Hartshill Academy
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Year 8
Knowledge Organiser
Mid Assessments
will take place from

Thursday 8th January to Thursday 22nd January

Heart - Ambition - Respect - Tenacity

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Year 8

English

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Knowledge Organiser: Genre Specific Vocabulary

1. **Gothic:** A genre characterised by mystery, horror, and the supernatural.
2. **Physiognomy:** Judging character from facial features.
3. **Macabre:** Disturbing and horrifying due to involvement with death.
4. **Spectral:** Ghostly or resembling a spectre.
5. **Haunting:** Evoking strong emotion or fear.
6. **Decay:** Gradual decline or decomposition.
7. **Claustrophobic:** Feeling confined or trapped.
8. **Unease:** A feeling of discomfort or anxiety.
9. Dread: Fear or apprehension.
10. **Tension:** Mental or emotional strain.
11. **Horror:** Intense fear or shock.
12. **Transformation:** A dramatic change in form or appearance.
13. **Grotesque:** Distorted and unnatural in shape or appearance.
14. **Lurking:** Hiding and waiting to attack or surprise.
15. **Isolation:** Being separated from others.
16. **Desolation:** A state of emptiness or destruction.
17. **Supernatural**: Beyond the laws of nature.
18. **Apparition:** A ghost or ghostlike image.
19. **Good vs Evil:** Conflict between morally opposite forces.
20. **Suspense:** A state of excitement or anxiety about what may happen.
21. **Folklore:** Traditional beliefs and stories of a community.
22. **Superstition:** A belief not based on reason or knowledge.
23. **Supernatural:** Beyond the laws of nature.
24. **Eerie:** Strangely frightening or mysterious.
25. **Bleak:** Cold, empty, and depressing.
26. **Hamartia:** A fatal flaw leading to the downfall of a tragic hero.
27. **Gloomy:** Dark or poorly lit, especially to create a depressing atmosphere.
28. **Eerie:** Strangely frightening or mysterious.
29. **Isolation:** Being separated from others.
30. **Mystery:** Something that is difficult to understand or explain.

Knowledge Organiser: Subject Vocabulary

1. **Adverb:** A word that modifies a verb, adjective, or other adverb.
2. **Adjective:** A word that describes a noun.
3. **Noun**: A person, place, thing, or idea.
4. **Pronoun**: A word that replaces a noun.
5. **Verb:** A word that expresses an action or state.
6. **Modal verb:** A verb that expresses necessity or possibility.
7. **Connotation**: The implied meaning of a word.
8. **Denotation:** The literal meaning of a word.
9. **Characterisation:** The process of creating and developing characters.
10. **Implicit characterisation:** Character traits revealed indirectly through actions or dialogue.
11. **Explicit characterisation:** Character traits stated directly by the narrator.
12. **Archetype**: A typical example of a character or situation.
13. **Protagonist:** The main character in a story.
14. **Antagonist:** A character who opposes the protagonist.
15. **Epistolary form:** A narrative told through letters or diary entries.
16. **Simple sentence:** A sentence with one main clause.
17. **Complex sentence:** A sentence with one independent clause and at least one subordinate clause.
18. **Clause**: A group of words with a subject and a verb.

19. **Subordinate clause:** A clause that cannot stand alone as a sentence.
20. **Main clause**: A clause that can stand alone as a sentence.
21. **Semi-colon:** A punctuation mark used to link main clauses.
22. **Colon:** A punctuation mark used to introduce a list or explanation.
23. **Dash:** A punctuation mark used to indicate a break or pause.
24. **Rhythm**: The pattern of sounds in writing.
25. **Pace**: The speed at which a story progresses.
26. **Tone:** The author's attitude toward the subject.
27. **First person:** Narration using 'I' or 'we'.
28. **Narrative:** A spoken or written account of events.
29. **Focus shift:** A change in the focus of the narrative.
30. **Tone:** The author's attitude toward the subject.
31. **Rising action**: Events leading up to the climax of a story.
32. **Resolution:** The end of the story where conflicts are resolved.
33. **Foreboding:** A feeling that something bad will happen.
34. **Juxtaposition**: Placing two elements side by side for contrast.
35. **Symbolism:** Using symbols to represent ideas.
36. **Semantic field:** A group of words related in meaning.
37. **Zoom in:** Focusing closely on a detail.
38. **Zoom out:** Expanding focus to a broader view.
39. **Personification:** Giving human qualities to something that isn't human.
40. **Metaphor:** A figure of speech that compares two unlike things by saying one is the other
41. **Extended metaphor**: A metaphor that continues throughout a passage.
42. **Pathetic fallacy:** Attributing human emotions to nature or inanimate objects.
43. **Imagery:** Descriptive language that appeals to the senses.
44. **Visual imagery:** Descriptive language that appeals to sight.
45. **Auditory imagery:** Descriptive language that appeals to sound.
46. **Tactile imagery:** Descriptive language that appeals to touch.
47. **Anaphora**: Repetition of a word or phrase at the beginning of successive clauses.
48. **Polysyndeton:** Using multiple conjunctions in close succession.

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Year 8

Maths

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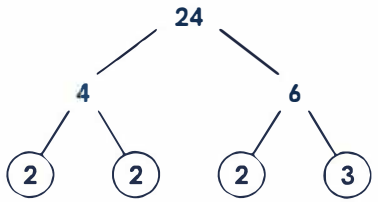
KPI 8.01 Powers and Roots

1) Square number	The result of multiplying a number by itself. It will always be positive. The first 12 square numbers are: 1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121,144.	**2) Square root**	The opposite of squaring a number to find the original factor. E.g. $\sqrt{64} = 8$ or -8 because $8^2 = 64$ and $(-8)^2 = 64$
3) Cube number	The result of multiplying a number by itself, then itself again. The first 10 cube numbers are: 1, 8, 27, 64, 125, 216, 343, 512, 729, 1000.	**4) Cube root**	The opposite of cubing a number to find the original factor. E.g. $\sqrt[3]{8} = 2$ because $2^3 = 8$ Note: $(-2)^3 = -8$ so $\sqrt[3]{8} \neq -2$
5) Index notation	**Example** $a \times a \times a \times a = a^4$. The number 4 is called the index (plural indices). This tells us how many times the "base" a has been multiplied by itself.		
6) Multiplying powers	$a^m \times a^n = a^{m+n}$ ADD the powers only if the bases are the same. E.g. $a^5 \times a^3 = a^{5+3} = a^8$	**7) Dividing powers**	$a^m \div a^n = a^{m-n}$ SUBTRACT the powers only if the bases are the same. E.g. $a^6 \div a^2 = a^{6-2} = a^4$
8) Indices with brackets	$(a^m)^n = a^{m \times n}$ MULTIPLY the powers. E.g. $(a^3)^5 = a^{3 \times 5} = a^{15}$	**9) Indices with brackets**	$(ab)^n = a^n \times b^n$ Raise each number or variable to the same power. E.g. $(2p)^4 = 2^4 \times p^4 = 16p^4$
10) Power of 0	$a^0 = 1$. Any number or variable to the power of zero equals 1.	**11) Power of $\frac{1}{2}$**	$a^{\frac{1}{2}} = \sqrt{a}$ E.g. $16^{\frac{1}{2}} = \sqrt{16} = 4$

KPI 8.02 Prime Factorisation

1) Prime numbers	A prime number only has two distinct factors: 1 and itself. 2 is the only even prime number. 1 is not a prime number. Prime numbers between 1 and 100: 2, 3, 5, 7, 11, 13, 17, 19, 23, 29, 31, 37, 41, 43, 47, 53, 59, 61, 67, 71, 73, 79, 83, 89, 97.		
2) Prime factor decomposition	The process of expressing a number as a product of its prime factors. $24 = 2 \times 2 \times 2 \times 3 \rightarrow 24 = 2^3 \times 3$	**3) Prime factor trees**	

KPI 8.03 Rounding

1) Significant figures

The total number of digits in a number, not counting zeros at the beginning of a number or at the end of a decimal number.
345 000 has 6 significant figures.
0.3047 has 4 significant figures.
10.500 has 3 significant figures.

2) Rounding to significant figures

Round to...	0.007638 to 3 sf	0.007638 to 2 sf	0.007638 to 1 sf	2.0507 to 3 sf	2.0507 to 2 sf	2.0507 to 1 sf
Answer	0.00764	0.0076	0.008	2.05	2.1	2

3) Estimate

Find a rough or approximate answer by calculating with numbers rounded to one significant figure.
e.g. $2.3 \times 18.4 \approx 2 \times 20 = 40$
$\approx$ "approximately equal to"

KPI 8.04 Fractions

1) Converting an improper fraction to a mixed number

$$\frac{15}{7} = 2\frac{1}{7}$$

2) Converting a mixed number to an improper fraction

$$3\frac{4}{5} = \frac{(3 \times 5) + 4}{5} = \frac{19}{5}$$

3) Adding and subtracting fractions

Make the denominators the same (find the LCM).
Use equivalent fractions to ensure fractions have a common denominator.
Add/subtract the numerators only.

$$\frac{2}{7} + \frac{2}{5} = \frac{10}{35} + \frac{14}{35} = \frac{24}{35}$$

4) Multiplying fractions

Multiply the numerators.
Multiply the denominators.
Simplify where possible.

$$\frac{4}{5} \times \frac{3}{8} = \frac{12}{40} = \frac{3}{10}$$

5) Dividing fractions

Keep the first fraction the same.
Change the second to its reciprocal.
Multiply the fractions.
Simplify or convert to a mixed number where possible.

$$\frac{4}{5} \div \frac{3}{8} = \frac{4}{5} \times \frac{8}{3} = \frac{32}{15} = 2\frac{2}{15}$$

KPI 8.05 Solving Equations 1

1) Inverse operations

Addition and Subtraction are inverse operations.
Multiplication and Division are inverse operations.
Squaring and taking the square root are inverse operations.

2) Variable

A letter used to represent any number.

3) Coefficient

The number to the left of the variable. This is the value that we multiply the variable by.
$4x$ ➔ The coefficient of x is 4.
x ➔ The coefficient of x is 1.

4) Term

A single number, variable or numbers and variables multiplied together.

5) Collecting like terms

Combining the like terms in an expression. $7x + 3y - 2x$ is simplified to $5x + 3y$.

6) Expression

A mathematical statement which contains one or more terms combined with addition and/or subtraction signs
E.g. $4x + 3y$.

7) Linear equation

Contains an equals sign (=) and has one unknown.
E.g. $5x - 2 = 2x + 7$.

8) Solve

Use inverse operations to find the solution of an equation.

E.g. 1. (One step)

$$\frac{x}{4} = 12$$
$$\times 4 \qquad \times 4$$
$$x = 48$$

E.g. 2. (Two step)

$$3p - 7 = 8$$
$$+7 \qquad +7$$
$$3p = 15$$
$$\div 3 \qquad \div 3$$
$$p = 5$$

E.g. 3. (Unknown on both sides)

$$2x + 10 = 19 - 9x$$
$$+9x \qquad +9x$$
$$11x + 10 = 19$$
$$-10 \qquad -10$$
$$11x = 9$$
$$\div 11 \qquad \div 11$$
$$x = \frac{9}{11}$$

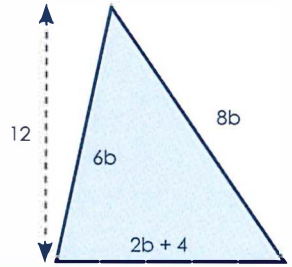
9) Form and solve a linear equation

E.g. 1
Jake is y years old. Lilly is 15. Kobe is 3 years younger than Jake. They have a total age of 36. Work out their individual ages.

$y + 15 + y - 3 = 36$
$2y + 12 = 36$
$2y = 24$
$y = 12$

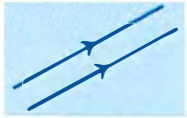
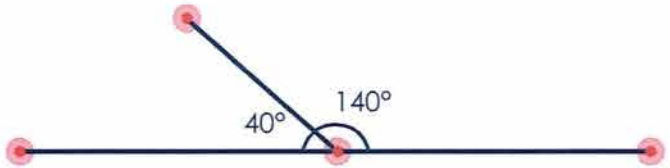
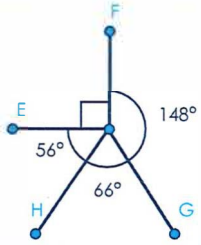
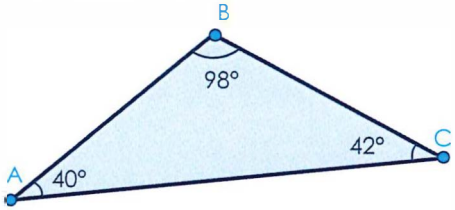
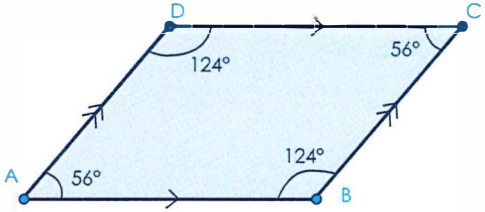
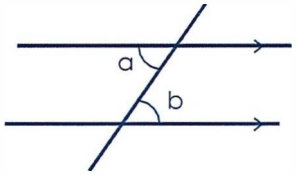
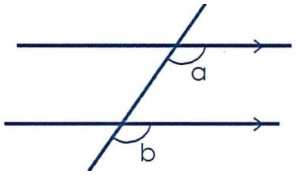
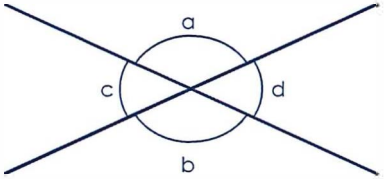
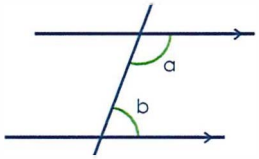
Jake: 12, Lily: 15, Kobe: 9

E.g. 2
The area of the triangle is 120 cm². Find the value of b.



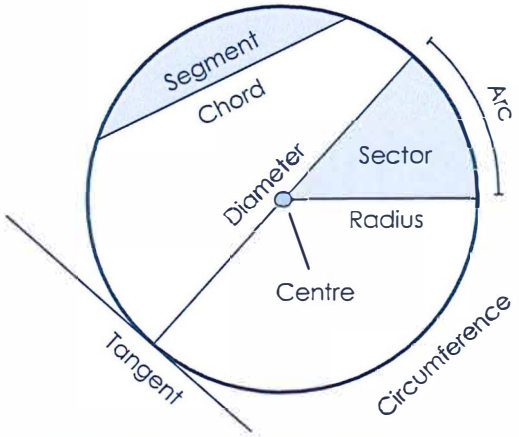
$$\frac{12(2b + 4)}{2} = 120$$
$$\frac{24b + 48}{2} = 120$$
$$12b + 24 = 120$$
$$12b = 96$$
$$b = 8\text{cm}$$

KPI 8.06 Angles in Parallel Lines 1

1) Parallel lines	Always equidistant. Parallel lines have the same gradient. They never meet however far they are extended.		
2) Angles on a straight line	Angles on a straight line sum to 180° 	**3) Angles around a point**	Angles around a point sum to 360° 
4) Angles in a triangle	Angles in a triangle sum to 180° 	**5) Angles in a quadrilateral**	Angles in a quadrilateral sum to 360° 
6) Alternate angles	Alternate angles are equal, so a = b 	**7) Corresponding angles**	Corresponding angles are equal, so a = b 
8) Vertically opposite angles	Vertically opposite angles are equal, so, a = b and c = d 	**9) Co-interior angles**	Co-interior angles sum to 180°, so a + b = 180° 

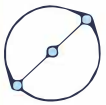
KPI 8.07 Circumference

1) Diameter	A straight line going straight through the centre of the circle and touching the circumference at each end.
2) Radius **Plural: radii**	A straight line joining the centre to the circumference.
3) Chord	A straight line joining any two parts of the circumference.
4) Tangent	A straight line that touches the circumference at a single point.
5) Arc	A section of the circumference.
6) Sector	The area bound by two radii and an arc.
7) Segment	The area bound by the circumference and a chord.



8) Circumference

The perimeter of the circle.
C = π ×diameter
C = π d



d = 5cm

c = πd
c = π x 5
c = 5π cm

c = 15.70796327cm
c = 15.7cm (3*sf*)

9) π (Pi)

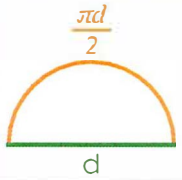
The ratio of a circle's circumference to its diameter.

It has an estimated value of $\frac{22}{7}$ or 3.14 rounded to 3 significant figures.

10) Revolution

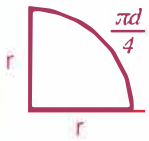
A revolution is a full turn of a circle.
The distance covered by one revolution is equal to the circumference of the circle.

13) Semi circle



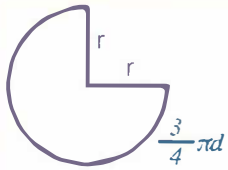
Perimeter $\frac{\pi d}{2} + d$

12) Quarter- circle



Perimeter $\frac{\pi d}{4} + 2r$

14) Three-quarter circle



Perimeter $\frac{3}{4}\pi d + 2r$

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Year 8

Science

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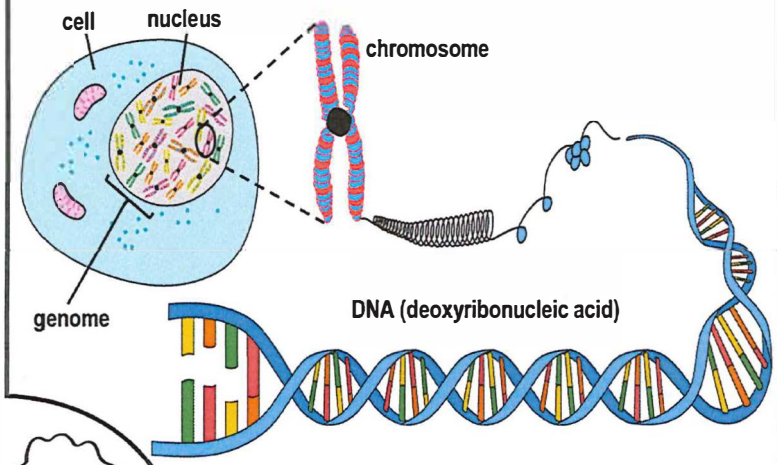
Life Cycles

- Reproduction is the process of making new living organisms known as offspring, which happens at some point in an organism's life cycle.
- Offspring inherit characteristics from both parents through their genomes, which contain the complete set of genetic information.
- Offspring usually look similar but not identical to their parents because they inherit half of their genome from each parent.

Genome, Chromosomes, DNA and Genes

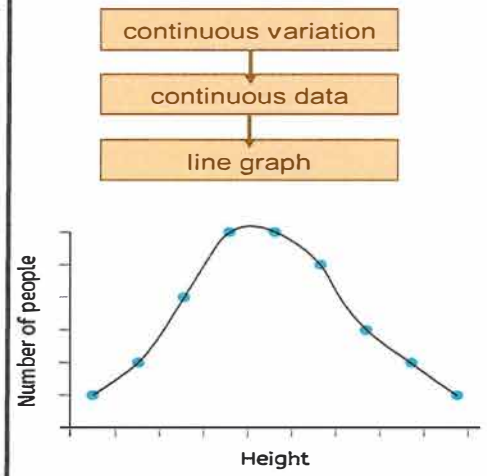
- The genome is made of a chemical substance called DNA.
- DNA is a natural polymer and has two strands that are connected across the middle and twisted to form a double helix structure.
- DNA is coiled into structures called chromosomes, which are stored in the nucleus in plant and animal cells.
- Different organisms have different numbers of chromosomes.
- Human body cells each contain 23 pairs of chromosomes, half of which are from each parent.
- Each chromosome is divided into sections of DNA called genes.
- The hierarchy in size order from smallest to largest is: gene → DNA → chromosomes → genome.
- All the DNA in a cell, packed into chromosomes and made up of genes, together forms the cell's genome.

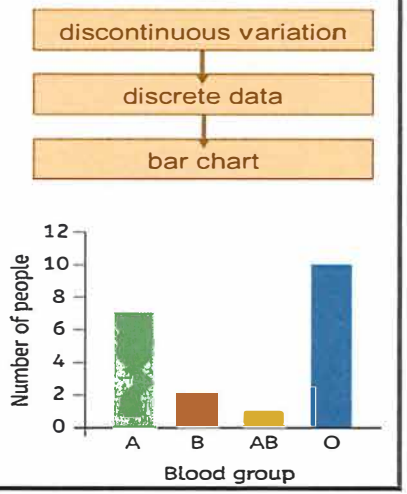


Scientific methods led to the discovery of DNA's structure in the 1950s. Rosalind Franklin's X-ray images revealed its spiral form, which helped Watson and Crick determine the double helix structure

Variation

- A species is a group of organisms that can reproduce with each other to produce offspring that are fertile.
- Variation is the differences between organisms of the same species.
- Genetic variation is caused by an offspring's inherited genome.
- Environmental variation is caused by an organism's environment or by an organism's lifestyle.
- Variation within a species is important for adaptation and survival.
- Discontinuous variation is variation that that can be classified into specific categories (e.g. eye colour, blood type, rolling tongue, shoe size).
- Continuous variation is variation that can have a range of values (e.g. body mass, plant height, hand span, foot length).
- Discontinuous variation tends to be determined by a single gene or just a few genes. Continuous variation tends to be determined by many genes and the environment.
- Data on continuous and discontinuous variation can be classified as quantitative, including discrete (whole numbers, counted) and continuous (measured values), or qualitative, which consists of categoric data (descriptive labels).

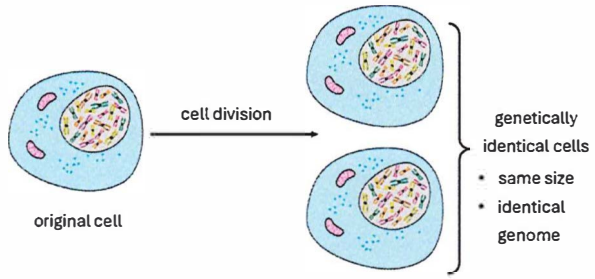




Life Cycles

Growth and Development

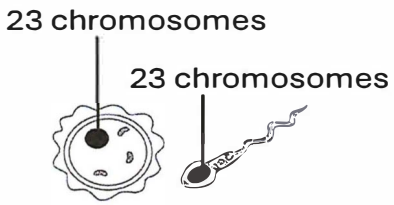
In multicellular organisms, growth is when an organism increases the number of cells it has. When multicellular organisms grow, new cells are made from existing cells by:



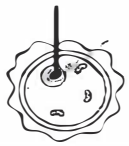
- cell enlargement – the cell gets bigger.
- cell division – the cell divides to form two genetically identical cells.

As an organism develops, specialised cells are created to carry out specific functions.

Sexual Reproduction and Fertilisation in Humans



fertilisation - nucleus of egg fuses with nucleus of sperm

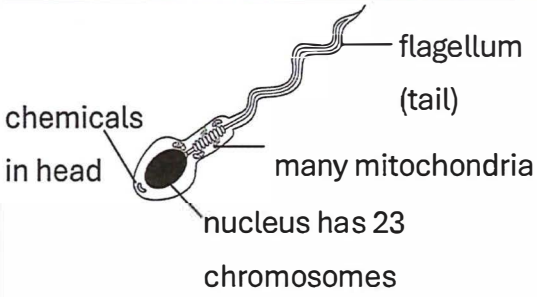


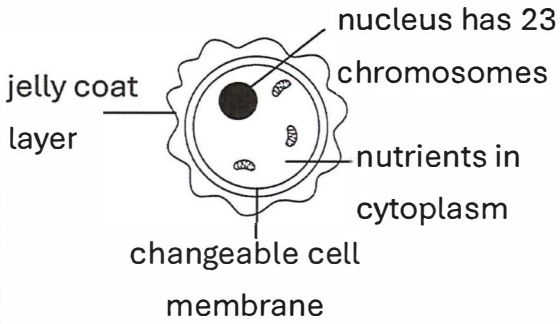
resulting in 46 chromosomes

Technological advances like digital microscopes allow scientists to capture high-resolution images and videos of eggs, sperm, and the zygote during cell division.

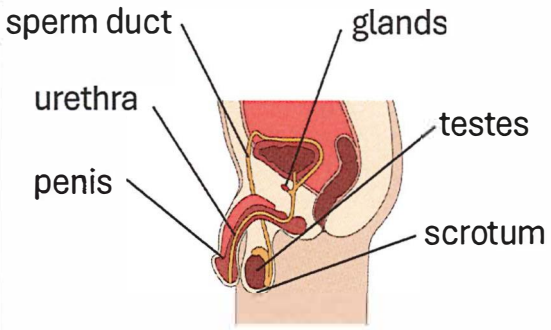
- Fertilisation happens if the egg cell meets and joins with a sperm cell in the oviduct. The fertilised egg (zygote) attaches to the lining of the uterus (implantation).
- The sperm and egg each contain 23 single chromosomes.
- The fertilised egg (zygote) has 23 pairs of chromosomes.
  - During fertilisation, the genomes of both parents combine. This creates genetic variation.

Gamete Adaptations (Egg and Sperm)

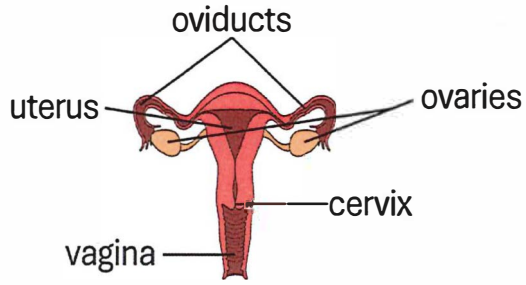




Male and Female Reproductive Systems



- testes – make sperm
- scrotum - holds the testes at the right temperature
- sperm duct – carries sperm from the testes
- glands – produce fluid that mises with the sperm
- urethra – carries semen (and urine)
- penis - where semen (containing sperm) leaves the body

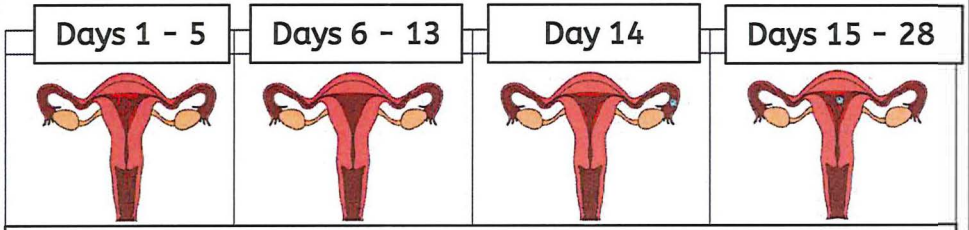


- ovaries - release eggs
- oviducts - carry the egg from the ovaries to the uterus
- uterus - where the baby develops
- vagina - sperms enters and the baby is pushed out
- cervix – ring of muscle that keeps the baby in place

Life Cycles

Puberty and the Menstrual Cycle

- Adolescence is a period of emotional and physical changes known as puberty.
- Puberty affects both males and females, with some changes specific to each sex.
- Both males and females experience changes such as underarm and pubic hair growth, increased body odour, emotional changes, and a faster growth rate.
- Males also go through voice deepening, enlargement of the testes and penis, sperm cell production, shoulder and chest widening, and facial and chest hair growth.
- Females develop breasts, start ovulating and having menstrual cycles, and experience hip widening.
- The menstrual cycle is an approximately 28-day, hormone regulated process that prepares the female body for pregnancy, although some women may have cycles ranging from 21 to 35 days. The menstrual cycle begins at puberty, stops during pregnancy, and ceases completely after menopause, typically around age 50.

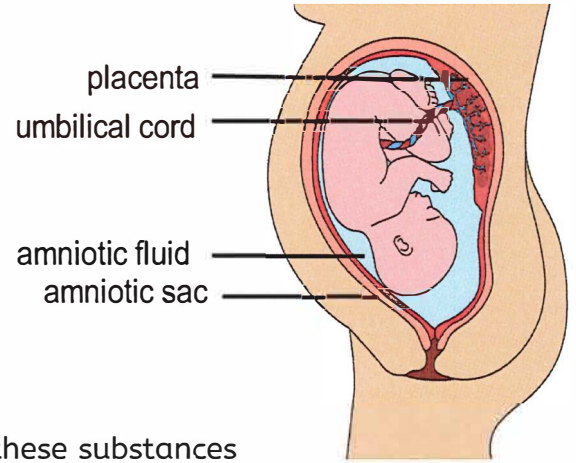


Days 1 – 5: Menstruation occurs as the uterus lining breaks down and is lost.
Days 6 – 13: The uterus lining builds up and thickens.
Day 14: Ovulation occurs and an egg is released from the ovary
Days 15-28: If the egg is fertilised, the uterus lining is maintained for implantation. If the egg is not fertilised, the cycle continues.

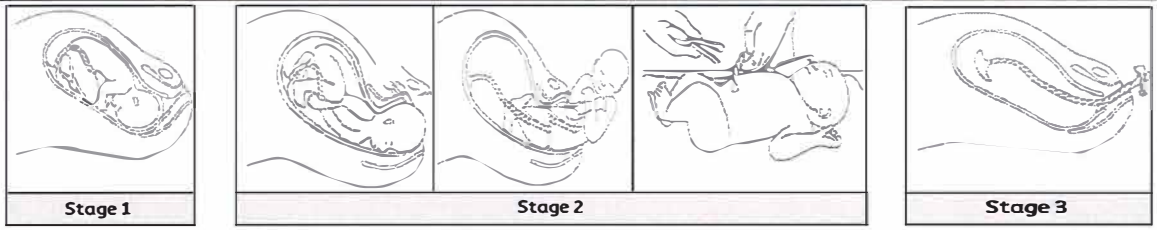
Pregnancy and Foetal Development

Fertilisation → Zygote → Embryo → Foetus → Baby → Birth

- A foetus develops in the uterus.
- The foetus relies on its mother for:
  - protection against bumps and temperature changes;
  - oxygen for respiration;
  - nutrients (food and water).
- The foetus also needs its waste substances to be removed.
- The foetus is protected by the uterus and the amniotic fluid, contained in the amniotic sac.
- The placenta provides oxygen and nutrients, and removes waste (e.g. carbon dioxide) by diffusion of these substances between the mother's blood and the foetus' blood.
- The umbilical cord joins the placenta to the foetus and transfers substances between the two.
- Substances like alcohol, cigarette chemicals, and drugs can cross the placenta by diffusion, affecting the developing baby.



Birth



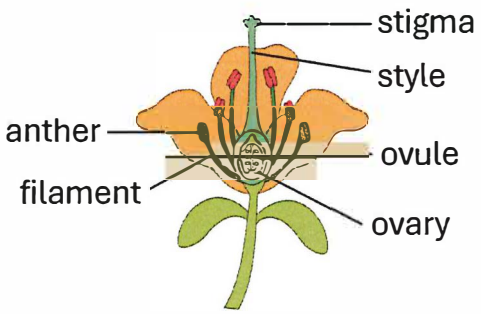
Uterus contracts and the cervix opens wider

Uterus contractions become stronger, and the baby is pushed out head first. The umbilical cord is cut.

Uterus muscles contract and the placenta is pushed out of the vagina.

Life Cycles

Plant Reproductive System and Pollination



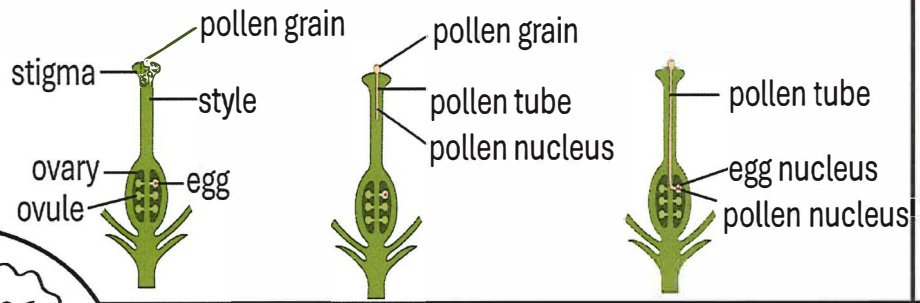
Pollen grains need to move from the anther of one flower to the stigma of another flower. This is called pollination.

Plants can be pollinated by wind or pollinators (e.g. bees).

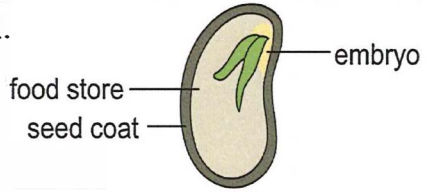
Name of structure	Male or female?	Function
stigma	female	catches the pollen (it is sticky)
style	female	connects the stigma to the ovary
ovule	female	produces the eggs
ovary	female	contains the ovules
anther	male	produces pollen
filament	male	holds up the anther

Fertilisation and Germination in Plants

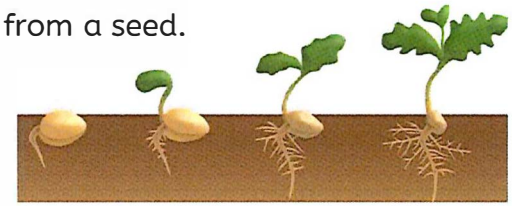
Pollen grains land on the stigma and grow a pollen tube that delivers the pollen nucleus to the egg nucleus inside the ovule. A zygote is formed, which develops into an embryo.



- The ovule thickens and hardens to form the seed.
- The seed coat protects the developing embryo.
- The food store provides nutrients for the developing embryo.
- The ovary matures to form the fruit.



- Germination is the development of a plant from a seed.
- Water, oxygen and a suitable temperature are needed for a seed to germinate.
- During germination, the seed absorbs water and swells, causing the hard seed coat to split. The roots grow downwards, and shoots start to grow upwards. The first leaf starts to appear, and more leaves follow.



Seed Dispersal

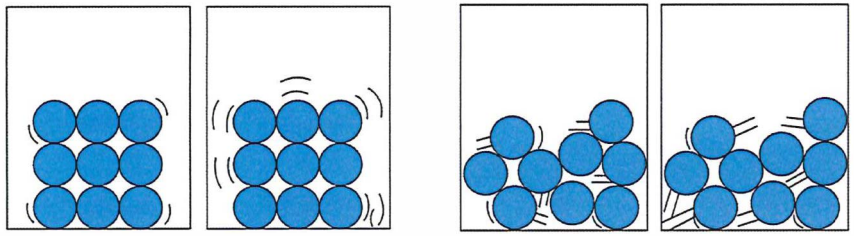
- Seeds must be dispersed from each other and from the parent to reduce competition for light, water, space and soil minerals.
- **Wind** -Seeds are light and have a large surface area from hairs or a winged structure (e.g. dandelion, maple).
- **Animals** - Brightly coloured and tasty fruits are eaten by animals and seeds are deposited in their waste (e.g. berries, tomato). Animals also collect and bury seeds (e.g. acorn). Seeds can also attach to the animal's surface.
- **Explosion** – Seeds are contained in a pod that bursts open when ripe, throwing the seeds away from the plant (e.g. pea pod).

Asexual Reproduction

- Some plants reproduce asexually, creating identical offspring without pollination. Methods include runners, bulbs and tubers, resulting in clones that have the same genome and characteristics as the parent plant.
- Unicellular organisms, like bacteria, also reproduce asexually by copying their genome before dividing into two genetically identical cells.
- Sexual reproduction promotes genetic variation, enhancing adaptation and disease resistance. Asexual reproduction allows rapid population growth but lacks diversity, making populations vulnerable to environmental changes.

8.01: Heating and Cooling

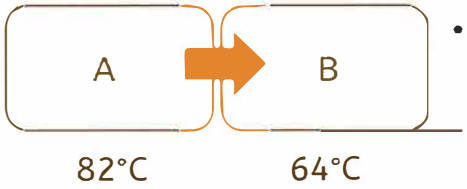
Temperature



- a physical quantity which is a measure of the **average energy** of particles due to their **motion**

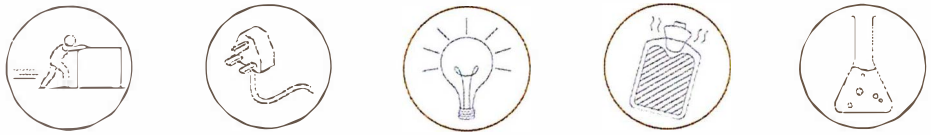
Changing Temperature

- Heating and cooling affect an object's **thermal store** of energy.



- Net flow of energy is **always** from hotter to colder objects' thermal store.

- A thermal store can be changed by **any energy pathway** depending on the mechanism causing it.



'Mixing' Objects

same masses

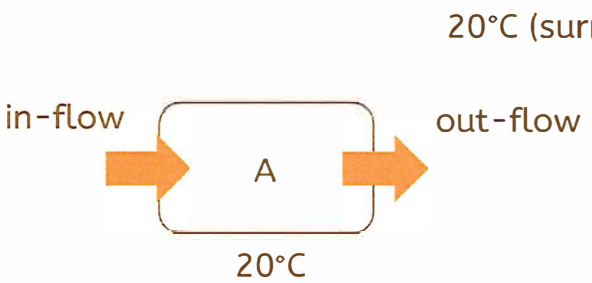
Resulting temperature: halfway between initial temperatures.

different masses

Resulting temperature: between initial temperatures and closer to that of larger mass.

Thermal Equilibrium

- when two objects reach the **same temperature**
- with no net flow of energy between thermal stores



- Often the result of energy **dissipating** to the cooler surroundings.

8.01: Heating and Cooling

Unchanging Temperature

But not thermal equilibrium (i.e. two objects **not** the same temperature).

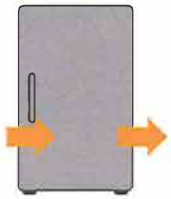
higher than surroundings

rate of supply → rate dissipated to surroundings

lower than surroundings

rate of removal → air at 22°C

rate supplied by surroundings



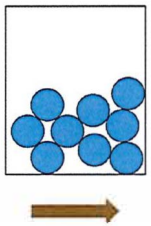
set at 5°C

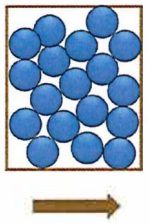
Changing Temperature

For the **same energy** supplied:

- Greater mass/volume,

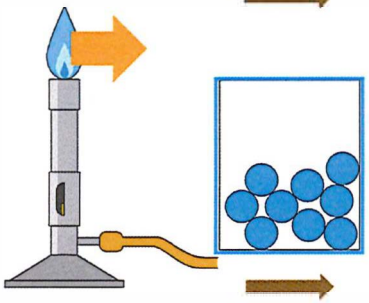
→ smaller temperature change.



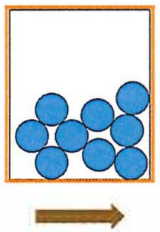


- Different starting temperature,

→ same temperature change.



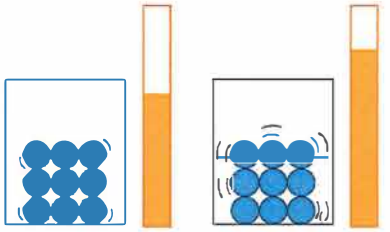
constant supply



Energy in Thermal Stores

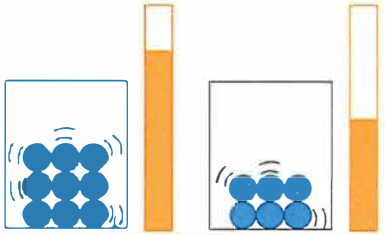
Hotter objects have more energy in their thermal store.

- Particles moving more.
- Each particle has more energy.
- Total energy of all particles: more.



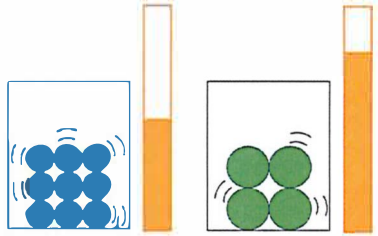
Larger masses have more energy in their thermal store.

- Greater mass: more particles.
- At same temperature, each particle has same energy.
- Total energy of all particles: more.



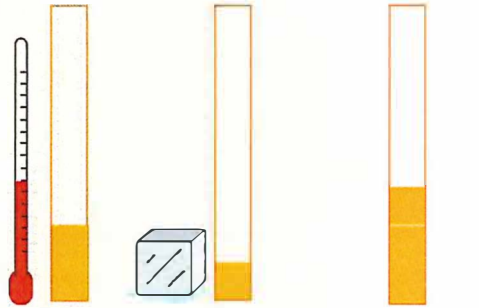
Some materials have more energy in their thermal store.

- Some materials have particles that require more energy to vibrate.
- At same temperature, each particle is vibrating the same, but they required more energy to do so.
- Total energy of all particles: more.



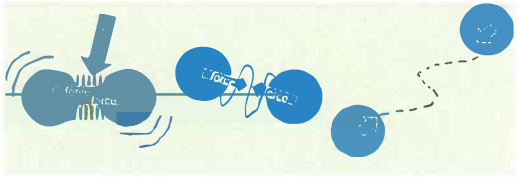
8.01: Heating and Cooling

Internal Energy



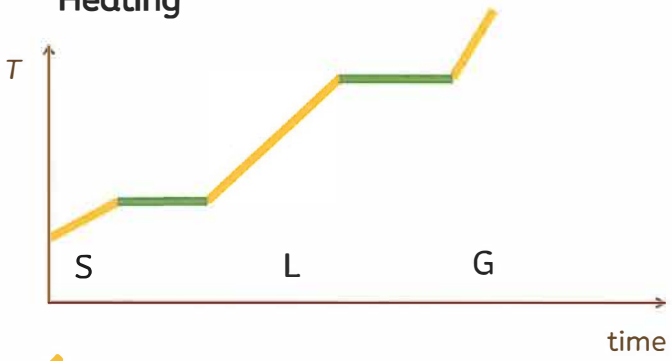
motion of particles | state of matter | total energy of particles

- total energy within an object due to the motion and position of its particles



- *Force* reaches limit for motion.
- More energy in, *Force increases*, ↑.
- Separation increases, ↑ (then stays
- *Energy* stored by material.

Heating



Temp changing (no change of state)

Change of state (no change in *Temp*)

Thermal Transfer

Energy transfers from or to a **thermal store.**

- **Temperature difference.**
- In contact.

- All objects **'light up' a space** with IR radiation.

thermal transfer

by **particles**

- **convection** — movement of material (fluids)
- **thermal conduction** — no movement of material (solids)

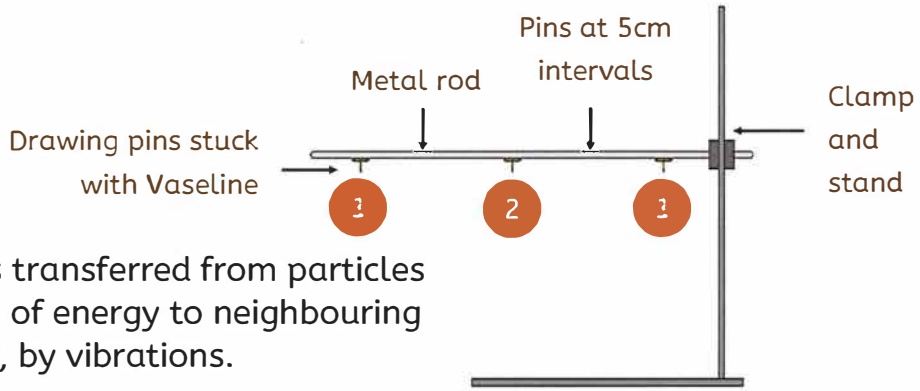
by **waves**

- **thermal radiation**

8.01: Heating and Cooling

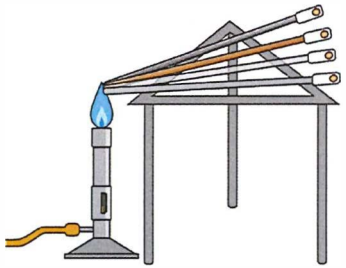
Thermal Conduction

- spontaneous process of energy transfer between a hotter and a cooler object in contact, without the movement of the material



Energy is transferred from particles with lots of energy to neighbouring particles, by vibrations.

Thermal conductivity



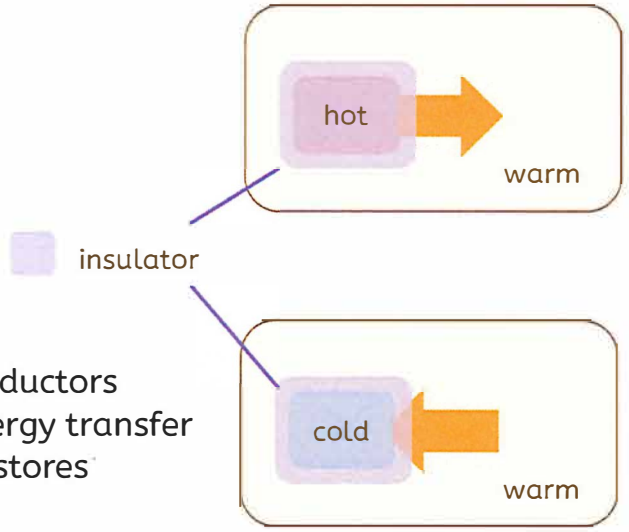
Good conductors have a higher thermal conductivity: energy transmitted easily through them.

Metals are the best thermal conductors.

Rate of thermal conduction

temperature difference	greater
material	higher thermal conductivity
thickness	less thick
surface area	greater

→ higher rate



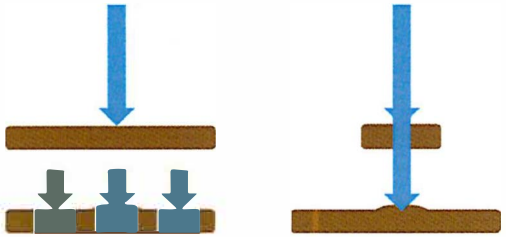
Insulators

- poor thermal conductors that minimise energy transfer to/from thermal stores

8.01: Heating and Cooling

Pressure

- quantity resulting from a force acting on a surface



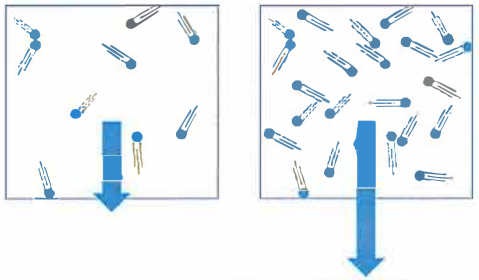
low pressure | high pressure

Pressure on objects

Pressure is **higher** when:

- a force acts over a **smaller surface area**
- a **large force** acts.

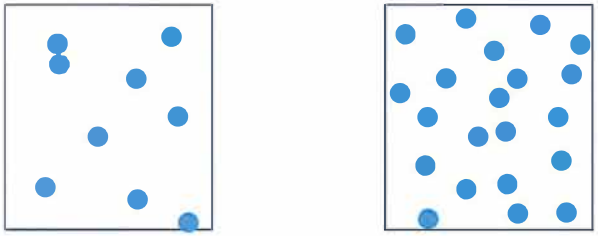
Pressure by a fluid



Forces between particles, and between particles and the inside walls of the container cause pressure on the gas.

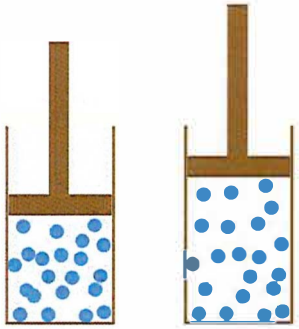
If more particles are causing a higher pressure – greater weight – higher pressure on surface.

Density



low density | high density

Greater mass in the same volume → higher density.

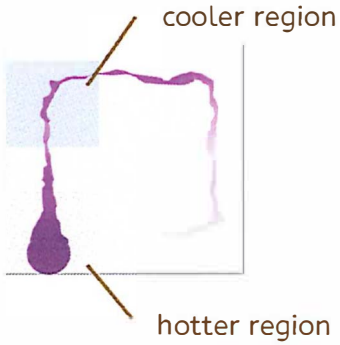


Greater volume of the same mass → lower density.

$$\text{density } (g/cm^3) = \frac{\text{mass (g)}}{\text{volume } (cm^3)}$$

8.01: Heating and Cooling

Convection



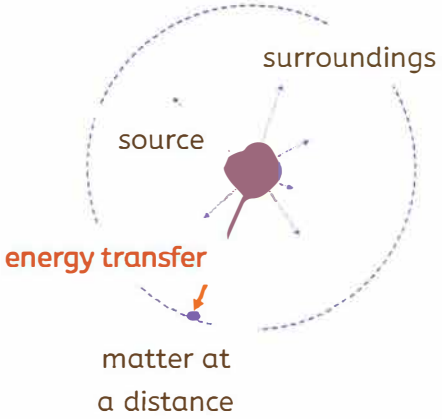
- movement of a hotter fluid to a colder region

- The less dense region rises.
- The rest of the fluid is more dense.
- The less dense matter 'floats' on more dense matter.

- A region of fluid that is colder sinks to replace the hotter fluid.

- A region of the fluid gets hotter.
- Particles move more.
- The separation between particles increases.
- Fluid expands.
- Its density decreases.

Temperature difference in a fluid causes **convection currents.**



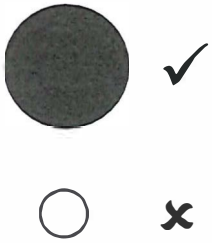
Thermal Radiation

- energy transfer to or from a thermal store by absorption or emission of light
- **no contact** necessary: can be transmitted through a vacuum

- **All** objects emit and absorb infra-red radiation.
- **Hotter** objects emit more energy by IR radiation (more intense).

Surfaces that absorb and emit energy from IR radiation best:

- dark
- matt/rough/dull
- large surface area.



8.01: Heating and Cooling

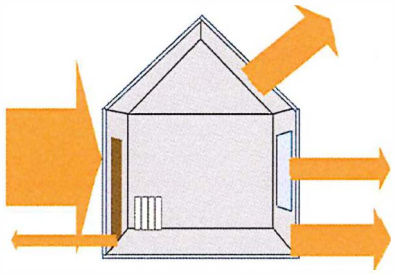
Real-world Contexts

Building Design

To maintain steady temperature independent of surroundings.

The greater the energy supplied, the greater the fuel use and costs.

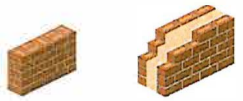
To reduce fuel use:



loft insulation

double glazing

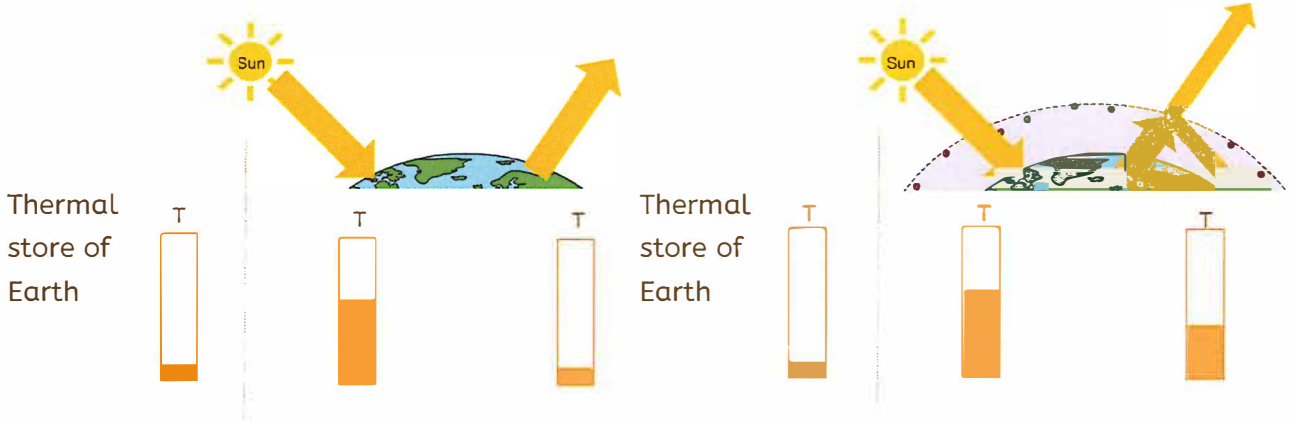
cavity wall insulation



draught excluders

Greenhouse Effect

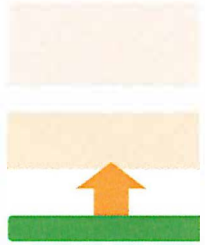
Causes a medium, steady average global temperature.



Weather Systems

Driven by temperature differences of different surfaces of the Earth.

- Low density air exerts less force on Earth's surface: low-pressure.
- Air rises in low-pressure systems.



hotter land/sea

Energy in thermal store of air increases.

Air expands.

Density decreases.

Air rises.

8.01: Heating and cooling

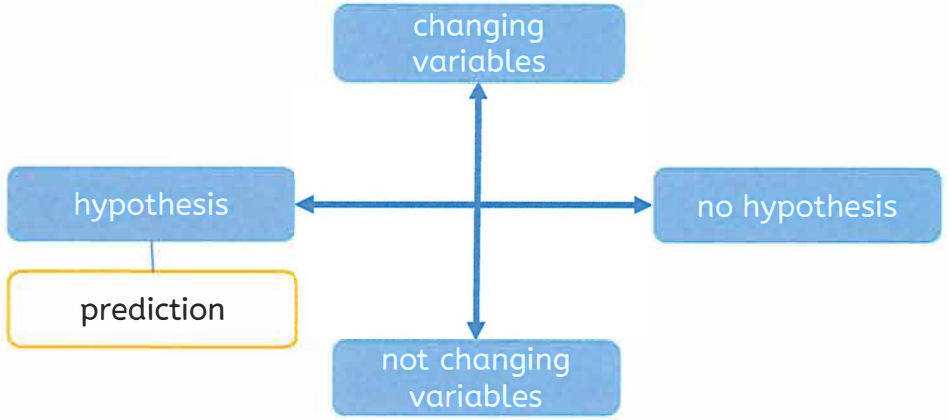
Measurement Error

- the difference between the measured value and the true value of the quantity being measured

Always some uncertainty in measurement

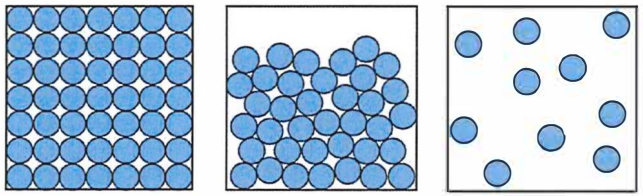
no control over	some control over
random error	systematic error
environmental	method, apparatus, skill
• repeat • mean • measure over time	• control/monitor environment • control procedure/apparatus • measurement technique

Scientific Methods

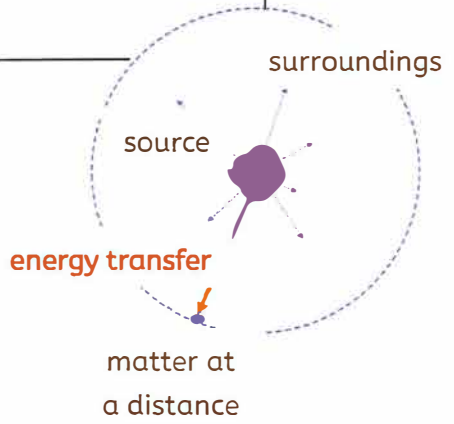


There is not a single way of doing research or a single scientific method.

Using Models



Particle Model



Radiation Model

During events, energy transfers from energy stores by an energy pathway.

Energy Stores and Pathways

8.01: Heating and cooling

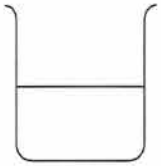
Developing a Method

Line of enquiry → Plan data collection → Type of scientific method → Apparatus / techniques → High-quality data

Plan data collection:
- to answer question
- systematic

Apparatus / techniques:
- resolution
- measurement error
  - impact random error
  - likelihood systematic error

Equipment

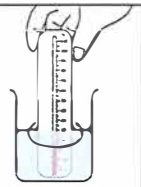
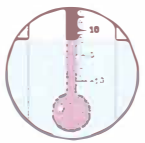
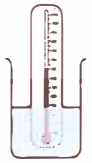
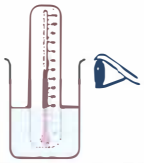


beaker

- Select the appropriate size.
- Place on a flat stable surface.
- Graduated markings: approximate volume.
- Pour in/out liquid carefully.
- After heating, move with tongs or wait to cool.
- If stirring, use a stirrer.

Skilful Techniques

To use a liquid thermometer

				
scale	stir	immersed	stopped	eye level

Safe Practicals

Hazards
All apparatus and techniques

Risks
- harm
- damage

- Follow normal laboratory rules
- Plan and use a risk assessment

Reduced likelihood
- harm
- damage

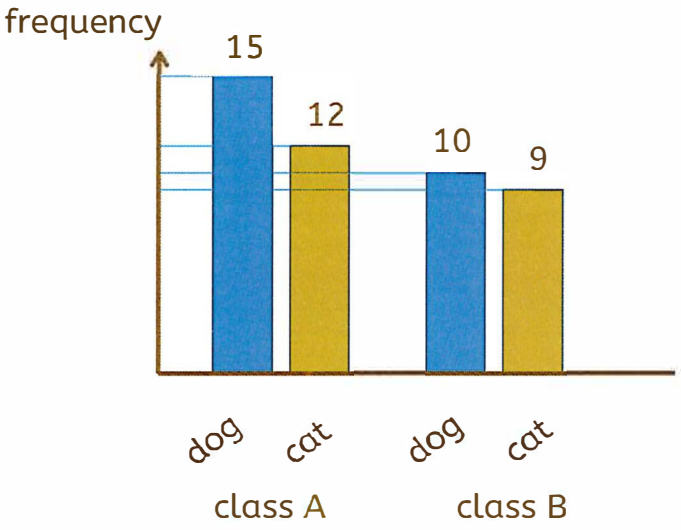
Identify hazards → Judge risk → Plan control measures

8.01: Heating and cooling

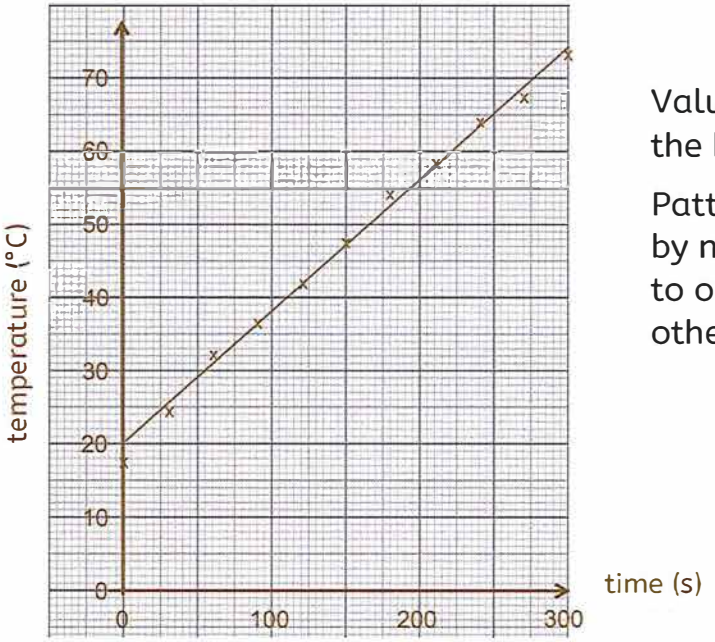
Interpreting Data

Line graphs for 'time'

Identifying the most appropriate chart or graph depends on the type of data and the line of enquiry:

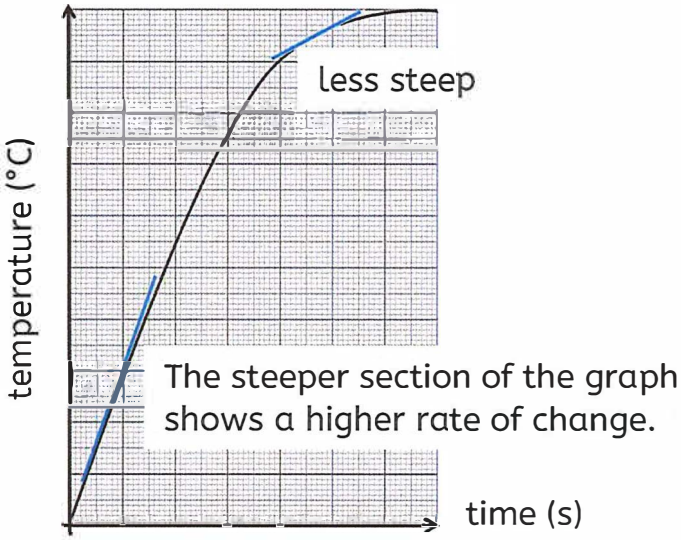


Compound bar charts are useful to compare a variable across different categories.



Values are read off from the best-fit line.

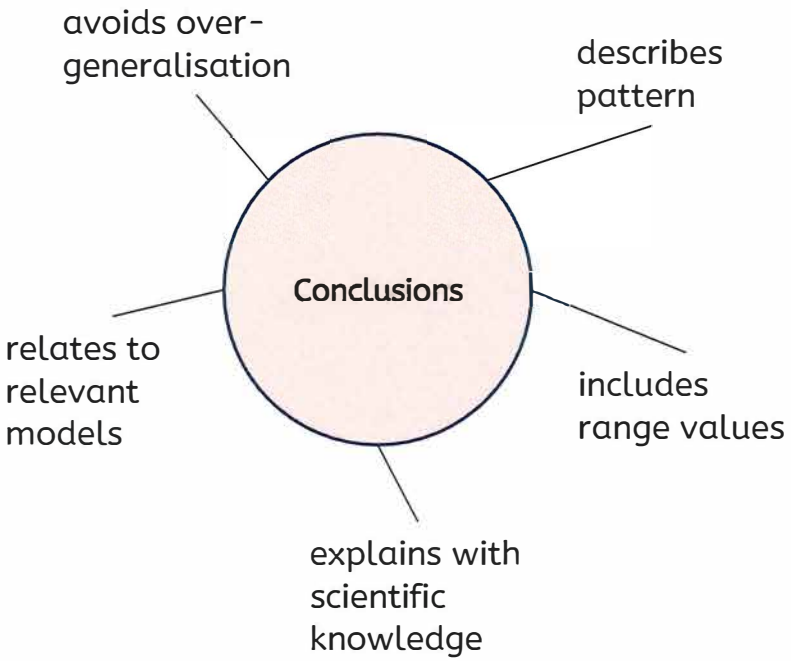
Patterns/trends are found by noticing what happens to one variable when the other is changed.



The steeper section of the graph shows a higher rate of change.

8.01: Heating and cooling

Making Conclusions



Evaluating Quality of Research

methods

- control of variables
- apparatus
- techniques
- skill

→ data to answer EQ

→ measurement error low

data

- range
- systematic intervals
- high resolution
- low in anomalies
- repeatable
- reproducible

→ differences can be observed

→ matches multiple datasets

conclusions

- values and patterns logically follow from the data
- conclusions are only based on the collected data
- researcher suggests further research needed

★★★

peer review

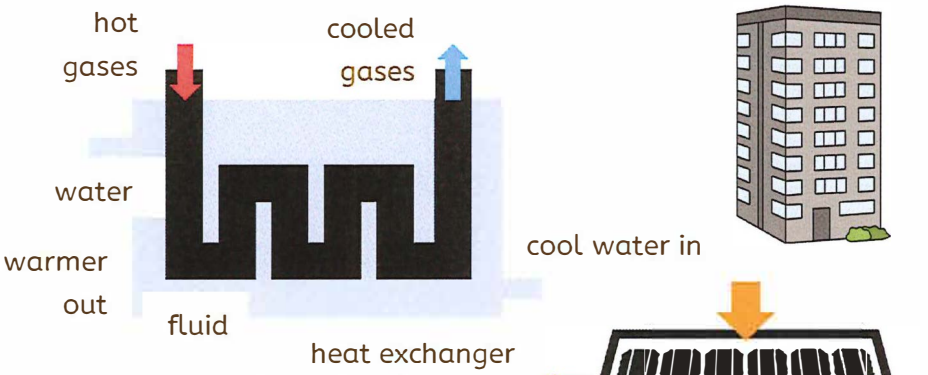
Scientific research is highly valued because of the efforts to produce high-quality data and have it tested by peers.

8.01: Heating and cooling

Applications to Industry

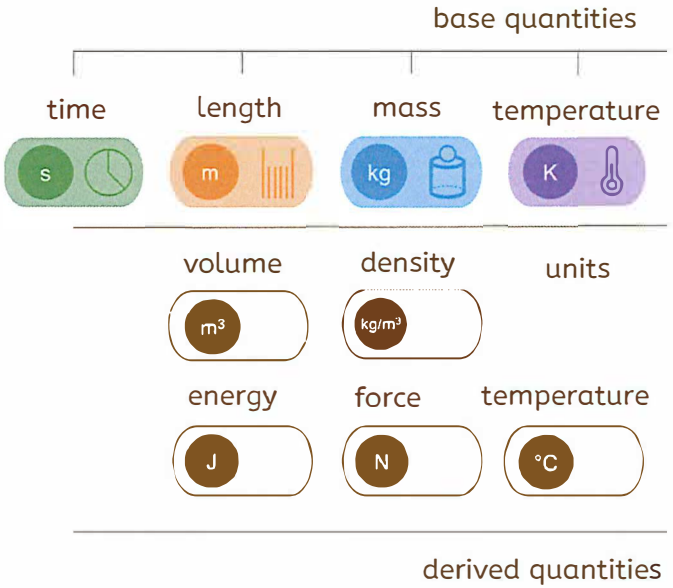
STEM workers

- Design problem needs solving ← Funded by various sources
- Use scientific knowledge to draft designs
- Test designs using modelling
- Select optimal design ← Costs considered



Examples include heat exchanger, building insulation and solar panel glass.

Measurement Values



Quantities and their units:

Base quantities: length, mass, time, temperature (K).

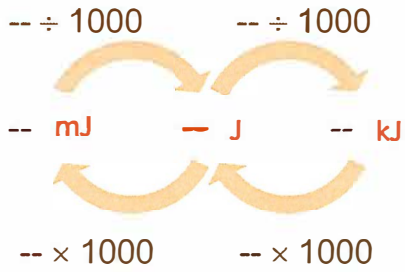
Derived quantities include energy, volume and density and the commonly used temperature unit, °C.

Unit Prefixes:

Range of unit prefixes which differ by the factor of 1000.

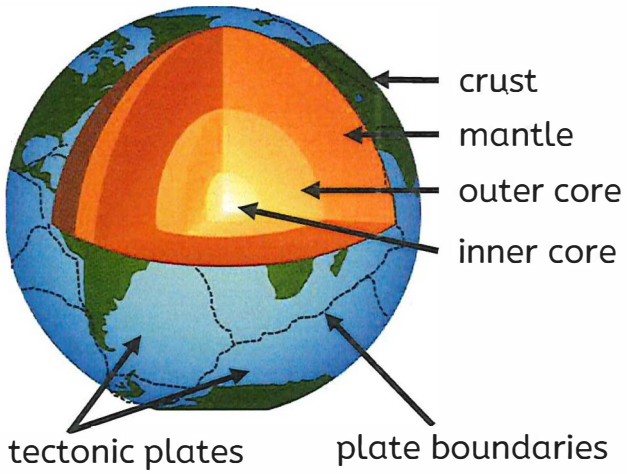
Prefixes change numbers to a more human scale.

Easier to compare values that have the same unit prefix.



8.02: Earth and the Atmosphere

Composition and structure of the Earth

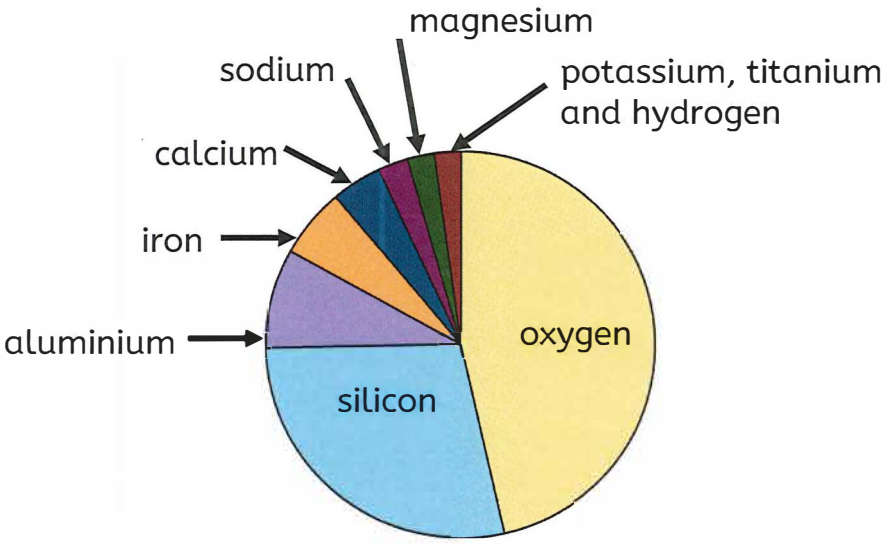


Layer	State	Composition	Thickness (km)	Temperature (°C)
crust	solid	rocks and minerals	5 to 70	0 to 30
mantle	solid	rocks and minerals	2900	1400 to 3000
outer core	liquid	molten iron and nickel	2200	4400
inner core	solid	solid iron and nickel	1200	5430

The two types of crust are continental crust, which is found beneath landmasses, and oceanic crust, which is found below the oceans.

Continental crust is the thickest.

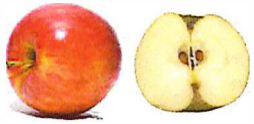
Earth's crust is broken up into tectonic plates that meet at plate boundaries.



The most common elements that make up the minerals of Earth's crust.

Scientists can't explore deep inside Earth, so they use models to show what it's like. These models have limitations and can change when new evidence is found.

An apple



A layer cake

(+)
- has a thin outer layer
- has a thick middle layer
- has a core

(−)
- not spherical
- the outer layer is the same thickness all around
- the inner and outer cores are not clear

(+)
- has a thin outer layer
- has thicker middle layers
- has four layers

(−)
- not spherical
- doesn't show the difference in layer thickness
- the core is not hot

8.02: Earth and the Atmosphere

Scientific theory: continental drift

After data collection, scientific thinkers propose a scientific theory; it is based on a body of facts and is repeatedly confirmed by observation (and experiment).

The theory of continental drift is the theory that the continents were once connected in a land mass (Pangaea) but have broken apart and drifted away over time.

Three pieces of evidence that support the theory are:

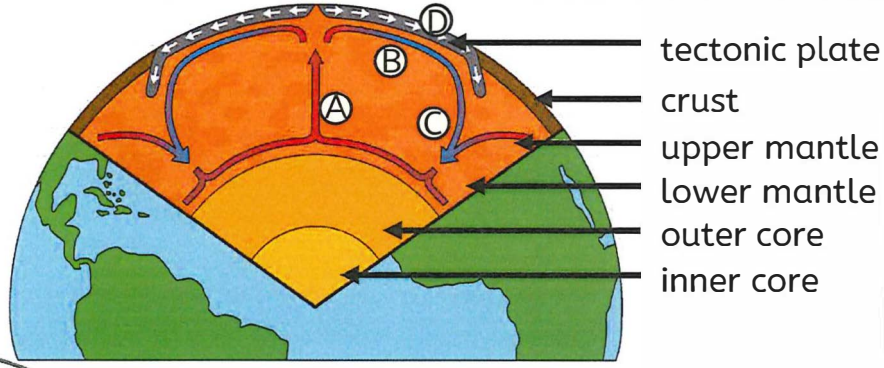
- The coastlines of many continents appear to fit together like a jigsaw puzzle.
- There were similar types of rocks across continents that are now far apart.
- There were identical plant and animal fossils found on different continents that are now far apart.

Peer review

Scientific thinkers present evidence to their peers in order to support an opinion and explain their reasoning.

Peer review is when researchers submit work for peer feedback. Peer review is important because it helps to make sure that the research is trustworthy and of high quality.

Convection currents cause continent movement



A. Hot, less dense rock rises towards the upper mantle.

B. In the upper mantle, the hot rock spreads and moves sideways.

C. As it cools, it becomes more dense and sinks back down, creating convection currents.

D. These convection currents cause the tectonic plates above to shift. As a result, the continents slowly change position over millions of years.

8.02: Earth and the Atmosphere

Rocks and the rock cycle

Igneous rock

- Igneous rocks are formed when molten rock crystallises.
- Molten rock above the Earth's surface is called **lava** and forms **extrusive** igneous rock when it cools and crystallises.
- Molten rock below the Earth's surface is called **magma** and forms **intrusive** igneous rock when it cools and crystallises.
- If molten rock cools **slowly**, it will form rock with **large** crystals.
- If molten rock cools **quickly**, it will form rock with **small** crystals.

Metamorphic rock

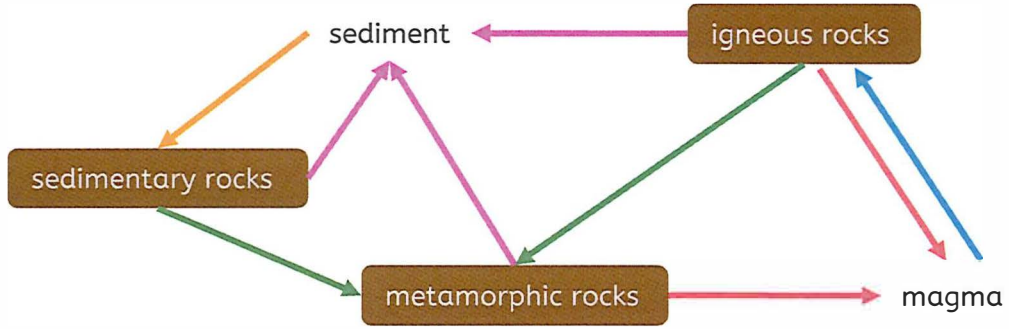
- Metamorphic rocks form from existing rocks, deep within the Earth's crust due to high temperature and pressure, causing chemical changes in minerals.
- Over millions of years, sedimentary and igneous rocks transform into metamorphic rocks, often near tectonic plate boundaries.

Sedimentary rock

Sedimentary rocks are formed through:
weathering → transportation → deposition → sedimentation → compaction → cementation
Layers, called **strata**, can be seen in sedimentary rock.

Weathering is the slow breakdown of rocks while they are in place. It can be **biological** (by living organisms), **chemical** (by chemical reactions) or **physical** (by forces e.g. freeze-thaw).
Erosion is the movement and carrying away of rock fragments.

The rock cycle involves the recycling of rocks, during which rocks can change into different types.



Fossils

Fossils are the preserved remains or traces of a dead organism that was alive millions of years ago. Fossils can be **trace fossils** (preserved imprints or evidence), **body fossils** (actual remains) or **mineralised fossils** (when hard parts are replaced by minerals).

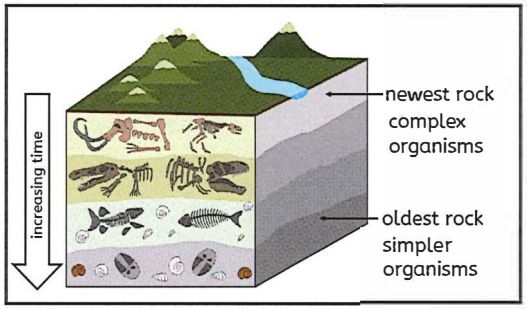
Fossils are found in sedimentary rocks. High temperatures and pressures destroy fossils, so they are not found in metamorphic or igneous rocks.

8.02: Earth and the Atmosphere

Fossils continued

Fossilisation process:
Organism dies → buried in sediment → soft parts rot, hard parts stay → pressure compacts layers → minerals replace hard parts → fossil forms → uplift exposes fossil

The fossil record is a collection of fossils documenting the history of life on Earth. It shows how organisms and environments have changed over time.

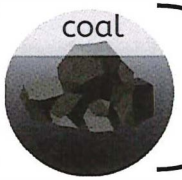


More complex fossil organisms are found at the top in newer rocks. Simpler fossils are deeper in older rocks.

Fossil fuels

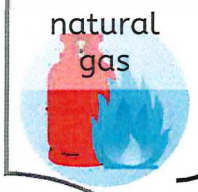
Fossil fuels are natural resources formed over millions of years from the remains of dead organisms, such as plants and animals. Fossil fuels are **non-renewable** energy resources because they take a very long time to replenish.

Fossil fuel extraction provides energy, products, and jobs, but causes pollution, habitat loss, resource depletion, and global social inequality.



Swamp plants die → buried in mud and sediment → form peat → more burial → heat & pressure → peat turns to coal

Coal is extracted through surface and underground mining.	Uses: heating, generating electricity, steel production.

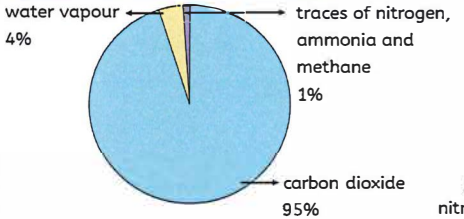


Plankton die → sink → buried in sediment → pressure and heat → oil and gas form → trapped under impermeable rock

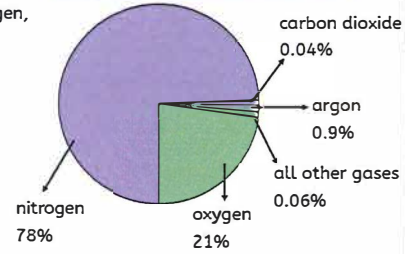
Crude oil and natural gas are extracted by drilling wells through impermeable rock.	Uses of crude oil: refined to make petrol, diesel, plastics. Uses of natural gas: cooking, generating electricity, industry.

Earth's atmosphere

Earth's early atmosphere

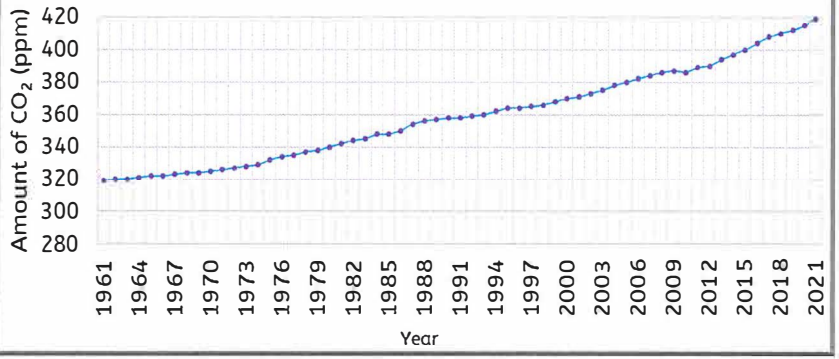


Earth's atmosphere today



Human activities, such as the combustion of fossil fuels, which release large amounts of CO_2 into the atmosphere, result in an increase in atmospheric CO_2 concentration.

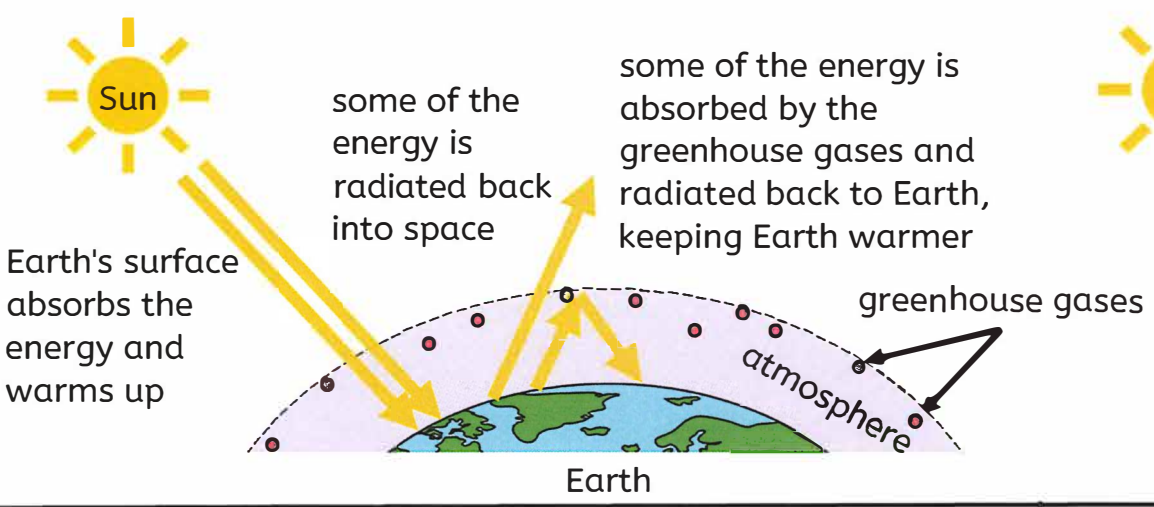
Carbon dioxide in the atmosphere between 1960 and 2021

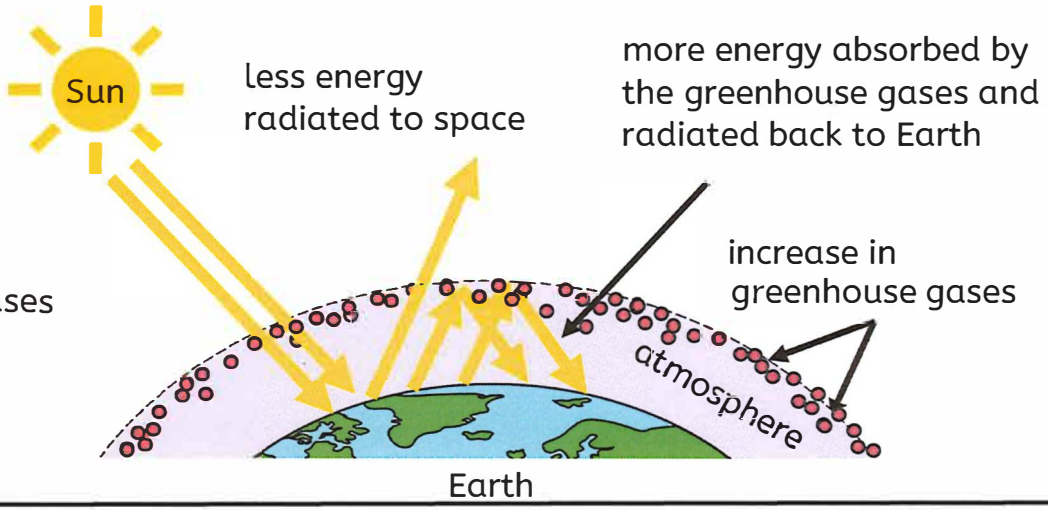


8.02: Earth and the Atmosphere

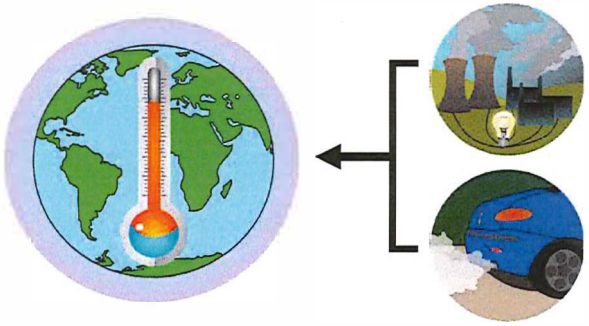
The greenhouse effect, global warming and climate change

Earth's atmosphere contains greenhouse gases (carbon dioxidemethane water vapour), which keep Earth warmer than it would be without them. The greenhouse effect is the natural warming of the planet to habitable temperatures, caused by greenhouse gases. The enhanced greenhouse effect is the unnatural warming of the Earth due to increased greenhouse gases in the atmosphere.





Global warming is the increase in Earth's average temperature, caused by the enhanced greenhouse effect.



combustion of fossil fuels increases greenhouse gases

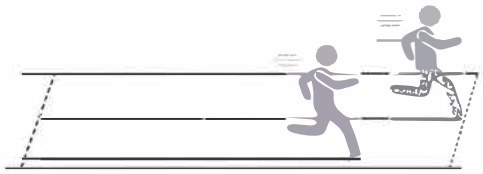
Climate change is the change in the Earth's long-term weather patterns, including precipitation, wind and temperature. It leads to social, economic and environmental impacts.

Environmental impacts cause habitat loss, food shortages, wildlife threats, farming issues, water problems, and human displacement.

8.03: Forces and Motion

Speed

- the rate of change of distance



uniform speed = unchanging speed

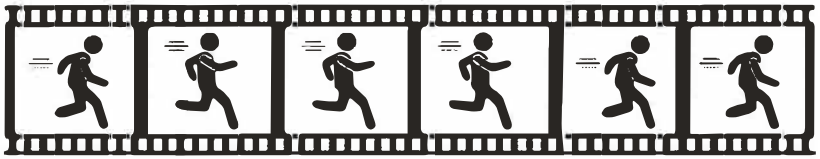
Higher speed:

- greater distance in same time interval
- same distance, shorter time interval

$$\text{average speed} = \frac{\text{distance travelled}}{\text{time taken}}$$

Instantaneous Speed

Speed at a particular moment in time.

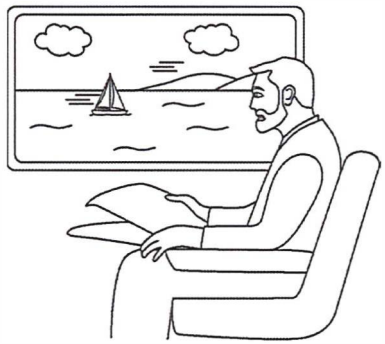


Average Speed

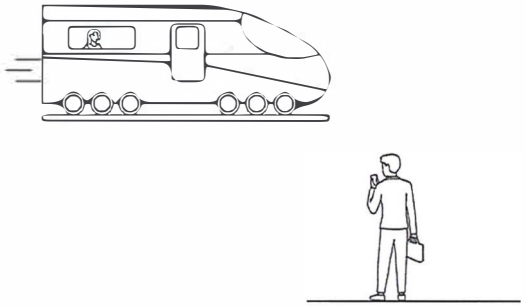
Speed for distance travelled, measured over a longer time interval.

Relative Motion

- movement of one moving object relative to another object
- depends on the frame of reference

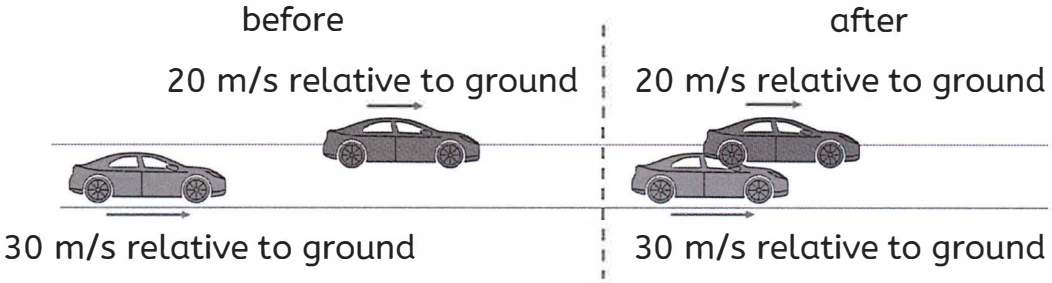


frame of reference: train



frame of reference: ground

Two moving objects relative to the ground

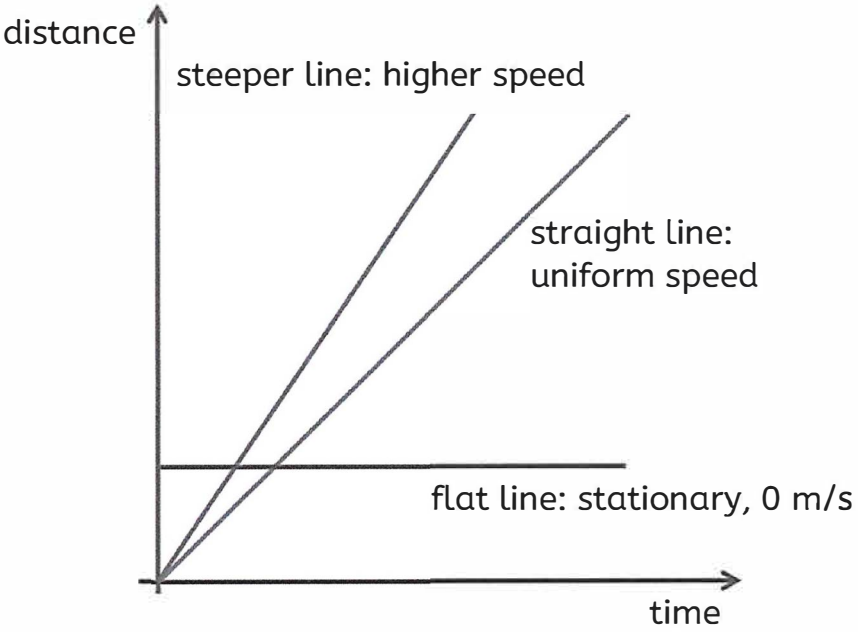


Every second: relative distance changes by 10 m.

Relative speed = 10 m/s

8.03: Forces and Motion

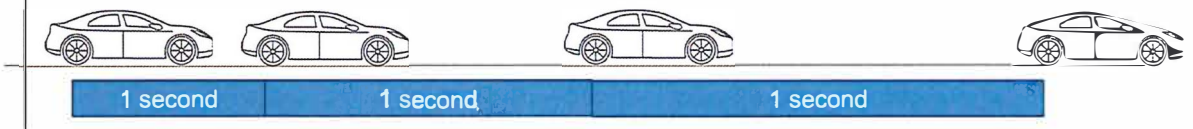
Distance-time Graphs



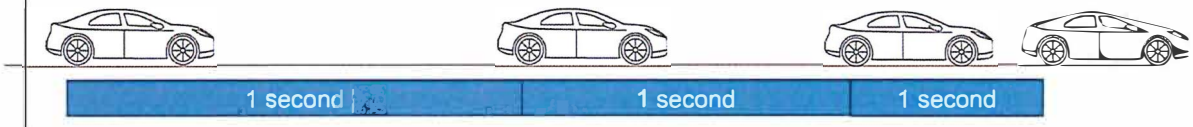
- Measurement results are plotted on a d-t graph.
- Lines-of-best-fit average out an object's position over time.
- Lines indicate general trends of motion.
- Values read off from the line to interpret specific parts of motion.

Acceleration

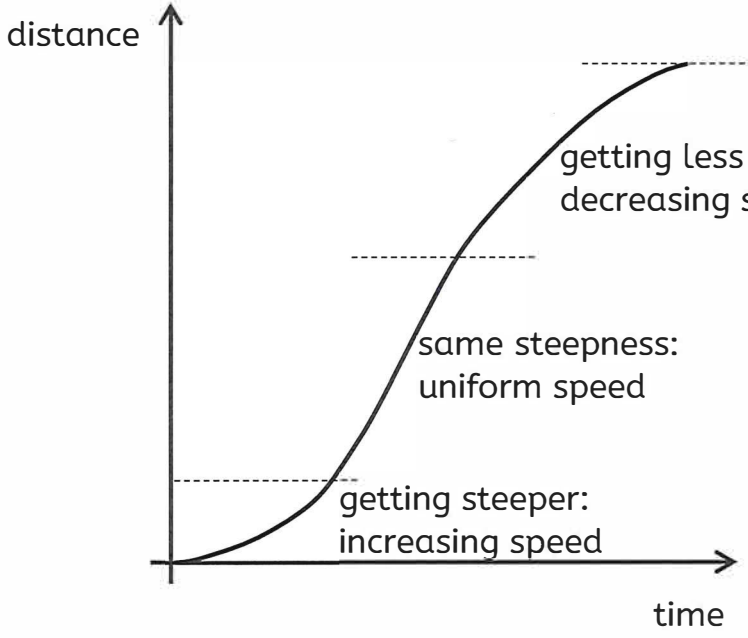
- the change of speed (or direction) over a time interval



increasing speed



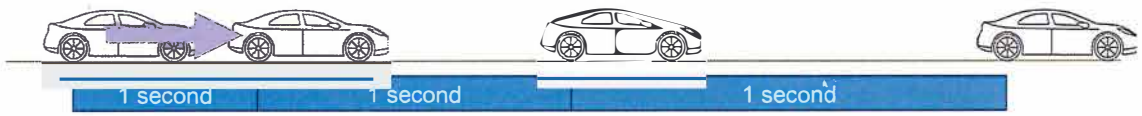
decreasing speed (decelerating)



8.03: Forces and Motion

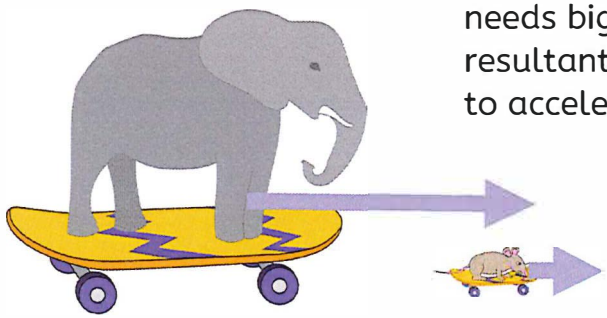
Affects on Acceleration

Greater resultant force causes higher acceleration.



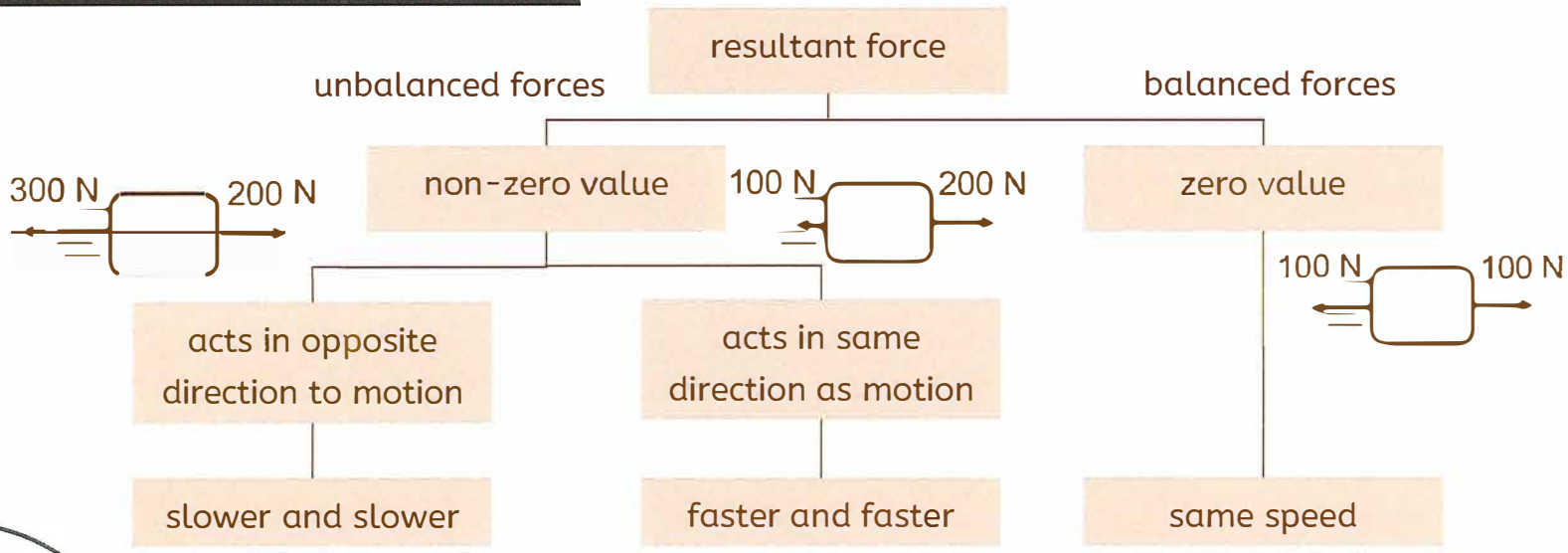
higher acceleration

lower acceleration



Greater mass needs bigger resultant force to accelerate.

Resultant Force and Acceleration

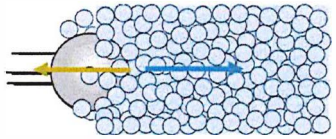


8.03: Forces and Motion

Motion in Fluids

Frictional forces act to **resist motion**

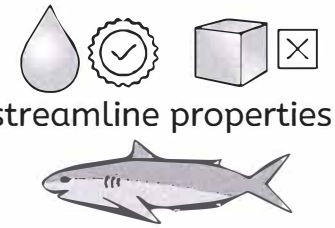
- friction force
- **drag** forces
  - air resistance
  - water resistance



- Relative motion between fluid and object.
- Object pushes forwards on particles of fluid.
- Particles push backwards on object = drag force.

Drag force depends on:

- Material of fluid
- Speed of relative motion
- Shape of object
- Size of front surface
- Smoothness of surface

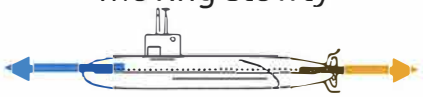


Propelled or Not

Propelled: has driving force

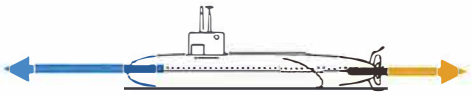
Moving: has drag force

moving slowly



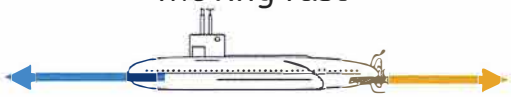
- Resultant force is 0 N: uniform speed, no change to forces

increases thrust



Resultant force increasing speed, drag will increase

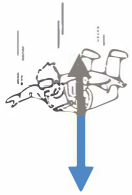
moving fast



- Resultant force is 0 N: uniform speed, no change to forces

remove propulsion

Resultant force decreasing speed, drag will decrease



Accelerates until drag equals size of weight.

Parachute released, increases drag, resultant force acts upwards, decreases speed, drag decreases etc.

8.03: Forces and Motion

High-Quality Data

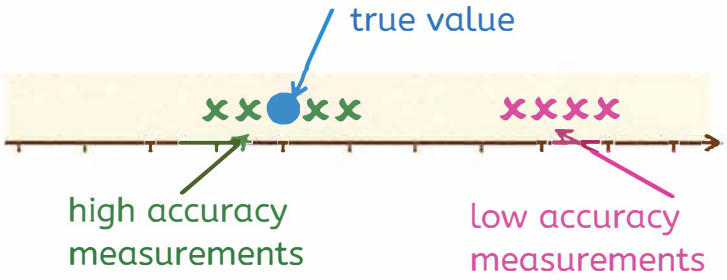
valid data

- with low measurement error
- that is accurate
- that is repeatable
- that is reproducible

- represents the real situation and is trustworthy

accurate data

- closeness of a measurement to the true or agreed value.



Developing a Method

Researchers

- select apparatus and techniques known to give accurate data,
- measure over appropriate range, with systematic intervals.

Line of enquiry → Plan data collection → Type of scientific method → Apparatus / techniques → Valid data

Plan data collection: to answer question; systematic

Apparatus / techniques: resolution; measurement error (impact random error; likelihood systematic error)

Researchers

- often **trial** experiments to finalise the method.

Safe Practicals

Researchers

- may redesign experiments to reduce risk to acceptable levels.

Hazard	Risk	Control Measure
Falling	• Damage to bones on impact with floor or other fixed objects	• Do not stand on tables, stools etc. • Reduce maximum height to one students can reach.

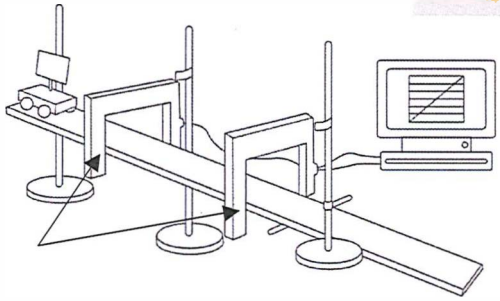
8.03: Forces and Motion

Selecting Apparatus and Techniques

Datalogging

- a process where sensors measure the physical properties of a system

Researcher sets up the constraints on the computer to record data, e.g. time intervals and the logging period.



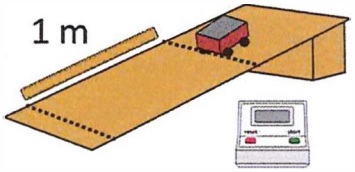
Each light gate is set up to measure time for card to pass; processor calculates speed at each gate.

Digital Filming

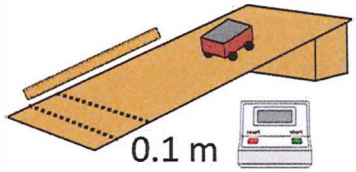
- multiple images recorded (frames); each frame is over a strict time interval

Recorded against a measurement background, any change can be observed.

Measuring Speeds (time and distance)

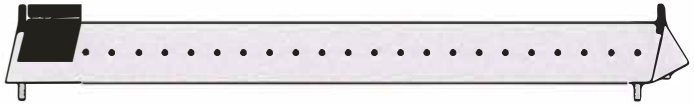


uniform speed – select greater distance



changing speed – select small distances

Ramp is 'banked up' to reduce effect of friction.



Air track removes almost all friction.

Apparatus	Advantages
Datalogging	• over very short intervals • consistent and not subjective • high resolution • removes reaction time (timing)
Digital filming	• not subjective • removes reaction time (timing) • removes measurement error while object moving (distance)

8.03: Forces and Motion

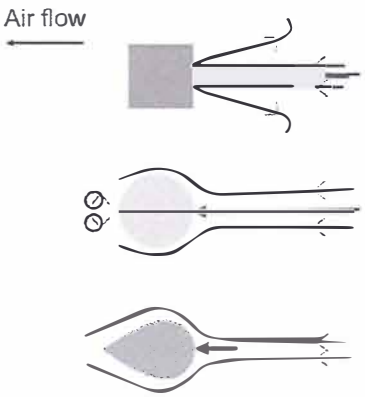
Applications of Technology on Science

Researchers select apparatus that:

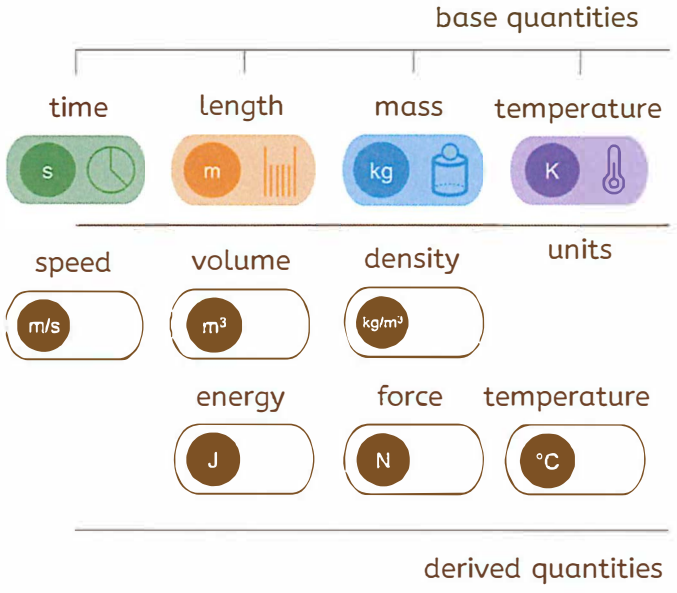
- Restricts control variables.
- Has higher resolution.
- Automates measurement (more often, longer duration).
- Removes random error related to human judgement (subjectivity).

Applications of Science on Industry

Knowledge of fluid flow around objects allows engineers to produce better designs, e.g. more efficient cars.



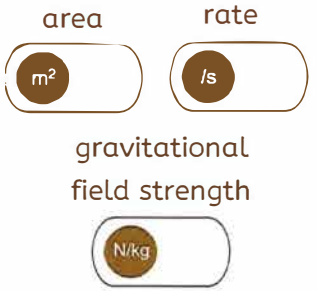
Measurement Values



Quantities and their units:

Base quantities: length, mass, time, temperature (K).

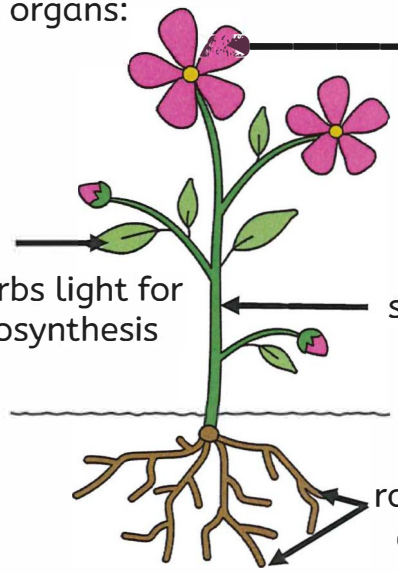
Derived quantities also include:



Plants and Their Processes

Plants as Organisms

Plant organs:



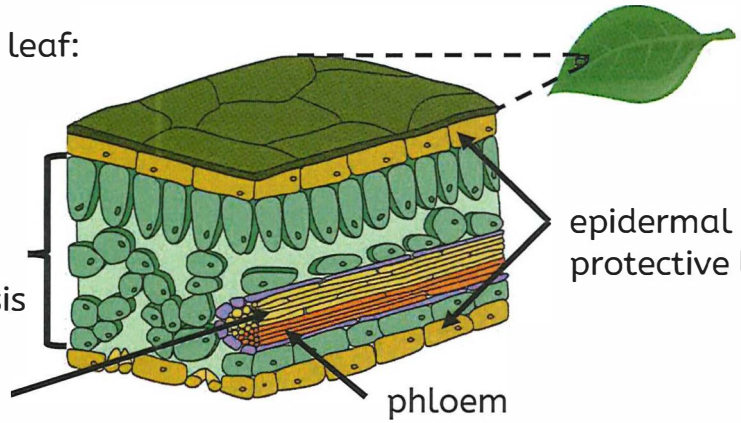
flower
the reproductive organ of the plant

leaf
absorbs light for photosynthesis

stem
connects the other organs and transports key substances

roots
anchor the plant and absorb water and minerals

Tissues in the leaf:



epidermal
protective layer

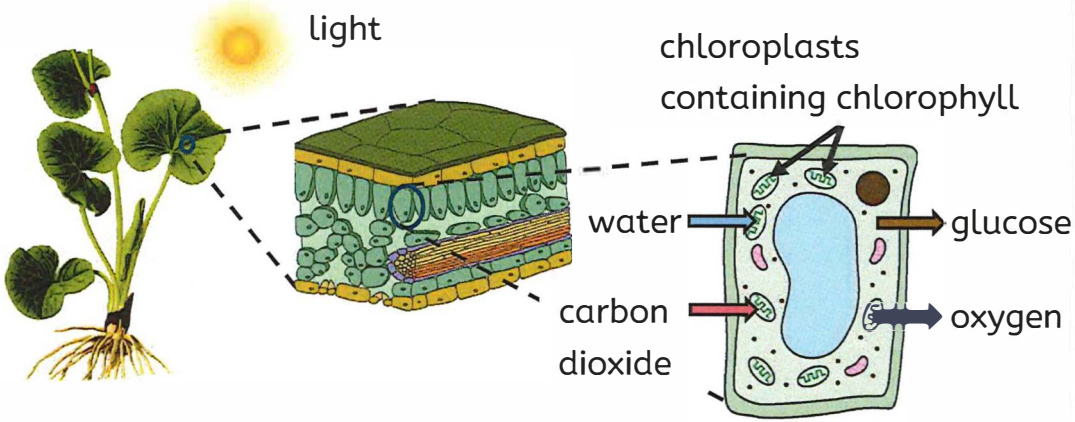
mesophyll
photosynthesis

xylem
transports water and dissolved minerals

phloem
transports dissolved sugars

Photosynthesis

Photosynthesis is a series of chemical reactions in which plants use carbon dioxide and water to make glucose and oxygen, driven by energy from light. Photosynthesis occurs in the chloroplasts and is absorbed by the green pigment called chlorophyll.



carbon dioxide + water → glucose + oxygen

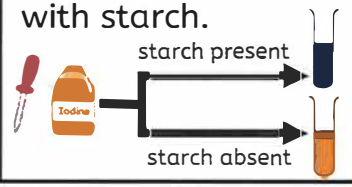
reactants → products

Uses of glucose:

1. used by the plant for respiration to release energy
2. turned into cellulose to build cell walls
3. turned into starch and stored for use later by the plant

Photosynthesis is an endothermic process because it requires energy to be transferred from its surroundings.

We can test a leaf for starch using iodine. Iodine will turn from orange-brown to blue-black when it is in contact with starch.



Plants and Their Processes

Photosynthesis Continued

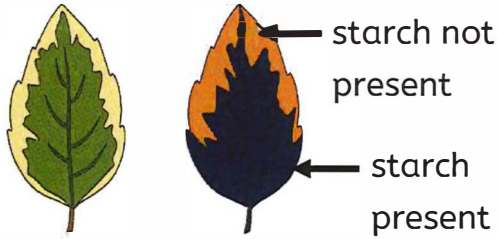
A leaf is tested for starch using the following steps:

Step	Reason
Hold the leaf in the hot water	soften leaf
Cover the leaf with ethanol	remove chlorophyll
Place the boiling tube into the beaker of hot water	speed up removal
Rinse the leaf in the beaker of hot water	soften leaf again
Place the Petri dish containing the leaf on white tile	see colour change
Add a few drops of iodine solution to cover the leaf	test for starch

Results of the iodine test for starch on a variegated leaf:

Before

After



Only green parts of the leaf photosynthesise and make starch, so iodine stays orange-brown on non-green parts.

When testing for starch, control measures should be taken using the hazardous substances:

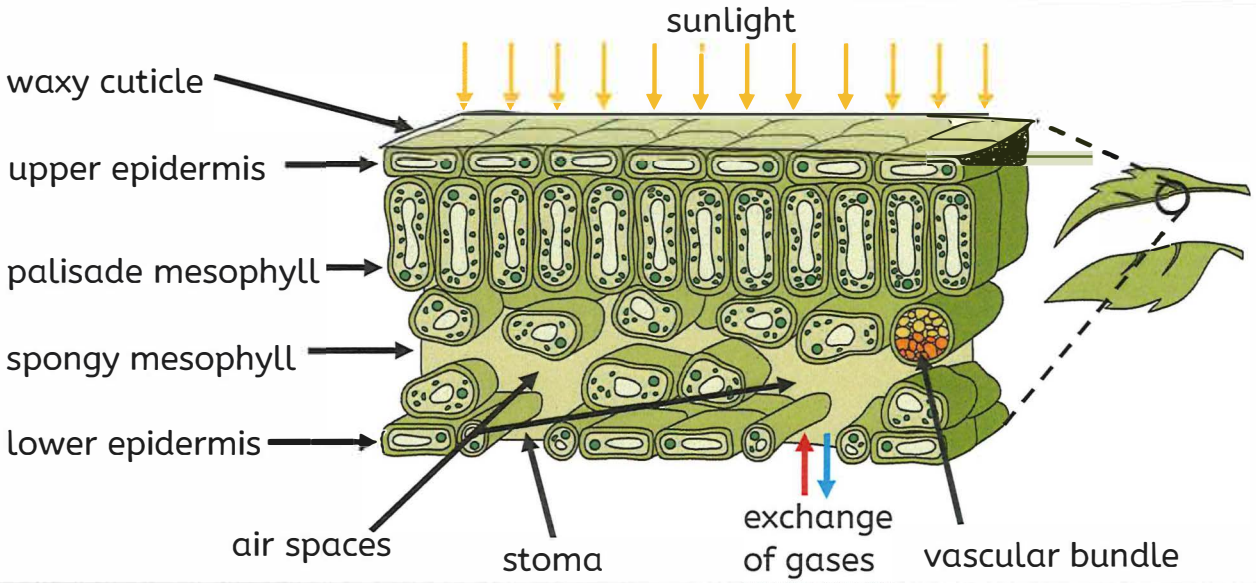
- iodine 
- ethanol 

Changing Understanding of Photosynthesis

People used to incorrectly believe that plants gain mass by taking in soil through roots. Van Helmont's experiment with the willow tree showed plants gain mass from water, not soil. Today, scientists know that plant mass comes from carbon dioxide, which is used in photosynthesis to make glucose for growth.

Leaf Structure and Adaptations

Leaf adaptation	Function of adaptation
Many chloroplasts	Contain chlorophyll to absorb light
Large surface area	Absorbs more light
Thin	Short diffusion distance for gases
Veins	Transport water, minerals, and sugars
Stomata (underside)	Allow gas exchange (CO_2 in, O_2 out)



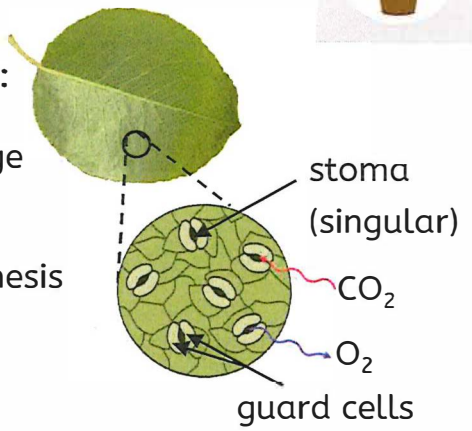
Plants and Their Processes

Leaf Structure and Adaptations Continued

Structure	Function	Adaptation
upper epidermis	allows light to pass through	thin and transparent
palisade mesophyll	photosynthesis	cells have lots of chloroplasts and are tightly packed
spongy mesophyll	supports diffusion of gases in and out of leaf	air spaces
lower epidermis	supports diffusion of gases in and out of leaf	stomata
vascular bundle	transports substances	xylem and phloem tissue
waxy cuticle	reduces water loss	waterproof

Guard cells and gas exchange:

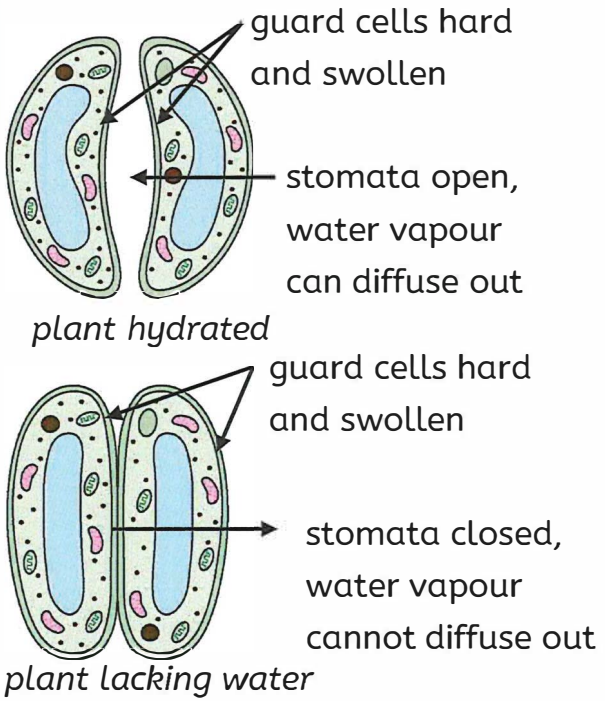
- Control opening/closing of stomata for gas exchange
- Sensitive to light
- Open stomata in day for CO_2 to enter for photosynthesis
- Close stomata at night when photosynthesis stops



A light microscope can be used to observe an imprint of the structure of the stomata. Stomata are on the underside of the leaf because it is cooler and more shaded.

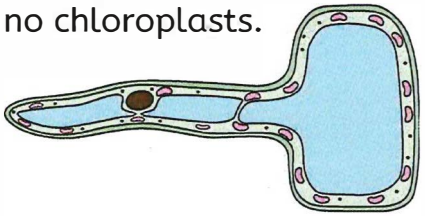
Guard cells and water loss:

- Guard cells open and close stomata to reduce water loss.



Root structure and adaptations

Root hair cells are adapted for the absorption of water and minerals, with a long extension to increase surface area. They contain many mitochondria to provide energy for active transport. They have no chloroplasts.



Water is essential for photosynthesis. It maintains the structure of the plant and enables chemical reactions by acting as a solvent in which reactants and products are dissolved.

Plants also need minerals:

- Nitrates → healthy growth
- Phosphates → healthy roots
- Potassium → healthy leaves and flowers
- Magnesium → makes chlorophyll

8.03: Forces and Motion

Recording Data

Collected data is generally recorded in a table.

Column headings (describe quantities and units).

IV far left column

Raw data processed, e.g. speed = d ÷ t

Data processed: mean = sum ÷ number

All raw data included

DV furthest right-hand column: processed DV

Repeated measurements with anomalies identified

Rows' values change systematically

CV included

Situation	Distance travelled (m)	Time taken (s)	Average Speed (m/s)	Average Speed (m/s)
Parachute	2.00	1.49	1.34	1.19
	2.00	1.78	1.12	
	2.00	1.78	1.12	
No parachute	2.00	0.17		2.43
	2.00	0.86	2.33	
	2.00	0.79	2.53	

Constant mass

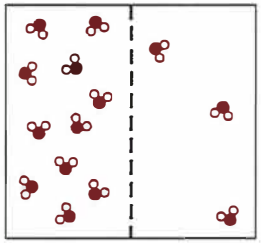
Quantitative values recorded with appropriate significant figures and consistent

Processed values rounded:
Formulae
s.f. same as measurement
Mean
s.f. same as worst measurement

Plants and Their Processes

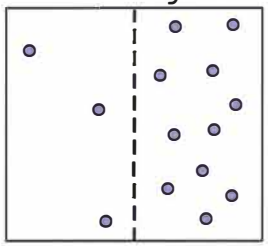
Root Structure and Adaptations Continued

Water is absorbed through osmosis, moving from an area of high water concentration in the soil to an area of lower concentration in root hair cells.



high → low
water concentration

Minerals are absorbed by active transport as they are in lower concentrations in soil than in root hair cells. Active transport requires energy from respiration, so root hair cells contain many mitochondria.

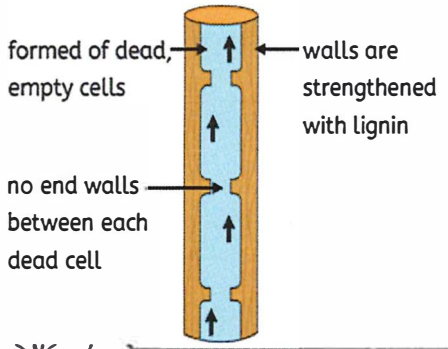


low → high
water concentration

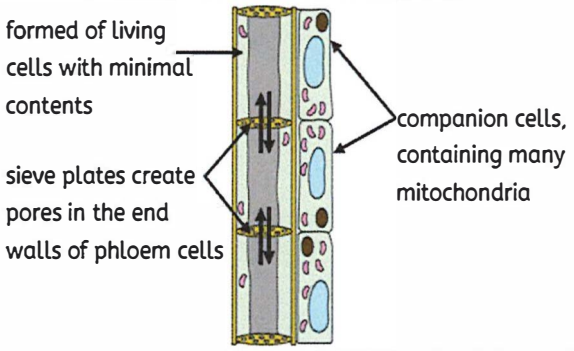
Transport in Plants

Xylem transports water and dissolved minerals up the stem, from roots to leaves. Phloem transports dissolved sugars. Sugars are transported up or down the stem, depending on where sugars are needed.

xylem adaptations



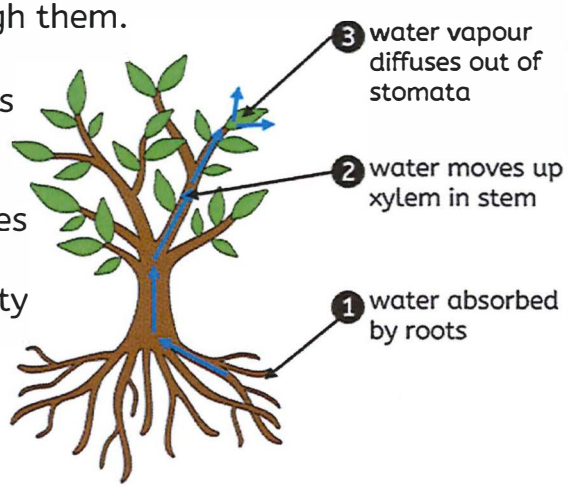
phloem adaptations



Transpiration is the loss of water vapour from the leaves of plants, through the stomata. When the stomata are open, plants lose water vapour through them.

The rate of transpiration is increased by:

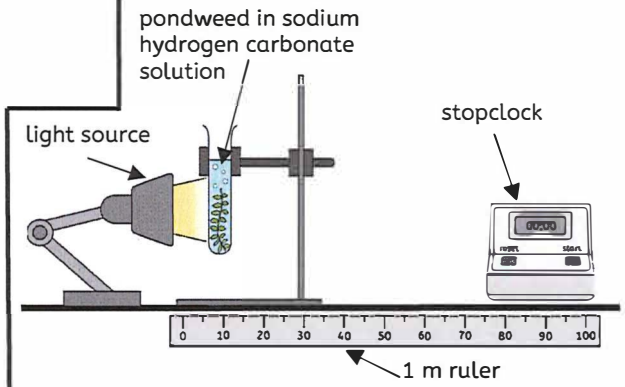
- increased temperatures
- increased light intensity
- increased wind
- decreased humidity



Rate of Photosynthesis

An increase in light intensity, temperature, chlorophyll, water and carbon dioxide increases the rate of photosynthesis.

Effect of light intensity on rate of photosynthesis



Variables

Independent: light intensity - distance between light and pondweed

Dependent: rate of photosynthesis - number of bubbles per minute

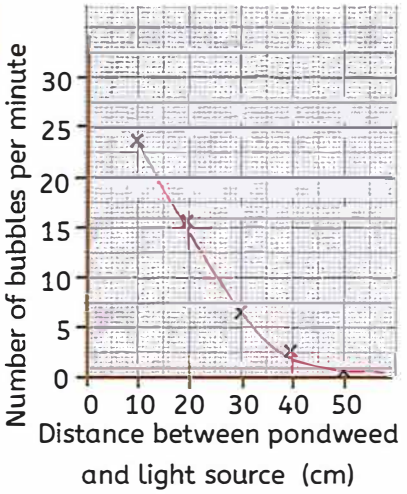
Control: temperature, CO_2, water, chlorophyll, time, size/mass of pondweed

Plants and Their Processes

Rate of Photosynthesis Continued

Step	Explanation
1. Set up the LED light source and meter ruler	it doesn't heat up during use, so temperature won't be affected
2. Fill the boiling tube with the sodium hydrogen carbonate solution	to provide carbon dioxide
3. Put the piece of pondweed into the boiling tube with the cut end at the top and keep it underwater	to observe bubbles of oxygen
4. Place the boiling tube with pondweed 10cm from the light source	this is the first independent variable light intensity to test
5. Leave the pondweed for three minutes	allows the photosynthesis rate to stabilise

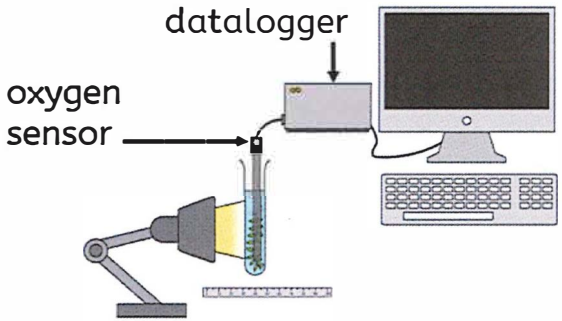
Typical results



As the distance between the pondweed and light increases, the number of bubbles per minute decreases. This is because less energy is transferred and absorbed by the chlorophyll for photosynthesis.

Datalogging and technology in science

Datalogging: Automatic data collection using sensors and computers (e.g. light, temperature, oxygen). Data is recorded at regular intervals (e.g., every second or minute). Technology improves experiments: Cameras, sensors, and computers make observations clearer and more accurate.

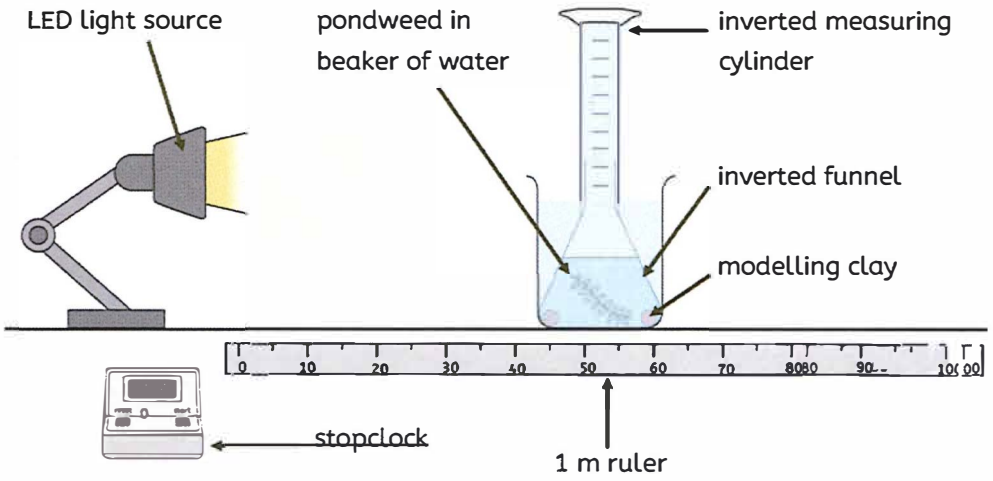


Limitations and improvements in measuring photosynthesis

Counting bubbles → Simple but inaccurate and biased (bubble size, bubble speed).

Better method → Measure volume of oxygen using inverted funnel and measuring cylinder (more accurate, objective).

Digital tools → Data loggers collect continuous data, reduce error and bias, improve validity and analysis.

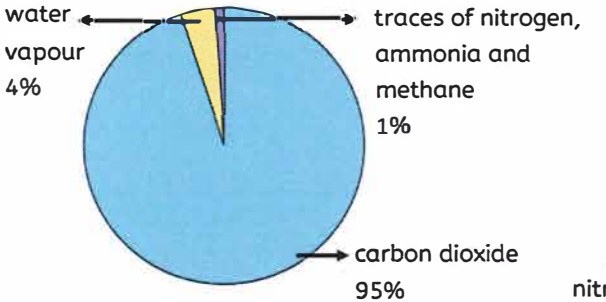


Plants and Their Processes

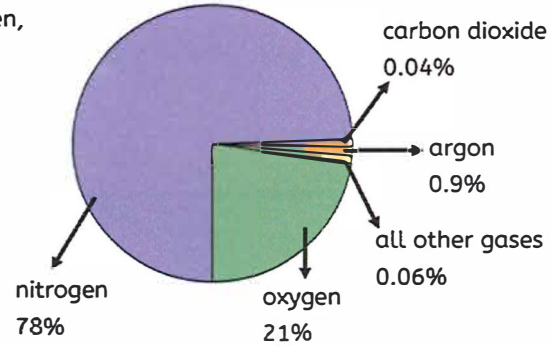
Plants and the Atmosphere

Early Earth's atmosphere was mostly carbon dioxide, with almost no oxygen. Over time, oxygen rose and CO_2 fell.

Earth's early atmosphere

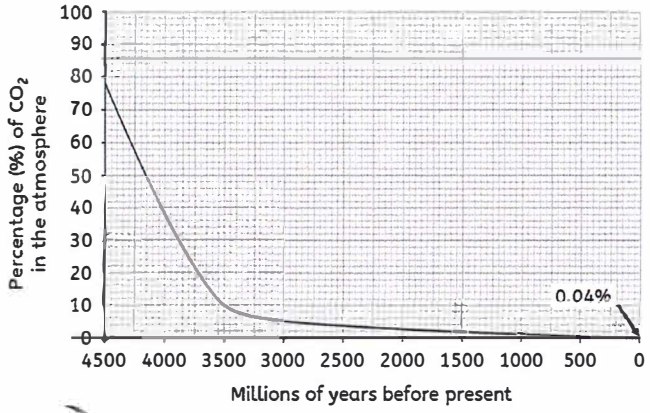


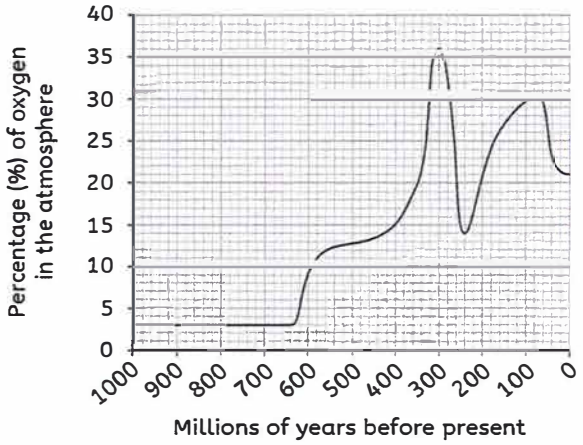
Earth's atmosphere today

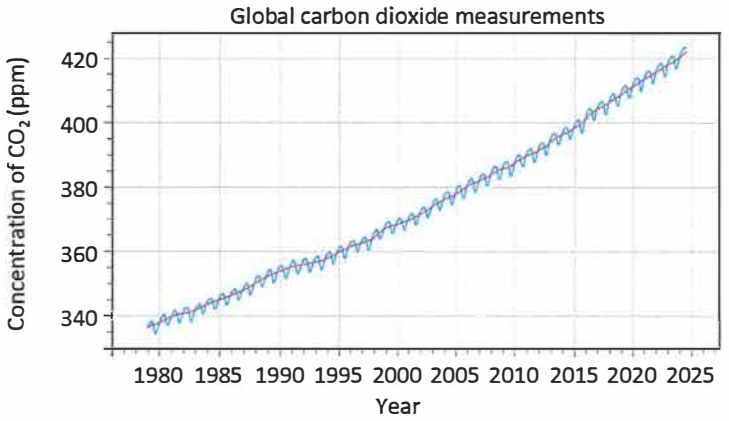


Carbon dioxide levels decreased because the oceans formed and carbon dioxide dissolved into them. Plants and algae then used it in photosynthesis.

Oxygen levels increased because algae and plants released oxygen during photosynthesis. Fluctuations occurred because early oxygen was absorbed by oceans and seabed rocks.







Deforestation reduces the number of plants, increasing carbon dioxide levels.

Plants as Producers

- Plants are producers that make their own food through photosynthesis. Plants provide food for humans and other animals, forming the basis of food chains.
- Foods that contain starch can be identified using iodine.
- Raw data in tables may need to be processed by finding frequency.

Starch Test Result	Tally	Frequency
Starch present	𝍸 𝍸 𝍸 𝍸 ///	18
No starch	𝍸 𝍸 𝍸 //	12

- Insect pollination is essential for crop growth and food production.
- A significant portion of our food relies on pollinators.
- The decline in bee populations threatens food security.

Hartshill Academy
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Year 8

Food Technology

Heart - Ambition - Respect - Tenacity

Name: Date:

The Eatwell Guide

- When choosing food and drinks, current healthy eating guidelines should be followed.

The Eatwell Guide
- Comprises 5 main food groups.
- Is suitable for most people over 2 years of age.
- Shows the proportions in which different groups of foods are needed in order to have a well-balanced and healthy diet.
- Shows proportions representative of food eaten over a day or more.

Fruit and vegetables
- This group should make up just over a third of the food eaten each day.
- Aim to eat at least five portions of a variety each day.
- Choose from fresh, frozen, canned, dried or juiced.
- A portion is around 80g (3 heaped tbs).
- 30g of dried fruit or 150ml glass of fruit juice or smoothie count as a max of 1 portion each day.

Potatoes, bread, rice, pasta or other starchy carbohydrates
- Base meals around starchy carbohydrate food.
- This group should make up just over a third of the diet.
- Choose higher-fibre, wholegrain varieties.

Dairy and alternatives
- Good sources of protein and vitamins.
- An important source of calcium, which helps to keep bones strong.
- Should go for lower fat and lower sugar products where possible.

To find out more, go to: https://bit.ly/2QzUMfe

Beans, pulses, fish, eggs, meat and other protein
- Sources of protein, vitamins and minerals.
- Recommendations include to aim for at least two portions of fish a week, one oily, and; people who eat more than 90g/day of red or processed meat, should cut down to no more than 70g/day.

Oil and spreads
- Unsaturated fats are healthier fats that are usually from plant sources and in liquid form as oil, e.g. olive oil.
- Generally, people are eating too much saturated fat and need to reduce consumption.

Foods high fat, salt and sugar
- Includes products such as chocolate, cakes, biscuits, full-sugar soft drinks, butter and ice cream.
- Are high in fat, sugar and energy and are not needed in the diet.
- If included, should be had infrequently and in small amounts.

8 tips for healthier eating
These eight practical tips cover the basics of healthy eating, and can help you make healthier choices.
1. Base your meals on starchy carbohydrates.
2. Eat lots of fruit and veg.
3. Eat more fish – including a portion of oily fish.
4. Cut down on saturated fat and sugar.
5. Eat less salt (max. 6g a day for adults).
6. Get active and be a healthy weight.
7. Don't get thirsty.
8. Don't skip breakfast.

Hydration
- Aim to drink 6-8 glasses of fluid every day.
- Water, lower fat milk and sugar-free drinks including tea and coffee all count.
- Fruit juice and smoothies also count but should be limited to no more than a combined total of 150ml per day.

Fibre
- Dietary fibre is a type of carbohydrate found in plant foods.
- Food examples include wholegrain cereals and cereal products; oats; beans; lentils; fruit; vegetables; nuts; and, seeds.
- Dietary fibre helps to: reduce the risk of heart disease, diabetes and some cancers; help weight control; bulk up stools; prevent constipation; improve gut health.
- The recommended average intake for dietary fibre is 30g per day for adults.

Composite/combination food
Much of the food people eat is in the form of dishes or meals with more than one kind of food component in them. For example, pizzas, casseroles, spaghetti bolognese and sandwiches are all made with ingredients from more than one food group. These are often called 'combination' or 'composite' foods.

Key terms
The Eatwell Guide: A healthy eating model showing the types and proportions of foods needed in the diet.
Hydration: The process of replacing water in the body.
Dietary fibre: A type of carbohydrate found in plant foods.
Composite/combination food: Food made with ingredients from more than one food group.

Meals and snacks can be sorted into The Eatwell Guide food groups.

Composite/combination food - Lasagne

Pasta (lasagne sheets): **Potatoes, bread, rice, pasta or other starchy carbohydrates**
Onions, garlic and chopped tomatoes: **Fruit and vegetables**
Lean minced meat (or meat substitute): **Beans, pulses, fish, eggs, meat and other protein**
Cheese sauce made with milk and cheese: **Dairy and alternatives**
Olive/vegetable oil used to cook onions and mince: **Oil and spreads**

Task
Plan a menu for a day that applies the principles of The Eatwell Guide and the 8 tips for healthier eating. Make one of the dishes, complete a sensory evaluation and calculate the energy and nutrients provided using nutritional analysis.

This resource meets the ***Guidelines for producers and users of school education resources about food.***

Name: Date:

Food hygiene

- Good food safety and hygiene practices are essential to reduce the risk of food poisoning.

Food poisoning

Food poisoning can be caused by:

- bacteria, e.g. through cross-contamination from pests, unclean hands and dirty equipment, or bacteria already present in the food, such as salmonella;
- physical contaminants, e.g. hair, plasters, egg shells, packaging;
- chemicals, e.g. cleaning chemicals.

Bacterial contamination is the most common cause.
Microorganisms occur naturally in the environment, on cereals, vegetables, fruit, animals, people, water, soil and in the air. Most bacteria are harmless but a small number can cause illness.
Harmful bacteria are called pathogenic bacteria.
The process of food becoming unfit to eat through oxidation, contamination or growth of micro-organisms is known as food spoilage.

Bacterial growth and multiplication

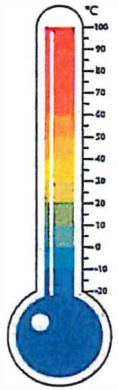
All bacteria, including those that are harmful, have four requirements to survive and grow:

- food;
- moisture;
- warmth;
- time.

Temperatures to remember

To reduce the risk of food poisoning, good temperature control is vital:

- 5-63°C – the danger zone where bacteria grow most readily.
- 37°C – body temperature, optimum temperature for bacterial growth.
- 8°C – maximum legal temperature for cold food, i.e. your fridge.
- 5°C (or below) – the ideal temperature your fridge should be.
- 75°C – if cooking food, the core temperature, middle or thickest part should reach at least this temperature.
- 75°C – if reheating food, it should reach at least 82°C.



Allergen and food intolerance awareness

There are 14 ingredients (allergens) that are the main reason for adverse reactions to food. Cross-contamination of food containing these allergens must be prevented to reduce the risk of harm. They must also be labelled on pre-packaged food and menus so that consumers can make safe choices. The 14 allergens are:

- Celery (and celeriac)
- Cereals containing gluten
- Crustaceans
- Eggs
- Fish
- Lupin
- Milk
- Molluscs
- Mustard
- Nuts
- Peanuts
- Sesame
- Soybeans
- Sulphur dioxide

Key terms

Allergens: Substances that can cause an adverse reaction to food. Cross-contamination must be prevented to reduce the risk of harm.
Bacteria: Small living organisms that can reproduce to form colonies. Some bacteria can be harmful (pathogenic) and others are necessary for food production, e.g. to make cheese and yogurt.
Cross-contamination: The transfer of bacteria from one source to another. Usually raw food to ready-to-eat food but can also be the transfer of bacteria from unclean hands, equipment, cloths or pests. Can also relate to allergens.
Food poisoning: Illness resulting from eating food which contains food poisoning micro-organisms or toxins produced by micro-organisms.
High risk ingredients: Food which is ready to eat, e.g. cooked meat and fish, cooked eggs, dairy products, sandwiches and ready meals.

High risk food

Bacteria easily multiply on foods known as 'high-risk food'. These are often high in protein or fat, such as cooked meat and fish, dairy foods and eggs. Cooked pasta and rice are also regarded as high risk foods if they are not cooled quickly after cooking and stored below 5°C.

Moisture

Bacteria need moisture to survive. Dried foods, such as powdered milk, cereals or dried egg do not support bacterial growth, if properly stored. However, if moisture is added, any bacteria still alive can quickly begin to multiply.

Time

When bacteria spend enough time on the right types of food, at warm temperatures, they can multiply to levels that cause illness.

Reheat food only once and eat leftovers within 48 hours.

Getting ready to cook

- Remove blazers/jumpers and roll up long sleeves.
- Tie up long hair and tuck in ties or head coverings.
- Thoroughly wash and dry hands.
- Put on a clean apron.

Where should food be stored in the fridge?

Cheese, dairy and egg-based products
The temperature is usually coolest and most constant at the top of the fridge, allowing these foods to keep best here.

Cooked meats
Cooked meats should always be stored above raw meats to prevent contamination from raw meat.

Raw meats and fish
Raw meats and fish should be below cooked meats and sealed in containers to prevent contamination of salad and vegetables.

Salad and vegetables
These should be stored in the drawer(s) at the bottom of the fridge. The lidded drawers hold more moisture, preventing the leaves from drying out.

Symptoms of food poisoning

The symptoms of food poisoning include:

- nausea;
- vomiting;
- stomach pains;
- diarrhoea.

People at risk

Elderly people, babies and anyone who is ill or pregnant needs to be extra careful about the food they eat.

Why clean?

To remove grease, dirt and grime, and prevent food poisoning and pests.

Use-by-date

You've got until the end of this date to use or freeze the food before it becomes too risky to eat.

USE BY:

25/08/20

KEEP REFRIGERATED

Best-before-date

You can eat food past this date but it might not be at its best quality.

BEST BEFORE:

25/08/21

STORE IN A COOL DRY PLACE

Task

Create a poster highlighting the top tips for ensuring food is safe to eat. Include personal hygiene, safe storage, preparation and cooking of food.

To find out more, go to:
https://bit.ly/2Z97B5f

This resource meets the *Guidelines for producers and users of school education resources about food*

Name: Date:

Cooking

- A broad range of ingredients, equipment, food skills and techniques, and cooking methods are used to achieve successful results.
- Recipes and cooking methods can be modified to help meet current healthy eating messages.

Why is food cooked?

Some foods can be eaten raw and form an important part of the diet. However, many foods need to be prepared and cooked before they are eaten to:

- make the food safe to eat by destroying pathogenic microorganisms and toxins;
- destroy microorganisms and enzymes that cause food to deteriorate and therefore increase the keeping quality of the food;
- make the food more digestible and easier to absorb.

Food skills

There are a number of food skills which enable a variety of increasingly complex dishes to be prepared and made.
These can include:

- beating, combining, creaming, mixing, stirring and whisking;
- blitzing, pureeing and blending.
- kneading, folding, forming and shaping;
- knife skills;
- rubbing-in and rolling-out;
- use of the cooker: boiling/simmering/poaching, frying, grilling, roasting and baking.

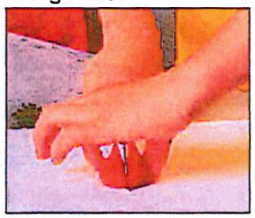
Safety

- Sharp knives: never walk around with a knife. Use the *bridge hold* and *claw grip* to cut safely.
- Grater: hold grater firmly on a chopping board. Grate food in one direction and leave a small amount at the end to prevent injury to knuckles.
- Hot liquid: drain hot liquid carefully over the sink using a colander.
- Saucepans: turn panhandles in from the edge, so they are not knocked.
- Hot equipment: always use oven gloves when placing food in and out of the oven.
- Spills: wipe up immediately.
- Electrical equipment: always follow instructions.

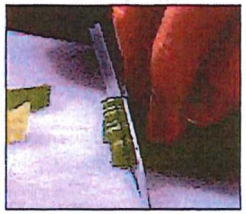
To find out more, go to:
https://bit.ly/322eSpr

Food skills are acquired, developed and secured over time.

Bridge hold



Claw grip



Food skill		Food skill		Food skill	
Bake		Fry and sauté		Portion / divide	
Beat		Glaze and coat		Prove	
Blitz, puree and blend		Grate		Roast	
Casserole		Grill		Roll-out	
Chill		Juice		Rub-in	
Core		Knead		Sift	
Cream		Layer		Snip	
Crush		Mash		Spread	
Cut out		Measure		Stir-fry	
Cut, chop, slice, dice and trim		Melt, simmer and boil		Weigh	
Decorate and garnish		Microwave		Whisk	
Drain		Mix, stir and combine		Zest	
Fold		Peel			
Form and shape		Pipe			

Heat exchange/transfer

Cooking requires heat energy to be transferred from the heat source, e.g. the cooker hob, to the food. This is called heat transfer or heat exchange. There are three ways that heat is transferred to the food. They are:

- conduction – direct contact with food on a surface, e.g. stir-frying;
- convection - currents of hot air or hot liquid transfer the heat energy to the food, e.g. baking;
- radiation - energy in the form of rays, e.g. grilling.

Many methods of cooking use a combination of these. The amount of heat and cooking time will vary according to the type of food being cooked and the method being used.

Cooking methods

These are based on the cooking medium used:

- moist/water based methods of cooking, e.g. boiling, steaming, stewing, braising;
- dry methods of cooking, e.g. grilling, baking roasting, toasting, BBQ;
- fat-based methods of cooking – stir, shallow and deep fat frying.

Vegetable cuts

batons – 5-6.5cm long x 1 cm square

dice – 1cm square

julienne/match stick – 5-6.5cm long x 3 mm square

fine julienne – 5-6.5cm long x 1.5mm square

Task

Complete the *Food route Cooking journal*:
https://bit.ly/3dYUibH

Key terms

Conduction: The exchange of heat by direct contact with foods on a surface e.g. stir-frying or plate freezing.
Convection: The exchange of heat by the application of a gas or liquid current e.g. boiling potatoes or blast chilling.
Heat transfer: Transference of heat energy between objects.
Radiation: Radiation is energy in the form of rays, e.g. grilling.

Cooking for health

Take into account healthy eating recommendations to ensure that dishes/meals are part of a varied, balanced diet.

- Planning - does the meal meet the nutritional needs and preferences of those it is being cooked for? Base your meals on starchy food.
- Choosing - choose low fat/sugar/salt versions, where possible.
- Preparing - limit the amount of fat added (try a spray oil) and replace salt with other flavourings, such as herbs and spices.
- Cooking - use cooking practices which reduce the amount of fat needed and minimise vitamin losses from fruit and vegetables.
- Serving - serve the meal in proportions which reflect current healthy eating advice.
- Do not forget to include a drink.

Healthier cooking methods

- Grill or BBQ foods rather than fry to allow fat to drain away.
- Drain or skim fat from liquids, e.g. sauces, stews and casseroles.
- Dry fry using non-stick pans, so no need for oil.
- Oven bake rather than fry.
- Steam or microwave vegetables.

Name: Date:

Where food comes from

- Food is sourced, processed and sold in different ways.
- Geography, seasonality, weather and climate influence the availability of food and drink.

All food must be grown, reared or caught

In the past food was grown, prepared and cooked at home or sold by small-scale producers or merchants.

Some people still grow food at home or on allotments. Food can also be bought from a wide range of sources, including:

- cafes/coffee shops;
- convenience stores;
- farmers markets;
- farm shops;
- markets;
- on-line retailers;
- restaurants;
- supermarkets;
- takeaway outlets.

Food Processing

Food processing is any deliberate change to food that happens to a food before it is available to eat. Processing makes food safer to eat by killing existing bacteria and slowing bacterial growth.
Food is processed for a number of reasons:

- to extend shelf life;
- to add variety;
- for convenience;
- for consumer's health.

Innovations in food processing have led to the development of functional foods; these provide benefits over and above the basic nutritional value, e.g. dairy products containing probiotic bacteria.

Food provenance

Food provenance is about where food is grown, caught or reared, and how it was produced. Food certification and assurance schemes guarantee defined standards of food safety or animal welfare. There are many in the UK, including:

World food

A number of ingredients and foods that are now readily available have been introduced to the UK over a long period of time. Many are imported from other countries giving access to ingredients and foods that would not normally grow in the UK.
The availability of these ingredients and foods gives a wide choice throughout the year.

Food availability

Some ingredients or foods are available throughout the year because they have been imported from other countries where they are in season at different times of the year.

Climate and terrain are two key factors that affect food availability and where food is grown, reared and caught.

There is a great variety of food grown all over Europe. The type of farming is partly determined by the climate and the geography of the country or region. The terrain or landscape determines which crops are grown or animals reared. Cereal crops are grown in flat plains, whereas sheep can be reared in hilly terrain.

Seasonality

Fruit and vegetables naturally grow in cycles and ripen during a certain season each year. Some meat and fish can also be seasonal. Advantages of buying food in season include:

- it is fresh;
- best flavour, colour and texture;
- optimal nutritional value;
- supports local growers;
- lower cost;
- reduced energy needed to transport.

Climate change

There is worldwide concern about climate change and the increased number of extreme or unusual weather conditions.
Changes in temperature can affect plant growing seasons and livestock conditions. It is very likely to affect food security at a global, regional and local level.

Food security

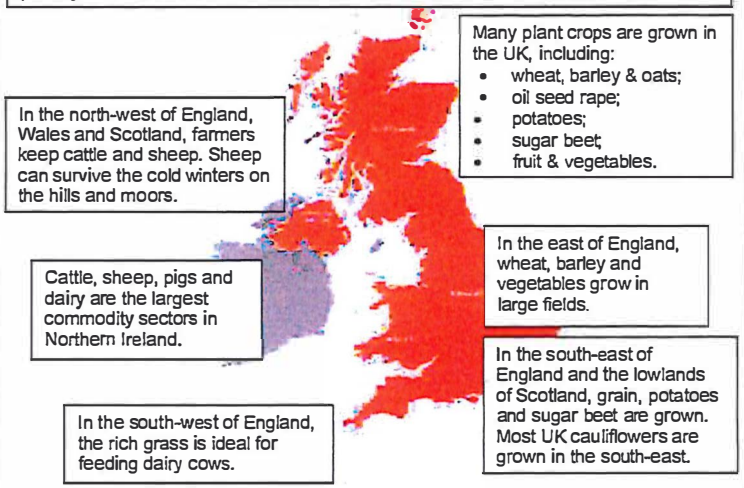
Food security exists when everyone has access to enough affordable, safe and nutritious food to keep them healthy, in ways the planet can sustain in the future.

To find out more, go to: https://bit.ly/3rjJo6S

Key terms

Food processing: Any deliberate change to food that happens to a food before it is available to eat.
Seasonality: Food grown at a particular time of year.
Food certification and assurance schemes: Defined standards of food safety, quality or animal welfare.
Food security: Having access to sufficient quantity of affordable, nutritious food.
Food provenance: Knowing where food was grown, caught or raised and how it was produced.

Map showing key growing areas in the UK – some parts of the UK have excellent soil for crops, while others are used for cattle, sheep, pigs and poultry.



Tasks

- Choose a food commodity and research how it is produced and processed. Create farm to fork food chain cards to illustrate what you have found out.
- Research the following ingredients and state where in the world they are traditionally grown, reared or caught: avocado, lamb, nutmeg, oats, olive oil, spinach, squid, sugar beet.

This resource meets the *Guidelines for producers and users of school education resources about food*

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Year 8

Geography

Heart - Ambition - Respect - Tenacity

8.01: Population

Population distribution

1	**population density**	(n) the number of people who live within one square kilometre (km²)
2	**population distribution**	(n) how people are spread out over a particular area
3	**densely populated**	(n) many people per km²
4	**sparsely populated**	(n) few people per km²

Population change

1	**birth rate**	(n) the number of live births per 1,000 people in a population per year
2	**death rate**	(n) the number of deaths per 1,000 people in a population per year
3	**natural increase**	(n) the difference between the birth rate and death rate
4	**population explosion**	(n) the rapid increase in the world's population since the 1950s
5	**overpopulation**	(n) when the number of people in a region exceeds the capacity of that region's resources to support them

Managing population

1	**ageing population**	(n) a population with a high and increasing proportion of people aged 65 and over, often due to low birth rates and longer life expectancy
2	**youthful population**	(n) a population with a high proportion of young people (typically under the age of 15), often found in countries with high birth rates and lower life expectancy

Population structure

1	**population structure**	(n) the number/proportion of people in each age range, for each gender
2	**population pyramid**	(n) a graphical representation of a country's population structure, showing the distribution of different age groups and sexes
3	**working-age population**	(n) the group of people typically aged 15–64 who are considered old enough to work and support the economy
4	**young dependents**	(n) children and young people aged 0–14 who are usually not working and depend on others for care and support
5	**elderly dependents**	(n) older adults, usually aged 65 and over, who are often retired and may rely on others or the government for financial and healthcare support

Migration

1	**voluntary migration**	(n) when people choose to move to another place, often for reasons such as better job opportunities, education or lifestyle
2	**forced migration**	(n) when people are made to move due to conflict, natural disasters, persecution or other dangers beyond their control
3	**international migration**	(n) when people move from one country to another
4	**internal migration**	(n) when people move within the same country, e.g. from rural areas to cities
5	**push factor**	(n) factor that makes people want to leave an area
6	**pull factor**	(n) factor that makes people want to move to an area
7	**source country**	(n) the home country of a migrant
8	**host country**	(n) the destination country for a migrant

8.01: Population

Factors influencing population distribution

1	**physical**	1. relief of the land 2. availability of natural resources 3. climate 4. fertility of soil 5. access to fresh water
2	**human**	1. transport network 2. job opportunities 3. investment in basic and wider services

Factors affecting birth and death rates

1	**birth rate**	1. cost of childcare 2. access to contraception 3. children seen as an economic asset 4. average age of marriage
2	**death rate**	1. access to safe drinking water 2. access to food
3	**both**	1. access to healthcare 2. infant mortality rate 3. access to education 4. war

Population structure and development

1	**developing countries**	1. high birth rates, so a large young dependent population 2. a lower life expectancy, so a small elderly dependent population
2	**developed countries**	1. a declining birth rate, so a small young dependent population 2. a rising life expectancy, so a large elderly dependent population

Ageing population

1	**Advantages**	1. the grey pound 2. family support with childcare 3. jobs in health and social care
2	**Disadvantages**	1. pressure on public services, including healthcare 2. strain on housing supply 3. increased tax revenue required for pensions
3	**Management strategies**	1. increasing the retirement age 2. increasing tax for the working-age population 3. access to free or funded childcare

Youthful population

1	**Advantages**	1. large future workforce 2. increased tax revenue in the future 3. future business development
2	**Disadvantages**	1. strain on natural resources 2. overpopulation 3. education requirements
3	**Management strategies**	1. investing in healthcare 2. family planning 3. investment in education 4. improving women's rights

Factors affecting migration

Push factors	Pull factors
war and conflict	peace (no war)
low wages	higher wages
education difficult to access	good education system
droughts and water scarcity	better access to healthcare
gender inequality	good job opportunities

8.02: Coasts

Wave features

1	**swash**	(n) the movement of a wave up the beach. The direction is dependent upon the wind direction.
2	**backwash**	(n) the movement of water down a beach. This is caused by gravity and happens at 90 degrees to the shore.
3	**constructive wave**	(n) waves that have a strong swash and a weak backwash. Deposition is the dominant process.
4	**destructive wave**	(n) waves that have a weak swash and a strong backwash. Erosion is the dominant process.
5	**fetch**	(n) the distance a wave has travelled
6	**prevailing wind**	(n) the direction that the wind usually comes from in a particular area over a long period of time

Weathering and erosion

1	**hydraulic action**	(n) the erosion caused by the force of the water hitting the rocks, which traps and compresses air in the cracks and causes the cracks to weaken and break
2	**abrasion**	(n) the erosion caused when rocks and sediment carried by waves (or a river) are thrown against a cliff or riverbank
3	**attrition**	(n) the erosion caused when rocks and sediment carried by waves (or a river) hit each other and cause each other to break into smaller pieces
4	**weathering**	(n) the slow breakdown of rocks while they are in place

Geology

1	**geology**	(n) the scientific study of the Earth, including its structure, materials (such as rocks and minerals) and the processes that act upon it
2	**igneous rock**	(n) rocks formed from the cooling and crystallisation of molten rock. Examples include basalt and granite.
3	**metamorphic rock**	(n) rocks formed when very high temperature and pressure cause existing rocks to change. Examples include slate and marble.
4	**sedimentary rock**	(n) rocks formed when sediments of rock are transported, deposited, compacted and cemented together in layers. Examples include chalk, clay and limestone.

Coastal processes

1	**transportation**	(n) the movement of sediment
2	**deposition**	(n) when waves drop the sediment they are transporting, either due to a loss of energy or change in the direction of the coastline
3	**longshore drift**	(n) the process by which sediment (such as sand and pebbles) is transported along a coastline by the action of waves. It creates beaches.

Headlands and bays

1	**resistant**	(aj) does not easily erode or wear away
2	**headland**	(n) a piece of land that sticks out into the sea and is usually made of hard, resistant rock
3	**bay**	(n) a curved or indented area of the coastline where the land curves inward

Alternating hard and soft rock → destructive waves → hydraulic action → soft rock less resistant → erodes quickly → hard rock more resistant → erodes slowly → soft rock retreats → bay forms → hard rock remains → headland forms

Caves, arches, stacks and stumps

1	**cave**	(n) a hollow or opening in a cliff face, usually at the base, formed when waves erode a weakness in the rock, such as a fault or crack
2	**arch**	(n) a natural bridge of rock with an opening underneath, formed when a cave is eroded all the way through a headland.
3	**stack**	(n) a tall, isolated pillar of rock that is left standing in the sea after the roof of an arch collapses
4	**stump**	(n) the remains of a collapsed stack, which has been eroded by waves down to a small, flat rock just above or below sea level

Weakness or crack in headland → destructive waves → hydraulic action and abrasion → cave formed → headland erodes through → arch formed → unsupported roof collapses → vertical stack left → stack collapses leaving a stump

8.02: Coasts

Beaches and longshore drift

1	**sand**	(n) loose material made up of fine rock particles, usually smaller than 2 mm in diameter
2	**shingle**	(n) loose, rounded pebbles and small stones found on beaches, usually between 2 mm and 200 mm in size
3	**sediment**	(n) solid material that is moved and deposited in a new location
4	**beach**	(n) a landform made of loose material, such as sand, pebbles or shingle, that lies along the edge of a sea, ocean or lake
5	**longshore drift**	(n) the process by which sediment (such as sand and pebbles) is transported along a coastline by the action of waves. It creates beaches.

Direction of prevailing wind at an angle → swash happens at an angle → transports material up the beach → backwash takes material down the beach at 90 degrees → due to the force of gravity → process repeats → sediment moves across the beach → zigzag pattern

Coastal management

1	**soft engineering**	(n) adaptations to work with nature **beach nourishment –** Sand and shingle from elsewhere are added to the beach. **managed retreat** - Engineers do nothing, people are moved and the coast is left to erode and flood naturally.
2	**hard engineering**	(n) human-made structures that help to deal with coastal erosion **seawalls –** concrete walls that reflect the waves' energy back out to sea **groynes –** wooden posts that trap sediment and interrupt longshore drift

Other threats to the coast

1	**plastic pollution**	(n) when plastic waste ends up in the environment, especially in the sea
2	**sewage pollution**	(n) when untreated or poorly treated wastewater (including human waste) is released into rivers or the sea
3	**oil spill**	(n) when oil accidentally leaks into the sea, usually from a ship or drilling platform
4	**sea level rise**	(n) the increase in the average level of the world's oceans
5	**sustainability**	(n) meeting the needs of the present without compromising the ability of future generations to meet their own needs

Coastal erosion case study: Happisburgh, Norfolk coast

Background: Norfolk coast in between Cromer and Sea Palling.
A small village with a population of approx. 1400 people.

Vulnerability: soft boulder clay, long fetch, longshore drift, limited sea defences

Impacts	Management strategies
homes destroyed or had to be knocked down	1950s: groynes and revetments
roads lost to the sea	
car parks relocated	2000s: rock armour
homes valued at £1 on Beach road	
farmland lost: 1 field per year	2007 onwards: managed retreat
businesses lost, e.g. caravan parks	

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Year 8

History

Heart - Ambition - Respect - Tenacity

8.01: The Tudors

Key Vocabulary

1	**annulment**	(n) to declare that a marriage never actually existed
2	**armada**	(n) fleet of Spanish warships
3	**counter-reformation**	(n) the Catholic fights against the spread of Protestantism
4	**dissolution**	(n) the ending of an organisation
5	**heretic**	(n) someone with religious views that disagree with official Church teaching
6	**indulgences**	(n) a payment to the Catholic Church to forgive a person's sins
7	**papal bull**	(n) an official order from the Pope
8	**plot**	(n) secret plan or scheme, often to do something harmful or illegal
9	**reformation**	(n) a movement which led to a break with the Catholic Church and the beginning of the Protestant Church
10	**vestments**	(n) robes worn by priests

Key Individuals

Henry VII	founder of the Tudor dynasty
Henry VIII	Tudor King 1509–47 who started the Protestant Reformation
Katherine of Aragon	first wife of Henry VIII and mother of Mary I
Mary I	Catholic Queen of England 1553–1558
Anne Boleyn	second wife of Henry VIII and mother of Elizabeth I
Edward VI	Protestant successor of Henry VIII 1547–1553
Elizabeth I	Protestant Queen of England 1558–1603
Mary Queen of Scots	Catholic cousin of Elizabeth I executed in 1587
Francis Drake	first Englishman to circumnavigate the globe
Walter Raleigh	established the first English colony of Roanoke
Walsingham	Elizabeth I 'spymaster'

Power

The control a person or group has in a country.

For example, Henry VIII disliked the power of the pope and his refusal to grant an annulment.

This includes threads such as succession.

Identity

The qualities and characteristics that make a person who they are and what they value as important.

For example, Mary I was a devout Catholic.

This includes threads such as the role of women.

Connectivity

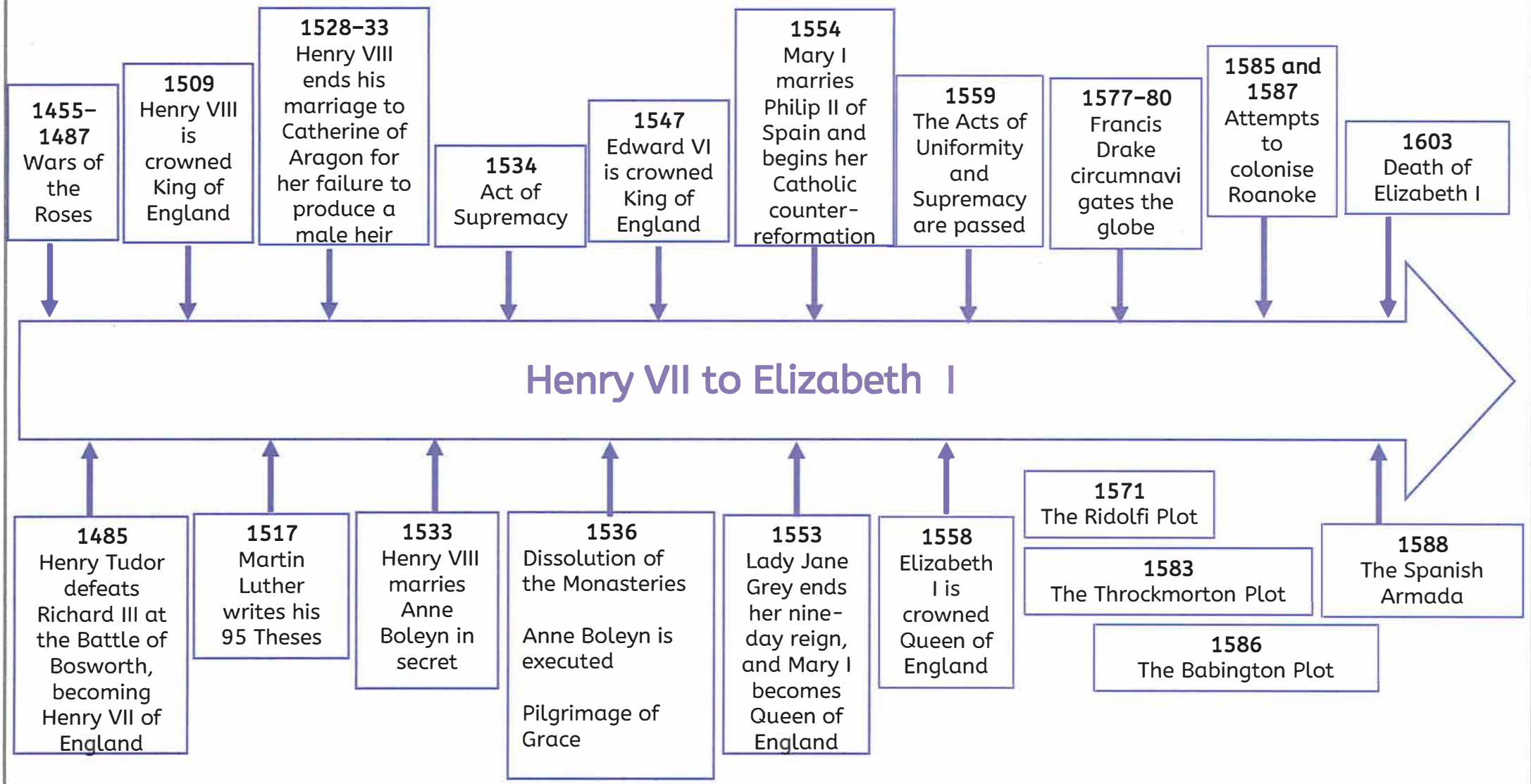
The act of joining or being linked to somewhere, someone or something else.

For example, we have evidence of African Tudors in the court of Henry VIII.

This includes threads such medicine.

8.01: The Tudors

Chronology



8.02 England: A World Turned Upside Down

Key Vocabulary

1	**army**	(n) an organised force for fighting
2	**commonwealth**	(n) a group of people organised under a single government
3	**dissenters**	(n) people who disagree with or oppose something, especially a religious or political authority
4	**flank**	(n) side
5	**interregnum**	(n) a period between reign
6	**regicide**	(n) the deliberate killing of a monarch, or the person responsible for doing so
7	**republic**	(n) a form of government where power is held by elected individuals and not a monarch
8	**restoration**	(n) the return of a monarch to the throne
9	**treason**	(n) a crime against the monarch or state
10	**union**	(n) the joining together
11	**witch**	(n) a person believed to have magic powers used for evil

Key Individuals

Charles I	King of England 1625-1649, executed for treason
Oliver Cromwell	Leader of the New Model Army who became Lord Protector in 1653
Thomas Fairfax	Commander of the New Model Army
Prince Rupert	Nephew of Charles I who led the Cavalier cavalry
Richard Cromwell	Son of Oliver Cromwell who succeeded his father as Lord Protector in 1658
Charles II	Eldest son of Charles II and heir to the throne
James II	Catholic younger brother of Charles II, crowned king in 1685
William III and Mary II	Protestant daughter of James II and her husband, who were invited by Parliament to take the throne

Themes and Threads

Power

The control a person or group has in a country

For example, a cause of the Civil War was the struggle for power between Parliament and King Charles I.

This includes threads such as warfare and protest.

Identity

The qualities and characteristics that make a person who they are and what they value as important

For example, Oliver Cromwell was a Puritan, and this affected his rule as Lord Protector.

This includes threads such as beliefs.

Connectivity

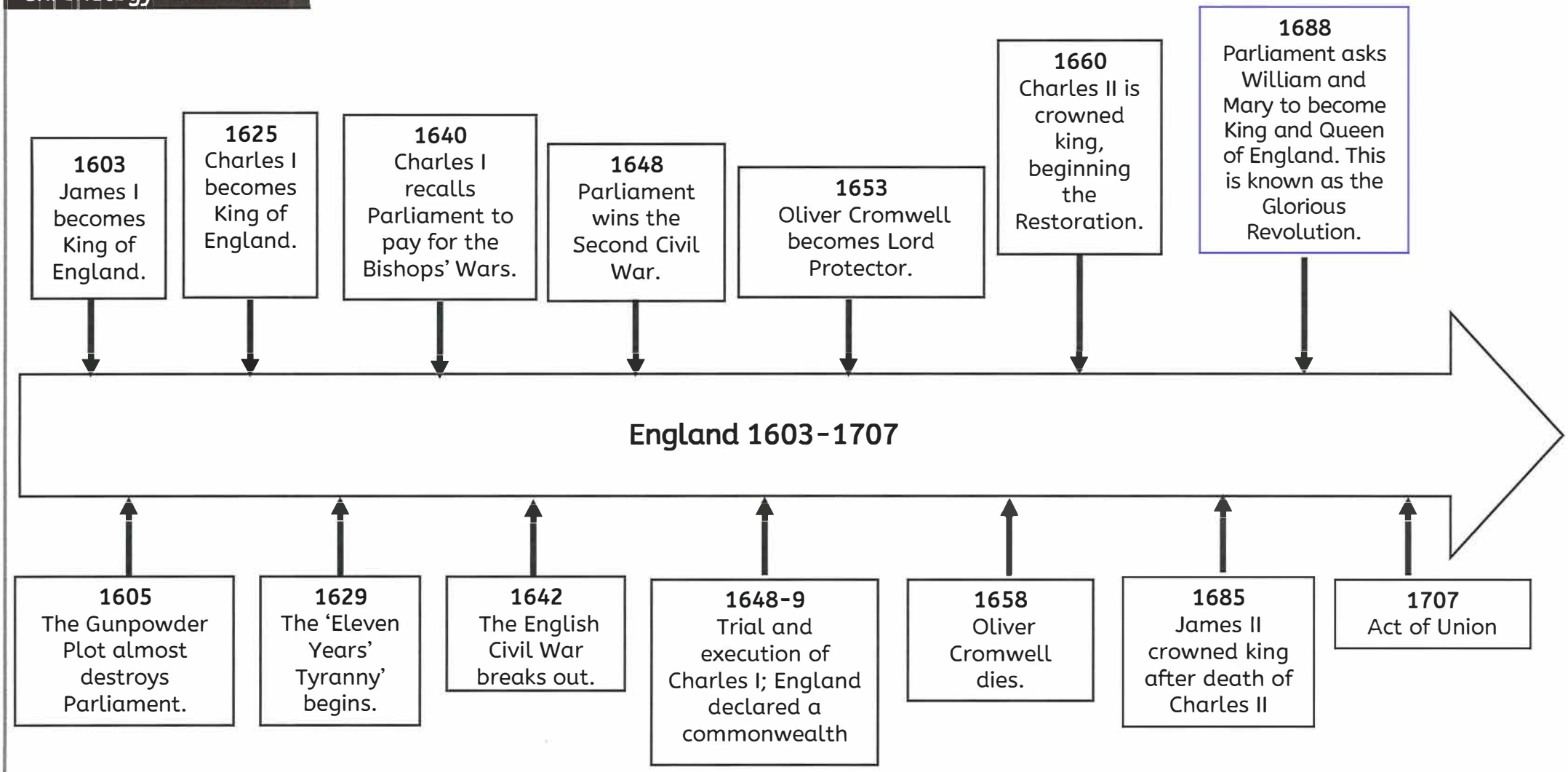
The act of joining or being linked to somewhere, someone or something else

For example, the Act of Union in 1707 created the United Kingdom.

This includes threads such migration.

8.02 England: A World Turned Upside Down

Chronology



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Year 8

Music & Performing Arts

Heart - Ambition - Respect - Tenacity

Music
1 of 3

Unit 1: Tonality & Structure

1. Musical Context

- Edvard Grieg was a Norwegian composer.
- Incidental music is used in the background of a film or play.
- 'In the Hall of the Mountain King' is from Peer Gynt (1875).
- Antonín Dvořák was a Czech composer.
- Symphony No. 7 in E minor 'From the New World'.
- Music inspired by African-American spirituals.

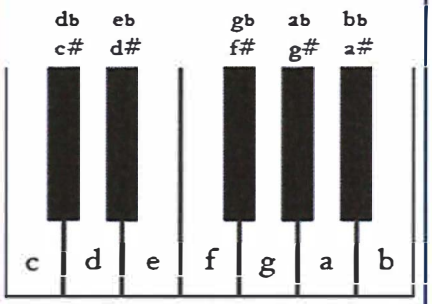
2. Terminology

Tonality	The key of a piece.
Pitch	High/low sound of a note.
Melody	The tune.
Articulation	How a note is played.
Structure	The order of the sections in a piece of music, the 'form'.
Dynamics	The loudness of the music.

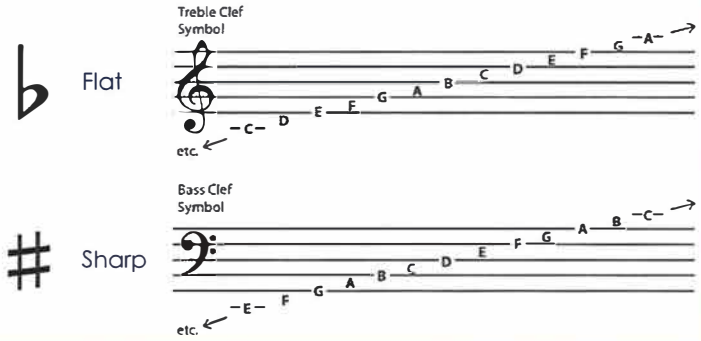
3. Vocabulary

Scale	Pitches moving by step in a sequence.
Tone	A whole step i.e. C to D.
Semitone	A half step i.e. C to C#.
Major	'Bright' sound – Tone – tone pattern.
Minor	'Sad' sound – Tone – semitone pattern.
Binary Form	Two sections, 'A B' structure.
Ostinato	Repeated rhythm.
Chromatic	Moving pitch by semitones.
Diatonic	Moving pitch by notes of the scale.
Legato	Notes played smoothly and attached.
Staccato	Notes played separated and detached.
Accent	Individual notes played louder.
Pentatonic	5 note scale.
Ternary	Three sections where the first and last are the same, 'A B A' structure.
Crescendo	Getting louder.
Diminuendo	Getting softer.
Phrase	A musical sentence – often balanced, using question and answer.
Theme And Variations	Original musical idea, followed by changed versions of the idea, A A' A'' A'''.
Melodic Decoration	Adding notes to the melody to change the shape and rhythm.

Keyboard Layout



4. Theory



Unit 2: Ensemble Musician

1. Musical Context

Mento

- **Mento music** originated in Jamaica in the 1950s.
- Typically, there are acoustic instruments i.e. rumba box.
- **Syncopated rhythms,** including off beat guitar strumming.
- Repetitive melodic phrases.
- Simple chords – primary triads and 7th chords.

Ska

- **Ska** music originated in Jamaica in the 1960s.
- **Faster tempo** than mento.
- Instruments inspired by American rhythm and blues, horns (trumpets and saxophones) and rhythm section (bass, drum kit).
- Organ or guitar 'skank'.
- Simple chords – primary triads.
- Toasting.

Reggae

- **Ska** music originated in Jamaica in the 1960s.
- Bob Marley.
- Swung rhythm.
- 4/4 metre and slow tempo.

Roles in an ensemble

- **The drum kit:** Sets the tempo and count in.
- **The bass guitar:** Drives the rhythm with the drum kit.
- **The keyboard:** Can play chords, riffs and the bass line.
- **The 'rhythm' guitar** (or uke): Plays chords.
- **Vocalist:** Typically leads the band, and takes control in rehearsals.

2. Terminology

Rhythm	Length of notes and how they are organised.
Structure	The order of the sections in a piece of music.
Tempo	Speed of the music.
Tonality	The key of a piece.
Metre	Beats in a bar.

3. Vocabulary

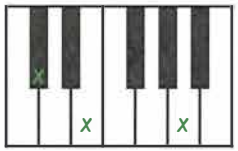
Pulse	The main heartbeat of the music.
Ostinato	Repeated rhythm.
Syncopation	Off beat rhythm.
Chord	A group of notes heard at the same time.
Acoustic	Instrument without amplification.
7th Chord	Adding 7th note of the scale to the chord.
Riff	Repeated rhythmic musical phrase/idea.
Skank Rhythm	Off beat chords.
Toasting	Spoken word over music, a style that led to rap.
Swung Rhythm	The first quaver in a pair is played longer than the second.
Root Position Chord	A chord where the root is the lowest sound.
Inversion	A chord where the root is not the lowest sound.
Harmonic Rhythm	The rate of change of the chords.
Ensemble	A group of musicians playing together.

4. Theory

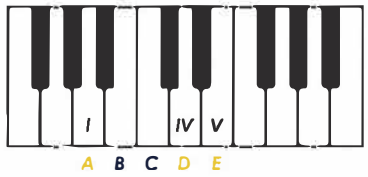
Major chord in **root position**: *Root* + *4 semitones* + *3 semitones*

D MAJOR

A MAJOR - Inversion

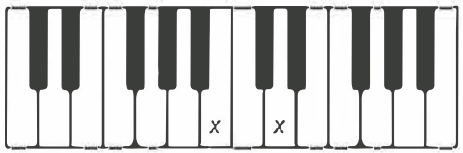


Primary Chords - I, IV and V



Major chord in **root position**: *Root* + *4 semitones* + *3 semitones*

B MINOR



Music
3 of 3

Unit 3: Creative Musician

1. Musical Context

Spirituals (1500s to 1860s)
- Music of slaves.
- A combination of West African cultures and European hymn tunes.

Ragtime (late 1800s)
- Developed from the cakewalk used in minstrel shows.
- Solo piano.
- Quick tempo.
- Oom-pah accompaniment and syncopated melody.

The Blues (1920s)
- One singer plus guitar/banjo, or small band (piano, trumpet, guitar/banjo).
- Tempo is slow.
- Structure is strophic, with AAB verses.
- 12 Bar Blues and 17th Chords.

Jazz
- Swing (1925-1945) Developed from Ragtime and Dixieland, Jazz music led by the voice. Improvisation based around riffs.
- Boogie Woogie – a dance form of swing with strong piano bass.
- Head arrangements, a piece organized around the 'head', and with sections of improvisation.
- Bebop (1940s) Fast, complex jazz.
- Modal Jazz (1950s) Slower tempo, more relaxed style.
- Improvisation based on blues scale and modal scales.

Rhythm and Blues
- Uncomplicated music with a steady beat and a focus on strong gospel vocals.

Rock and Roll
- Started from electrified RnB.
- Influence of blues seen in the rhythm section, 12 bar blues and 7th chords.
- Boogie Woogie.

2. Terminology

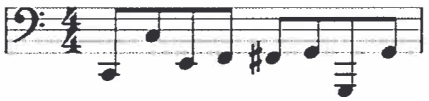
Rhythm	Length of notes and how they are organised.
Structure	The order of the sections in a piece of music.
Tempo	Speed of the music.
Melody	The tune of a piece of music.
Texture	The layers of sound in music.
Instrumentation	The instruments being played.

1. Musical Context

Twelve Bar Blues: Some or all of the chords can be Seventh Chords.

CHORD I	CHORD I	CHORD I	CHORD I
CHORD IV	CHORD IV	CHORD I	CHORD I
CHORD V	CHORD IV	CHORD I	CHORD I

Boogie Woogie Bass line



3. Vocabulary

Call and response	One voice or instrument (monophonic) makes a 'call' and the rest of the group 'respond' with a similar musical phrase (homophonic).
Syncopation	Off beat rhythm.
Accompaniment	A group of notes heard at the same time.
Strophic	Structure featuring verses.
Polyphonic	Two of more musical ideas happening at the same time.
Homophonic	The accompaniment has the same rhythm as the melody i.e. a melody with chords.
12 Bar Blues	Harmonic structure used in blues.
Blue note	Bending the pitch in the blues style.
Improvisation	When music is created 'in the moment'.
The Head	Main riff/melody in a jazz composition.
Soloing	Player will create a new melodic line to fit with a song's chord progression.
Backing	The accompaniment in jazz.
Blues scale	Scale used in jazz melodies and improvisation.
Dorian Scale	A minor scale with a 'flattened' 7.
Modal scale	A name given to type of scale, i.e. Dorian.

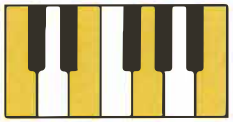
4. Theory

7th chord – (Dominant 7th chord)

C7 Chord

C major chord with a minor 7th.

Major 7th Chord

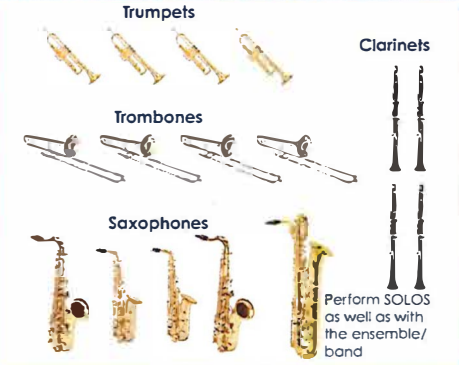


Cmajor7 Chord

C major chord with a major 7th.

Rhythm Section Accompaniment & Backing

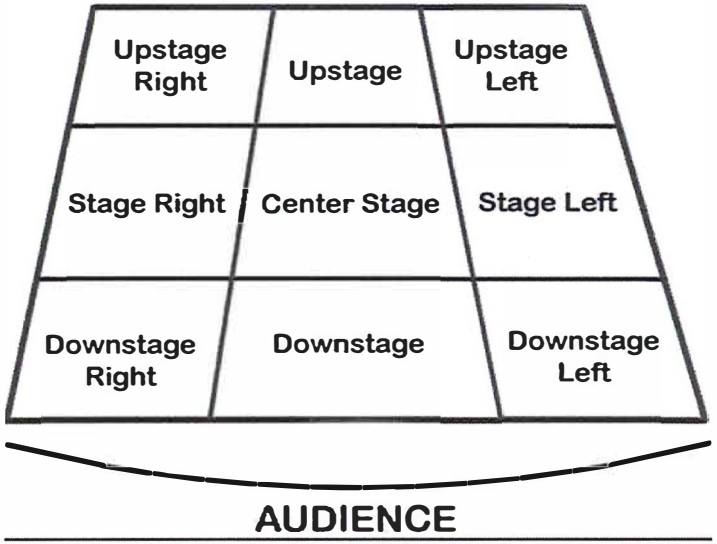
Frontline Instruments ("Reeds")



Performing Arts

Key terms and vocabulary

Stage Directions



Vocabulary for creating

Creativity	Using your imagination to bring ideas to life
Rehearse	Spending time refining your ideas to result in an outcome
Characterisation	Developing a role through voice and body
Stimulus	The starting point of a piece of work
Motivation	The reason for a characters actions on stage
Script	The words an actor/performer says in a play
Theme	The subject or topic of a piece
Blocking	The movement an actor does on stage
Devising	Creating a piece based on a stimulus
Feedback	Using opinions of others to improve work

Production Roles

Director	Instructs the performers and makes creative choices
Choreographer	Makes up the dance steps and works with the ensemble
Musical Director	Works with musicians and singers in a performance
Performer	The person on the stage communicating with an audience
Light/sound technicians	The people who create the lights and sounds in a performance

Vocabulary for performing

Facial Expressions	Using your face to show emotions or character
Posture	How you hold your upper body to show an emotion
Body Language	How you communicate through your body
Gestures	Using your hands to communicate
Stance	The way you stand to portray your character and status
Movement	Travelling form A to B or changing positions

Mannerism	An action repeated to become a character trait
Stamina	The ability to sustain physical effort for a period of time
Balance	Remaining stable and finding stillness
Pace	How fast or slow you move and speak
Volume	How loud or quiet your vocal skills are
Actions	A gesture, movement, an act of doing

Projection	Ensuring your voice can be heard by the audience
Coordination	Moving more than one body part at the same time
Proxemics	Using the space to show different relationships
Focus	Where are your eyes in a performance
Spatial awareness	Knowing who and what is around you
Articulation	Creating clear vocal sounds

Performing Arts

Genres and Performance Styles

Pantomime

Pantomime, rooted in ancient Roman "mime" and later commedia dell'arte, evolved in 18th-century Britain into a popular theatrical form blending storytelling, music, and slapstick. Traditionally performed at Christmas, it features stock characters, audience participation, slapstick chases, cross-dressed roles like the Dame, and magical transformations. Conventions include exaggerated gestures, clear good-versus-evil plots, comic asides, and topical jokes. Pantomime's mix of fantasy, humour, and spectacle keeps it a vibrant family tradition.

Street Dance

Street dance emerged in the late 20th century from African American and Latinx urban communities, developing through social gatherings, block parties, and hip-hop culture. Styles such as breaking, popping, locking, and later krumping and house dance grew from improvisation and community expression. Conventions include freestyle battles, cyphers, rhythmic footwork, musicality, individuality, and connection to the beat. Street dance values creativity, self-expression, and cultural identity within shared public spaces.

Physical Theatre

Physical theatre is a performance style that puts emphasis on the body as the primary storytelling tool, often blending movement, mime, dance, and gesture. Its conventions include expressive physicality, exaggerated or stylised movements, minimal spoken dialogue, and creative use of space and props. Ensembles often work collaboratively, using rhythm, timing, and visual imagery to convey emotions, relationships, or abstract concepts, prioritising visual impact over spoken.

Ballet

Ballet is a classical dance form originating in the Italian Renaissance and developed in France and Russia, characterised by formal technique, grace, and precision. Conventions include turnout, pointe work, flowing arm movements, and structured positions of the feet and arms. Ballet often tells stories or expresses emotions through choreographed sequences, pas de deux (dance for two), and ensemble work. Costumes, theatrical staging, and musical accompaniment enhance its elegance and narrative clarity.

Naturalism

Naturalism is a theatrical style emerging in the late 19th century, influenced by realism and it aims to depict life accurately and objectively. Conventions include detailed, realistic sets and props, authentic dialogue, everyday costumes, and plausible, often socially-focused plots. Actors adopt naturalistic gestures and speech, emphasising cause-and-effect in character behaviour. Naturalism seeks to mirror real life on stage, highlighting social issues, human struggles, and the influence of environment and society life.

Greek Theatre

Greek theatre, originating in 5th-century BCE Athens, combined storytelling, music, and ritual to honour the gods, especially Dionysus. Conventions include the use of masks, a chorus to comment on action, stylised gestures, and formalised speeches. Performances took place in large open-air amphitheatres with minimal sets. Themes often explored fate, morality, and human suffering. The structure followed clear plots with prologue, episodes, blending spectacle, poetry, and communal experience. The chorus is still used today.

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Year 8

Religious Education

Heart - Ambition - Respect - Tenacity

Knowledge Organiser | Y8 - Religious Authority

1	**Abraham**	The founder of Judaism and husband of Sara.
2	**Moses**	Leader who freed the Israelites from slavery and was given the 10 commandments
3	**Covenant**	An agreement between two sides (between humans and God).
4	**Monotheism**	The belief that there is only one God
5	**Polytheism**	The belief that there is more than one God.
6	**Theologian**	A person who studies ideas about how God influences beliefs in religions. They also study the actions of people who believe in a particular religion.
7	**Language**	Studied by theologians when interpreting the meaning of specific words used in a text.
8	**Form**	Studied by theologians who consider the type of text being used (e.g. laws, stories, histories). The form of a text will change how we read and interpret it.
9	**Context**	How people believe a text came to be written, and whether it is: the literal word of God, the word of God interpreted and written down by humans, or humans' interpretations of God's teachings
10	**Mesiah**	A future Jewish king who is expected to bring peace.

11	**Jesus**	The most important figure in Christianity, believed to be the Son of God.
12	**Prophet**	A person chosen to deliver a message from God to humans
13	**Great Commission**	Jesus' instruction to his followers to spread his teachings to all people.
14	**Apostles**	The twelve main followers of Jesus who spread his message
15	**Torah**	Holiest scripture for Judaism. The word means "law" in Hebrew. Written by Moses. Also important in Christianity and Islam.
16	**Tanakh**	Hebrew Bible, which includes three parts: the Torah, Nevi'im and Ketuvim.
17	**Talmud**	Contains discussions and interpretations of the Torah, which guides Jewish law and practice.
18	**Bible**	The most important book in Christianity. It is divided into two main sections: the Old Testament, and the New Testament,
19	**Old Testament**	The first section of the Bible, containing the history and teachings of the Jewish faith.
20	**New Testament**	The second section of the Bible, which focuses on the life, teachings, death and resurrection of Jesus. Telles stories of the early Christian community.

Key Vocabulary

1	Abu Bakr	The first Caliph chosen by Sunni Muslims after Muhammad's death
2	Ali	Muhammad's cousin and son-in-law, considered by Shia Muslims as his rightful successor
3	Allah	The Arabic word for God in Islam
4	burqa	A full-body covering worn by some Muslim women for reasons of modesty
5	caliph	A leader in Sunni Islam who succeeded Muhammad in leading the Muslim community
6	charity	Giving to those in need, especially through zakat
7	Constitution of Medina	A document created by Muhammad to establish peace and cooperation in Medina
8	Eid-ul-Fitr	A festival marking the end of Ramadan
9	Fatima	Muhammad's daughter, especially respected in Shia Islam
10	Hadith	Recorded sayings and actions of Muhammad
11	Hajj	A pilgrimage to Makkah that Muslims aim to complete once in their lifetime
12	hijab	A headscarf worn by some Muslim women as a sign of modesty
13	Hijrah	The migration of Muhammad and his followers from Makkah to Medina
14	imam	A leader in Shia Islam or someone who leads prayer in Sunni Islam
15	Islam	A monotheistic religion revealed to the Prophet Muhammad
16	Jahannam	Hell; a place of punishment after death for those who reject faith or do wrong
17	Jannah	Paradise; a place of reward after death for the righteous
18	Kaaba	The sacred cube-shaped structure in Makkah that Muslims face during prayer
19	Khadija	Muhammad's first wife and the first person to accept Islam
20	Makkah	The birthplace of Muhammad and the holiest city in Islam
21	Medina	The city where Muhammad established the first Muslim community
22	modesty	A principle in Islam often expressed through clothing and behaviour
23	Muhammad	The final prophet in Islam, believed to have received the Qur'an
24	niqab	A face veil worn by some Muslim women as part of modest dress
25	prophet	A messenger chosen by God to deliver His message
26	Qur'an	The holy book of Islam, believed to be the literal word of God
27	Ramadan	The ninth month of the Islamic calendar, observed with fasting
28	salah	Ritual prayer performed five times a day
29	sawm	Fasting from dawn to dusk during Ramadan
30	Seal of the Prophets	A title for Muhammad, indicating he is the final prophet
31	shahada	The Islamic declaration of faith
32	Sharia	Islamic law derived from the Qur'an and Sunnah
33	Shia	A branch of Islam that believes Ali was Muhammad's rightful successor
34	shirk	The sin of associating partners with Allah
35	Sunnah	The example of Muhammad's life used as a guide by Muslims
36	Sunni	The largest branch of Islam, following the elected caliphs
37	Surah	A chapter of the Qur'an
38	tawhid	The belief in the oneness of Allah
39	ummah	The global Muslim community
40	wudu	Ritual washing before prayer
41	zakat	Compulsory act of charity, for those who can afford it

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Year 8

French or Spanish

Please follow the subject you have been taught

Heart - Ambition - Respect - Tenacity

Unit 5: Holidays

5.1.1: Où es-tu allé(e) en vacances l'année dernière? - Where did you go on holiday last year?	
Je suis allé(e)/on est allé(e)	I went/we went
Je suis resté(e)	I stayed
Au bord de la mer	By the sea
À la campagne	To/in the countryside
À la montagne	To/in the mountains
En /Au/Aux + country	To/in + country
Dans un hôtel/appartement	In a hotel
Dans un camping	On a campsite
Dans une caravane	In a caravan
Près de	Near to

5.1.2: Comment as-tu voyagé? - How did you travel?	
Comment as-tu voyagé ?	How did you travel?
J'ai voyagé/on a voyagé	I travelled/we travelled
En avion	By plane
En voiture	By car
En train	By train
En bateau/ferry	By boat/ferry
À vélo	By bike

5.2: Qu'est-ce que tu as fait? - What did you do?	
J'ai nagé/On a nagé dans la mer	I /we swam in the sea
Elle/il a nagé dans la piscine	S/he swam in the pool
J'ai/On a visité les monuments	I/we visited the monuments
Elle/il a visité les sites touristiques	S/he visited the tourist sites
J'ai bronzé/On a bronzé	I/we sunbathed
J'ai/on a pris des photos	I/we took photos
J'ai/on a fait de la plongée	I/we went diving
J'ai/on a mangé	I/we ate
Je me suis/on est détendu(e)	I/we/relaxed
J'ai/on a fait du shopping	I/we went shopping
J'ai/on a acheté des souvenirs	I/we bought souvenirs
Je suis/on est allé(e) à un parc aquatique	I/we went to a water park
J'ai/on a vu les sites historiques	I/we saw the historic sites

5.3: C'était comment? - How was it?	
C'était...	It was...
décevant	Disappointing
Je me suis/on s'est bien amusé(e)	I/we had a good time

Unit 5: Holidays

5.4: Parle-moi de tes meilleures/dernières vacances - Tell me about your best/last holiday(s)	
Mes meilleures/dernières vacances étaient...(+adjective)	My best/last holiday was/holidays were...
Pendant les grandes vacances	During the summer holidays
Pendant les vacances de Noël	During the Christmas holidays
L'année dernière	Last year
Le premier jour/le deuxième jour	On the first/second day

5.5.1: Où passes-tu tes vacances? - Where do you go on your holidays?	
Qu'est-ce que tu fais normalement en vacances?	What do you normally do on holiday?
Où passes-tu tes vacances ?	Where do you go on holiday?
Je vais/on va	I go/we go
Je/on voyage	I/we travel
Je me détends/On se détend	I relax/we relax

5.5.2: Quelle sorte de vacances préfères-tu? - What sort of holidays do you prefer?	
Les vacances actives/culturelles	Active/cultural holidays
Les vacances relaxantes/reposantes	Relaxing holidays
Rester en Angleterre	To stay/staying in England
Explorer	To explore/exploring
Me détendre	To relax/relaxing
Le temps (le soleil)	The weather (the sun)
La nourriture	The food

5.6.1: Quels sont tes projets pour les vacances? - What are your plans for the holidays?	
Cet été	This summer
Cette année	This year
Je vais/On va (+infinitive)	I'm/We're going
Je veux/on veut (+infinitive)	I want/we want
Je voudrais/On voudrait (+infinitive)	I/we would like
Aller (+ en/au/aux/à/à la/au)	To go (to)
Passer une semaine/un week-end	To spend a week/weekend
Rester	To stay
Se détendre	To relax

5.6.2: Qu'est-ce que tu voudrais faire pendant les vacances? - What would you like to do during the holidays?	
Je voudrais/j'aimerais	I would like
Passer un mois (+à/au/en/aux/à la)	To spend a month (in)
C'est mon rêve de	It's my dream
Ce serait...	It would be...

Unit 6: Going Out and Staying In

6.1.2: Qu'est-ce que tu aimes faire? - What do you like doing?	
Pendant mon temps libre	In my free time
J'ai une passion pour (le sport/le cinéma /les animaux/ la lecture)	I have a passion for (sport/cinema/animals/ reading)
Le meilleur sport est...(+le/la)	The best sport is...
Le pire sport est...(+le/la)	The worst sport is...
Depuis (un an/deux ans)	For (one year/two years)

6.2.1: Qu'est-ce que tu vas faire ce weekend? - What are you going to do at the weekend?	
Ce weekend	This weekend
Je vais (+ infinitive)	I'm going (to...)

6.2.2: Tu veux aller au cinéma ce soir/samedi soir? - Do you want to go to the cinema this evening/on Saturday evening?	
Samedi après-midi	Saturday afternoon
À quelle heure ?	At what time?
À huit heures/À huit heures et demie	At eight o'clock/at half past eight
Oui, bonne idée	Yes, good idea
Je veux bien	I want to/ I'd like to
D'accord	OK
Peut-être	Maybe
Je n'en ai pas envie	I don't want to
Non, je ne peux pas	No, I can't
Non, je suis désolé(e)	No, I'm sorry

6.3.1: Qu'est-ce que tu regardes à la télé? - What do you watch on television?	
Je regarde	I watch
J'aime regarder	I like watching
Les infos	The news
Un documentaire	A documentary
Un feuilleton	A soap opera
Un jeu télévisé	A gameshow
Une série (américaine)	An (American) series
Une émission de téléréalité	A TV reality programme
Une émission de sport	A sports programme
Un film historique	A historical film
Un film d'action	An action film
Un film de science-fiction	A science fiction film
Un film fantastique	A fantasy film
Une comédie	A comedy
Est-ce que tu aimes... ?	Do you like...?
Elles/ils sont...	They are...

Unit 6: Going Out and Staying In

6.3.2: Quelle musique écoutes-tu? - What music do you listen to?	
J'écoute (+du/de la)	I listen to
J'aime écouter (+du/de la)	I like listening to
Le rap/rock/métal/reggae	Rap/rock/Metal/Reggae
La pop	Pop
La musique électronique/classique	Electronic music/classical music
Mon chanteur préféré est	My favourite singer (male) is
Ma chanteuse préférée est	My favourite singer (female) is
Mon groupe préféré est	My favourite band/group is
Les paroles (sont...)	The lyrics (are...)
La mélodie (est...)	The tune (is...)

6.5: On fête! - Let's party!	
Qu'est-ce que tu vas acheter ?	What are you going to buy?
Qu'est-ce que tu vas apporter à la fête ?	What are you going to bring to the party?
Je vais acheter	I'm going to buy
Je vais porter	I'm going to wear
Nouveau/nouvel/nouvelle	New
Chic	Stylish
À la mode	Fashionable
Un pantalon	Trousers
Un jean	Jeans
Un costume	A suit
Une robe	A dress
Une jupe	A skirt
Une veste	A jacket
Une chemise	A shirt
Des baskets	Trainers
Je vais apporter	I'm going to bring
La nourriture	Food
Un gâteau	A cake
Des chips	Crisps
Des pâtes	Pasta
Du chocolat	Chocolate
Des boissons (gazeuses)	(Fizzy) drinks

6.6: Role-plays	
(Est-ce que) je peux vous aider ?	Can I help you?
Dans le magasin	In the shop
Vous avez... ?	Do you have...?
Une autre taille	Another size
Quelle taille voulez-vous ?	Which size do you want?
Une taille plus grande/petite	A bigger size/ smaller size
Une autre couleur	Another colour
Où est... ?/Où sont... ?	Where is.../where are...?
Ça coûte combien ?	How much does that cost?
Ça coûte...	It costs...
Combien de personnes ?	How many people?
Une table pour deux/trois personnes	A table for two/three people
Avez-vous une carte ?	Do you have a menu?
Je n'ai pas de (fourchette/couteau)	I don't have (a fork/knife)
Il y a un problème	There is a problem

Unit 5: Holidays

5.1.1 ¿Adónde fuiste de vacaciones el año pasado? - Where did you go on holidays last year?	
Fui a	I went to
Fuimos a	We went to
Me alojé	I stayed
En la costa / En el campo / En la montaña	By the sea/in the countryside/in the mountains
En un hotel/apartamento	In a hotel/appartment
En un camping	On a campsite
En una caravana/roulotte	In a caravan
Cerca de	Near to
Lejos de	Far from

5.1.2 ¿Cómo fuiste? - How did you travel?	
Viajé / viajamos	I travelled/we travelled
En avión	By plane
En coche	By car
En tren	By train
En barco/ferry	By boat
En bici(cleta)	By bike

5.2 ¿Qué hiciste? - What did you do?	
Nadé en el mar/en la piscina	I swam in the sea/pool
Nadamos / nadó	We swam/ s/he swam
Visité los monumentos/los sitios turísticos	I visited the monuments/tourist sites
Visitamos / visitó	We visited/ s/he visited
Tomé / tomamos / tomó el sol	I/we/s/he sunbathed
Tomé / tomamos / tomó muchas fotos	I/we/s/he took photos
Hice / hicimos / hizo submarinismo/ buceo	I / we/s/he went scuba diving
Comí / comimos / comió	I/ we/s/he ate
Me relajé / nos relajamos / se relajó	I/ we/ s/he relaxed
Fui / fuimos / fue de compras	I/we/s/he went shopping
Compré / compramos / compró recuerdos	I/we/s/he bought souvenirs
Fui / fuimos / fue a un parque acuático	I/we/s/he went to a water park
Vi / vimos / vio sitios históricos	I/we/s/he saw the historic sites

5.3 ¿Cómo lo pasaste? - How was it?	
Fue/era...	It was...
Una desilusión	Disappointing
Lo pasé/pasamos genial/bomba/fenomenal **Lo pasé/pasamos fatal/muy mal/regular**	I/we had a good time I/we had a terrible time

Unit 5: Holidays

5.4 Háblame de tus mejores/últimas vacaciones - Tell me about your best/last holiday	
Mis mejores/últimas vacaciones fueron...	My best/last holidays were...
Durante las vacaciones de verano	During the summer holidays
Durante las vacaciones de Navidad	During the Christmas holidays
El año pasado	Last year
El primer/segundo día	On the first/second day

5.5.1 ¿Qué haces normalmente en vacaciones? - What do you normally do on holidays?	
¿Dónde vas de vacaciones ?	Where do you go on holiday?
Normalmente	Normally
En general	In general
Voy / Vamos a	I / we go to
Viajo / viajamos	I / we travel
Me relajo / nos relajamos	I relax / we relax

5.5.2 ¿Qué tipo de vacaciones prefieres? - What type of holidays do you prefer?	
Prefiero/me encanta(n)/me gusta(n)	I prefer / I love/ I like
Las vacaciones activas	Active holidays
Las vacaciones relajadas	Relaxing holidays
Las vacaciones culturales	Cultural holidays
Quedarme en Inglaterra	To stay/staying in England
Explorar	To explore/exploring
El tiempo (el sol)	The weather (the sun)
La comida	The food

5.6.1 ¿Qué planes tienes para las próximas vacaciones - What are your plans for the next holidays?	
Este verano	This summer
Este año	This year
Voy/Vamos a + infinitive	I'm/We're going
Quiero + infinitive	I want
Me gustaría / quisiera (+infinitive)	I /We would like
Pasar una semana/ un fin de semana	To spend a week/weekend
Relajarme	To relax
Alojarme	To stay (accommodation)

5.6.2 ¿Cómo serían tus vacaciones ideales? - What would your ideal holiday be?	
Me gustaría/ quisiera	I would like
Ir a	To go (to)
Pasar un mes en	To spend a month (in)
(Este) es mi sueño	This is/It's my dream
Sería...	It would be...

Unit 6: Going Out And Staying In

6.1.2 ¿Qué te gusta hacer en tu tiempo libre? - What do you enjoy doing in your free time?	
En mi tiempo libre	In my free time
Me apasiona (+ noun or infinitive) Me apasiona el esquí acuático / Me apasiona practicar el esquí	I have a passion for I am passionate about water ski / I am passionate about practising water ski
Desde hace... años	For ... years

6.2.1 ¿Qué planes tienes para el fin de semana? - ¿Qué vas a hacer este fin de semana? - What are you going to do at the weekend?	
Este fin de semana	This weekend
Voy a (+ infinitive)	I'm going to (+ verb/activity)

6.2.2 ¿Quieres ir al cine el sábado por la tarde? - Do you want to go out Saturday afternoon?	
¿Quieres + infinitive?	Do you want (to)...?
Salir conmigo	To go out with me
El sábado por la tarde/noche	Saturday afternoon/evening
¿A qué hora?	At what time?
A las ocho / a las ocho y media	At eight o'clock / at half past eight
Sí, buena idea	Yes, good idea
De acuerdo, vale	OK
Quizá(s)	Maybe
No me apetece	I don't fancy it
Lo siento, no puedo	Sorry, I can't

6.3.1 ¿Qué prefieres ver en la tele? - What do you prefer watching on tv?	
Prefiero / me gusta ver	I prefer to watch
Las noticias	The news
Los documentales	Documentaries
Las telenovelas	Soap operas
Los concursos	Gameshows
Las series americanas	(American) series
Los realities	TV reality programmes
Las emisiones deportivas	Sports programmes
¿Qué tipo de película te gusta ?	What genre of films do you like?
Las películas históricas	Historic films
Las películas de acción	Action films
Las películas de ciencia ficción	Science fiction films
Las películas de fantasía	Fantasy films
Las comedias	Comedies
Las películas de terror	Horror films
¿Te gusta... ?	Do you like...?
¿Cuál es tu programa de televisión favorito?	What is your favourite TV programme?
Son...	They are...

Unit 6: Going Out And Staying In

6.3.2 ¿Qué tipo de música prefieres? - What type of music do you prefer?	
Escucho/prefiero	I listen to/I prefer
Me gusta/prefiero escuchar	I like listening to/I prefer listening to
El rap / rock / heavy metal / reguetón	Rap / rock / metal / regeton
El pop / la música pop	Pop
La música electronica / clasica	Electronic music / Classical music
Mi cantante / artista / grupo favorito/a	My favourite singer / artist / band
La letra	The lyrics
La melodía	The tune

6.5 Vamos de fiesta - Let's party	
¿Qué vas a comprar ?	What are you going to buy?
¿Qué vas a llevar a la fiesta?	What are you going to bring to the party?
Voy / va / vamos a comprar	I'm going to buy
Voy / va / vamos a llevar	I'm going to wear
Bisutería, joyas	Jewellery
Un pantalón	Trousers
Unos vaqueros	Jeans
Un traje	A suit
Un vestido	A dress
Una falda	A skirt
Una chaqueta	A jacket
Una camisa	A shirt
Zapatillas de deporte / deportivas	Trainers
La comida	Food
Una tarta	A cake
Patatas fritas	Crisps
Bocadillos	Sandwiches
Chocolate	Chocolate
Bebidas (gaseosas)	(Fizzy) drinks

6.6 Role Plays	
¿(en qué) Puedo ayudarle?	Can I help you?
En la tienda	In the shop
¿Tiene... ?	Do you have...?
Un espejo	A mirror
Otra talla	Another size
¿Qué talla necesita?	Which size do you want?
Quisiera	I would like
Una talla más grande / pequeña	A bigger size/ smaller size
¿Dónde está(n)?	Where is.../where are...?
¿Cuánto es?	How much does that cost?
Son... euros	It costs...
En el restaurante	At the restaurant
¿Cuántas personas?	How many people?
Una mesa para dos/tres personas	A table for two/three people
La cuenta, por favor	Please
¿Tiene menú ?	Do you have a menu?
No tengo (tenedor, cuchillo, cuchara)	I don't have (a fork/knife)
Hay un problema	There is a problem