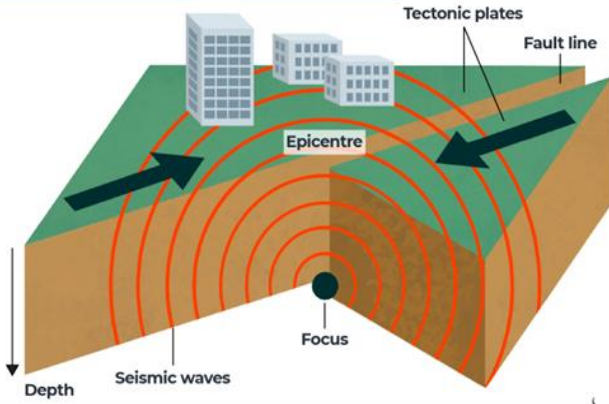
Hazard	Japan 2011: an earthquake created a tsunami with waves up to 39 metres high	Philippines 2013 – Typhoon Haiyan: category 5 storm with winds up to 275km/h
	15,000 people killed and 6000 injured	6,300 people and 600,000 people homeless
	Radioactive water leaked into the ocean from the Tokyo Electric Power Company	Flooding caused landslides
	Total damage cost \$300 billion	6 million people lost their source of income
Immediate	A tsunami warning was issued 3 minutes after the earthquake Search and rescue experts flew out	Warnings broadcast 2 days before meant 750,000 people evacuated Charities provided emergency aid such as food, water and medicine
Long term	Installed a new tsunami warning system	Damaged buildings upgraded to withstand future disasters

Why do so many people live in hazardous areas?

Keyword	Definition
Natural Hazard	The potential threat to humans from a naturally occurring process/event
Earthquake	A sudden, violent shaking of the ground as a result of movements of the earth's crust
Epicentre	The point on the earth surface directly above the focus of an earthquake
Focus	The origin of an earthquake beneath the earth's surface
Magnitude	The strength of an earthquake
Oceanic Crust	The thinner, denser part of the earth's crust which underlies ocean basins
Continental Crust	The thicker, less dense part of the earth crust which forms large land masses
Lahars	A a destructive mudflow, usually as a result of a volcanic eruption
Pyroclastic Flow	A dense, destructive mass of very hot ash, lava fragments and gases ejected explosively from a volcano and typically flowing at great speed



Tropical Storm - A hazard that brings heavy rainfall and strong winds. Also known as hurricanes, cyclones and typhoons



Primary effect -
An effect which is a direct consequence of the natural hazard

Secondary effect -
An effect which is a consequence of the primary effects of a natural hazard

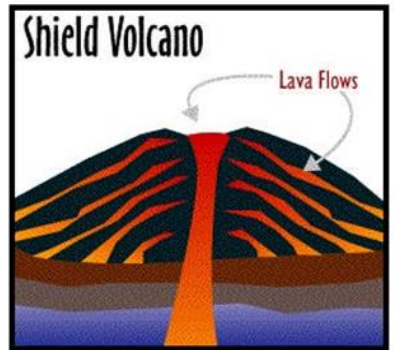
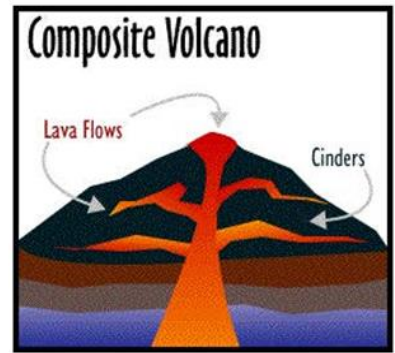
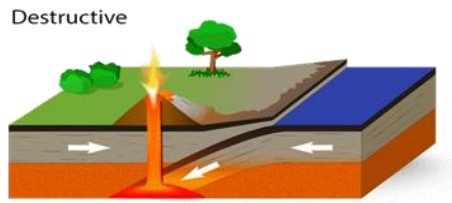
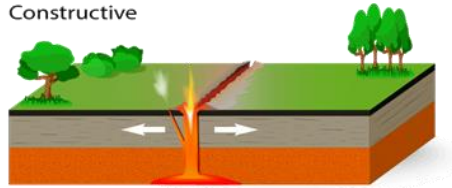
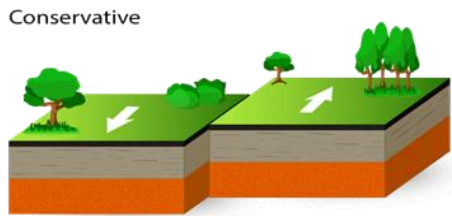
Immediate response -
Something which usually occurs within the first three days of a natural hazard

Long-term response -
Something which occurs weeks, months or years after a natural hazard

Prediction - Involves trying to forecast when the natural hazard will occur

Preparation - Putting procedures in place to limit the loss of life and increase the chance of survival

Protection - Building to an appropriate standard and using designs to withstand the natural hazard

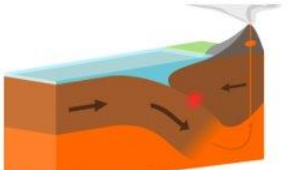




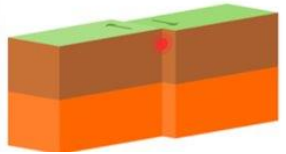
Why do so many people live in tectonically active areas?



At a **constructive** plate margin the plates move apart from one another. When this happens the magma from the mantle rises up to make (or construct) new land in the form of a **shield volcano**. The movement of the plates over the mantle can cause **earthquakes**.



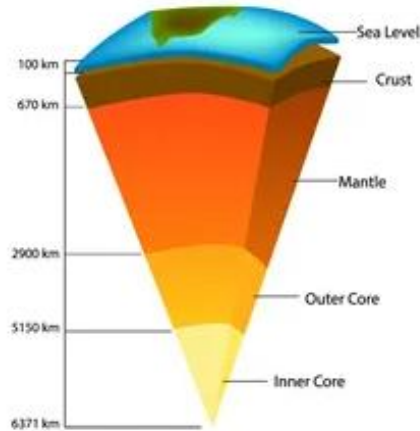
A destructive plate margin usually involves an oceanic plate and a continental plate. The plates move towards one another, and this movement can cause **earthquakes**. As the plates collide, the oceanic plate is forced beneath the continental plate. This is known as subduction. This happens because the oceanic plate is denser (heavier) than the continental plate. At this plate boundary you will find composite **volcanoes**.



At a conservative plate margin, the plates move past each other or are side by side moving at different speeds. As the plates move, friction occurs and plates become stuck. Pressure builds up because the plates are still trying to move. When the pressure is released, it sends out huge amounts of energy, causing an **earthquake**.

The Earth is composed of **four** layers.

- The **outer layer is the crust**; this is solid and relatively thin.
- The **mantle** is underneath the crust; this is made of semi molten rock. Underneath the mantle, we have the **outer core**; this is liquid and is made of iron and nickel.
- At the centre of the Earth, we find the **inner core** made of solid iron and nickel. Scientists believe the core may be as hot as 5,500°C or hotter than the surface of the sun



Atmospheric hazards	Terrestrial/ Geological hazards	Water based hazards	Biological Hazards
Created in the atmosphere, by the movement of air and water	Created by the movement of the Earth's tectonic plates or surface rock and soils	Created by rivers, sea or oceans	Any biological substance that poses a threat to the health of people
Hurricane	Earthquakes	Tsunami (both?)	COVID-19
Drought	Landslides	Coastal/tidal floods	Malaria
Forest Fires	Volcanoes	River flooding	

Ancient Egypt:

Throughout the underworld journey, the deceased's spirit would have to **contend with gods, strange creatures and gatekeepers to reach Osiris and the Hall of Final Judgment. Here they would plead their case for entry into the afterlife.**

The God Osiris was the god and chief of the underworld. The ancient Egyptians believed him to be a **dead king**, a former ruler who had been miraculously restored to life after being murdered by his brother Seth.

Once the journey through the underworld is complete, the deceased reach the Hall of Final Judgment. Judgment involved a two-part process:

Part 1: standing before the 42 divine judges

Part 2: weighing the heart

The ancient Egyptians believed each person was made up of five distinct parts - the physical body, the Ba, the Ka, the Name, and the Shadow.

The **Ba** was your personality, whatever made each person unique that was not physical - your humour, your warmth, your charm, yourself. The Ba is pictured in hieroglyphics as a bird with a human head.

The **Ka** was a life force. It was represented by two arms, outstretched. This was to ward off evil. When a person died, their Ka continued to live.



Ancient Greece

Hades' goal was to **increase the number of spirits in his underground kingdom.** He ruled over funerals and ensured that the dead were buried properly and respectfully. However, once their spirit entered the Underworld, he made sure that they couldn't leave. Hades had a guard dog named Cerberus. Cerberus was said to have three heads and patrolled the entrance to the Underworld, making sure that the dead didn't exit, and the living didn't enter.

In ancient Greek mythology, the **Underworld** was a strange and scary place, **ruled by the god Hades.** It was where most humans went after they died.

To get to the Underworld, first you had to find it! It was hidden down below the ground and surrounded by five rivers. **This helped keep anyone from escaping or entering.**

Also within the bowels of the Underworld is **Persephone**, Hades's wife. The story of Persephone is one of the greatest myths of the Underworld. **The daughter of Zeus, the young goddess was gathering flowers when Hades abducted her to the Underworld.**

The Vikings

For Vikings, **the best possible outcome was to die bravely in battle.** They believed that, if they were lucky, winged female spirits called **Valkyries** would swoop down to collect the souls of the dying warriors and take them to live with Odin at Valhalla.

Valhalla was the Viking version of Heaven. The warriors who made it there would live in Odin's great hall and spend eternity drinking beer, eating roast meat, and having a great time.

Odin has many names and **is the god of both war and death.** Half of the warriors who die in battle are taken to his hall of Valhalla. He is the one-eyed All-Father, who sacrificed his eye in order to see everything that happens in the world.

Vikings were buried with all the things that were important to Vikings: their swords and axes; fine clothes; gold and jewellery. It was believed that they would need these in the afterlife.

Reincarnation

Behaviours that prevent us reaching mukti

- hankar - pride
- kam - lust or desire
- karodh - anger
- lobh - greed
- manmukh - being self-centred instead of God-centred which is Gurmukh
- maya - illusion - looking at the world and ignoring Waheguru
- moh – being too attached to the world

Behaviours that lead to good karma:

- there is only one God – Waheguru
- worship and pray to Waheguru alone, and remember Waheguru at all times
- always work hard, and share with others
- live a truthful life
- remember that men and women are equal in the eyes of Waheguru
- the whole human race is one - distinctions of colour and class are wrong
- idols, magic, omens, fasts, marks on the face and sacred threads are banned
- dress simply and modestly
- live a married life
- put your faith in the Guru Granth Sahib
- avoid lust, anger, greed, attachment to worldly things and arrogance
- live a humble and simple life

Day of the Dead

On October 31, All Hallows Eve, the children make a children's altar to invite the spirits of dead children to come back for a visit. They believe that the gates of heaven are opened at midnight on October 31, and the spirits of all deceased children (*angelitos*) are allowed to reunite with their families for 24 hours. On this same day, small skulls are often placed on the *offrenda* (altar), representing the children who have passed.

November 1 is All Saints Day, and the adult spirits will come to visit and larger and more detailed skulls replace the smaller ones, representing the deceased adults who now come down to enjoy the festivities that are prepared for them.

November 2 is All Souls Day, when families go to the cemetery to decorate the graves and tombs of their relatives. Sugar skulls are often used to decorate the gravestones of the deceased.

Many Christians hold very different opinions of heaven and hell. This is because the bible does not specifically say what the afterlife might be. Below you will find information about these differing points of view.

The popular belief is that one enters heaven at the moment of death. This, however, is *not* part of the doctrine (rules) of all of Christianity. Some believe that the soul does not enter heaven until the last judgment or the end of time when it (along with the body) is resurrected and judged. This is called the resurrection of the body. Others believe that the soul goes to heaven immediately after death.

Heaven and hell are sometimes described as physical places. Often heaven is thought of as being up above and hell down below. Heaven is often described as a magical place with angels that sit on clouds and hell is a place filled with fire, torture and the devil. However not all Christians believe that heaven and hell are places that can be located geographically or in other words real places that exist. For other Christians heaven and hell are in fact just a state of mind or that it is the denial of the Beatific Vision.

Original Christian teaching is that people who did not accept Jesus and follow his teachings would be sent to hell after death and be punished there for eternity. However Christian thinking and teachings have changed over time:

Protestants: hold strongly that when Jesus died on the cross, he took upon himself the punishment for the world's sin. Therefore they believe that you can go to heaven by having faith in Jesus Christ – not through living a good life or belonging to a particular church. Although Protestants believe that entering heaven requires one to have faith in Christ and that is all. It is widely believed that people who have lived an evil life will be denied entry to heaven.

The Roman Catholic Church: teaches that those who have died free of sin, because they have confessed, will go straight to heaven. However those with unrepented sin will go to a place called purgatory to undergo purification or in other words so they can be forgiven. Once they are forgiven they may enter heaven.

Other: Christians believe in an approach called Universalism. This is that God is benevolent and just and therefore he would not allow anyone to suffer for eternity in hell therefore everyone, Christian or not, is allowed to enter heaven.

Languages

8.5 Present Holidays - Spanish Vocab List

¿Dónde vas?	Where do you go?
Voy	I go
a París / a Londres	to Paris / to London
a Francia	to France
a España	to Spain
a Inglaterra	to England
a Escocia	to Scotland
a Irlanda	to Ireland
a Gales	to Wales
a Portugal	to Portugal
a Pakistán	to Pakistan
a Polonia	to Poland
a Somalia	to Somalia
al Caribe	to the Caribbean
al Reino Unido	to the UK
a los Estados- Unidos	to the States
a los Países Bajos	to the Netherlands

¿Qué visitas?	Where do you visit?
Visto / Visitamos	I visit / We visit
la playa	The beach
la piscina	The swimming pool
el centro	The town centre
el museo	The museum
el mercado	The market
el estadio (de fútbol/rugby)	The (football/rugby) stadium
el parque de atracciones	The theme park
los monumentos	The monuments
las tiendas	The shops
los cafés	The cafés
los restaurantes	The restaurants
la oficina de turismo	The tourist office

¿Dónde te alojas?	Where do you stay?
Me alojo en / Me quedo en	I stay in
un hotel (de cinco estrellas)	A (five star) hotel
un camping	A campsite
un apartamento	An apartment
una caravana	A caravan
una tienda	A tent
un albergue juvenil	A youth hostel
una caravana estática	A static caravan
en casa de mis abuelos	At my grand-parents'
un parador	A state-owned luxury hotel
una pensión	A B&B

¿Cómo viajas?	How do you travel?
Viajo / Viajamos	I travel / We travel
a pie	by foot
en bici	by bike / pushbike
en moto	by motorbike
en coche	by car
en tren	by train
en barco / en crucero	by boat / by cruise ship
en metro	by tube
en autocar	by coach
en autobús	by bus
en avión	by plane

¿Qué tiempo hace?	What is the weather like?
Hace buen / mal tiempo	It is good / bad weather
Hace calor/frío	It is hot/cold
Hace sol	It is sunny
Hace 25 grados	It is 25 degrees
Llueve	It is raining
Nieva	It is snowing
Hay viento	It is windy
Hay nubes	There are clouds

¿Qué haces...?	What do you do...?
Descansar	To rest
*Divertirse (me divierto)	To have fun (I have fun)
Tomar el sol	To sunbathe
Visitar monumentos	To visit monuments
*Ir a la playa	To go to the beach
*Ir al restaurante	To go to the restaurant
*Ir de compras	To go shopping
*Dar un paseo	To go for walks
Sacar/tomar fotos	To take photos
Comprar recuerdos	To buy souvenirs
*Hacer deporte	To do (play) sports
*Hacer deportes acuáticos	To do water sports
Bailar en la discoteca	To dance in the club

¿Dónde está...?	Where is it...?
Está lejos	It's far
Está cerca	It's nearby
Está a cinco minutos	It's 5 minutes away
Está a 300 metros	It's 300 metres away
Siga todo recto	Go straight on
En el semáforo siga todo recto	At the traffic lights go straight on
En la rotonda gira a la derecha	At the roundabout turn right
Gira a la izquierda	Turn left
Gira a la derecha	Turn right
Tome la primera	Take the first
Tome a segunda	Take the second
Cruza el puente	Cross the bridge

There are three types of verbs in Spanish and in their infinitive form they end in:
 -ar -er -ir

The present tense : Depending on the pronoun, we change the ending of the verb using the table below :

Pronouns	-ar	-er	-ir
yo (I)	-o	-o	-o
tú (you)	-as	-es	-es
él (he), ella (she)	-a	-e	-e
Nosotros/nosotras (we)	-amos	-emos	-imos
Vosotros/vosotras (you) (pl)	-áis	-éis	-ís
ellos/ellas (they)	-an	-en	-en

The Near Future :

The near future **tense** is used to express something that will be happening in the very near future. It is formed by conjugating the verb **ir** (to go) in the present tense + a + an infinitive.

Example: I'm going to travel by plane > Voy a viajar en avión.

English	To go (present)	"a"	Infinitive
I am going to go	Voy	a	ir
You are going to play	Vas	a	jugar
He/she is going to visit	Va	a	visitar
We are going to swim	Vamos	a	nadar
You (pl.) are going to read	Váis	a	leer
They are going to do	Van	a	hacer

Time markers tell us when something happens and help us work out which tense is being used. The following can be used with the future tense.

Mañana - tomorrow

La semana próxima- next week

El fin de semana que viene – next weekend

El próximo mes - next month

El año que viene – next year

En dos años – In two years

Example:

Descansar = **to** rest Comer = **to** eat vivir = **to** live
 Descanso = **I** rest Comemos = **we** eat viven = **they** live

8.6 Past Holidays - Spanish Vocab List

Las opiniones	Opinions
 Fue genial	It was great
 Fue fantástico	It was fantastic
 Fue interesante	It was interesting
 Fue emocionante	It was exciting
 Fue inolvidable	It was unforgettable
 Fue increíble	It was incredible
 Fue demasiado corto	It was too long
 Fue demasiado largo	It was too short

¿Qué tiempo hacía?	What was the weather like?
 Hacía buen tiempo	It was nice weather
 Hacía mal tiempo	It was bad weather
 Hacía sol	It was sunny
 Hacía calor	It was hot
 Hacía frío	It was cold
 Hacía viento	It was windy
 Llovía	It was raining

¿Qué hiciste durante las vacaciones?	What did you do on holidays?
 Fui a la playa	I went to the beach
 fui al restaurante	I went to the restaurant
 fui de compras	I went shopping
 Me quedé	I stayed
 Comí	I ate
 Bebí	I drank
 Vi	I saw
 Probé	I tried (food)
 Hice deportes acuáticos	I did watersports
 Descansé	I rested
 Me relajé	I relaxed
 Me divertí	I had fun
 Visité monumentos	I visited monuments
 Di paseos	I went walking
 Saqué fotos	I took photos
 Compré recuerdos	I bought souvenirs
 Tomé el sol	I sunbathed

La vida cotidiana	Daily life
 La gente	People
 Los habitantes	Inhabitants
 Hablar	To speak
 Vivir	To live
 Celebrar	To celebrate
 Preparar	To prepare
 Ir a trabajo	To go to work
 Ir al instituto	To go to school
 Volver a casa	To go back home
 Ver la tele	To watch TV
 Cenar	To have dinner
 Bañarse	To have a bath
 Ducharse	To have a shower

¿Cuándo?	When?
Ayer	Yesterday
La semana pasada	Last week
El fin de semana pasado	Last weekend
El mes pasado	Last month
El año pasado	Last year
Hace dos días	Two days ago
El otro día	The other day

A **verb** is a doing, being or having word. e.g. to speak, to eat, to be.
Reflexive verbs in Spanish are verbs which usually mean an action done to yourself (e.g. wash yourself, shower etc.). Many are regular -ar verbs and they need an extra **reflexive pronoun**. We know a Spanish verb is reflexive because it will have «se » on the end of its infinitive eg. lavarse (to wash) and levantarse (to get yourself up).

Subject pronouns	Reflexive pronouns
yo (I)	me
tú (you)	te
él (he), ella (she)	se
nosotros/as (we)	nos
vosotros/as (you) (pl)	os
ellos/ellas (they)	se

Examples:

lavarse - to wash

me lavo > I wash

levantarse- to get up

nos levantamos > we get up

Ducharse- to shower

Te duchas > you shower

The **preterite** is the past tense used in Spanish to describe a completed action at a specific time in the past (e.g. ayer (yesterday), el año pasado (last year)). For regular we take off -ar, -er -ir and add the below endings :

	-AR	-ER / -IR
I	é	í
You (sg)	aste	iste
He/she/it	ó	ió
We	amos	imos
You (pl)	asteis	isteis
They	aron	ieron

Examples:

Tomar = to take
 To form "I took"

~~TOMAR~~ > tom > tomé

Hablar = to speak
 To form "she spoke"

~~HABLAR~~ > habl > habló

Careful! Not all verbs are regular in the preterite. Some key irregulars are :

Hacer (to do)	hice, hiciste, hizo, hicimos, hicisteis, hicieron
Ir (to go)	fui, fuiste, fue, fuimos, fuisteis, fueron
Ser (to be)	fui, fuiste, fue, fuimos, fuisteis, fueron
Tener (to have)	tuve, tuviste, tuvo, tuvimos, tuvisteis, tuvieron



8.5 Present Holidays - French Vocab List

Tu vas où?	Where do you go?
Je vais	I go
À Paris/ Londres	to Paris / to London
En France	to France
En Espagne	to Spain
En Angleterre	to England
En Écosse	to Scotland
En Irlande	to Ireland
Au Pays de Galles	to Wales
Au Portugal	to Portugal
Au Pakistan	to Pakistan
En Pologne	to Poland
En Somalie	to Somalia
Aux Caraïbes	to the Caribbean
Au Royaume Uni	to the UK
Aux États-unis	to the States
Aux Pays Bas	to the Netherlands

Qu'est-ce que tu visites?	What do you visit?
Je visite/ Nous visitons	I visit / We visit
La plage	The beach
La piscine	The swimming pool
Le centre-ville	The town centre
Le musée	The museum
Le marché	The market
Le stade de foot/ rugby	The (football/rugby) stadium
Le parc d'attraction	The theme park
Les monuments	The monuments
Les magasins	The shops
Les cafés	The cafés
Les restaurants	The restaurants
L'office de tourisme	The tourist office

Tu restes où?	Where do you stay?
Je reste dans	I stay in
un hôtel cinq étoiles	A (five star) hotel
Un camping	A campsite
Un appartement	An apartment
Une caravane	A caravan
Une tente	A tent
Une auberge de jeunesse	A youth hostel
Un mobil-home	A static caravan
Chez mes grand-parents	At my grand-parents'
Un hôtel de luxe	A state-owned luxury hotel
Un B&B	A B&B

Comment Voyager?	How do you travel?
Je voyage/ nous voyageons	I travel / We travel
à pied	by foot
à vélo	by bike / pushbike
en moto	by motorbike
en voiture	by car
en train	by train
en bateau/ en bateau de croisière	by boat / by cruise ship
en métro	by tube
en car	by coach
en bus	by bus
en avion	by plane

Quel temps fait-il ?	What is the weather like?
Il fait beau/ il fait mauvais	It is good / bad weather
Il fait chaud/ froid	It is hot / cold
Il ya du soleil	It is sunny
il fait 25 degrés	It is 25 degrees
Il pleut	It is raining
Il neige	It is snowing
Il ya du vent	It is windy
Il ya des nuages	There are clouds

Que fais-tu?	What do you do...?
Se relaxer	To rest
S'amuser (je m'amuse)	To have fun (I have fun)
Bronzer	To sunbathe
Visiter des monuments	To visit monuments
Aller à la plage	To go to the beach
Aller au restaurant	To go to the restaurant
Faire du shopping	To go shopping
Se promener	To go for walks
Prendre des photos	To take photos
Acheter des souvenirs	To buy souvenirs
Faire du sport	To do (play) sports
Faire du sport nautique	To do water sports
Danser en boîte	To dance in a club

C'est où?	Where is it...?
C'est loin	It's far
C'est proche/à proximité	It's nearby
C'est à 5 minutes d'ici	It's 5 minutes away
C'est à 300 mètres d'ici	It's 300 metres away
Allez tout droit	Go straight on
Aux feux, continuez tout droit	At the traffic lights go straight on
Au rond-point tournez à droite	At the roundabout turn right
Tournez à gauche	Turn left
Tournez à droite	Turn right
Prenez la première	Take the first
Prenez la deuxième	Take the second
Traversez le pont	Cross the bridge

There are three types of verbs in French and in their infinitive form they end in:

-er -ir -re

For the **present tense**, depending on the pronoun, we change the ending of the verb using the table below :

Pronouns	-er	-ir	-re
Je (I)	-e	-is	-s
Tu (you)	-es	-is	-s
il (he), elle (she)	-e	-it	/
Nous (we)	-ons	-issons	-ons
Vous (you) (pl)	-ez	-issez	-ez
ils / elles (they)	-ent	-issent	-ent

Examples:

Porter = **to** wear > je porte = **I** wear

Finir = **to** finish > nous finissons = **we** finish

Vendre = **to** sell > ils vendent = **they** sell

The Near Future :

The near future **tense** (le futur proche) is used to express something that will be happening in the very near future. It is formed by conjugating the verb **aller** (to go) in the present tense, followed by an infinitive.

English	To go (present)	Infinitive
I am going to go	Je vais	aller
You are going to play	Tu vas	jouer
He/she/we are going to visit	Il/elle/on va	visiter
We are going to swim	Nous allons	nager
You (pl.) are going to read	Vous allez	lire
They are going to do	Ils/elles vont	faire

Going to or living in a country

In French the word “to” or “in” with countries changes depending on if they are masculine, feminine, plural or a town/city. Countries which end in “e” are almost always feminine (this really helps)

Examples :

Je vais **en** Espagne (**feminine**) → I go **to** Spain

Je vais **au** Portugal (**masculine**) → I go **to** Portugal

Je vais **à** l'hôtel (**vowel**) → I go **to** the hotel

Je vais **aux** Etats-Unis (**plural**) → I go **to** the USA

Je vais **à** Paris (**town/city**) → I go **to** Paris



les participes passés irréguliers?	Irregular past participles
Faire → fait	To do → did
Prendre → pris	To take → took
Boire → bu	To drink → drank
Voir → vu	To see → saw
Lire → lu	To read → read
Vouloir → voulu	To want → wanted
Dire → dit	To say → said
Devenir → devenu	To become → became
Avoir → eu	To have → had
Écrire → écrit	To write → wrote

Les opinions	Opinions
C'était	It was ...
Génial	Great
Fantastique	Fantastic
Intéressant	Interesting
Touchant	Moving (emotionally)
Inoubliable	Unforgettable
Incrovable	Incredible
Trop court	Too short
Ennuyeux/barbant	Boring
Trop long	Trop long
Passionnant	Exciting
Émouvant	Emotional

Quand?	When?
Aujourd'hui	Today
Normalement	Normally
D'habitude	Usually
Parfois/quelquefois	Sometimes
Pendant la pause/ le trajet	During breaktime/the journey
Le weekend	On the weekend
Après le collège	After school
deux fois par semaine	Twice a week
souvent	Often
Toujours	Always
Rarement	Rarely
De temps en temps	From time to time
Le lundi	On Monday
Hier	Yesterday
Récemment	Recently
Le week-end dernier	Last weekend
La semaine dernière	Last week
L'année dernière	Last year
Il y a un mois	A month ago
Demain	Tomorrow
Bientôt	Soon
A l'avenir	In the future
Le weekend prochain	Next weekend
La semaine prochaine	Next week
L'année prochaine	Next year
Dans un mois	In a month



Qu'est-ce que tu fais normalement?	What do you do normally?
Se reposer (je me repose)	To relax
Se relaxer (je me relaxe)	To relax
S'amuser (je m'amuse)	To have fun
Se baigner (je me baigne)	To bathe
S'habiller (je m'habille)	To get dressed
Se lever (je me lève)	To get up
Se laver (je me lave)	To wash
Se réveiller (je me réveille)	To wake up
S'entendre avec (je m'entends avec)	To get on with
Se brosser les dents/ les cheveux (je me brosse)	To brush teeth/hair
Se doucher (je me douche)	To shower
Se maquiller (je me maquille)	To put on make-up



Quel temps faisait-il?	What was the weather like?
Il faisait beau	It was good weather
Il faisait chaud	It was hot
Il faisait froid	It was cold
Il faisait 25 degrés	It was 25 degrees
Il faisait mauvais	It as bad weather
Il pleuvait	It was raining
Il neigeait	It was snowing
Il y avait du vent	It was windy
Il y avait des nuages	It was cloudy
Il y avait des orages	It was stormy
Il y avait du brouillard	It was foggy
Il y avait du soleil	It was sunny





A **verb** is a doing, being or having word. e.g. to speak, to eat, to be.
Reflexive verbs in French are verbs which usually mean an action done to yourself (e.g. straighten your hair, brush your teeth, etc.). Many are regular -er verbs and they need an extra **reflexive pronoun**.

Subject pronouns	Reflexive pronoun
je (I)	me
tu (you)	te
il (he), elle (she), on (we)	se
nous (we)	nous
vous (you) (pl)	vous
ils/elles (they)	se

Examples:

Se lisser les cheveux - to straighten one's hair
 Je **me** lisse les cheveux > I straighten my hair
Se brosser les dents - to brush one's teeth
 On **se** brosse les dents > we brush our teeth
Se doucher - to shower
 Tu **te** douches le matin ou le soir? Do you shower in the morning or in the evening?

The perfect tense:

You can talk about the past by using the **perfect tense** (*le passé composé*). The perfect tense has 3 parts:

- 1. The subject pronoun (eg. Je, nous)**
- 2. The auxiliary (avoir or être)**
- 3. The past participle**

To form the past participle, take off the infinitive endings (**-er, -ir or -re**) and add the following endings instead:

- ER verbs > - é
- IR verbs > - i
- RE verbs > - u

Examples:

J'**ai** achet**é** des baskets au centre commercial. *I **have bought** trainers at the shopping mall.*

Hier il **a** jou**é** au foot dans le parc. *Yesterday he **played** football in the park.*

Tu **es** all**é** en ville hier? *You **went** to town yesterday?*

The 2 auxiliary verbs are AVOIR or ÊTRE.

- Use **AVOIR** with most verbs.
- Use **ÊTRE** with **reflexive verbs** and **DR. MRS VANDERTRAMP verbs**. [*Devenir* (to become), *Revenir* (to come back), *Monter* (to go up), *Retourner* (to return), *Sortir* (to go out), *Venir* (to come), *Aller* (to go), *Naître* (to be born), *Descendre* (to go down), *Entrer* (to enter), *Rentrer* (to go home/to return), *Tomber* (to fall), *Rester* (to remain), *Arriver* (to arrive), *Mourir* (to die), *Partir* (to leave).]

AVOIR	ÊTRE
J' ai	Je suis
Tu as	Tu es
Il /elle a	Il /elle est
Nous avons	Nous sommes
Vous avez	Vous êtes
Ils /elles ont	Ils /elles sont

Remember!

When using être to form the perfect tense your past participle must agree with the subject pronoun.

Add -e if feminine e.g. elle est all**é**e

Add -s if plural e.g. ils sont all**é**s

Add -es if feminine plural eg. elles sont all**é**es

Food Tech

Health and Safety



Carry knives pointing down.



Wash up with hot water and washing liquid.



Clean surfaces and equipment to kill bacteria.



Wash hands with soap after touching raw meat.



Wipe up spills straight away to avoid slips.

Chopping board colour coding	
Red	Raw meat
Blue	Raw fish
Yellow	Cooked meat
Green	Salad and fruit
Brown	Vegetables
White	Bakery and dairy

Knife Skills

- Always carry knives pointing downwards
- Always pass knives by the handle
- Never run or fight with knives
- Keep the knife blade away from your fingers when cutting
- Never cut towards yourself
- Never leave a knife in the sink
- Never try and catch a knife if it falls

When using a knife there are **TWO** techniques we can use to ensure knife safety when cutting ingredients.



Claw grip



Arch grip

Nutrient	Use in the body	Sources
Carbohydrates	To provide energy.	Potatoes, pasta, bread, rice, lentils, noodles, flour.
Protein	For growth, repair and some energy.	Eggs, milk, yoghurt, cheese, fish and seafood, nuts, seeds, soya, meat.
Fat	To provide energy. Also to store energy in the body and insulate it against the cold.	<u>Animal fats</u> : Lard, butter, fish. <u>Plant based</u> : Olive oil, sunflower oil.
Minerals	Needed in small amounts to maintain health e.g. calcium for bone health.	<u>Calcium</u> : Milk, cheese, dairy, green leafy vegetables. <u>Iron</u> : Clams, liver, sunflower seeds, nuts, beef, lamb, beans, whole grains, dark leafy greens.
Vitamins	Needed in small amounts to maintain health.	<u>Vitamin D</u> : Fish oils, fatty fish, mushrooms, beef. <u>Vitamin B</u> : Cereals.
Fibre	Helps to keep the food moving through the gut.	Cereals, bread, beans, lentils, fruit & vegetables.

Food Tech

Common Food Poisoning Pathogens

Pathogen	Sources	Symptoms
E coli	Raw meat, untreated milk and water.	Vomiting, blood in diarrhoea, kidney damage or failure.
Listeria	Soft cheese, pate, unpasteurised milk, under cooked meat.	Mild flu, meningitis and pneumonia.
Clostridium perfringens	Dirt from soil containing animal faeces.	Diarrhoea, stomach cramps.
Salmonella	Raw meat, eggs, seafood, dairy products.	Diarrhoea, vomiting, fever.
Bacillus cereus	Cooked rice, pasta, cereal foods.	Nausea, vomiting, diarrhoea.
Staphylococcus Aureus	Anything touched by hand, dairy products.	Nausea, vomiting, diarrhoea.

Common Food Allergies



A food allergy is when the body's immune system reacts unusually to specific foods. Although allergic reactions are often mild, they can be very serious.

A food intolerance is difficulty digesting certain foods and having an unpleasant physical reaction to them. These include coeliac disease (allergic to gluten) and lactose intolerance (allergic to a type of sugar mainly found in milk and dairy).

Cooking Processes

Radiation
Heat from an oven or grill.

Denaturation
When the protein in cheese unravels (melting).

Gelatinisation
When starch granules swell.

Mis-en-place
A French word to describe preparing ingredients and getting everything ready for cooking.

Convection
The scientific process that occurs when liquids boil in a pan.

Stock
The juice from cooked meats, fish, and vegetables.

Enzymic Browning
A reaction that occurs in some fruit and vegetables when left to react with air.

Gluten
The protein particles contained in flour.

Shortening
Rubbing flour and fat together to make a crumbly mixture.

Dextrinisation
A chemical process that turns food brown/black when cooking.

Workshop Tools


Coping saw



Tenon saw



Woodwork file



Pillar drill



Belt sander



Bench hook

Timbers

Timber comes from trees. Trees have to grow to full maturity (between 25 and 100 years) before they can be cut down for wood.

Timber is grouped into three categories; hardwood, softwood and manufactured boards.

Hardwoods

Hardwoods come from deciduous trees, which have large flat leaves that fall in the autumn.

Hardwoods take longer to grow, are not easily sourced and are expensive to buy.

A tree has a ring for every year it grows, the darker part of the ring is strong.

Hardwoods have closely packed rings because they grow slower. This makes them hard.

Ash, Beech, Mahogany, Oak and Balsa are examples of hardwoods.

Softwoods

Softwoods come from coniferous trees.

These often have pines or needles, and they stay evergreen all year round - they do not lose leaves in the autumn.

They are faster growing than hardwoods, making them cheaper to buy, and are considered a sustainable material.

A tree has a ring for every year it grows, the darker part of the ring is strong.

Softwoods have big growth gaps between the rings making them softer.

Larch, Pine and Spruce are examples of softwoods.

Manufactured boards

Manufactured boards are usually made from timber waste and adhesive.

To make them more aesthetically pleasing they are often veneered (a thin layer of wood, applied to give a nice surface). They are cheap to buy.

Medium-density fibreboard (MDF), Plywood and Chipboard are examples of manufactured boards.

We use **ACCESS FM** to help us write a **specification** - a list of requirements for a design - and to help us **analyse and describe** an already existing product.

ACCESS FM - Helpsheet

A is for **Aesthetics**



Aesthetics means **what does the product look like?**
 What is the: Colour? Shape? Texture? Pattern? Appearance? Feel?
 Weight? Style?

C is for **Cost**



Cost means **how much does the product cost to buy?**
 How much does it: Cost to buy? Cost to make?
 How much do the different materials cost? Is it good value?

C is for **Customer**



Customer means **who will buy or use your product?**
 Who will buy your product? Who will use your product?
 What is their: Age? Gender?
 What are their: Likes? Dislikes? Needs? Preferences?

E is for **Environment**



Environment means **will the product affect the environment?**
 Is the product: Recyclable? Reuseable? Repairable? Sustainable?
 Environmentally friendly? Bad for the environment?
6R's of Design: Recycle / Reuse / Repair / Rethink / Reduce / Refuse

S is for **Size**



Size means **how big or small is the product?**
 What is the size of the product in millimeters (mm)? Is this the same
 size as similar products? Is it comfortable to use? Does it fit?
 Would it be improved if it was bigger or smaller?

S is for **Safety**



Safety means **how safe is the product when it is used?**
 Will it be safe for the customer to use? Could they hurt themselves?
 What's the correct and safest way to use the product? What are the risks?

F is for **Function**



Function means **how does the product work?**
 What is the products job and role? What is it needed for? How well
 does it work? How could it be improved? Why is it used this way?

M is for **Material**



Material means **what is the product made out of?**
 What materials is the product made from? Why were these materials
 used? Would a different material be better? How was the product
 made? What manufacturing techniques were used?

Key Vocabulary
ACCESS FM

ACCESS FM is a method used in Design and Technology to effectively analyse a product.

Design Brief

A paragraph outlining what you intend to design, using as much detail as possible.

Design Specification

A specification is a list of bullet points that tells the designer exactly what the product has to do and what the requirements are. You can use ACCESS FM to help you write it. This needs to be very detailed.

Product analysis

Product analysis can take different forms but in general it means asking questions about a product and forming answers. It can mean experts analysing a product or members of the general public or potential customers/groups of people. Product analysis can take place at almost any stage of the design process.

Sustainability

Causing little or no damage to the environment and therefore, able to continue for a long time.

Textiles

Fibres are small hair like structures that are used to make fabrics.

On their own they are very weak but when twisted to make yarn they become stronger.

TYPES OF MATERIAL

There are two main groups of fibres Natural and Manmade, these are also divided into sections.

Natural Polymers/Fibres:
 These are from animals or plants and are all **biodegradable** (rot away) and are **sustainable** as they will grow again so are environmentally friendly if they are produced **organically**.

Plant	Cotton	Flax (linen)	Hemp	Jute	Bamboo	Soya
Animal	Wool (sheep)	Mohair (goat)	Cashmere	Angora (rabbit)	Alpaca	Llama
Insect	Silk (worm)					



Cotton is produced from plants. To be totally environmentally friendly plant fibres must be produced **organically**. Most cotton is produced using pesticides which as well as killing the insects or diseases is also bad for the environment and makes the workers ill.

Manmade (Manufactured) Polymers/Fibres:
 Synthetic: These are made from chemicals which come from oil or coal. These fibres are not environmentally friendly.
 Regenerated fibres: These are made from a combination of chemicals and cellulose (tree products).

Synthetic	Acrylic	Polyester	Nylon	Lyra	Elastane	Polypropylene
Regenerated	Viscose	Rayon	Acetate	Lyocell (Tencel)		
Smart Fibres	Materials that's change when exposed to change in temperature, pressure or light.					

Cotton (natural, plant based fibre)
 Properties/Characteristics:


① Absorbent	② Soft	③ Cool	④ Good resistance to heat
⑤ Fine	⑥ Strong	⑦ Highly flammable	⑧ Poor elasticity

Used in everyday clothing items, coffee filters, fishing nets and book binding.

Wool (natural, plant based fibre)
 Properties/Characteristics:

① Warm	② Very absorbent	③ Medium strength	④ Good elasticity
⑤ Does not burn easily	⑥ Susceptible to being attacked by pests, such as clothes moths.		


Used in everyday clothing, blankets, horse rugs, carpets and upholstery.



Silk (natural, animal based fibre)
 Properties/Characteristics:

① Very absorbent	② Soft	③ Fine	④ Lustrous
⑤ Very good resilience	⑥ Good elasticity	⑦ Can be damaged by deodorants and perfumes	


Used in luxury clothing and bedding, rugs and wall hangings.



Polyester (synthetic fibre)
 Properties/Characteristics:

① Extremely strong	② Flame resistant	③ Thermoplastic	④ Poor absorbency
⑤ Good elasticity and resilience	⑥ Damaged by acids	⑦ Resistant to solvents and alkalis	

Used in ropes, belts, upholstery padding and low-cost clothing.



Elastane (synthetic fibre)
 Properties/Characteristics:


① Lightweight	② Fairly strong	③ Very poor absorption	④ Medium-to-coarse filaments
⑤ Extremely elastic	⑥ When stretched it returns to original shape	⑦ Not damaged by sunlight or sea water	

Used in sportswear, swimwear, tights.

Felted Fabric (non-woven fabric)
 Properties/Characteristics:

① Does not fray	② Warm	③ Matted together using moisture, heat and pressure	
④ Little strength	⑤ No elasticity	⑥ Made from wool fibres/ animal hair	

An expensive fabric. Used in hats, slippers, handicrafts and embellishing.



Polycotton (blended fibre)
 Properties/Characteristics:

① Non-iron / easy to iron	② Moisture absorbing	③ Polyester and cotton blend
④ Strong	⑤ Durable	

Used in bedding and clothing.

