



Wymondham High Academy

Year 7

Knowledge Organiser Autumn Term 2026

*"Education is the most powerful weapon which
you can use to change the world."*

Nelson Mandela



- And repeated retrieval and practice strengthens your memory and helps you remember more over a period of time.

The best way to use these knowledge organisers is to follow this simple guidance:



Look



Cover



Write



Check

Look at a specific aspect of your knowledge organiser.

Cover up the information

Write out the information from memory

Check and correct any errors, missing information or spelling mistakes.

Other ways to use learn via your Knowledge Organiser:

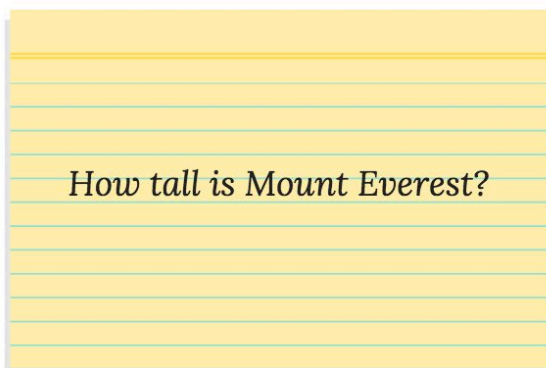
1) Revision Clocks:

- Start by drawing a basic clock.
- Break your knowledge organiser down into 12 subcategories.
- Make notes in each chunk of the clock.
- Revise each slot for 5 minutes, turn the clock over and then try to write out as much information as you can from one of the segments. Your brain will retain more information if you include images as well as keywords.

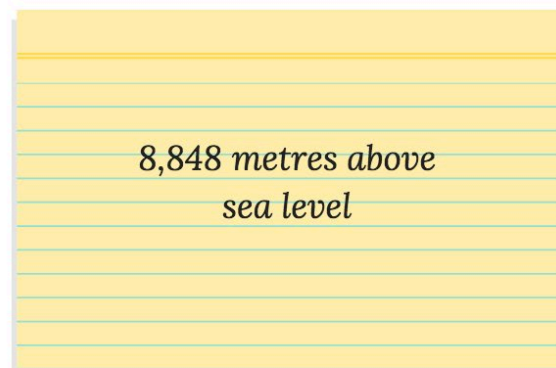


2) Flash Cards:

- Write the question on one side and on the other record the answer.
- Create for keywords and definitions
- Create for summarising arguments-agree and disagree
- Test yourself or work with a friend to make sure that you know all the key information for each topic.
- You could also use flashcards to test yourself on the definitions of key terminology. Remember you need to revisit information 10 times for it to be embedded in your long-term memory.



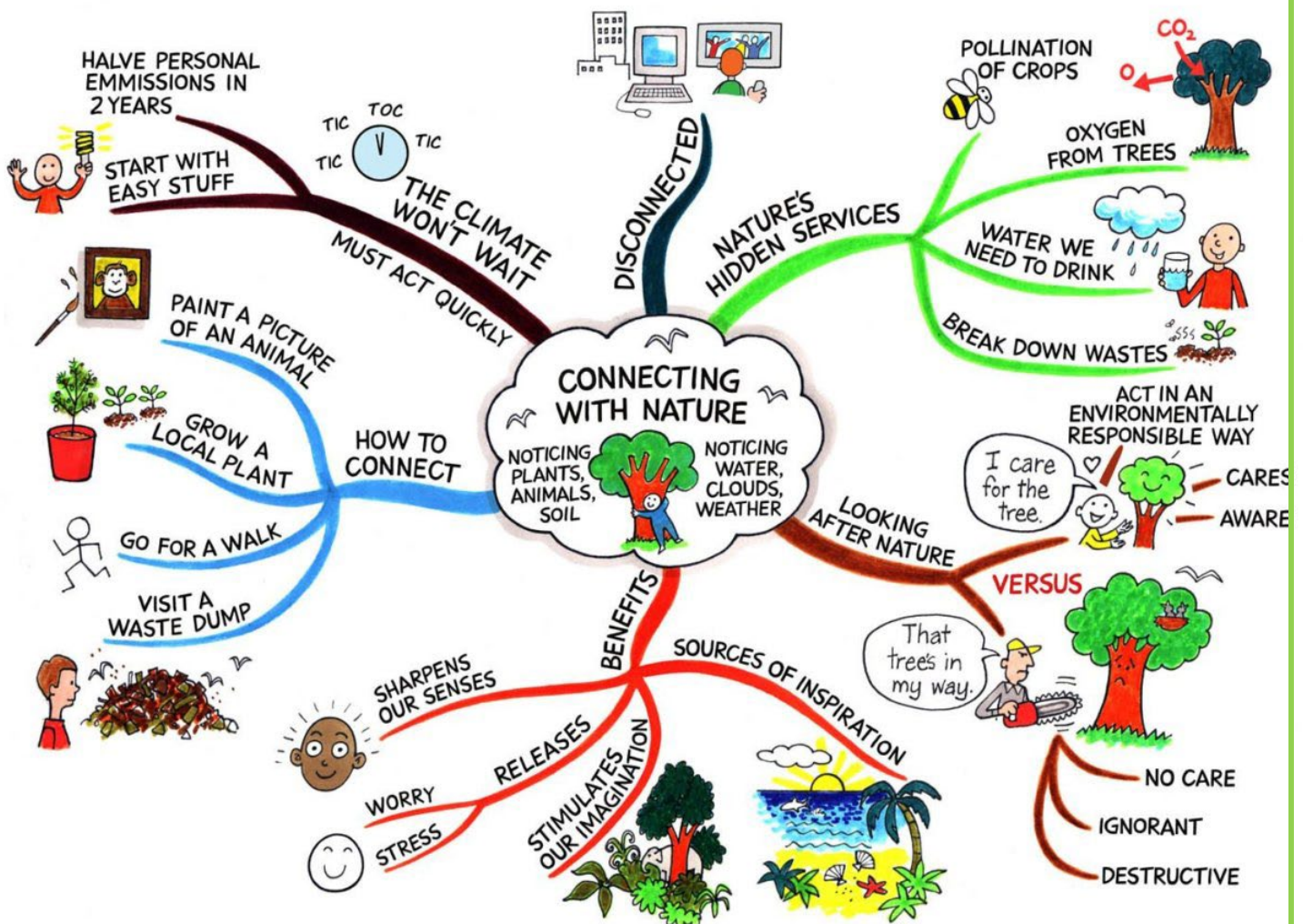
FRONT



BACK

3) Mindmapping:

- A mind map is a diagram that visually represents all the information you need to learn, present or analyse.
- Read all the information you have to remember.
- Start your mind map in the middle of a page adding a colourful image to the centre.
- Start in the middle with the name of your topic. Add branches for each subtopic that you need to revise.
- Build your network of information using colours and/or images.
- The map that develops will be a vibrant and colourful network of knowledge thanks links and organises the information radiating out from the central theme.
- When you have finished, try turning it back into sentences without looking at your subject knowledge organiser.
- Don't forget to green pen it. This technique will help embed key information into your long-term memory.



Knowledge organisers do have their limitations. It is not possible to include absolutely everything you need to know in a booklet like this. In addition to self-quizzing from these knowledge organisers, you will need to use a range of other revision strategies to support your learning, such as practising longer questions and solving problems over time.

Example homework timetable:

Homework until Oct half term is Maths and English only.

	Monday	Tuesday	Wednesday	Thursday	Friday
Week 1	Maths RPE	MFL 1 Drama	English PE	MFL 2 Art	Science
Week 2	Maths Technology	History Music	English Computing	Geography Science	Spare

For each subject homework in Year 7 will be no more than a 30-minute task. English, Maths and Science will set homework weekly. All other subjects will set homework fortnightly. You may decide to break each subject down into smaller chunks so you can revisit several times over the fortnight to aid your learning.

You will receive a homework exercise book and will be asked in your lessons to show proof of your learning. In your exercise book, you can complete your self-quizzing, Look, Cover, Write and Check activities etc. If you ever need a new homework exercise book, please ask your tutor for this.

Your teacher wants to praise you for your homework learning successes and your fortnightly quizzes will enable you to demonstrate your learning outside the classroom. Make sure you plan your time wisely, so you do not try to learn too much in one night and overload your brain!

Above and beyond:

If you want to develop your subject knowledge even further you could:

- Use Sparx Maths and complete the XP Boost and Target questions or have a go at the Independent work section on Sparx.
- Use GCSEPod to access KS3 additional courses in:
 - English,
 - Maths,
 - Science,
 - History,
 - Geography,
 - Spelling, Punctuation and Grammar and
 - Computing (from Oct 2024)

Click on a subject area and course modules that interest you. How many additional lessons can you complete?

How to access GCSEPod?

1. All students from Year 7-13 automatically gain access to GCSEPod when they enter the school. To access the site, go to www.gcsepod.com and click Login
2. Click "New To GCSEPod? Get Started!" and select "Student"
3. Enter your name, date of birth and type in the name of your school. The school's name should appear in the dropdown menu. Click to confirm.

All accounts are linked to your school email address.

If you have forgotten your password, just click reset password.

Any issues, you can email Miss Barnett, barnettv@wh-at.net to help you log on.

Year 7 - Knowledge Organiser: Myths and Legends (Part 1)	
Section 1: Historical Context	Section 3: Keywords and Definitions
The stories that make up Greek mythology have been around for thousands of years. Many have been lost due to wars or destroyed over time, especially since many of the stories were only passed on through oral traditions, meaning through speech, poetry and song instead of through text. This also means that there may be many versions of the same Greek myth. The Greeks had a very different idea of god than Abrahamic religions. They were polytheistic, meaning they believed that there were many gods, overseeing virtually every aspect of life - darkness, love, pain, vengeance and especially ruling over nature.	Protagonist - The main character. Antagonist - The opponent to the main character. Hero from the Greek <i>hērōs</i>, meaning protector or defender. Monster from the Latin <i>monstrum</i>, meaning anything differing from the usual course of nature, by which the gods give notice of evil. Deity from Greek <i>dios</i>, meaning divine and from Latin deus meaning "god." Mortal from Latin <i>mortalis</i> meaning vulnerable to death. Fate from Latin <i>fata</i>, meaning prophetic declaration of what must be, oracle, prediction. Quest from Latin <i>questa</i> meaning to search or inquire. Tragedy from Greek <i>tragodia</i> a dramatic poem or play with an unhappy resolution. Sacrifice from Latin <i>sacra</i> meaning to offer something (especially a life) to a deity as an act of respect. Hubris from Greek <i>hybris</i>, meaning to view oneself as like the gods. Humility from Latin <i>humilis</i>, meaning to view oneself as lower than the gods.
Section 2: Overview of the Genre	
<u>Myth, Legend or Folktale?</u> Some experts subdivide traditional tales into three categories: myth, legend, and folktale. They think: ▪ Myth refers only to stories that concern gods and their rites. It is closely connected with religious ritual. ▪ Legend refers to traditional stories rooted in historical fact, describing the (greatly exaggerated) adventures of people who actually lived. ▪ Folktale refers to stories that are primarily entertaining and that often involve animals or ordinary but clever humans. <u>Different types of myth:</u> ▪ A cosmogonic myth tells the story of how the world or universe was created. ▪ The etymology of cosmogony is the combination of two Greek terms, ‘kosmos’ and ‘genesis’. Kosmos means ‘world’, ‘universe’ or ‘the order of the universe’. Genesis means ‘a begetting’, ‘birth’ or ‘the coming into being’. ▪ An etiological myth explains the origins or causes of things within the world. ▪ The etymology of aetiology is from Greek aetiologia meaning ‘statement of cause’, combines the two terms ‘aitia’ meaning cause and ‘-logia’ meaning ‘speaking’. It means the science of causes or causation.	

Section 4: Conventions of Genre	Section 6: Big Ideas	
- The hero completes a quest. - The hero rescues an innocent. - The hero slays a monster. - The hero receives guidance or assistance from the gods. - The hero becomes a monarch or ruler. - The hero has incredible strength. - The hero is intelligent and cunning. - The hero makes mistakes and feels regret. - The hero gets revenge on their enemies. - The hero fights in a war or battle.	<u>Wrath of the Gods</u> Prometheus incited the wrath of the gods when he stole fire to help the humans. They exacted cruel punishments him for disrespecting them. 	<u>Heroes and Monsters</u> Heracles, a hero known for his 12 labours, battled many monsters including the Hydra. Perseus is the hero who killed the Medusa. 
Section 5: Writer's Methods		
Imagery - Descriptive language that engages the senses, helping us imagine something. Metaphor - A comparison between two items that share similar attributes, saying one is the other. Simile - The direct comparison of one thing with another, using the words <i>like</i> or <i>as</i>. Personification - When inanimate objects are given human qualities. Symbolism - The use of symbols to present ideas or qualities. Alliteration - The occurrence of the same letter at the beginning of words which are next to or near each other. Repetition - Repeating a word or phrase. Rhyme - Similar sounds at the end of words, linking them together. Enjambment - A line of poetry that continues onto the next line without punctuation at the end of a line. Stanza - The collection of lines within a poem.	<u>Death and the Underworld</u> Hades is the ruler of underworld where mortal souls spend eternity. Persephone is his Queen and Demeter, God of the Harvest, is Persephone's mother. 	<u>Archetypal Character</u> Any character type that appears again and again in stories and symbolises something universal in the human experience. 

Knowledge Organiser

Phase 1



Mathematics Department

Key

Units are colour coded by topic:

Algebra

Number

Shape

Ratio and Proportion

Data

Probability

Numeracy

Types of Numbers

Integer: Whole numbers (no digits after the decimal place).

Even: Number in the 2 times table.

2 4 6 8 10 12 14 16 18 20 22 ...

Odd: Numbers not in the 2 times table.

1 3 5 7 9 11 13 15 17 19 21 23 ...

Fractions: Fractions are numbers written in the form of division.

$\frac{2}{3}$ ← Numerator
← Denominator

X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

Calculations

Place Value

Th	H	T	U	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$

When you multiply by 10 you shift the digits 1 place value bigger. When you divide by 10 you shift the digits 1 place smaller.

Multiplication

There are lots of methods for multiplication but we recommend the column method.

$$\begin{array}{r} 421 \\ 63 \times \\ \hline 1'263 \\ 2'5'260 + \\ \hline 265'23 \end{array}$$

Addition & Subtraction

For addition and subtraction we use the column method. Remember to line up the place values in columns and start with the digit on the right first.

$$\begin{array}{r} 1253 \\ 42 + \\ \hline 1295 \end{array} \quad \begin{array}{r} 12848 \\ 162 - \\ \hline 1186 \end{array}$$

Division

For division we use the bus stop method.

$$\begin{array}{r} 7215 \div 5 \\ 5 \overline{) 7215} \\ \underline{1443} \\ 1443 \end{array}$$

Time



The **small hand** points to the hour.

The **big hand** points to the minutes.

am means in the morning.

pm means in the afternoon.

There are 60 seconds in a minute.

There are 60 minutes in an hour.

There are 24 hours in a day.

There are 7 days in a week.

There are 52 weeks in a year.

There are 12 months in a year.

1 Mathematical Instruments

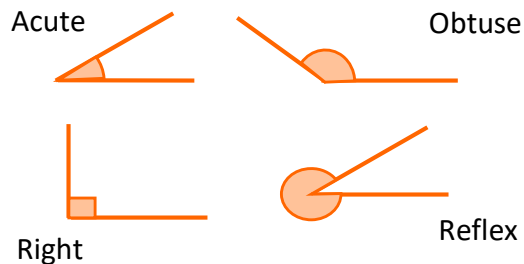


Compass: Used to draw arcs and circles.



Protractor: Used to measure and draw angles.

Types of Angle



Tally Chart

Colour	Tally	Frequency
Red		3
Blue		6
Yellow		2

Each dash represents 1 person

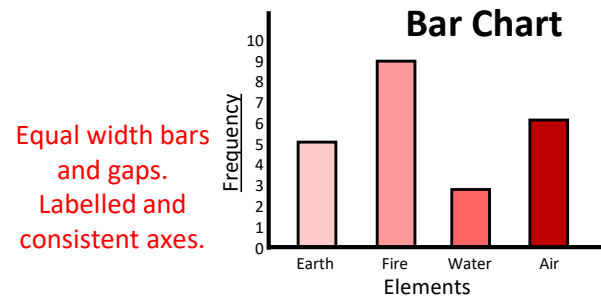
2 Bar Charts and Pie Charts

Pictogram

Shape	Frequency
Circle	○ ○ ○
Square	○ ○ ○ ○ ○
Triangle	○ △

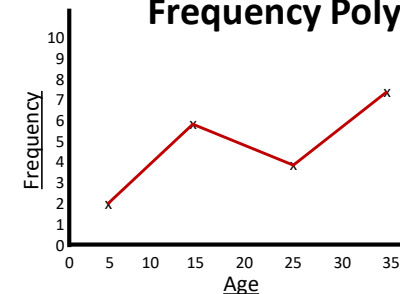
Key: ○ = 4 people

Bar Chart



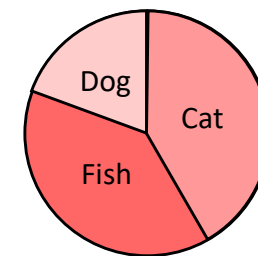
Equal width bars and gaps.
Labelled and consistent axes.

Frequency Polygon



Points plotted in the middle of each interval. Joined dot to dot.

Pie Chart



Angles must add to 360°

Frequency: The number of people/ objects in that category.

3 Factors and Multiples

Factor: A number which divides exactly.

Multiple: A number in its times table.

Highest Common Factor

The largest...
... of both numbers.
... divisor...

Lowest Common Multiple

The smallest...
... number in both...
... times tables.

Prime Numbers: 2 3 5 7 11 13 17 19 23 27 29 31 37 41 ...
Numbers which have exactly 2 factors. 1 is not a prime number.

Negative Numbers:

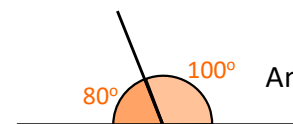
Adding and Subtracting

+ - same as -
- - same as +

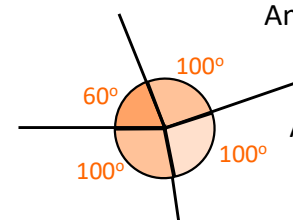
Multiplying and Dividing

- and - gives +
- and + gives -

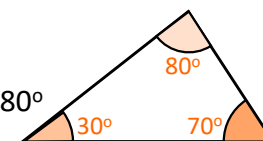
4 Angles Lines and Triangles



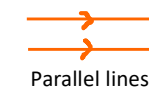
Angles on a straight Line add up to 180°



Angles in a triangle add up to 180°



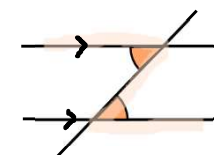
Angles around a point add up to 360°



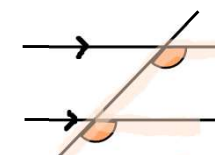
Parallel lines



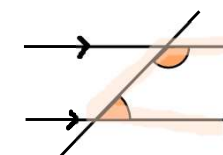
Perpendicular lines



Alternate angles are equal



Corresponding angles are equal



Co-Interior angles add to 180°

5 Using Powers

Indices: Repeated multiplication.

$$3^5 = 3 \times 3 \times 3 \times 3 \times 3$$

'3 to the power of 5'

Square Root: The inverse of squaring a number. E.g. $\sqrt{25} = 5$ because 5^2 is 25.



Base	b^2	b^3	b^4	b^5
2	4	8	16	32
3	9	27	81	243
5	25	125	625	3125
10	100	1000	10000	100000

6 Simplifying Expressions

Expression: A collection of algebraic terms added or subtracted. E.g. $3a + 4b$

$$3 \times a = 3a \quad a \div 3 = \frac{a}{3}$$

When adding terms, we collect like terms.

$$a + a + a = 3a$$

When multiplying terms we use powers.

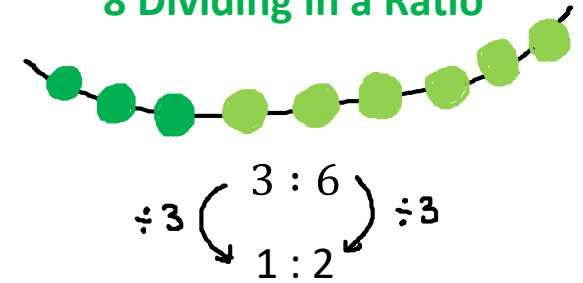
$$a \times a \times a = a^3$$

Expand: Multiply out the bracket

$$2(a + 3) = 2a + 6$$

Factorise: Put back into a bracket.

8 Dividing in a Ratio



'There are 2 light beads for every dark bead'

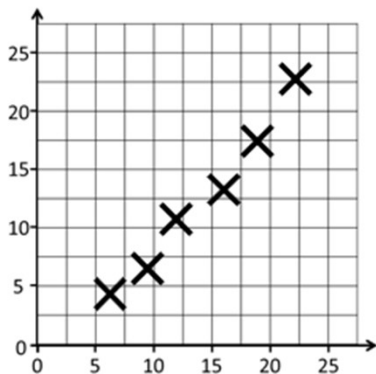
Sharing into ratio is the same as dividing into equal parts.

e.g. Share 12 into the ratio 1 : 3

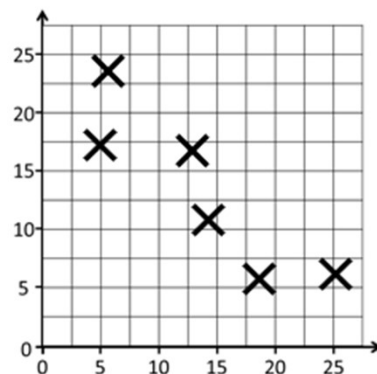
3	3	3	3
12			

= 3 : 9

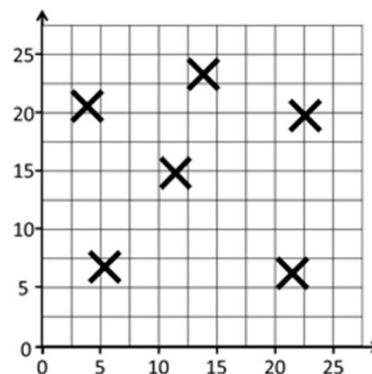
7 Scatter Diagrams



Positive Correlation



Negative Correlation



No Correlation

Line of Best Fit: A straight line which follows the trend of data.

Outlier: A data value which does not fit with the trend.

10 Decimal Places & Significant Figures

Integer: Whole numbers.

Decimal Places: The number of digits after the decimal point.

12.3456

- 12 to the nearest integer
- 12.3 to 1 decimal place
- 12.35 to 2 decimal places

Significant Figure: The first non-zero digit.

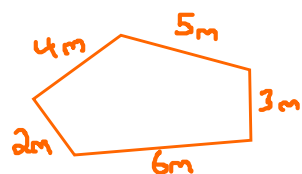
1234.56

- 1000 to 1 significant figure
- 1200 to 2 significant figures
- 1230 to 3 significant figures

Estimation: Round numbers to 1 significant figures and then calculate.

9 Area, Perimeter and Volume

Perimeter: The length around the edge of a shape.



Perimeter
 $4 + 5 + 3 + 6 + 2 = 20m$

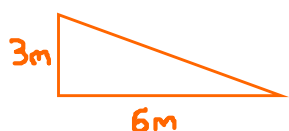
Area: The amount of space inside a 2D shape.

Area of a Rectangle = Length x Width



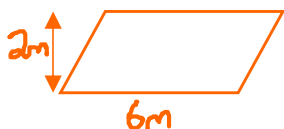
$Area = 4 \times 5 = 20 m^2$

Area of a Triangle = $\frac{1}{2}$ x Base x Height



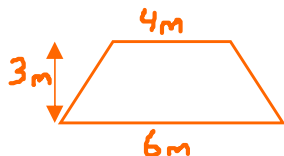
$Area = \frac{1}{2} \times 3 \times 6 = 9 m^2$

Area of a Parallelogram = Base x Perpendicular Height



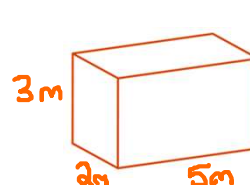
$Area = 2 \times 6 = 12 m^2$

Area of a Trapezium = $\frac{1}{2}$ x (Sum of Parallel Sides) x Height

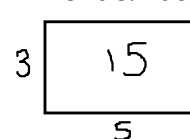


$Area = \frac{1}{2} \times (4 + 6) \times 3 = 15 m^2$

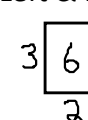
Surface Area: The total area of all surfaces of a 3D shape.



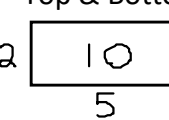
Front & Back



Left & Right



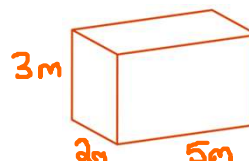
Top & Bottom



Total Surface Area
 $15 + 15 + 6 + 6 + 10 + 10 = 62 m^2$

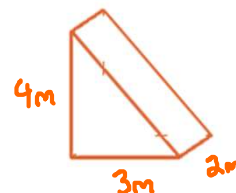
Volume: The amount of space inside a 3D shape.

Volume of a cuboid = Width x Depth x Height



$Volume = 5 \times 2 \times 3 = 30 m^3$

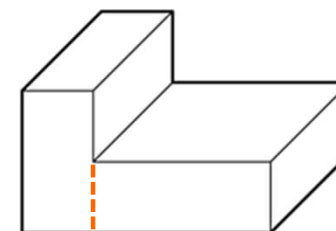
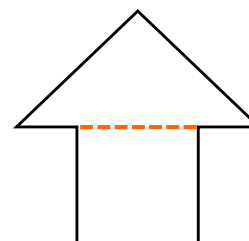
Volume of a Prism = Cross-Sectional Area x Depth



$Volume = \left(\frac{1}{2} \times 3 \times 4 \right) \times 2 = 12 m^3$

Compound Shape: A shape made up of two or more shapes.

To find the area or volume of a compound shape,
 break it up into shapes that you know.



11 Solving Equations

Inverse operations: The mathematical process which undoes a calculation.

Operation	Inverse
+	-
-	+
×	÷
÷	×
___ ²	√___

Term: A collection of numbers and letters multiplied together. E.g. 4a

Expression: A collection of terms added or subtracted. E.g. 3a + 4b

Equation: A pair of expressions equal to each other. E.g. 2a + 5 = 4a

12 Powers

Square Numbers: 1 4 9 16 25 36 ...

Numbers found by multiplying any number by itself.

Cube Numbers: 1 8 27 64 125 216 ...

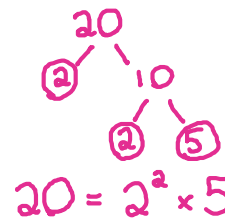
Numbers found by multiplying any number by itself twice.

Prime Numbers: 2 3 5 7 11 13 17 ...

Numbers which have exactly 2 factors. 1 is not a prime number.

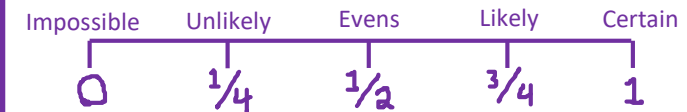
Prime factorisation: Write a number as a list of primes multiplied together.

To do this draw a prime factor tree, then multiply the primes together.



14 Probability

Probability: The chance or likelihood of an event happening.



$$\text{Probability} = \frac{\text{Desired outcomes}}{\text{Total possible outcomes}}$$

Mutually Exclusive: Two events which cannot happen at the same time.

Relative Frequency: Probability of an outcome given a number of trials.



An ordinary dice has numbers 1 to 6.



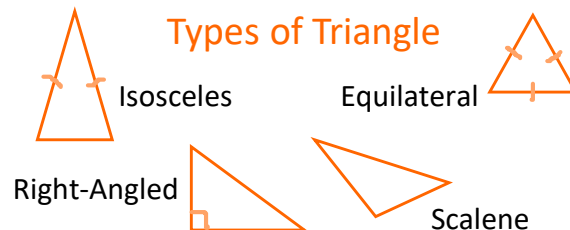
There are 52 playing cards in a pack.

16 BIDMAS

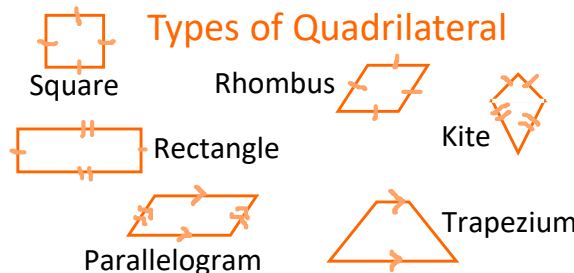
B Brackets	(5 + 5)
I Indices	5 ² 5 ³ √5
D Division	×
M Multiplication	÷
A Addition	+
S Subtraction	-

Always use **BIDMAS**

Types of Triangle

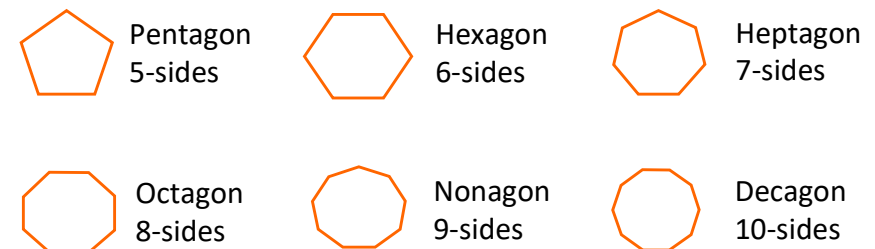


Types of Quadrilateral



15 2D Shape

Types of Polygon



Regular: All sides are equal length.

Compound Shape: Multiple shapes joined together.

17 Using Formulae

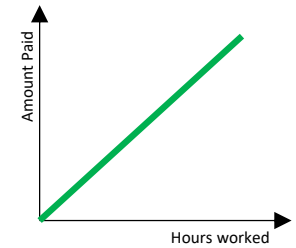
Equation: A pair of expressions equal to each other, such as $2a + 5 = 4a$

Formula: The connection between two or more quantities, such as $A = L \times W$

Every formula has a **subject** which is the letter that stands on its own. You may be asked to 'change the subject' by rearranging.

18 Everyday Proportion

Direct Proportion: Two quantities are in direct proportion if when one value increases so does the other. E.g. As the number of tickets increases, so does the price.



Ratios should not have units.

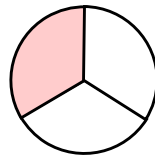
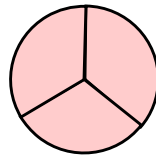
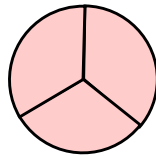
1cm : 3m should be written as 1 : 300

19 Fractions

A fraction is in its simplest form when the numerator and denominator are the smallest possible whole numbers.

$\frac{7}{3}$

Improper Fraction



$2\frac{1}{3}$

Mixed Number

Adding & Subtracting Fractions

1. Change any mixed numbers into improper fractions.
2. Use equivalent fractions to make the denominators the same.
3. Add/subtract the numerators, keep the same denominator.

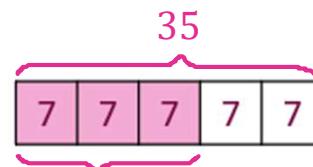
Multiplying & Dividing Fractions

1. Change any mixed numbers into improper fractions.
2. If dividing: **Keep** the first fraction the same. **Change** the divide to a multiply. **Flip** the second fraction over.
3. Then multiply the numerators and denominators separately.

Fraction of Amount

Use bar models to find fractions of amounts easily. E.g.

$\frac{3}{5}$ of 35



Remember to always simplify your answers!

20 Compound Units

1m = 100cm

1cm = 10mm

1g = 1000mg

1L = 1000ml

1kg = 1000g

1km = 1000m

1ml = 1cm³

Compound Unit: Compound units are those made up of more than one unit. For example: **kilometres per hour** links a unit for distance with a unit for time.

$$\text{Speed} = \frac{\text{Distance}}{\text{Time}}$$

Speed is often measured in miles per hour (mph) or metres per second (m/s). Think: 'What distance is travelled in 1 hour or 1 second?'

21 Averages

The **average** of a set of data is a single value which best represents the whole set of data.

Mode: Find the number(s) that occurs the most times in the list of data.

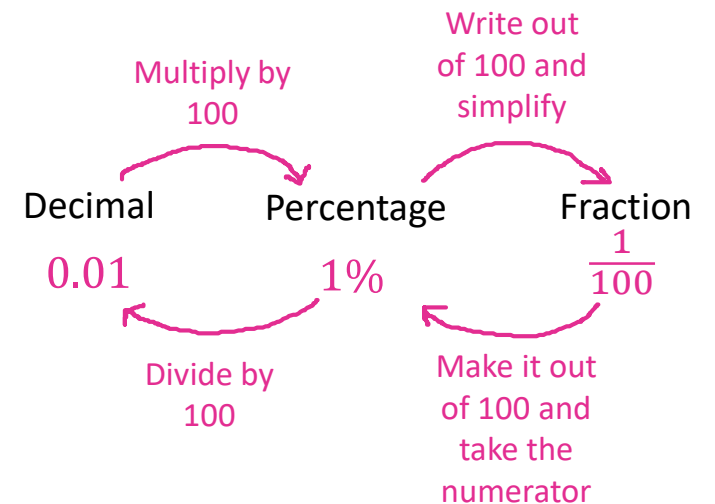
Median: Put the data in order from smallest to largest. Then find the middle number.

Range: Calculate the difference between the highest and lowest numbers in a set of data.

Mean: Add all the numbers together and divide by how many pieces of data there are.

To compare two sets of data it is important to compare values and spread.
E.g. compare the mean and the range.

22 Fractions, Decimals and Percentages



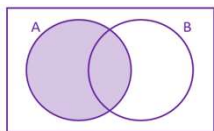
23 Sample Spaces

Sample Space: A table used to show all possible outcomes of two events. For example, the outcomes of rolling two ordinary dice and adding the score can be shown like this:

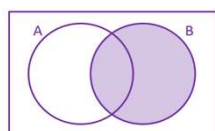
		Dice 1					
Dice 2	+	1	2	3	4	5	6
	1	2	3	4	5	6	7
	2	3	4	5	6	7	8
	3	4	5	6	7	8	9
	4	5	6	7	8	9	10
	5	6	7	8	9	10	11
	6	7	8	9	10	11	12

Venn Diagram

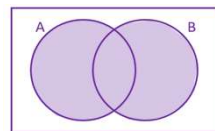
Venn Diagrams can be used to show the relationship between 2 or more characteristics.



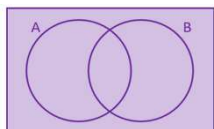
Values in A



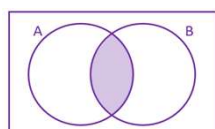
Values in B



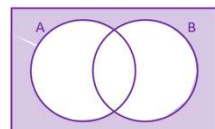
Values in A or B



All Values



Values in A and B



Values not in A or B

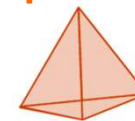
24 3D Shape



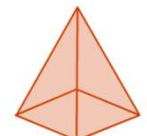
Cone



Sphere

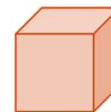


Triangular-Based Pyramid



Square-Based Pyramid

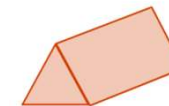
Prism: A 3D shape where 2 ends are identical shapes.



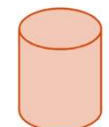
Cube



Cuboid

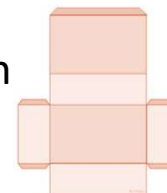


Triangular Prism



Cylinder

Net: A flat 2D shape which can be folded into a 3D shape.



Faces: The flat surfaces of the shape.

Edges: Lines where two faces meet.

Vertices: The points where edges meet.

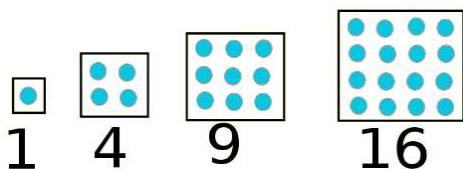
25 Sequences

A **sequence** is a list of things (pictures, numbers, words) which have a reasoning behind the order and the next can be predicted.

Arithmetic sequences: Add or Subtract the same amount each term.

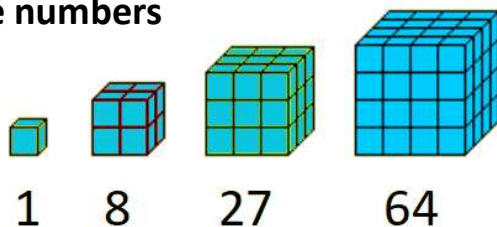
Geometric Sequences: Multiply or Divide by the same amount each term.

Square numbers



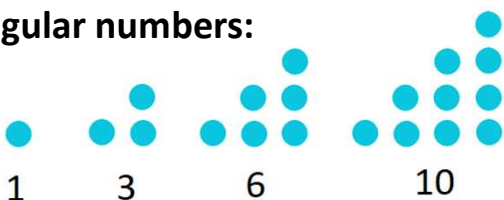
Generated by squaring the position of the term.

Cube numbers



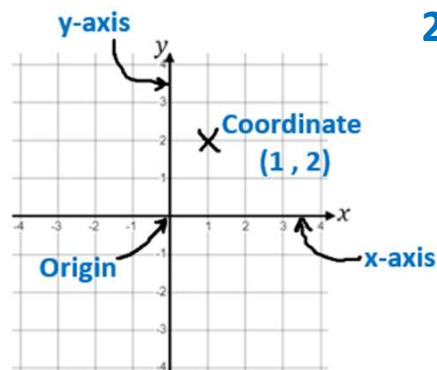
Generated by cubing the position of the term.

Triangular numbers:

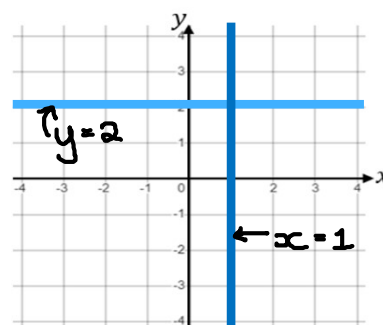


Generated by increasing the difference by 1 each time.

29 Drawing Graphs



'Along the corridor, then up the stairs'



Equations $y = \text{constant}$ form horizontal lines.
Equations $x = \text{constant}$ form vertical lines.

How to plot the line $y = 2x + 1$

x	y
-1	-1
0	1
1	3
2	5
3	7

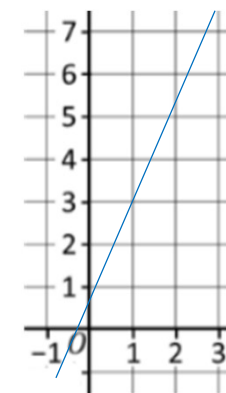
Substitute a range of x values into the equation to generate coordinates.

e.g. $y = 2 \times 1 + 1 = 3$

Tip: Start with the positive numbers first!

Then plot each pair of x and y values as a coordinate (x,y).

Join the points up with a straight line.



27 Percentage Change

Inequality Symbols

$a < b$ a is less than b

$a \leq b$ a is less than or equal to b

$a > b$ a is greater than b

$a \geq b$ a is greater than or equal to b

$a = b$ a is equal to b

$a \neq b$ a is not equal to b

Increase by 15%

Non-Calculator: Find 15% and add it to the original.

Calculator: $100\% + 15\% = 115\%$ so multiply the original by 1.15.

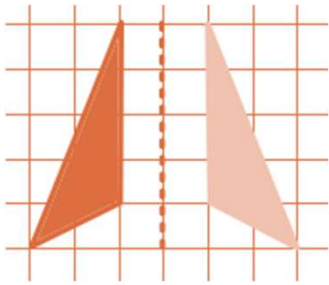
Decrease by 15%

Non-Calculator: Find 15% and subtract it from the original.

Calculator: $100\% - 15\% = 85\%$ so multiply the original by 0.85.

28 Transformations

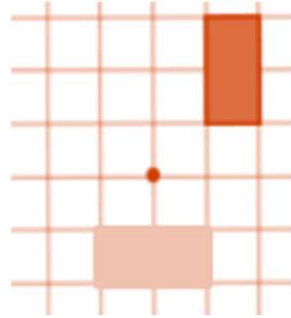
Reflection



To reflect a shape in a line:

1. Count the distance of each vertex from the mirror line.
2. The reflected shape will be the same distance in the opposite direction.

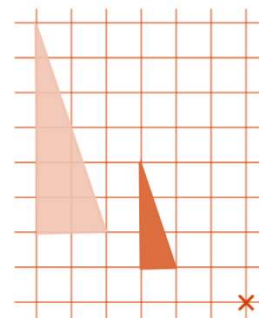
Rotation



To rotate a shape about a point:

1. Copy the shape onto tracing paper.
2. Hold your pencil on the centre point.
3. Turn the tracing paper the required degrees.

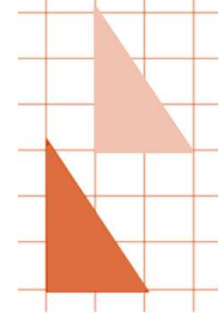
Enlargement



To enlarge a shape from a point:

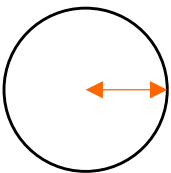
1. Count the distance across and up/down from the point to each vertex.
2. Multiply by the scale factor.
3. Start at the point and count the new distances.

Translation

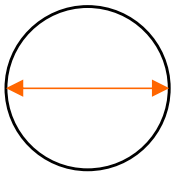


To translate a shape by $\begin{pmatrix} 1 \\ 3 \end{pmatrix}$ a column vector:
The top number is how far left/right to shift the shape.
The bottom number is how far up/down to shift the shape.

30 Area and Perimeter of Circles



Radius: The length from the centre to the circumference.



Diameter: The length joining two points on the circumference through the centre.



Circumference: The perimeter/ length around the edge of a circle.

$$\text{Area} = \pi r^2 = \pi \times \text{radius}^2$$

$$\text{Circumference} = \pi d = \pi \times \text{diameter}$$

31 Standard Form with a Calculator

A number in **standard form**:

$$a \times 10^b$$

a must be a number between 1 and 10.

b must be an integer. The power can be determined by how many places **a** has shifted from the units column to its position.

For example:

Ordinary Number		Standard Form
10000	=	1×10^4
11000	=	1.1×10^4
0.0001	=	1×10^{-4}

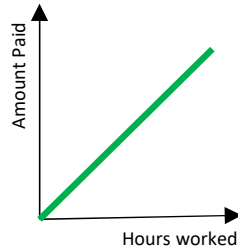
On your calculators look for this button



32 Proportion in Context

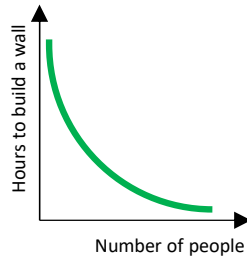
Direct Proportion:

Two quantities are in direct proportion if when one value increases so does the other.

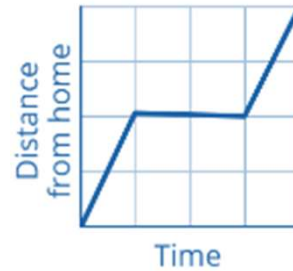


Inverse Proportion:

Two quantities are in inverse proportion if when one value increases the other decreases.



33 Graphs in Context



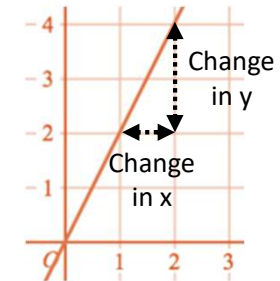
Distance-Time Graphs

Horizontal lines show the object is **stationary**/ not moving.

The steepness of the line shows the **speed** of the object is moving, the steeper the line. The faster the object is moving.

35 Gradient of a Line

Gradient is a measure of steepness of a line. To calculate the gradient:



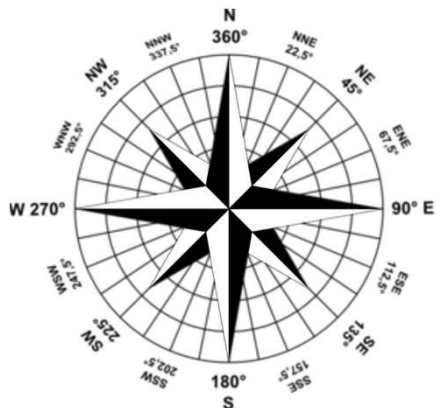
1. Choose two accurate points on the line.
2. Find the change in y and the change in x.
3. Then use the formula:

$$\text{Gradient} = \frac{\text{Change in } y}{\text{Change in } x}$$

34 Scale Factors and Similarity

Two shapes are **congruent** to one another, if they are exactly the same shape and exactly the same size.

Two shapes are **similar** to one another, if they one shape is an enlargement of the other.



Bearings are angles used to give directions with 3 rules:

- Measured Clockwise
- Start from North
- 3-digits

In a pair of similar shapes the **scale factor** (SF) is how many times bigger one shape is than the other.

2cm	Length x SF	4cm
4cm ² 2cm	Area x SF ²	16cm ² 4cm
8cm ³ 2cm	Volume x SF ³	64cm ³ 4cm

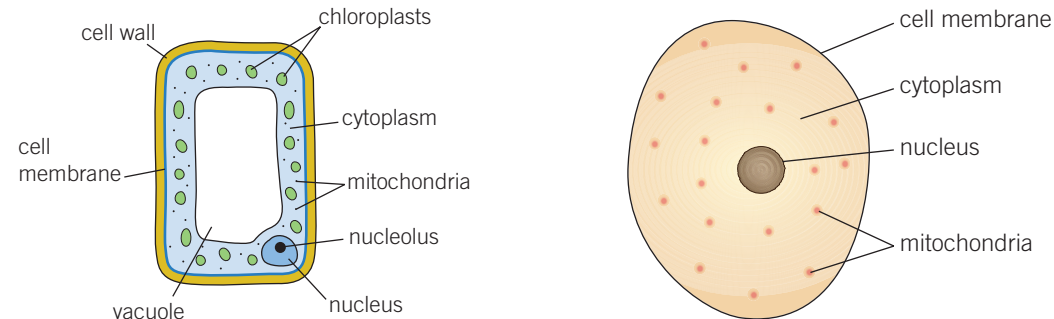
B1 Chapter 1: Cells

Knowledge organiser

All living things (organisms), are made of **cells**. Some are only made of a single cell, for example, bacteria. A person is made up of millions of cells joined together.

Plant and animal cells

Cells have smaller structures inside them, called components, that each have an important function.



Specialised cells

Specialised cells have special features that allow them to do a specific job or function:

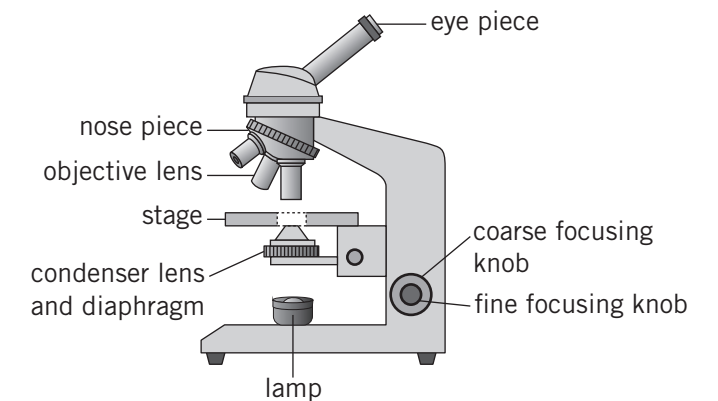
	Cell type	Function	Special features	Diagram
plant cells	root hair cell	absorb water and nutrients from soil	- root hair creates a large surface area - no chloroplasts as no light underground	
	leaf cell (palisade cell)	carry out photosynthesis	- found at the top surface of leaves - packed with chloroplasts - thin with a large surface area to absorb more light	
animal cells	red blood cell	transport oxygen around the body	- contain haemoglobin which joins to oxygen - no nucleus - disc shaped to increase surface area	
	nerve cell (neurone)	carry electrical impulses around the body	long and thin with connections at each end	
	sperm cell	carry male genetic material	- streamlined head and a long tail - lots of mitochondria to transfer energy	

Microscopes

Cells can only be seen under a microscope. A microscope magnifies an object using lenses.

Remember that:

- the specimen needs to be thin so light can pass through
- a dye can be added to make the object easier to see.



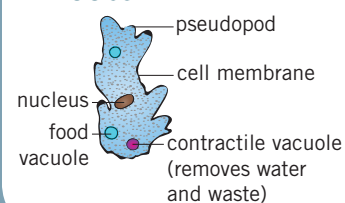
Using a microscope

- 1 Move the stage to its lowest position.
- 2 Place the slide/object on the stage.
- 3 Choose the objective lens with the lowest magnification.
- 4 Look through the eyepiece and turn the coarse-focus knob slowly until you see the object.
- 5 Turn the fine focus knob until it comes into focus.
- 6 Repeat steps 1–5 using a higher magnification lens.

Unicellular organisms

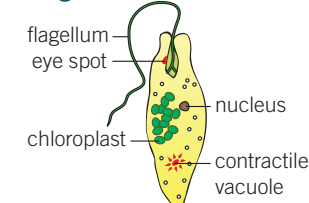
A **unicellular** organism only consists of one cell. They have no fixed shape and are adapted to carry out many different functions.

Amoeba



- nucleus controls growth and reproduction
- move by moving part of their body and the rest follows slowly in the same direction
- eat bacteria, algae, and plant cells by engulfing them
- reproduce by splitting in half (binary fission)

Euglena



- microscopic organism found in fresh water
- contain chloroplasts and make their own food by photosynthesis
- eye spot that detects light
- flagellum allows the *Euglena* to move towards the light to make more food

Movement in and out of cells

Particles move in and out of cells by **diffusion**.

During diffusion, particles spread out from where they are in **high concentration** to where they are in **low** concentration.

Diffusion in water is called **osmosis**.

Glucose and oxygen move from the blood **into** cells by diffusion.

Carbon dioxide moves **out of** cells to the blood by diffusion.



Key terms

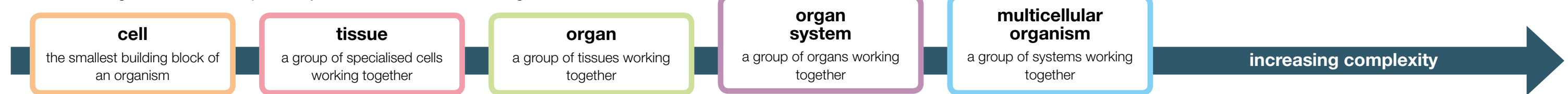
Make sure you can write definitions for these key terms.

amoeba cell cell membrane cell wall chloroplast concentration cytoplasm diffusion Euglena flagellum leaf cell microscope mitochondria nerve cell nucleus
red blood cell root hair cell specialised cell sperm cell unicellular vacuole

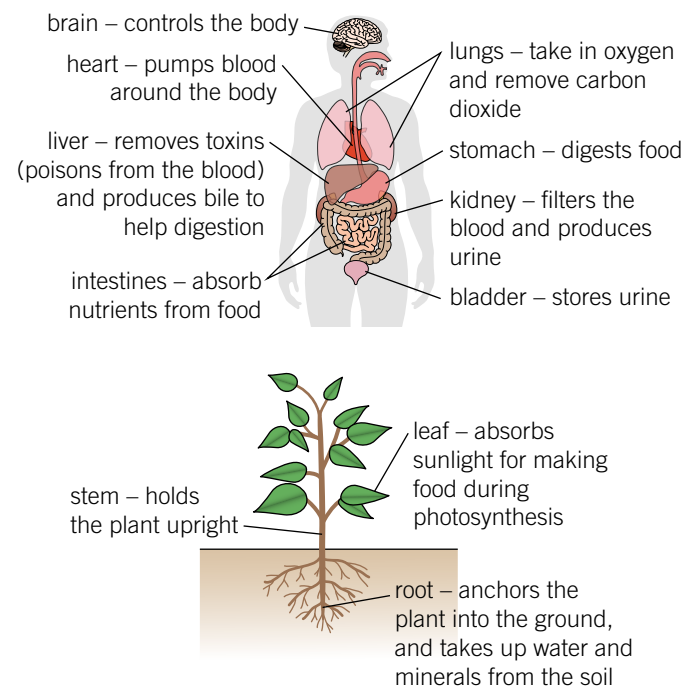
B1 Chapter 2: Structure and function of body systems

Knowledge organiser

Multicellular organisms are made up of many cells and have five levels of organisation:



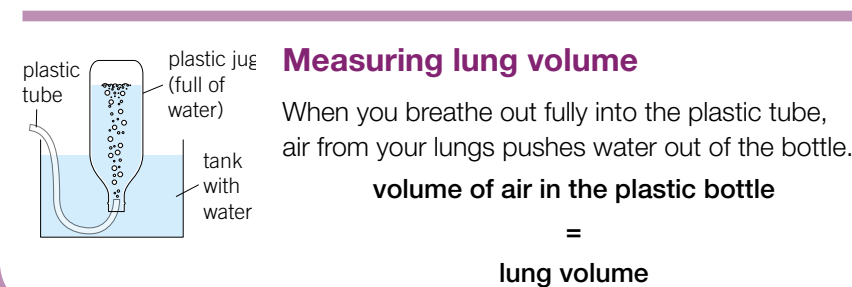
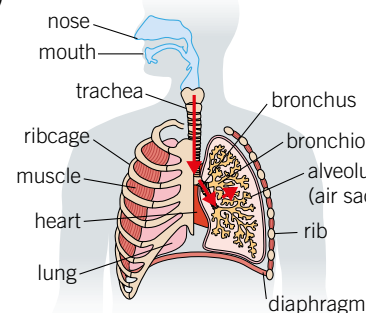
Plant and animal organs



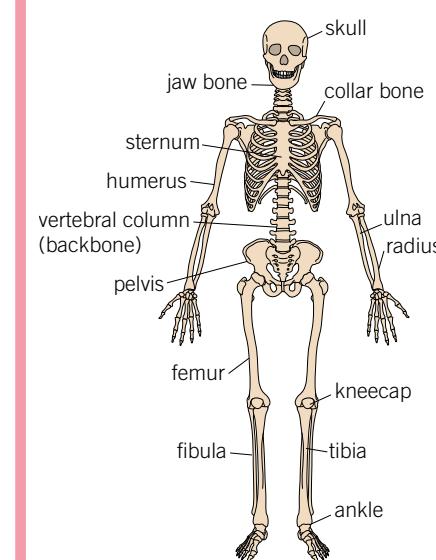
Respiratory system

The respiratory system is involved in:

- breathing in oxygen (for **respiration**)
- breathing out waste carbon dioxide.



Skeleton



All the bones in your body make up your skeleton.

The four main functions of the **skeleton** are to:

- support the body
- help the body move
- make blood cells (in the **bone marrow**).
- protect vital organs

Joints occur between two or more bones. They allow the skeleton to bend.

Three types of joint are:

- 1 Hinge joints**
forwards/backwards movements only, e.g., knees
- 2 Ball-and-socket joints**
movement in all directions, e.g., shoulders
- 3 Fixed joints**
no movement allowed, e.g., the skull

In a joint:

- your bone is protected with **cartilage**
- the two bones are held together by **ligaments**.

What happens when we breathe?

When you breathe in (inhale) - muscles between ribs contract - ribs are pulled up and out - diaphragm contracts and flattens - volume of the chest increases - pressure inside the chest decreases - air rushes into the lungs	composition of inhaled air: - oxygen, O₂: 20.96% - carbon dioxide, CO₂: 0.04% - nitrogen, N₂: 79%
When you breathe out (exhale) - muscles between ribs relax - ribs are pulled in and down - diaphragm relaxes and moves up - volume in the chest decreases - pressure inside the chest increases - air is forced out of the lungs	composition of exhaled air: - oxygen, O₂: 16% - carbon dioxide, CO₂: 4% - nitrogen, N₂: 79%

Muscles

Muscles are a type of tissue – lots of muscle cells work together to cause movement.

Types of muscle include:

- cardiac (heart) muscle**
- smooth muscle**
- skeletal muscle**

Muscles are attached to bones by **tendons**.

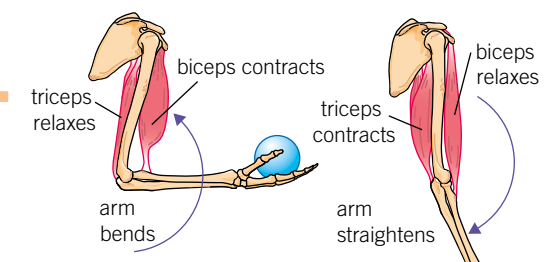
Muscles produce movement by **contracting** (getting shorter).

If a muscle contracts it pulls the bone, causing it to move.

Antagonistic muscles

Pairs of muscles that work together are called **antagonistic** muscles. When one contracts the other relaxes.

For example, **biceps** and **triceps** work together to bend and straighten the forearm.



Key terms

Make sure you can write definitions for these key terms.

alveolus antagonistic bone bone marrow contract cartilage diaphragm exhale inhale joint ligament lung multicellular organ
organ system respiration respiratory system ribcage skeleton tendon tissue trachea volume

B1 Chapter 3: Reproduction

Knowledge organiser

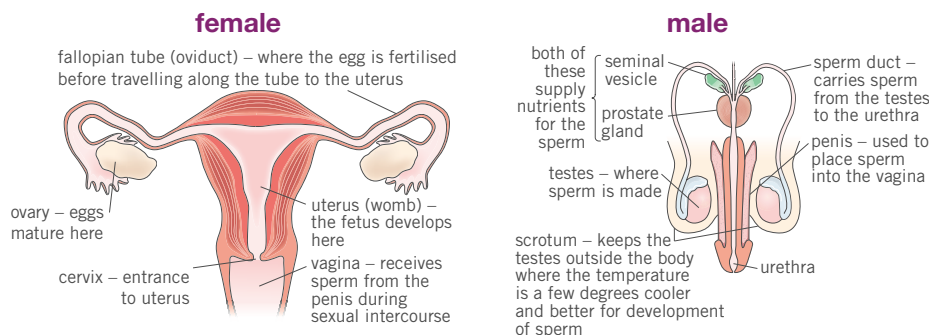
Human reproduction

Adolescence

The time during which you change from being a child to being an adult is called **adolescence**. The physical changes that happen between the ages of 9–14 are called **puberty**.

Girls	Boys
breasts develop, ovaries start to release egg cells, periods start, hips widen,	voice breaks, sexual organs develop, testes start to produce sperm, shoulders widen, hair grows on face and chest
pubic and underarm hair grows, body odour develops, emotional changes, growth spurt	

Reproductive systems



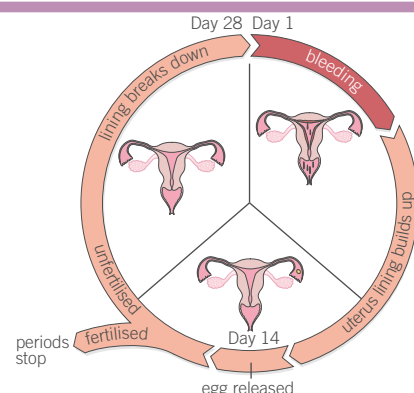
The menstrual cycle

Day 1 – blood from uterus lining leaves the body through the vagina.

Day 5 – bleeding stops. Uterus lining begins to re-grow.

Day 14 – an egg cell is released from one of the ovaries (**ovulation**).

The egg cell travels through the oviduct towards the uterus.



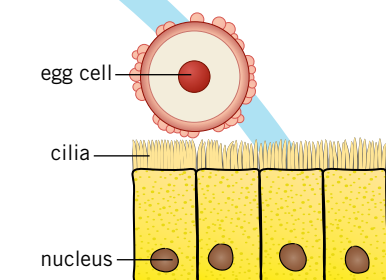
Methods of contraception

Condoms – A thin layer of latex rubber that prevents semen being released into the vagina.

Contraceptive pill – a daily tablet that contains hormones. It prevents pregnancy by stopping ovulation.

Fertilisation

An egg is released every month.



The egg cell is moved along the oviduct towards the uterus by **cilia**.

Sperm cells are produced in the **testicles/testes**.

Sperm are mixed with nutrients and fluid from the glands to form **semen**.

During sexual intercourse a man will release semen into the vagina (**ejaculation**).

If a sperm meets the egg **fertilisation** may happen.

The fertilised egg may then **implant** in the uterus lining and form an **embryo** (ball of cells)

the main steps in a baby's development (**gestation**) during pregnancy

just a dot	1 week – cells beginning to specialise
3 mm long	4 weeks – spine and brain forming, heart beating
3 cm long	9 weeks – tiny movements, lips and cheeks sense touch, eyes and ears forming
7 cm long	12 weeks – fetus uses its muscles to kick, suck, swallow, and practise breathing

There are three important structures in the uterus during gestation:

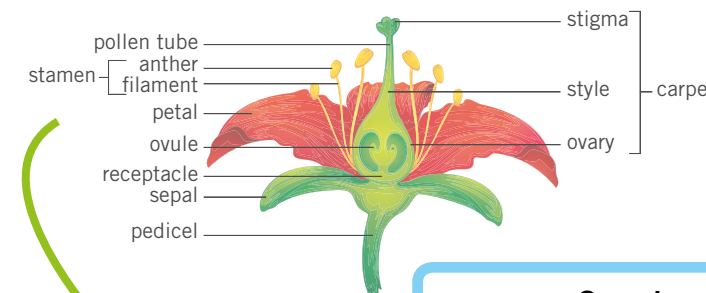
placenta – where substances pass from mother to **fetus**

umbilical cord – connects the fetus to the placenta

fluid sac – shock absorber that protects the baby.

Plant reproduction

Parts of a flower



Stamen

male part of the flower

- the **anther** produces pollen
- the **filament** holds up the anther

Carpel

female part of the flower

- the **stigma** is sticky to catch grains of pollen
- the **style** holds up the stigma
- the ovary contains **ovules**

Pollination

Pollination is the fertilisation of the ovule, which occurs when pollen is transferred from an anther to the stigma. Pollination can occur due to insects or the wind.

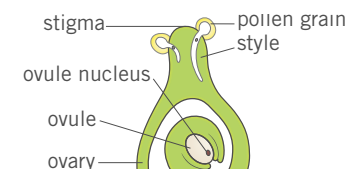
cross-pollination

between two **different** plants

self-pollination

between the male and female parts of the **same** plant

Fertilisation



The tube grows out of the pollen grain and down through the style.



The pollen nucleus moves down the tube.



The pollen nucleus joins with the ovule nucleus. Fertilisation takes place and a seed will form.

Germination

When a seed starts to grow it is called **germination**.

To germinate, seeds need:

- water – for the seed to swell and the embryo to start growing
- oxygen – for respiration and transferring energy for germination
- warmth – to help speed up the reactions in the plant.



Key terms

Make sure you can write definitions for these key terms.

adolescence anther carpel cervix cilia contraception ejaculation embryo fertilisation fetus filament gestation germination implant menstrual cycle ovary
oviduct ovulation ovule placenta pollen pollination puberty semen sperm duct stamen stigma style testes umbilical cord uterus urethra vagina

C1 Chapter 2: Elements, atoms, and compounds

Knowledge organiser

Atoms

Atoms are incredibly tiny particles that make up all substances.

There are 92 types of atom – one for each of the 92 elements that exist naturally.

Each type of atom has different properties (e.g., size or mass).

Elements

An **element**:

- cannot be broken down into other substances
- is made of one type of atom only.

Examples of elements include gold, potassium, carbon, and hydrogen.

The names and symbols of all the elements can be found on the **Periodic Table** of elements.

Elements in the Periodic Table are grouped together by their properties, which are different for each element.

1		2														group number					0
				H																	He
Li	Be													B	C	N	O	F	Ne		
Na	Mg													Al	Si	P	S	Cl	Ar		
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr				
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe				
Cs	Ba	La	Hf	Ta	W	Re	Os	Ir	Pt	Au	Hg	Tl	Pb	Bi	Po	At	Rn				
Fr	Ra	Ac																			

The **chemical symbol** for an element is universal – it is the same in every language, even if the name of the element is different.

Some examples of chemical symbols for common elements are:

hydrogen	H	sulfur	S
carbon	C	sodium	Na
oxygen	O	chlorine	Cl
nitrogen	N	magnesium	Mg

Molecules

A **molecule** is made up of atoms all chemically bonded to each other.

Molecules can be made up from:

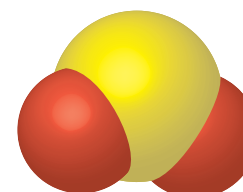
several of the same type of atom

for example, oxygen gas
 O_2



two or more types of atoms

for example, sulfur dioxide
 SO_2



Different elements have different masses. So, in a molecule, the different atoms that make it up have different masses.

For example, a molecule of water has two hydrogen atoms and one oxygen atom.

Chemical formulae

A **chemical formula** tells you how many of each atom there are in a molecule relative to each other.



two hydrogen atoms for every oxygen atom



two chlorine atoms for every one magnesium atom



one sodium atom for every one oxygen atom, and every one hydrogen atom

Compounds

Compounds:

- are made of two or more *different* atoms strongly joined together.
- can be broken down into other substances.

Naming compounds

In a compound made of a metal and a non-metal, the name of the metal comes first.

for example, iron bromide, magnesium fluoride

If the non-metal atom is oxygen, it is called oxide. If the non-metal atom is chlorine, it is called chloride.

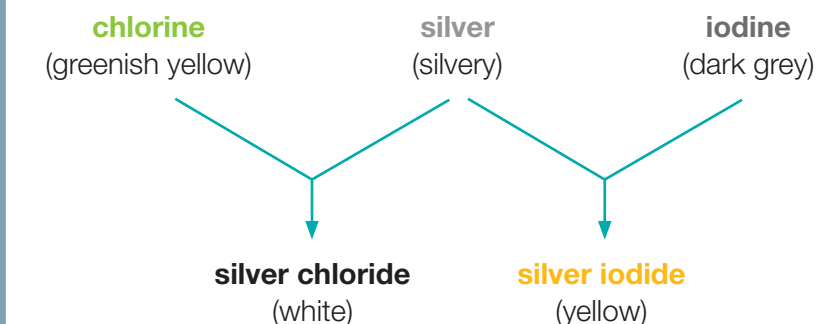
for example, copper oxide, sodium chloride

In a compound made of a non-metal and oxygen, oxygen comes second and is called monoxide if there is one oxygen atom or dioxide for two oxygen atoms.

for example, carbon monoxide, sulfur dioxide

When atoms join together to make a compound, the compound has properties that are different to the properties of the atoms that make them up.

For example, the colours of silver compounds are very different from the colours of the elements that make them up:



Key terms

Make sure you can write definitions for these key terms.

atom

chemical formula

chemical symbol

compound

element

molecule

Periodic Table

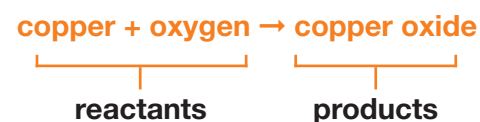
A **chemical reaction** is a process where atoms are rearranged to make new substances with the atoms joined together in different ways.

Equations

The substances that you start with in a reaction are called reactants, and the ones you finish with are the products.

We can represent a reaction with a **word equation**.

the reactants are on the left
the products are on the right
there is an $\rightarrow$ from the reactants to the products



We can also use a **balanced symbol equation** to represent a reaction.



A balanced symbol equation shows:

- the formula of each substance in the reaction
- how the atoms are rearranged
- the relative number of atoms of each substance.

What happens during a chemical reaction?

If a chemical reaction is happening you might:

- see flames or sparks
- notice a smell
- hear fizzing or a bang
- feel the temperature of the reaction mixture going up or down

Speed of reactions

Some reactions are very fast but others can be very slow.

Adding a **catalyst** can speed up a reaction, for example, to make a product more quickly. Different reactions require different catalysts.

A catalyst isn't used up in the reaction but helps the reaction along.

Chemical reactions are normally not **reversible**.

This means that you cannot turn the products back into reactants

All chemical reactions involve an energy transfer to or from the surroundings:

Energy transfer	Temperature of surroundings	Type of reaction	Example
from the surroundings to the reaction mixture	decreases	endothermic	thermal decomposition
to the surroundings from the reaction mixture	increases	exothermic	combustion

Conservation of mass

In a reaction, atoms are not created or destroyed – they are just rearranged.

The total mass of the reactants is always equal to the total mass of the products. This is called **conservation of mass**.

If the mass seems to increase, it is because atoms have been added from a gas.



If the mass seems to have decreased, it is because atoms have rearranged and formed a gas that has escaped.



Changes of state are not chemical reactions, but they are reversible this is called a **physical change**.

This is because no new substances are made.

for example, water, ice, and steam are all made of molecules of the same substance (H_2O) in different states, and the change from one state to another is reversible

Types of reaction

Thermal decomposition reactions

A **decomposition** reaction is when a substance breaks down into simpler substances.

Most decomposition reactions need heat to happen – this is called **thermal decomposition**.

Burning fuels

Oxidation is when substances react with oxygen.

Combustion is a type of oxidation reaction where a **fuel** reacts (burns) with oxygen. This transfers energy by heating. Petrol, diesel, and coal are all **fossil fuels** and take millions of years to form.

They cannot be replaced when used, and will eventually run out, so are called **non-renewable**.

Fossil fuels produce carbon dioxide and water when combusted. This release of carbon dioxide is harmful to the environment and a cause of climate change.

Hydrogen can also be combusted and used as a fuel.

This may be better than using fossil fuels because it only produces water as a product.



Key terms

Make sure you can write definitions for these key terms.

balanced symbol equation

catalyst

chemical reaction

combustion

conservation of mass

decomposition

endothermic

exothermic

fossil fuel

fuel

non-renewable

oxidation

physical change

product

reactant

reversible

thermal decomposition

word equation

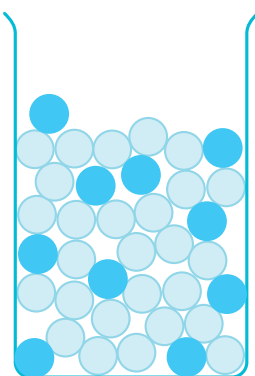
Acids and alkalis

Acids and **alkalis** are special solutions which are chemical opposites to each other.

If a solution is between acid and alkaline it is **neutral**.

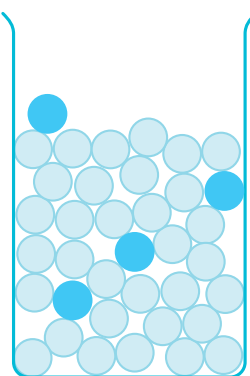
Acids and alkalis can be:

concentrated



Lots of acid/alkali particles for the amount of water.

dilute



A small number of acid/alkali particles in the same amount of water.

Acids and alkalis are **corrosive**

This means that they can cause burns if they get on your skin.



Acids and alkalis can be extremely dangerous, depending on the type of acid/alkali and its concentration.

As a general rule the more concentrated the solution, the more dangerous it can be.

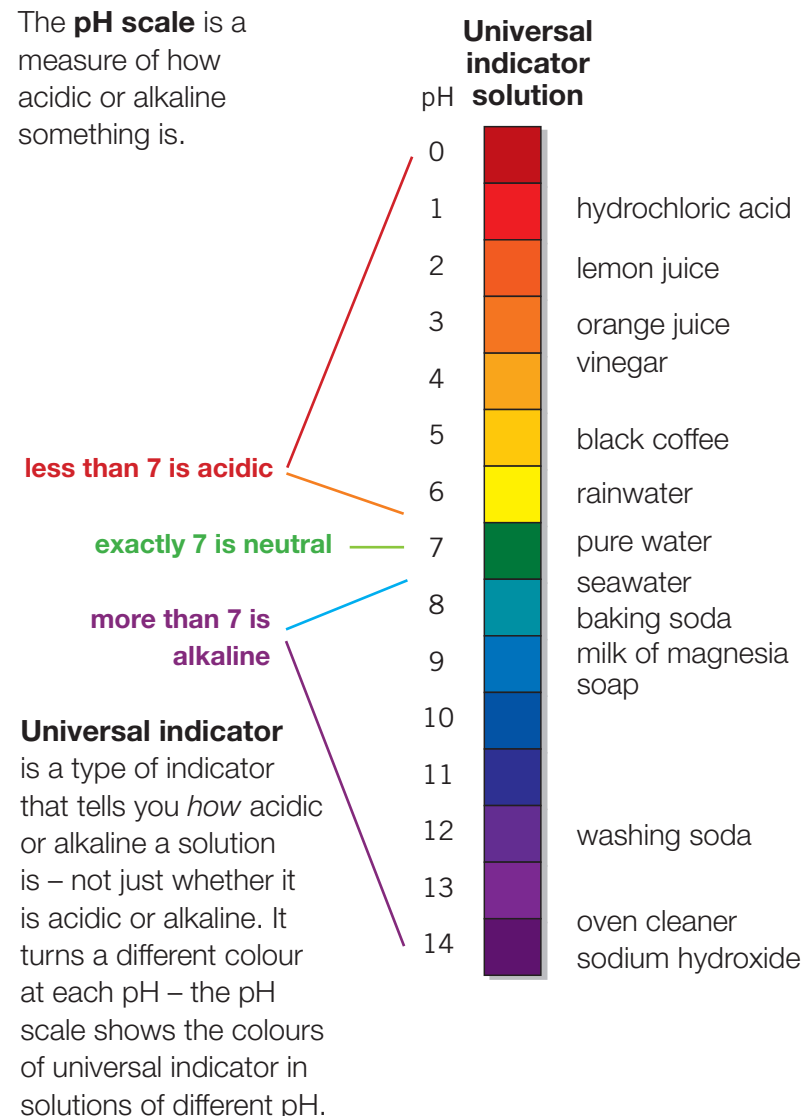
Indicators

If you want to know if something is acidic or alkaline, you need to use an **indicator**. Indicators contain a dye that turns different colours in acidic and alkaline solutions.

Litmus paper is a type of indicator. It can be either **pink** paper or **blue** paper.

- in acid – **blue** paper turns **pink**
- in alkali – **pink** paper turns **blue**

The **pH scale** is a measure of how acidic or alkaline something is.



Reactions with acids

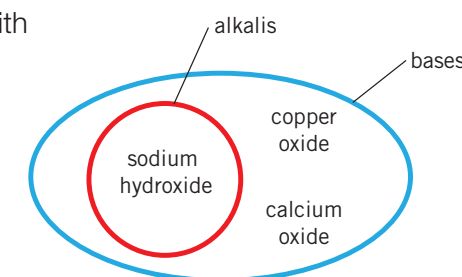
When an acid reacts with a metal element or compound a **salt** is formed. The hydrogen atoms of the acid are replaced with atoms of the metal element.



A **base** is a compound that can react with an acid to make a neutral solution.

This is called **neutralisation**.

Bases that are soluble in water are **alkalis**.



Neutralisation reactions produce water and a salt.

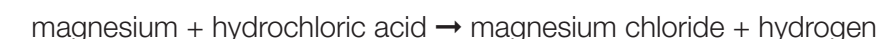


for example,



Metals can also react with acids, but they produce a salt and hydrogen gas.

for example,



Naming salts

The name of the metal comes first, for example, **magnesium** chloride.

Different acids produce different types of salt:

- hydrochloric acid produces metal **chlorides**
- sulfuric acid produces metal **sulfates**
- nitric acid produces metal **nitrates**



Key terms

Make sure you can write definitions for these key terms.

acid

alkali

base

concentrated

corrosive

dilute

indicator

litmus

neutral

neutralisation

pH scale

salt

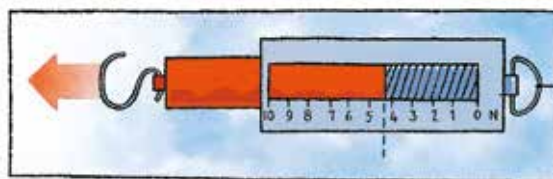
universal indicator

What are forces?

A **force** can be a *push* or a *pull*.

Forces can be measured using a **newtonmeter**.

Forces are measured in **newtons (N)**.



Contact forces occur when objects are touching, for example:

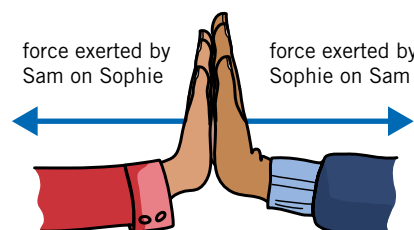
- **friction**
- **drag forces** (**air resistance** and **water resistance**)
- support forces (e.g., **reaction forces**)

Non-contact forces work at a distance, for example:

- **gravity**
- **magnetic force**
- **electrostatic force**

Forces always occur in pairs.

The pairs are called **interaction pairs**.



Balanced and unbalanced forces

When the forces acting on an object are the same size, but act in opposite directions, we say that they are **balanced**.

The balanced forces cancel out, and the object is in **equilibrium**.



If the forces are not the same size, and do not cancel each other out, we say they are **unbalanced**.

The larger the difference between unbalanced forces, the quicker the object will change speed.



Drag forces and friction

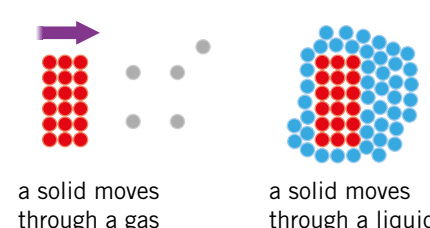
Friction is a contact force that occurs when two objects move against each other. It happens because all surfaces have some roughness – even ones that look smooth.

Friction can be reduced by adding **lubrication** (e.g., oil or grease).

Friction is often useful, for example:

- you need friction to walk across surfaces
- the brakes on a bike need friction to work.

A solid moving through a liquid or a gas has to push the liquid or gas particles out of the way. This produces a drag force on the solid object.



Water resistance and air resistance are drag forces.

Drag forces can be useful if we need to slow something down, for example, by using parachutes.

Making an object more **streamlined** will reduce the drag forces on it.

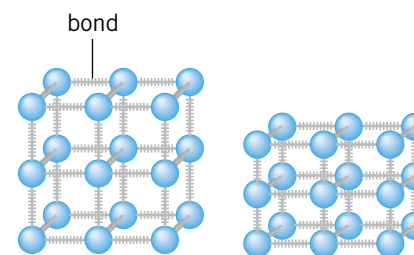
Reaction forces

When you stand on the floor:

- your weight pushes the particles in the floor together
- the bonds between the particles are **compressed**
- the compressed particles push back and support you.

A support force that balances the weight of an object is called the reaction force.

Upthrust is another example of a support force.



Fields and non-contact forces

In physics, a **field** is a special region where certain objects experience a non-contact force. For example, when

- a mass experiences a force in a gravitational field
- a magnetic material (like iron) experiences a force in a magnetic field
- a charged object experiences a force in an electrostatic field.

As you get further away from a mass, a magnet, or a charged object, the field gets weaker.

Weight and mass

Mass is the amount of 'stuff' something is made of – it is measured in kilograms (kg).

Weight is a force so it is measured in newtons.

$$\text{weight (N)} = \text{mass (kg)} \times \text{gravitational field strength (N/kg)}$$

The **gravitational field strength** on Earth is about 10 N/kg.

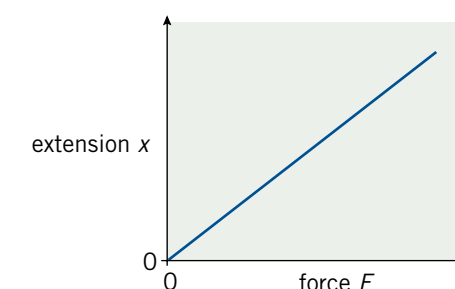
Your weight depends on the gravitational field strength but your mass is the same everywhere.

Hooke's law

Some objects – like springs – can be **stretched** when pulled. The amount they stretch by is called the **extension**.

A force called **tension** makes a spring return to its original length (unless it has gone beyond its **elastic limit**).

Hooke's law states that the extension of a spring doubles when you double the force. This means there is a **linear** relationship between force and extension.



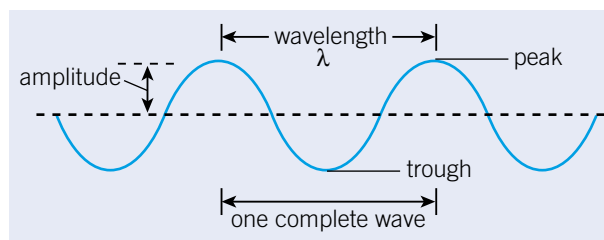
Key terms

Make sure you can write definitions for these key terms.

air resistance	balanced	compress	contact force	drag force	elastic limit	electrostatic force	equilibrium	extension	field	friction
gravitational field strength	gravity	Hooke's law	interaction pair	linear	lubrication	magnetic force	mass	newton	newtonmeter	non-contact force
	reaction force	stretch	streamlined	tension	unbalanced	upthrust	water resistance	weight		

Properties of waves

A wave is an **oscillation** or **vibration** that transfers energy. Matter is not transferred. Waves can be longitudinal or transverse.



Amplitude – distance from the middle to the top or bottom of the wave

Wavelength – distance between a point on the wave to the same point on the next wave

Trough – bottom of the wave **Peak** – top of the wave

Frequency – how many waves go past a particular point in a second, measured in **hertz** (Hz) or kHz

If waves meet they **superpose**. This means they add up or cancel out, depending on if they are in time with each other or not.

Sound waves

Sound is produced by vibrations, which make air molecules oscillate.

Sound is a longitudinal wave.

speed of sound

fastest ↑ in solids (e.g., steel ≈ 5000 m/s)
in liquids (e.g., water ≈ 1500 m/s)
slowest ↓ in gases (e.g., air ≈ 340 m/s)

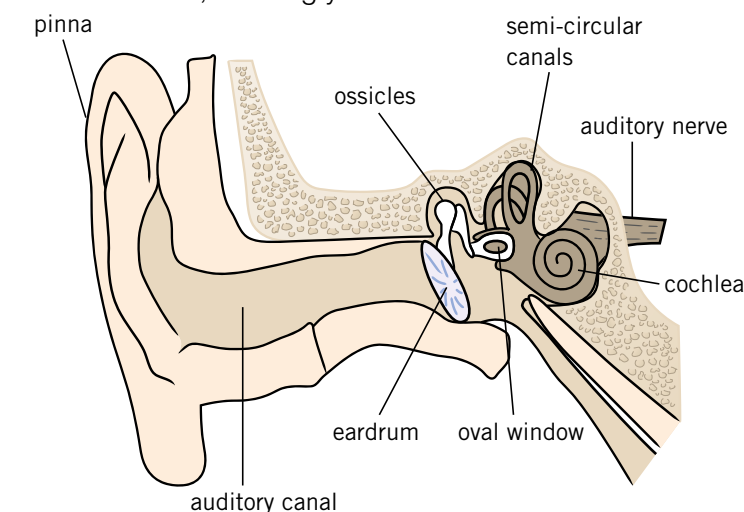
Waves can be **reflected** from a surface. The wave hitting the surface is the **incident wave**, and the wave bouncing off is the **reflected wave**.

A reflected sound wave is heard as an echo. The time delay of an echo can be used to work out the distance to an object.

Ultrasound (waves >20kHz) is used to make images of unborn babies, in medical scans, and for underwater (sonar) searches.

Hearing

Your ear is made of many specially adapted structures that detect and transmit sound waves, allowing you to hear noises.



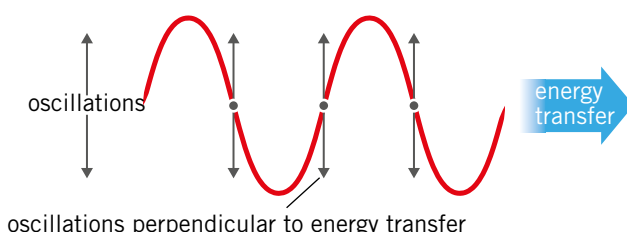
Part of ear	Structure	Function
outer ear	pinna	directs sound into auditory canal
	auditory canal	sound travels through it to reach the eardrum
	eardrum	vibrates and passes vibrations to the ossicles
middle ear	ossicles	tiny bones that amplify sound
inner ear	cochlea	filled with thousands of tiny hairs and liquid – sound makes the hairs move, which sends an electrical signal to your brain
	semi-circular canals	helps you keep your balance

Hearing damage be caused by a number of factors, for example:

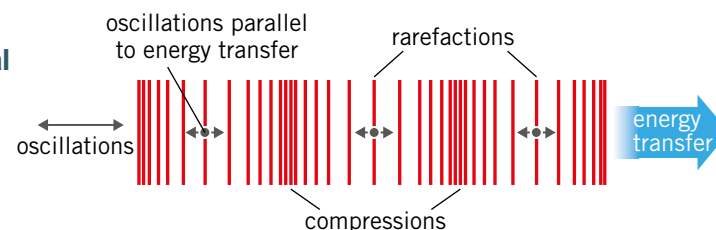
- a hole in the ear drum (grows back naturally)
- canal blocked with wax (curable)
- loud sounds or injury, causing damage to the hairs in the cochlea (permanent).

Transverse and longitudinal waves

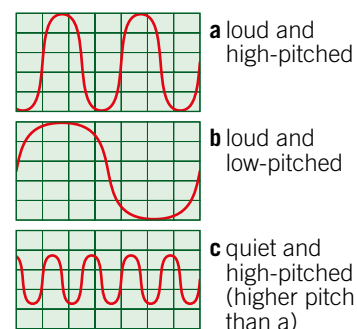
Transverse waves



Longitudinal waves



Measuring sound



Oscilloscopes display sound waves.

Humans can hear frequencies 20 Hz to 20 kHz. Above this is ultrasound. Below this is **infrasound**.

Sound volume is measured in **decibels** (dB). The decibel scale is not linear – a 10dB increase is 10 times the volume.

Recording and playing sounds

In a microphone sound waves hit a **diaphragm** making it vibrate. This produces an electrical signal by moving a coil of wire over a magnet. Speakers are the opposite to microphones – an electrical signal is turned into sound by moving a cone backwards and forwards.



Key terms

Make sure you can write definitions for these key terms.

amplify amplitude auditory canal auditory nerve cochlea compression decibel diaphragm eardrum frequency hertz incident wave infrasound longitudinal oscillation
oscilloscope ossicle oval window peak pinna pitch rarefaction reflected semi-circular canal superpose transverse trough ultrasound vibration wavelength

How does light travel?

Luminous objects are sources of light.

Non-luminous objects do not produce their own light.

When light hits an object it can be **absorbed**, **reflected**, or **transmitted**.

If an object is:

transparent – most light is transmitted

translucent – light is scattered

opaque – no light is transmitted so a shadow is produced.

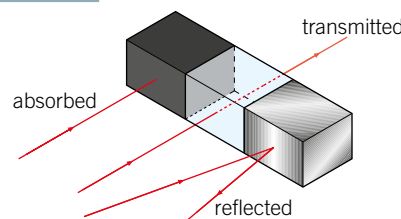
Light can travel through gases, some solids and liquids, and completely empty space (a vacuum).

The speed of light in a **vacuum** is about 300 000 km/s.

Distances in space are measured in **light-time**. Remember that light-time is a distance (not a measure of time).

A light-minute is the distance light travels in one minute.

A light-year is the distance light travels in one year.



Colours of light

A **prism** refracts different colours of light by different amounts. This disperses light into a continuous **spectrum** of colours.

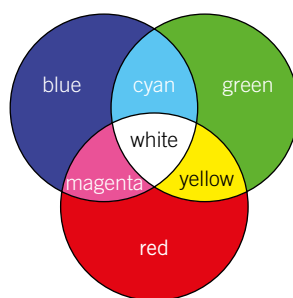
The **primary colours** of light are **red**, **green**, and **blue**.

Secondary colours are produced when any two primary colours are mixed.

Filters subtract colours from white light, so that only one colour of light is transmitted.

Objects appear to be different colours because they reflect some colours of light and absorb others.

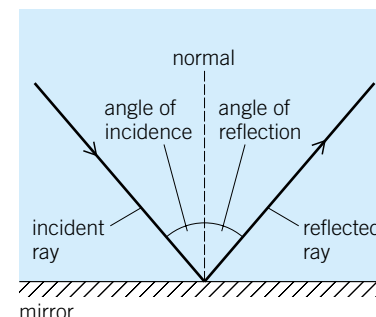
Black objects absorb all colours and white objects reflect all colours.



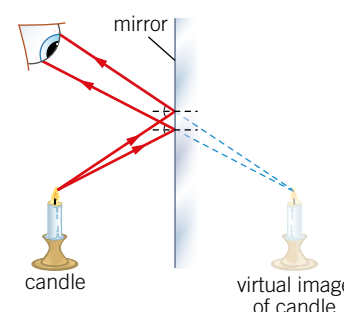
Reflection and refraction of light

The **law of reflection** states that:

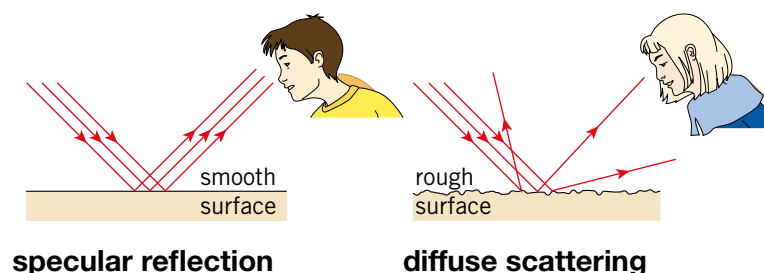
The **angle of incidence** is equal to the **angle of reflection**.



Images in mirrors are **virtual** – they look like they are behind the mirror.



Whether or not you can see a clear reflected image depends on how smooth the surface is:

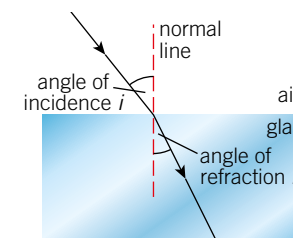


Refraction is when light changes direction when it travels from one **medium** (material, such as air or water) to another.

Refraction happens because light travels at different speeds in different materials.

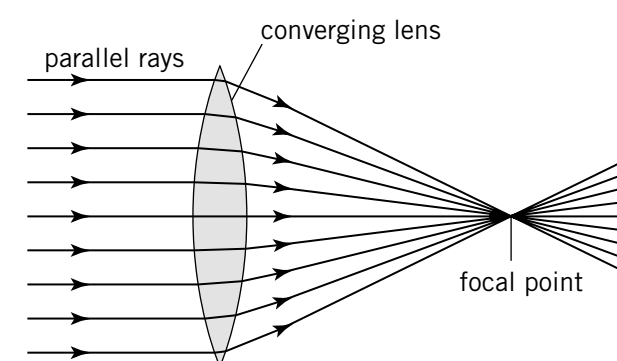
Rays of light will be refracted:

- towards the **normal** if they slow down, such as going from air to glass
- away from the normal if they speed up, such as going from water to air.



Lenses use refraction to spread out or **focus** light.

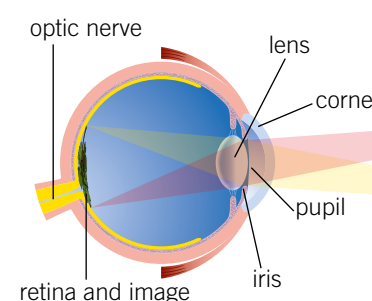
Convex (or **converging**) lenses (like the ones in your eyes) are shaped to focus the light to a point – called the **focal point**.



How do eyes and cameras work?

Light entering your eye is refracted by the **lens**, focusing it on the **retina** and creating an inverted image.

Photoreceptors detect the light hitting your retina and send an electrical impulse to your brain.



Cameras work in the same way as your eye – light passes through an opening and a **real image** is formed on a screen or film.

Digital cameras now have a **charge-coupled device (CCD)** instead of film – when light hits a **pixel** it produces an electrical charge.



Key terms

Make sure you can write definitions for these key terms.

absorb angle of incidence charge-coupled device colour converging convex diffuse scattering filter focal point focus incident ray law of reflection lens
light-time luminous normal opaque photoreceptor pixel primary colour prism real image refraction retina secondary transmit spectrum specular reflection
reflection translucent transmit transparent virtual image

Space

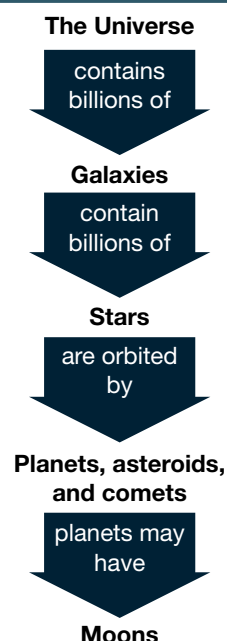
A **galaxy** is a collection of billions of **stars**.
The Earth is in the **Milky Way** galaxy.

Planets are large objects that **orbit** stars, and do not **produce** light.

Asteroids are rocky objects smaller than planets, that also orbit stars.

Satellites are objects that orbit planets. This includes **natural satellites** (moons) and **artificial satellites** (e.g., the International Space Station).

Meteors are bits of rock which burn up in Earth's atmosphere. They are called **meteorites** once they hit the ground.

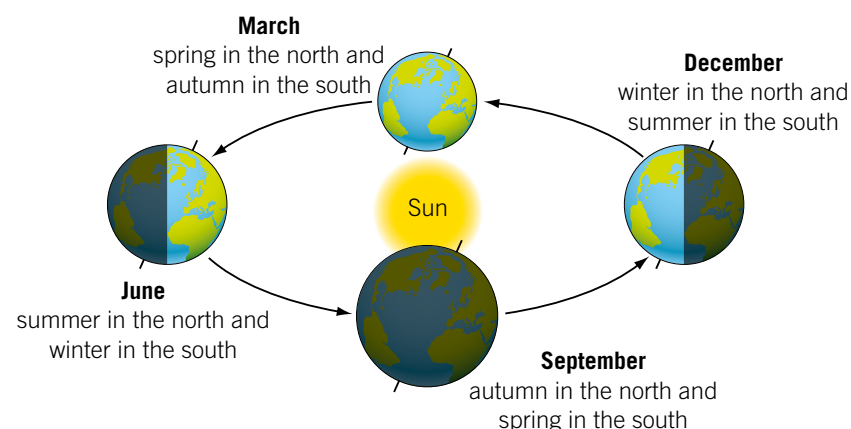


The Earth

The Earth is the only place we have found life in the **Universe**.

It takes a year for the Earth to orbit the **Sun** - 365.2442 days. We add one day every fourth year (a leap year) because of the extra 0.2442 days.

The Earth's **axis** is tilted 23.4 degrees, which causes seasons (which have different day lengths and temperatures).

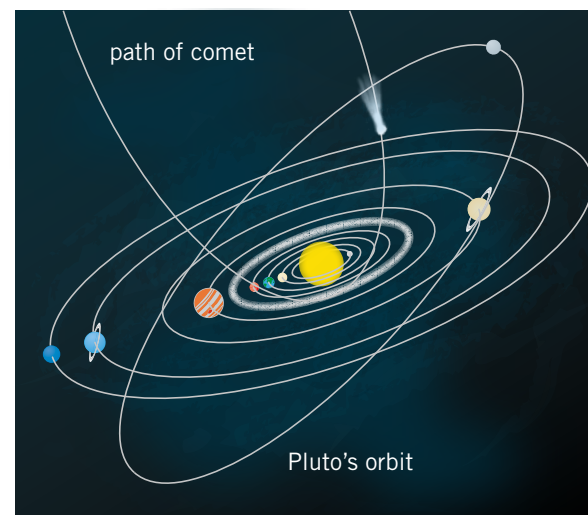


The Earth spins on its axis every 24 hours, giving us day and night.

The Solar System

Our **Solar System** is everything that orbits around the Sun. This includes:

- Inner planets** – the **terrestrial** (rocky) planets
 - Mercury
 - Venus
 - Earth
 - Mars
- Asteroid belt (Including the **dwarf planet** Ceres)
- Outer planets** – the **gas giants**
 - Jupiter
 - Saturn
 - Uranus
 - Neptune
- Kuiper belt objects (such as Pluto)
- Comets** (balls of ice)



The further a planet is from the Sun, the colder its temperature is (apart from Venus, because of its thick atmosphere).

Gravity pulled gas and dust together to form the Sun about 5 billion years ago. The planets then formed from a spinning disc of gas and dust around the Sun.

An **exoplanet** is a planet that is orbiting a star that is not the Sun.

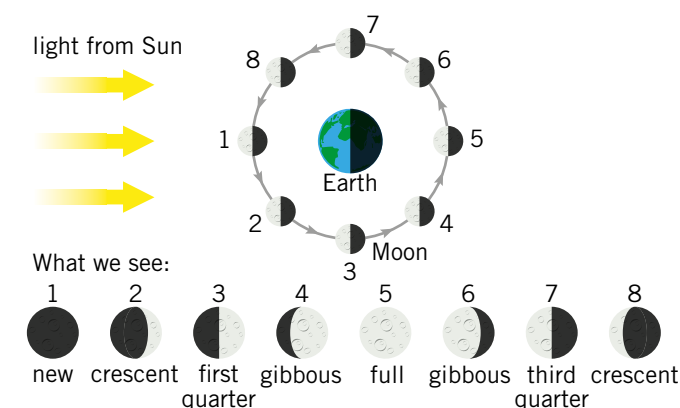
The Moon

The **Moon** orbits the Earth every 27 days and 7 hours.

It takes the same amount of time to spin on its axis, so we always see the same side.

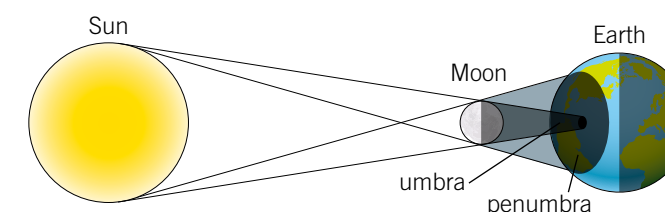
Phases of the moon

As the Moon moves around the Earth different parts are lit by the Sun, so it looks different to us.



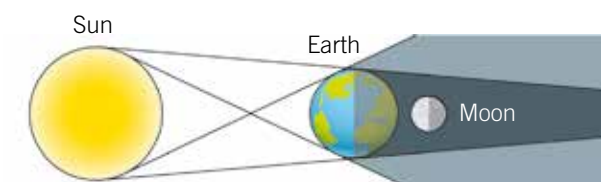
Solar eclipses

The Moon blocks light hitting part of the Earth. The **umbra** is the region of total darkness (like night), and the **penumbra** is where the light is partially blocked.



Lunar eclipses

The earth stops light hitting the Moon.



Key terms

Make sure you can write definitions for these key terms.

artificial satellite asteroid axis comet dwarf planet exoplanet galaxy gravity gas giant inner planet lunar eclipse meteor meteorite Milky Way
Moon natural satellite orbit outer planet penumbra planet solar eclipse Solar System star Sun terrestrial umbra Universe

Using timber



Timber is a widely used resource. It starts life as a tree, there are various types of tree that can be used to produce timber for manufacture. They are split into the groups show below.

A tree is felled (cut down) and then the bark and branches are stripped from the tree trunk. The trunk is then cut into planks. Planks are left to dry (season) either naturally or in a kiln. Timber planks then go to a manufacturing unit where they are cut and processed into a product. Or they are sold to be used in the construction industry or to places like us – schools!



Natural timber		Manufactured boards
Hardwood	Softwood	Manufactured boards
• Hardwoods are usually obtained from deciduous trees, which lose their leaves in autumn. • Usually grow in warmer more humid climates, mainly in South America and Asia • Grow slowly (80+ years) • Are more difficult to sustain than softwoods • Are more expensive than softwoods • Are strong and hard wearing	Softwoods are usually obtained from coniferous trees, which are also known as evergreen trees. They grow quickly which makes them sustainable as they are renewable. This also makes them cheaper when compared to hardwoods. • Usually grow in colder climates and are mainly grown in Scandinavia and Northern Europe • Grow thin, needle-like leaves • Grow relatively quickly (30 years) • Are easier to sustain than hardwood trees • Are easy to cut and shape • Are usually cheaper than hardwoods	Manufactured boards are made from the waste sections of felled trees - the parts which are of little use as planks. The wood is reduced to pulp, particles or thin strips and bonded together using special adhesives or resins. Manufactured boards are made as an alternative to natural timber. • Come in sheet form (usually 1.2 x 2.4m) • Are extremely stable and of uniform thickness • Are less expensive than laminating planks of timber • Can be covered with veneers • Are available in a variety of thicknesses (3, 6, 9, 12, 15, 18, 22mm)
Eg: Oak, Teak, Beech	E.g. Pine, cedar	• E.g Ply, Chipboard, MDF



Sustainable Timber

Wood is considered to be a sustainable material as trees can be grown to replace those used for timber or fuel. A big issue is that in many parts of the world timber is being used faster than trees are being replanted. This causes deforestation which is seen as a key factor to global warming.

To regulate this, the Forest Stewardship Council (FSC) are dedicated to ensuring that timber supplies are regulated and sustainably harvested.

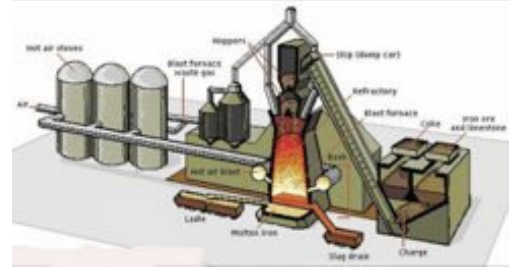


Softwood	Properties	Uses	Image
Cedar	• Durable • Resistant to weather	• Fences • Decking	
Scots Pine	• Easy to work • Reasonably strong • Lightweight	• Furniture • Construction • Door frames	
Larch	• Tough • Strong • Easy to work with	• Decking • Cladding • Fencing	

Using metal

Where does metal come from?

Metals are part of the earth's crust in the form of **metal ore**. Metal ore is **mined** and **washed** to remove other minerals and unwanted materials. It is heated in a **furnace** and the pure metal ore is run off. This process is known as **smelting**. Iron ore is the basis for most **steels**.



Ferrous Metals

- contain **iron**
- will corrode unless protected
- attracted by a magnet.

Non Ferrous Metals

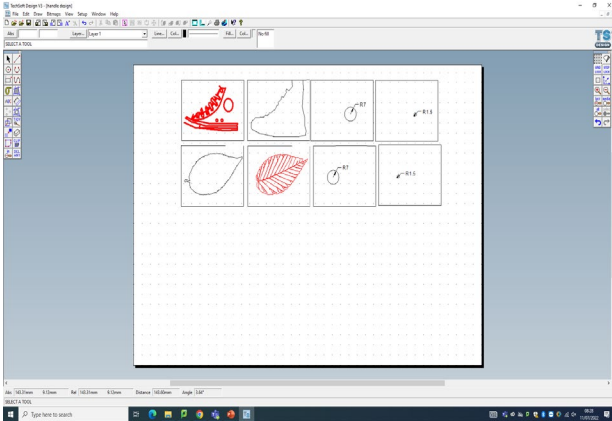
- don't contain **iron**
- aluminium, copper, tin and lead** are all non-ferrous.

CAD/CAM

- **Computer aided designing (CAD)** is specialist software used to design and draw products.
- The CAD file produced by the software can also be used to help manufacturers make the product using **specialist machinery (Computer Aided Manufacturing)**.
- CAD enables designers and engineers to generate ideas much **faster** and more **accurately** than by hand.
- The **storage** and **retrieval** of CAD data is quick and easy.
- Designs produced using CAD packages are simple to reproduce, alter and send electronically.

Types of CAD

Two-dimensional (2D)



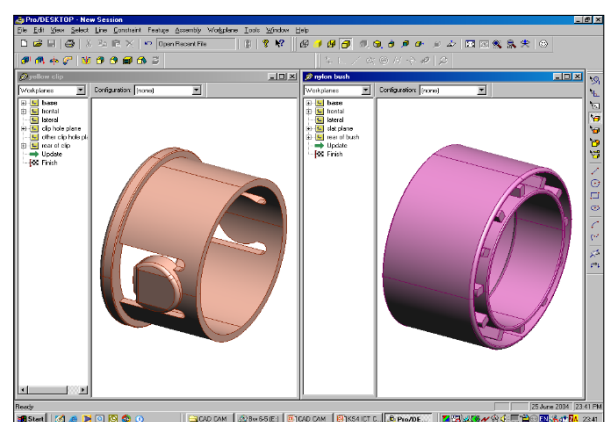
A simple **drawing** tool to replace traditional hand drawing methods. Can be used with CAM machines such as a laser cutter.

Computer Aided Manufacture (CAM)

[What is CNC Machining and How Does it Work? - YouTube](#)



Three-dimensional (3D)

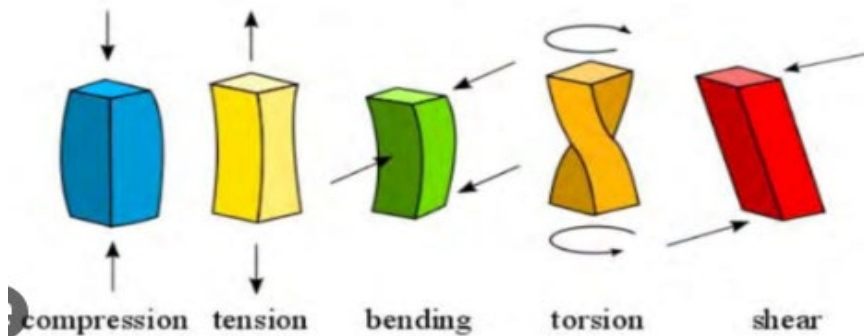


Solid models are easier to visualise because they look like the real product. Can be used with CAM machines such as a 3D printer

- Automated machinery is controlled by software to manufacture physical parts.

Fabrics	Properties	Natural manmade	Uses
wool	Insulating, breathable	sheep	jumpers
cotton	Lightweight, breathable	plant	shirts
silk	Lightweight, strong	silkworm	dresses
polyester	Durable, strong when wet. Not absorbent	oil	Tents, blazers
nylon	Good elasticity, flammable	oil	Socks, ropes
acrylic	Warm and soft, resistant to creasing	oil	Jumpers ,

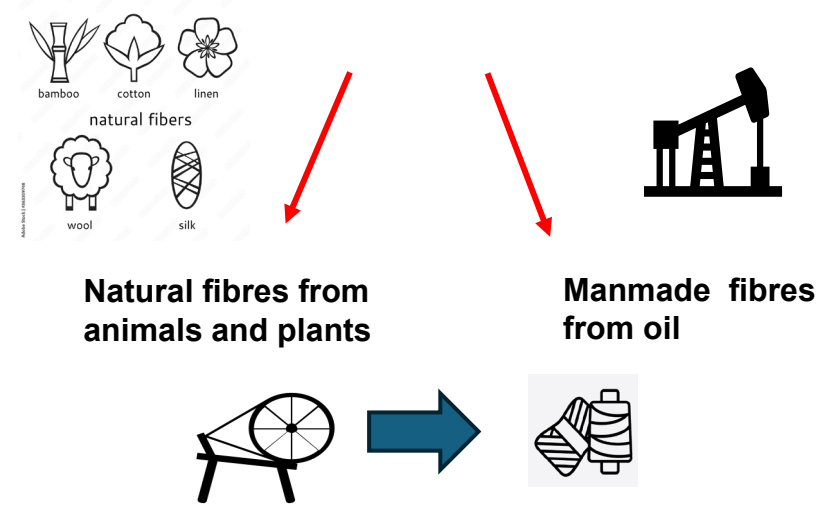
Forces acting on materials



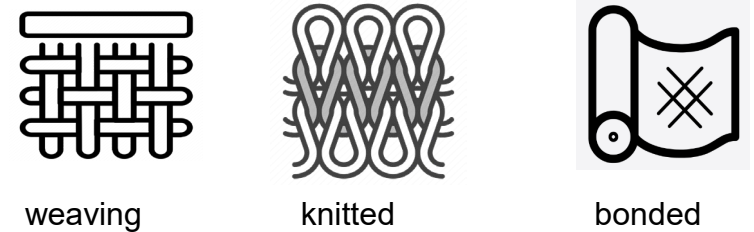
Superheroes

Key Knowledge: Textiles

Fibres

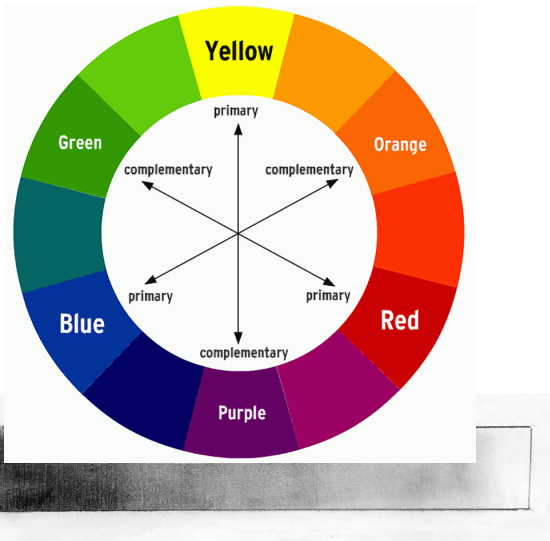


Fibres are spun to make **yarn**.



The yarn is **woven**, **knitted** or **bonded** to make **fabric**

Colour theory



Rendering: The word we use for colouring our work. When we use colour to render our work, we use our pencil softly and in one direction to build up the colour. We can use Complimentary colours to add shadow and shading to our rendering without using black. We can use thick and thin lines to make our design look more 3D. If the lines on the outside, they are thick, if they are on the inside they tend to be thin.

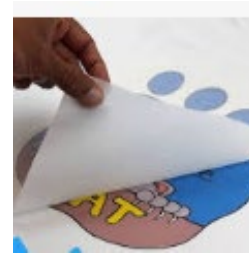
Printing processes.

We can print our logo using special inks or paper and use **heat** and **pressure** to print the image. We **MUST** make sure the image is reversed, so it appear the right way up. We can draw our image by hand and scan it in or directly on the computer to get it ready to print

Printing processes.

Transfer paper

We can use transfer paper to put our designs onto fabrics such as T-Shirts, pencil cases and bags



Printing processes.

Sublimation

We can use sublimation to print designs onto mugs, MDF, and materials with a plastic content.



Font

Font- is the style of text used. It can change how you feel about a product. Different sizes of font are used in titles and the main body of text.

Scary Old fashioned
handwritten Cartoon



Logo's: Brands use simple shapes and colours to create logos.

They can make a product more recognizable. They need to be easy to see when printed large or small. Most companies use 1-3 colours to create their logos.

The logos will be a trademark that other companies cannot use without permission.

Copyright laws mean you cannot reproduce someone else's image without paying them, or having their permission.

Annotation: To write information to help understand your designs better. Communicating your ideas is more than just labelling. You need to EXPLAIN your choices and JUSTIFY your reasons for your design choices

KEYWORDS and DEFINITIONS

Materials have different properties. We choose which materials to use in a project depending on what properties the materials have

Mechanical properties	Properties of materials where forces are acting on the material
Hardness	Being able to withstand scratching/ indents
Toughness	Being able to withstand impact
Malleability	Being able to be squashed or formed without breaking
Durable	Resistant to twisting, bending or stretching
Ductility	Being able to be stretched without breaking
Elasticity	Being able to be stretched and return back to normal
Physical properties	Properties of the materials you can see or measure
Absorbent	How much liquid the material can take in
Reflective	How shiny the surface of the material is
Insulator – electrical/ thermal	How resistant to electrical current or heating up a material is
Conductor- electrical/ thermal	How well a material allows electricity or heat to flow along it
Good strength to weight ratio	A material is strong but also lightweight at the same time.

I have used the colour.... because.....	
I have used the fabric..... on the because it is..... and will help..... the superhero	
I think the will help the superhero because.....	
Connectives- words that link sentences to help you justify your choices	So that.... Because.... Therefore..... Due to.... Since..... This means that.....
Specifications- are a list of criteria that a design needs to have so that it can work	
Aesthetics- the way something looks, feels, its colour or theme	Budget: how much someone will be able to pay for the product thinking about the cost of making it
Target Market: who you are designing for	Function: What the product needs to do- how it works
Ergonomics: making a product more comfortable and safe to use	Safety: How safe the product is for people to use
Materials: what it could be made from, or what properties the materials need to have	
Size: What dimensions the product has, how big, small , weight or volume it has	Sustainability: What impact the product has on the environment- how eco-friendly it is

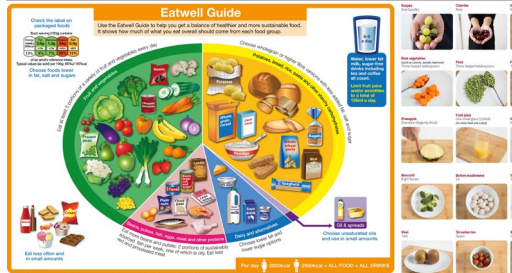
Year 7 Food Healthy Eating Knowledge Organiser

1. The Eatwell Guide

- Comprises 5 main food group.
- 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 & healthy diet.
- Shows proportions representative of food eaten over a day or more.

2. Fruit & Vegetables

- This group should make up 40% of the food eaten in a day.
- Aim to eat at least 5 portions of fruit & vegetables a day. A portion is 80g (3 tps).
- Choose fresh, frozen, canned, dried or juiced.
- 150ml glass of fruit juice or smoothie count as a max of 1 portion a day.



3. Starchy carbohydrates

- Base meals on starchy carbohydrates for example: potatoes, bread, rice, pasta or others.
- This group should make up 38% of your diet.
- Choose higher-fibre, wholegrain options.

4. Dairy & alternatives

- Good source of protein & vitamins.
- An important source of calcium which help keep & form strong bones.
- Choose lower fat & lower sugar products where possible.

5. Beans, pulses, fish, eggs, meat & other proteins

- Sources of proteins, vitamins and minerals.
- Recommendations include to aim for at least 2 portions of fish a week, 1 oily, & people who eat more than 90g of red meat a day should cut down to 70g a day.

6. Oils & spreads

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



7. Foods high in fat, salt & sugar.

- Includes products such as: cake, chocolate, biscuits, full-sugar soft drinks, butter & ice cream.
- These foods are high in fat, sugar and energy and are not needed in the diet.
- If included, these foods are infrequently and in small amounts.



8. 8 Top tips for healthy eating.

1. Base your meals on starchy carbohydrates.
2. Eat lots of fruit & vegetables.
3. Eat more fish- 1 oil portion a week.
4. Cut down on saturated fat & sugar.
5. Eat less salt (max of 6g/day)
6. Get active & a healthy weight
7. Do not get dehydrated
8. Do not skip breakfast.

9. Hydration

- Aim to drink 6-8 glasses/ 2-3ls of fluid every day.
- Water, lower fat milk & sugar-free drinks including tea & coffee all count.
- Fruit juice & smoothies also count but should be limited to no more than a combined total of 150ml per day.

10. Fibre

- Dietary fibre is a type of carbohydrate found in plants.
- Food examples include whole grains cereals, & oats, beans lentils, fruit, vegetables, nuts & seeds.
- Dietary fibre reduces the risk of heart disease, diabetes & some cancers, help weight control, prevents constipation

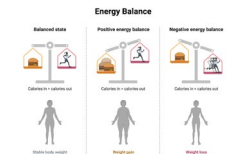


11. Composite foods.

Much of the food people eat is in the form of dishes or meals with more than one kind of food component in them. E.g. Pizza, Bolognese and sandwiches are all made from more than one food group.

12. Energy Balance
Energy is essential for life and is required to fuel many different body processes, growth and activities. These include:

- Keeping the heart beating
- Keeping the organs functioning
- Maintenance of body temperature.
- Muscle contraction



Year 7 Food Nutrients & Digestion Knowledge Organiser

1. Nutrients

There are 2 different types of nutrients;

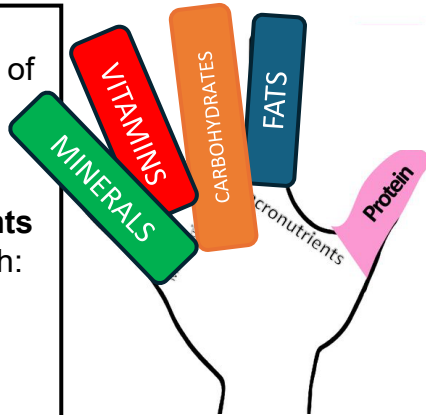
1. Macronutrients
2. Micronutrients

There are 3 **macronutrients** that are essential for health:

1. Fat
2. Protein
3. Carbohydrates

There are 2 types of **micronutrients**:

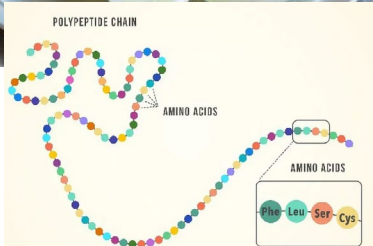
1. Vitamins
2. Minerals



Hand of nutrition



Top 5 High Protein Foods



2. Fat

Sources of fat include:

- Saturated fat
- Monounsaturated fat
- Polyunsaturated fat

A high saturated fat intake is linked with high blood cholesterol levels

3. Protein

Protein is made up of building blocks called amino acids.

There are 20 amino acids found in protein. For adults, 8 amino acids have to be provided by the diet.

These are called **essential amino acids**, which can not be made by the human body.

4. Carbohydrates

Carbohydrates are all sugars; it depends on how complex they are.

Sugars are simple structures eg. sucrose than Starchy foods that are important sources of energy. We should choose wholegrain versions of starchy foods.



5. Micronutrients

Vitamins

There are 2 groups of vitamins:

Fat-soluble – e.g A and D
Water-soluble – e.g B vitamins (Thiamin, riboflavin, niacin, folate, vitamin B12) & Vitamin C
Minerals

These are inorganic substances required by the body in tiny amounts. They have a variety of functions in the body. Most micronutrients are provided by the diet. An exception is vitamin D which can be synthesised by the action of sunlight on the skin.

6. Knife hold & grips

Bridge hold



Claw grip



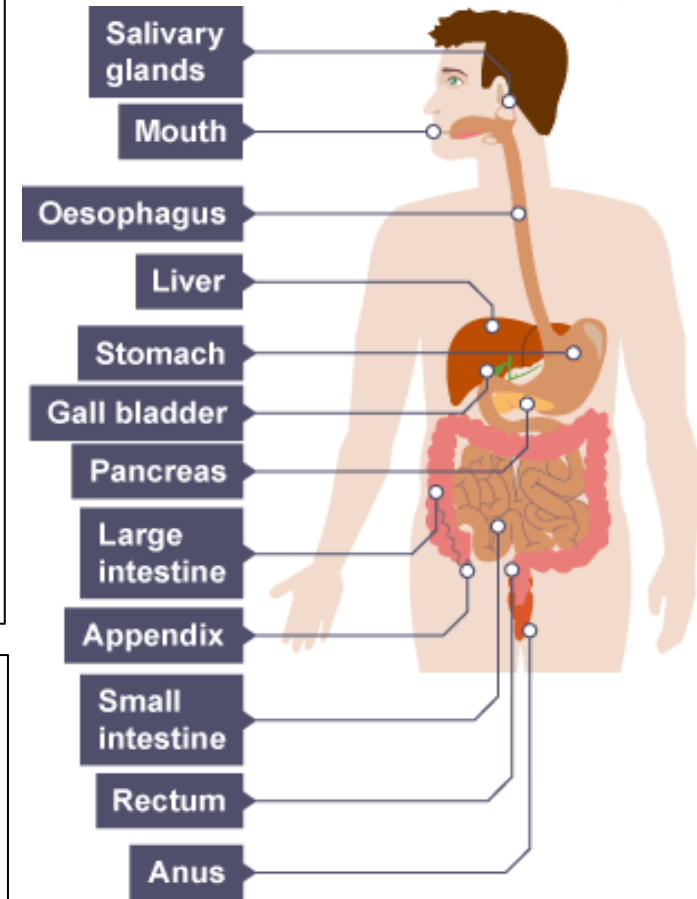
7. Why is food cooked?

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.

This is to make the food safe by destroying pathogenic bacteria (bacteria harmful to humans) & to make the food more digestible.

Digestive system



8. Digestive system

The body requires energy from food & drink. Our bodies release the energy & nutrients from food. The food passes down the Gastrointestinal tract shown above. Digestion starts with mechanical digestion in the mouth.

Year 7 Knowledge Organiser:

What is Geography?

What is Geography?

- Geography is the study of our incredible planet, human interactions with it and how and why it is changing.
- Earth formed about 4.5 billion years ago.
- **The atmosphere** is a layer of gases around the planet.
- The Earth travels around the sun, giving us our **seasons**.
- Earth is special – it's the only planet, as far as we can tell, that carries **life**.
- The first tiny living cells appeared 3.5 million years ago. All living things on Earth came from these first tiny cells.
- There are now about 1.2 million known species living on Earth.
- The Earth is **constantly changing** – it is being changed by natural (physical) processes and by us (human processes).
- **Physical processes** include volcanic eruptions, coastal erosion and river flooding.
- **Human processes** include deforestation, building settlements and pollution of oceans.
- Geography includes **human geography (how and where we live)**, **physical geography (what our planet is like)** and **environmental geography (humans' impact on our surroundings)**
- Questions Geographers ask:
 - Where is it?
 - What is it like?
 - Why is it like that?
 - How is it changing?
 - Who is affected by the changes?
 - What do others feel about it?
 - How do I feel about it?
 - Are the changes sustainable?



The continents and oceans: The world has **seven continents** and **five oceans**.

- A continent is an area on Earth that contains many different **countries**.
- A country is a political division of the land mass.
- There are 196 countries on Earth.
- An ocean is a large area of salt water between the continents. The oceans are all connected - so it's actually one large ocean! The oceans cover 72% of our planet.



Take a look at this website for advice on a sustainable lifestyle: [HEALabel](#), [Ethical Consumer Info](#)

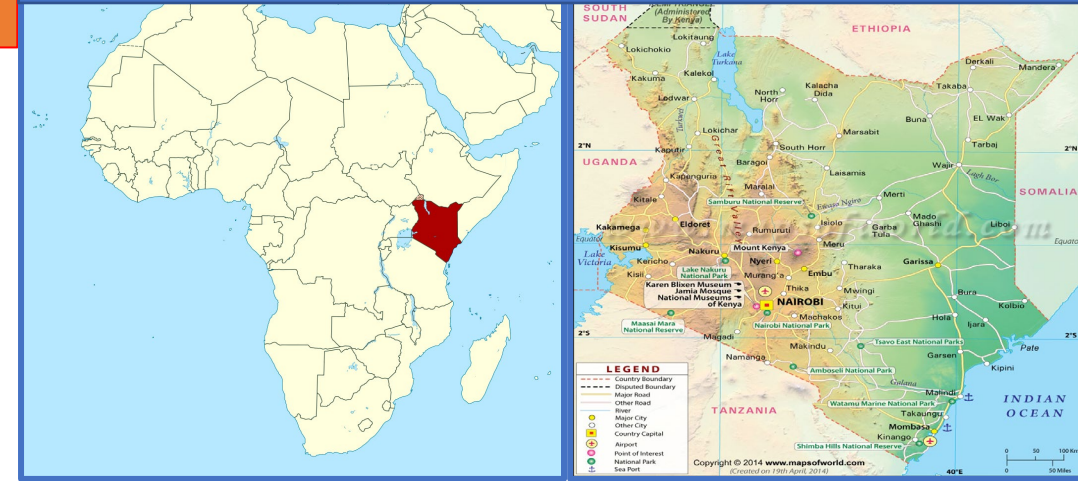
Y7 Knowledge organiser: Africa and Kenya

The African Continent

Countries and Capital Cities

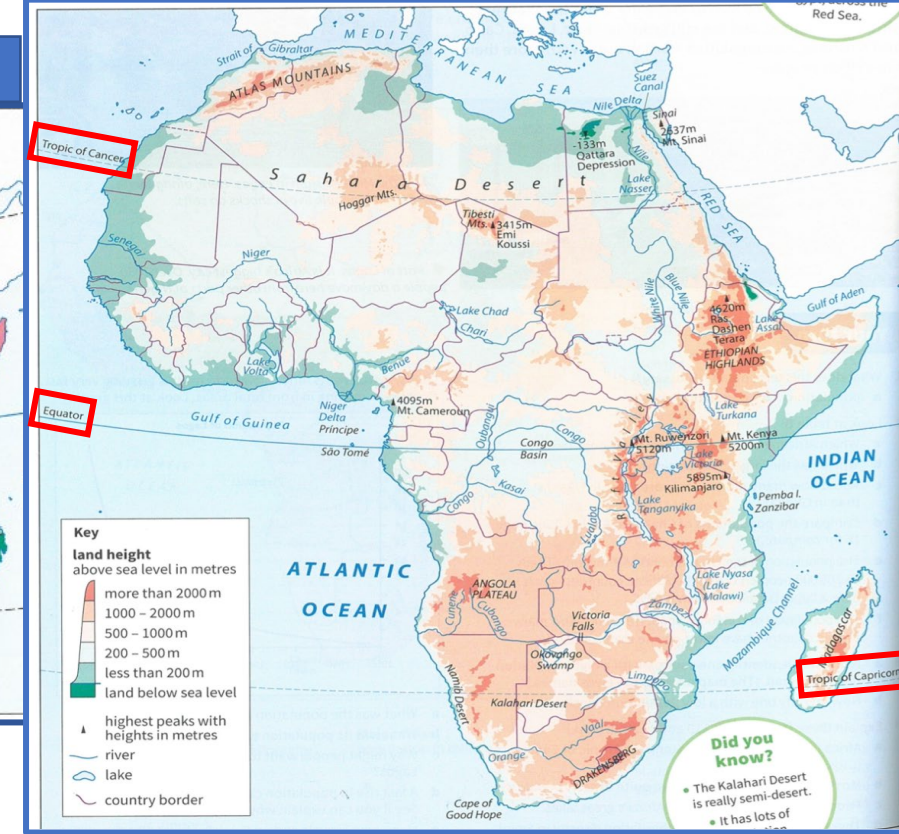
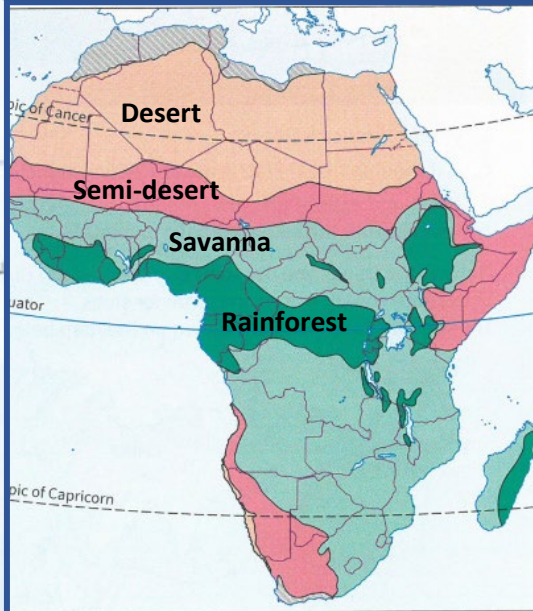


Kenya



Africa's Physical Features

Biomes Map



AFRICA

Key terms:

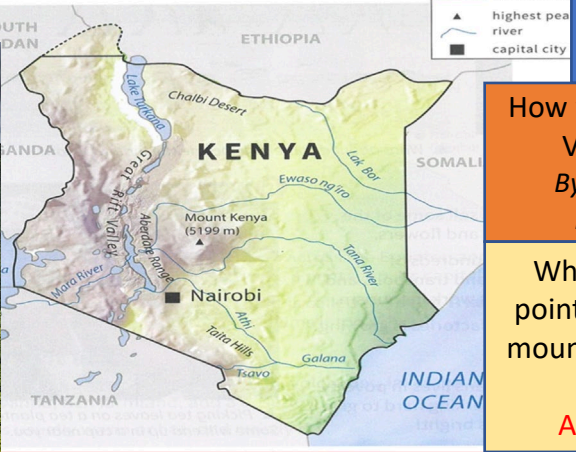
1. Human features, physical features, the Great Rift Valley.
 2. Temperature, rainfall, drought, dry season, rainy season.
 3. Corruption, life expectancy, standard of living, inequality, migration, population distribution/ density; sparsely/ densely populated.
 4. Resourceful, resilient.
 5. Industry (primary, secondary, tertiary), subsistence farmers, manufacturing, ethical consumption.
- **Colonisation:** The rule of one country by another, eg Kenya, from 1920 until 1963, was rule by Britain; Zimbabwe was ruled by the British until 1980.
 - **Pull factors:** What things about a place attract migrants. *The main reason why people are leaving the countryside to live in the cities in Africa is because the cities offer opportunities for employment.*
 - **Push factors:** The reasons why people want to leave a place. Including poverty - farming is becoming very difficult as farm sizes get smaller and there are few other job opportunities.
 - **Megacity:** A settlement with a population of over 10 million people.
 - **Informal sector jobs:** These jobs are not registered with the government so are not properly regulated – pay is very low and working conditions can be very difficult. No taxes are paid and health and safety laws are ignored.
 - **Standard of living:** Access to things that improve life, from food and water, to housing, to education and health care, to jobs. It is very low in shanty towns.
 - **Biodiversity:** the number of species of plants, animals and insects in an area.
 - **Biomes:** areas of the planet with similar climates, landscapes, animals and plants. What lives in each biome depends on: how warm or cold it is; how dry or wet it is; how fertile the soil is.

Factfile:

- Africa is a continent, not a country! There are **54** countries in Africa, shaped by the European colonisers (not based on the original kingdoms and empires of Africa).
- It is the world's **second** largest continent, with a population of around **1.3 billion**.
- The population is not evenly distributed across the continent. It is very sparsely populated along the Tropic of Cancer and the Tropic of Capricorn.
- **Over half the population is aged under 20.**
- Over 60% of Africans rely on farming for a living.
- Nigeria is the one of the richest countries and has the largest population. The megacity of Lagos is on its coast.
- Europeans began to explore Africa in the 15th century. It was formally divided up by Europeans in 1855.
- Africa has MANY natural resources: gold, diamonds, iron ore, copper, uranium, etc.
- European colonisers took resources and at least **10 million** African slaves to work in plantations in North America and the Caribbean – this made European and American nations wealthier and African nations poorer.
- Today there are huge inequalities in wealth in Africa: **50% of the population live in extreme poverty** (less than £1.50 a day). However some are wealthy with millionaires living alongside people in extreme poverty.
- Longest river: **R. Nile**; tallest mountain: **Mt Kilimanjaro**; largest desert: **Sahara**; biggest waterfall: **Victoria Falls**; biggest lake: **Lake Victoria**.
- A **biome** is a large region with its own distinct climate, plants and animals: Africa has **hot desert, semi-desert, savanna** and **rainforest biomes**.
- **Exports** are things African countries sell to other countries; **imports** are things African countries buy from other countries. Cash crops and raw materials are exported.

See this! [Chimamanda Ngozi Adichie: The danger of a single story | TED Talk](#)

Kenya



Physical features:

How was the Great Rift Valley formed?
By tectonic plates moving apart.

What is the highest point in Kenya? Which mountain range is it in?
Mt Kenya, Aberdare range

- **Equator:** imaginary line on the Earth's surface equidistant from the North Pole and the South Pole, dividing the Earth into the Northern hemisphere and the Southern Hemisphere. The Equator runs through Kenya. Kenya lies between the Tropic of Cancer and the Tropic of Capricorn and has **four** climate zones.
- **Nairobi :** Capital city of Kenya. There is a stark contrast between the rich people who live near the city centre in luxury housing and the poor people who live in shanty towns such as Kibera (see pictures below).
- **Development:** Improvements in a county's standard of living.

Kenya's Development Indicators:

- **GDP/GNI per capita** – the amount of money a county earns in a year divided by its population. Kenya: **US\$4,900 per capita** (2022)
- **Literacy rate:** the percentage of adults that can read and write: **82.6% in 2022**
- **Access to clean water:** Percentage of population with access to safe drinking water: **71.2%** in 2022.
- **Life expectancy:** **70 years** in 2022.
- **Urbanisation:** **30%**



Key terms

- **Colony:** A country that is controlled by another country that has sent settlers there.
- **Squatter settlement:** whole areas within cities of illegally built, sub-standard housing, usually with no sanitation and no rubbish collection and no green space.
- **Commercial farming:** crops grown on a large scale for money; **cash crops**.
- **Subsistence farming:** a family growing enough food to feed themselves with very little left over to sell.
- **The Big Five:** A term used for the five animals most desired originally for hunting but more recently for observing on safari.
- **Fair trade:** giving farmers a fair price for their products – this includes setting the price over several years to give farmers security, and a little bit extra for community projects. It acts like the UK's minimum wage.
- **Infrastructure:** the basic structures and facilities needed for society generally, e.g. roads, power supplies, water treatment, ports, broadband.
- **Physical features:** the natural landscape landforms e.g rivers, lakes , mountains, volcanoes, valleys, oceans.

Toxic flowers – how can flowers harm Kenyans?

Location: Lake Naivasha, Great Rift Valley. Near Nairobi airport.

Features: sunshine all year but not too hot (altitude), near the lake for water; has a large, hard working, low wage workforce nearby.

Income: £ millions per year. £960mil in 2019.

Harms: Chemical sprays poison workers; Maasai have lost grazing land and access to water; farm land is used to grow flowers not food; water levels in the lake have dropped and the lake is now polluted so fisherfolk have lost their livelihoods and the ecosystem is damaged; the flowers are transported to UK in refrigerated containers by aeroplane – adding huge volumes of GHGs into the atmosphere.

Who needs flowers?!

Norman control

William of Normandy won the Battle of Hastings on 14th October 1066 where King Harold II was killed. William was **crowned King of England on Christmas Day 1066**. He faced many rebellions. The **most famous rebellion was in the North**. William **harshly punished the rebels** with the **Harrying of the North** where he:

- **Destroyed northern villages.**
- **Burnt crops and killed livestock (animals).**
- **Ordered the land to be poisoned to prevent crops growing in the future.**

William gained control in the long term by:

- **Building Castles** – both used as defensive and symbols of Norman power.
- **Ordering the Domesday Book** – in 1085 officials travelled around England to survey what people owned. **They recorded who owned what, how much tax they paid, and if they could pay more tax.**
- **Feudal System** – all land belonged to the King and all those below him looked after and worked on the land. This kept William in ultimate control.



Castles

William wanted to defend England quickly so built motte and bailey castles throughout the country. They were made of wood and were very quick and easy to build.

The **keep** was on a man-made hill named a 'motte' and there was a **bailey** for stables, homes, animals and food to be grown.

Motte and bailey castles were **still vulnerable to fire and rot** so the Normans **began developing stone keep castles.**

These were **often with a square keep but sometimes round and with walls up to 6m thick**

There would be **lots of space for food and storage inside** in case of a siege. **They were not particularly comfortable** to live in; there were **usually only one or two private rooms** and most people slept on the floor of the **Great Hall**.

Stone keep castles were **still vulnerable to attacks by battering rams, trebuchets, mining under square corners and towers and being put under siege.**



Life of a knight

The life of a Medieval knight **involved training from childhood**. At **14-years old** a boy became a **squire** to a knight. He:

- **Cleaned his armour and weapons and dressed him**
- **Handed him weapons during battle**
- **Carved his meat**



A squire **trained with real weapons and learnt about chivalry**. After **7 years the squire became a knight**. Knights were the most important part of a medieval army. When not fighting, knights took part in **jousting and tournaments**. It let knights to **show off their skills and courage**.

Usually, a Medieval knight **wore heavy full-body armour and rode horses in battle**. They had **their coat of arms on their shield** and had to **follow the detailed rules of heraldry** when creating it.

When a knight died, they were **often buried in a tomb with a carved version of themselves in full armour known as an effigy**

Key Words and Spelling

Harrying of the North – A brutal campaign by William the Conqueror to bring the North under control

Trebuchet – A powerful siege weapon used to hurl heavy missiles at castles

Siege – Military blockade of a city or fortress to weaken them into starvation or surrendering

Knight – highly trained soldier in armour, normally on horseback who serves his lord.

Chivalry – Rules followed by knights: valuing courage, honour, loyalty, justice, and protecting the weak.

Heraldry – A set of rules that a knight must follow when creating their coat of arms for their shield and banner.



Medieval England and the Church

People **believed strongly in Heaven and Hell**. They hoped that by **going to church they would get into Heaven**. **Markets and festivals** would take place around the church, it was a place to **pick up news** and **criminals could also seek sanctuary within a church**.

The Church had a big role in Medieval England:

Monasteries provided charity for the poor and the sick. This is where we get our modern idea of hospitals from. The monks provided people with 'hospitality'. The **local priest or monks would often be the only people who knew how to read and write** Latin in the local community. Sometimes they **taught noble born boys** to read and write.

The Church also **had a lot of power**: The Church **could punish people for committing sins**. They could put you in the pillory for playing dice or committing adultery. Also, **people had to pay the Church 10% of whatever they grew**. This yearly tax was called the **tithe**.



Henry II and Thomas Becket – Murder in Canterbury Cathedral

Henry II and his adviser Thomas Becket were close friends for years. **Becket became Archbishop of Canterbury in 1162**, but he and the king **argued about who should choose bishops** and the **special rights of Church courts in England**. **Becket fled to France**, not returning until 1169.



When he returned, people cheered, which angered Henry further. He shouted, 'Will no one rid me of this low-born priest?' and some **knights, believing Henry wanted Becket killed, rushed to Canterbury and massacred Becket in the Cathedral**. As penance, in 1174 **Henry allowed himself to be whipped by monks and gave land and money to the church** (he also needed God's help to stop a serious rebellion). His armies then captured the Scottish king and the rebels, including his own family, were beaten. Becket was made a saint in 1173.

Magna Carta 1215

King John's cruelty and greed united the powerful barons, Church leaders, and the people against him. He **demanding too much money in taxes**. While the king was waging a disastrous war in France, the **leading barons of England** met secretly. When John returned, they **presented him with a series of demands**.



Too weak to resist the barons and bishops, John met them on the south bank of the Thames, in a meadow called Runnymede. King John affixed his seal to the **Magna Carta on June 15, 1215**. The document had 63 sections. Much of it deals with feudal rights and duties, it also includes sections that **protect the rights of the church, merchants, and townspeople**. Magna Carta also **guaranteed the rights of women and children who inherited property** and stated that **people could not be punished for crimes unless they were lawfully convicted**. Finally, **it gave barons the right to declare war on the king** if he did not follow the charter's provisions.

Key Words and Spellings

Sanctuary – A place of safety, offering protection.

Tithe – A tax where people had to give the Church 10% of what they grew in the fields

Archbishop – senior leader in the Christian church, both Catholic and Protestant.

Penance – a punishment for, or to avoid, sins.

Barons – senior members of the English nobility

Magna Carta – document signed by King John in 1215, giving rights to commoners and the barons in England.

Charter – a formal, legal document giving rights to people



Medieval Peasant Jobs

Most medieval peasants who lived in villages would have the job of **farming the land for their lord**. They would **work from sunrise to sunset**. They **had to work certain days of the year for their lord for free and paid a tithe (10th of their annual earnings) to the Church**. This led many medieval peasants to have very little money and food to survive on.



Many **women in medieval villages had the job of being a leech collector**. They would wade bare foot into shallow rivers or streams and **allow the leeches to attach on their legs**. These leeches would be **used for medicinal treatment**.

In a Medieval town peasant's jobs included **butcher, baker, blacksmith, carpenter, landlord of the local pub and tanner (someone who produces leather)**. One of the **worst jobs in a medieval town was that of a gong farmer**. They were paid to **clear away the filth in the streets and cleaning out the cesspits** beneath the local privy.

Some towns would have a **barber surgeon**. He would give you a haircut as well as perform amputations. He may diagnose you as well through the sight, smell and taste of your urine.

Role of Medieval Women

In Medieval England, **women were limited in what they could do:**

- **A woman could not marry without her parent's permission**
- **She could not own her own property, clothing, jewellery. (Unless her husband died and she was a widow).**
- **No legal rights, meaning she could not inherit land or get a divorce.**



There were also **restrictions on women's careers**. Women **could not go to university, train to be a doctor or lawyer, join the army of navy, or become a priest**. However, a woman **could become a nun**.

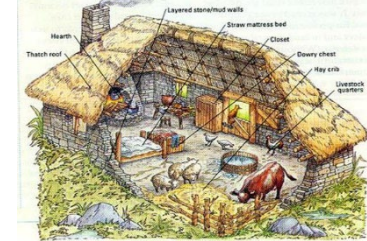
Most village women **would be married by the age of 17**, some would be as young as 13.

Many women **would sew, cook, as well as care for children and animals**. In a town women could have jobs such as **cloth sellers, shopkeeper or even blacksmiths**. However, a **rich women would not be expected to have a job**. Instead, they would spend their time **entertaining their husbands' guests, hunting, dancing, playing games, and managing their servants**.

It must be remembered that a lot of the **information we have about women comes from monks**, who were one of a few groups that could read or write. This means women were **hardly mentioned throughout history** and we have limited information on their lives.

Medieval Peasant Housing

Most peasants in a medieval village would live in a **one-room hut**. The frame would be **made from wood and the wall from wattle** (sticks woven together) and **daub** (mud, dung and straw). **Windows would be holes in the wall**, sometimes covered by shutters. The **floor would be made up of a mixture of mud, straw, and ox blood** – to make it hard. It would have a **hole in the roof to let the smoke out from the fire** in the centre of the room. Especially during the **winter months, animals would stay inside these huts**. This made the peasant's houses smoky, overcrowded and incredibly smelly.



These houses **would have no running water**. For cooking and cleaning the **water would be collected from a nearby well or river**.

Outside there would be a **hole dug into the ground that is used as a toilet**.

Key Words and Spelling

Medieval - The time period of the Middle Ages between c500-1500AD.

Peasant – A person at the bottom of society who is owned by their lords, rents land from their lord to grow crops and/or keep animals. They receive low wages and little to no education.

Surgeon – Someone who performs surgery on patients.

Priest – A man authorised by the Catholic Church to perform certain rites and ceremonies.

Guests – A person who is invited to visit someone's home or attend a particular social event.

Servants – A person who performs duties/jobs for others, normally employed in a household to personally serve someone.

Wattle and Daub – A material used to build walls, it consists of a network of interwoven sticks and twigs covered with mud, clay or animal dung.



Black Death - causes

The Black Death originated in Asia in 1346. It was spread to Europe by fleas on rats living on trade ships. Trade between Europe and Asia helped the disease to spread. The first recorded case of the Black Death in England was in June 1348. By 1350 it is estimated that up to 50% of the population of Europe had died.



Medieval doctors believed that illnesses, including the Black Death, were caused by an imbalance in the four humours (black bile, yellow bile, phlegm and blood). Other ideas were based on religious or supernatural causes. Some people believed God was the cause, as a punishment for people's sins. Others believed the cause was the alignment of the planets. Others blamed bad smells (miasma), fire from heaven, Jews, witches and/or evil spirits. It would be centuries before the discovery of germs enabled doctors and scientists to explain what caused disease.

Black Death – symptoms and treatments

The symptoms of bubonic plague were painful swellings under the armpits and on the groin, known as buboes. Victims also suffered fever, vomiting, diarrhoea, and their fingers, toes and parts of the skin sometimes turned black.



Pneumonic plague was spread from one person to another through coughing or sneezing which spread air droplets containing plague bacteria, affecting the victim's lungs. Pneumonic plague had a near 100% mortality rate. The main symptoms were coughing, fever, headaches and breathlessness. Desperate people tried many treatments. Flagellants whipped themselves to seek forgiveness from God. Others prayed to God for an end to the plague, seeking divine mercy, even going on pilgrimages to holy sites. Live frogs and plucked chickens were placed on the buboes to 'draw out the poison'. Magic charms, complex potions and lotions, containing herbs and other ingredients such as mercury, yeast and butter were all tried, together with burning huge candles and having massive bonfires in the streets. Nothing worked.

The Peasants' Revolt 1381

In May 1381, peasants refused to pay a poll tax and their opposition spread in Essex and Kent. They marched towards London, led by Wat Tyler and were joined by supporters from Norfolk and Suffolk. John Ball, an excommunicated priest, encouraged them to rebel and demand greater rights. King Richard, aged 14, met with the peasants and agreed to their demands. However, violence followed in London and the Archbishop of Canterbury, Lord Chancellor, and others, were killed. There was a second meeting between Wat Tyler and the king, during which Tyler was stabbed. Richard persuaded the peasants to leave, with the promise of more freedom to move and work. Most returned to their villages. The revolt did not achieve all of the peasants' aims. In the longer term, there were some changes and improvements to peasants' rights.

**Key Words and Spellings**

Buboes – large painful, pus-filled lumps/boils which appear on the neck and on joints of a victim of the bubonic plague.

Mortality – death.

Flagellants – people who whipped themselves to get God's forgiveness for sins.

Pilgrimage – a journey to a site of religious significance, usually to ask for help or give thanks to a saint.

Revolt – a violent protest.

Poll tax – a government demand for money from all adults.

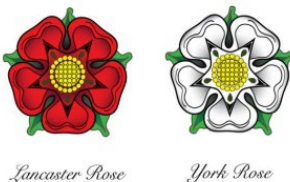


Wars of the Roses

The **Wars of the Roses** were a series of conflicts in the late **1400s** over who sat on the English throne.

The two powerful sides that battled for power were:

- **House of York** (represented by a white rose)
- **House of Lancaster** (represented by a red rose)



Lancaster Rose

York Rose

At the time, the conflict was called the **"Cousins' War"**

because **members of the same family, the Plantagenets, fought**. Later historians called it the **"Wars of the Roses"** because of the emblems that each side used.

During the conflict the crown regularly changed hands.

1. **1461 – Henry VI (Lancaster) was defeated by the House of York and Edward IV became King.**
2. **Henry VI became king again in 1470 but Edward IV was re-crowned in 1471. Henry VI was killed in the Tower of London.**
3. **Edward IV ruled from 1471 until his death in 1483. His brother, Richard III, became King of England in 1483.**

Mystery of the Princes in the Tower

One of the **great mysteries of English History** is what **happened to the two sons of Edward IV (Edward V and his younger brother, Richard, Duke of York)**. They were last **officially seen in the Tower of London in the summer of 1483** when they were 12 and 9 years old. **In 1674 some bones were found that were believed to be the boys** and they were **buried in Westminster Abbey**. However, it is likely that the bones found are not the two boys although this cannot be determined without their being re-examined using DNA.



There are **three potential possibilities as to what happened to the princes**:

- **Richard III killed them because they were a threat to him ruling England.**
- **They were killed by other claimants to the throne** - Henry Stafford, Duke of Buckingham or Henry Tudor.
- **They weren't murdered. Instead, Richard III hid them**, probably in the north of England, **to keep them safe**

1483-1485

Edward IV died in April 1483, leaving the throne to his eldest son, Edward V. However, as Edward V was a child of 12, the country needed a Lord Protector. The man chosen was Edward IV's brother Richard (Duke of Gloucester).



However, a **story was revealed that meant Edward V could not be King because his parents were not properly married**. Therefore, in **July 1483 the Duke of Gloucester became King Richard III**. Richard III **had proved himself a good leader and a loyal trustworthy brother – many people were happy to have him as king**. Some, though, believed Richard III had made up the marriage story to make himself king.

In **1485, Henry Tudor invaded England to make himself king**. At the **Battle of Bosworth, Henry Tudor and his Lancaster supporters defeated and killed Richard III**. Henry Tudor became **Henry VII. He married Elizabeth of York** (daughter of Edward IV) and **started the Tudor dynasty**. One of their sons was Henry VIII. This was the end of the Wars of the Roses.

Key Words and Spelling

Conflict – A serious disagreement or argument between two differing people/groups.

Emblem – A symbol that is distinctive of a family/nation/organisation.

Plantagenet – The English royal family that held the throne from Henry II in 1154 to Richard III in 1485.

Lord Protector – A head of state who rules in place of a monarch

Tudor – An English royal family who ruled England between 1485-1603.

Claimant – A person who states they have a legal and rightful claim to be ruler



Martin Luther and Protestantism

There were reports that priests, monks and nuns did not behave as well as they should. Some felt that the Catholic Church was more interested in money and power than in saving souls. For example, the Church sold 'indulgences' for those who had committed sins. For buying the indulgences, paid to the church, sins would be forgiven and, the Church said that people's souls would still go to Heaven.



Martin Luther was a monk who became very unhappy with the corruption in the Catholic Church and in 1509 nailed 95 complaints to a church door in Germany. His ideas gained wide support. As they protested against the actions of the Catholic Church, his followers became known as Protestants.

Luther refused to recant (take back) his beliefs and was excommunicated from the Catholic Church by the Pope. He translated the Bible into common languages, instead of Latin, to make it more accessible to ordinary people.

The King's Great Matter

Henry VIII was a devout Catholic, who condemned Protestant beliefs and had copies of the English bible destroyed. He was named 'Defender of the Faith' by the Pope for his defence of Catholic ideas and practices.



However, by 1528 Henry wanted to free himself from his 20-year marriage to Catherine of Aragon, who had not provided him with a male heir. He had fallen in love with Anne Boleyn, who promised him a son. Henry's advisors including Cardinal Thomas Wolsey worked hard to find a way for Henry to divorce Catherine, however, the Pope continually refused to annul his first marriage.

After several years, Henry's new chief minister Thomas Cromwell helped persuade Parliament to pass an Act of Supremacy which elevated Henry to 'Supreme Head' of the new, Protestant, Church of England. Henry therefore took control of all the Church land and was able to grant his own divorce. He married Anne Boleyn in 1533.

The Dissolution of the Monasteries

The monasteries were a reminder of the power of the Catholic Church. They were the wealthiest institutions in the country. Henry VIII's lifestyle, along with his wars, had led to a lack of money.



Monasteries owned over a quarter of all the cultivated land in England. By destroying the monastic system Henry could acquire all its wealth and property whilst removing its Catholic influence. Monastic land and buildings were confiscated and sold off to families who sympathised with Henry's break from Rome. By 1540 monasteries were being dismantled at a rate of fifty a month.

After the disposal of their monastic lands and buildings, many monks, friars and nuns were given money or pensions. However, some abbots and religious leaders refused to obey. They were executed and their monasteries destroyed. Thousands of monastic servants became unemployed. Henry gained about £1,500,000 from the destruction of the monasteries.

Key Words and Vocabulary

Catholic – original Christian Church and beliefs led by the Pope

'Indulgences' – gifts and payments made to the Catholic church to speed the movement of souls to heaven

Protestant – alternative Christian church and beliefs which started in the 1500s

The Reformation – the name given to the changes in Christian beliefs and the creation of the Protestant faith in the 1500s

Devout – a devout person closely follows the teachings of their religion, with lots of prayer and attendance of religious services

Cardinal – next in importance to the Pope in the Catholic religion

The Dissolution – the name given to the closing down of the monasteries in England in the 1530s and 1540s



Kett's Rebellion, 1549

In the 16th century, **farming changed from growing crops to raising sheep**. This involved **enclosing arable land and turning it into pasture for sheep**. Rent prices were also **rising** and **bad harvests** meant people did not have enough food.



Robert Kett was born in Wymondham in 1492. Kett became the leader of the rebellion which broke out in July 1549. He spoke to his supporters **underneath an oak tree**, which has become known as the “**Oak of Reformation**”. A group around **16,000** stormed into **Norwich**, armed with **spears, swords and pitchforks**. **King Edward VI's army** led by the Earl of Warwick **defeated Kett's rebels**. Kett was imprisoned in the Tower of London. **49 rebels were executed** and Kett was found guilty of treason and **hanged with his rotting body dangled from Norwich Castle**.

The Gunpowder Plot, 1605

In **1605** a group of Catholics plotted to **blow up the Houses of Parliament** in London with **King James I** inside and take control of the country. The leader of the plot was **Robert Catesby**. The man in charge of blowing up Parliament was **Guy Fawkes**.



The **plotters put 36 barrels of gunpowder in a cellar underneath Parliament**. One of the plotters **wrote to a friend in Parliament warning him about the plot**. The **letter reached the King**. The King's men **found Guy Fawkes holding a match and fuse**. Fawkes **gave them a fake name, John Johnson**. Fawkes **was tortured and told the names of the other plotters**. Catesby and several others were killed or captured. The **plotters were found guilty of treason and sentenced to death** (they were **hanged, drawn and quartered**). Their heads were put on spikes for all to see that the **plot had failed**.

Remember, remember, the fifth of November! Over four hundred years later, **we still remember how Guy Fawkes and his fellow plotters failed to blow up Parliament** and kill James I. Bonfire night is celebrated every year on 5 November.

The Babington Plot, 1586

Francis Walsingham had spies all over England and Europe to ensure the protection of **Elizabeth I**. In 1585, **Walsingham provided Elizabeth with proof that her Catholic cousin, Mary Queen of Scots, was plotting against her**. A young English Catholic, **Sir Anthony Babington, planned to assassinate Elizabeth and place Mary on the throne**.



Coded letters were discovered between Babington and Mary, which provided the proof that Walsingham needed to implicate Mary.

In **August 1586, Babington was arrested and tortured into confessing**. He and six other plotters were executed, despite his offer of £1,000 to Elizabeth to spare him. **Elizabeth took six months to decide whether to have her cousin, Mary, executed. On 8 February 1587, Mary was executed at Fortheringhay Castle**.

Key Words and Spellings

Enclosure: An area of land surrounded by fences or walls.

Treason: The crime of betraying your country, especially by attempting to kill or overthrow the monarch.

Coded letters: letters of the alphabet shuffled in a certain sequence and, once the key was worked out, the message could be read and understood.

Executed: The legal punishment of killing someone.

Gunpowder: An explosive consisting of a powdered mixture of saltpetre, sulphur and charcoal.

Tortured: To cause great physical or mental pain to someone intentionally.

Hanged, drawn and quartered: The person would be hanged and their body then cut into pieces.



Causes of English Civil War

Charles I became King of England in 1625.

He **fell out with the English Parliament** for several reasons: MP's **thought he wanted to make England Catholic again.**

2. Charles **believed in the 'Divine Right of Kings'** and **dissolved Parliament in 1629 – ruling on his own.**

3. **Ship Money** – he could not raise taxes without Parliament, so **introduced ship money which was a tax only meant to be used during war, but Charles used it for himself.**

4. **Appointment of unpopular William Laud as Archbishop of Canterbury** – who was **accused of bringing back Catholic practices.**

Charles **fell out with Parliament once more over the Grand Remonstrance** – this was a **list of things Parliament were unhappy about and was presented to King Charles** on 1st December 1641. This **led to Charles' attempt to arrest 5 MPs, and war was declared** on parliament in August 1642.

This was a Civil War – A war between citizens of the same country.



Fighting in the English Civil War

The war was fought between two armies:

1. **The Parliamentarians (Roundheads)** – They were given this name **because they had much shorter haircuts** compared to the long, curly wigs worn by Charles and his supporters.

2. **The Royalists (Cavaliers)** – This name comes from the French term Chevalier, which refers to a knight who rides a horse.

The weapons used in the English Civil War were:

Cavalry – **Soldiers on horseback** who could move quickly and change their position of attack more easily than other units.

Pikemen – Most of the soldiers fighting in the Civil war were pikemen. **They carried a 5 metre long pole with a sharpened end known as a pike** and were **useful at keeping horses away.**

Artillery – **Cannons were used to fire large shots at the enemy.** They covered a long distance but were slow to fire and reload.

Musketeers – They used a musket (early type of gun) which was **slow to fire and had a very inaccurate aim.**



Execution of Charles I

After **defeat in the Battle of Naseby** Charles fled to Scotland but was **handed over to parliament in exchange for £100,000 in January 1647.** He then escaped Hampton Court and after attempting a failed Second Civil War, **Charles I was brought to trial in Westminster Hall in January 1649.** Many people were very reluctant to be involved in the trial. After all, it was a big thing putting a king on trial. The King appeared before his judges, charged with **tyranny and treason. Charles refused to accept the charges against him.** Charles **claimed that the court was unlawful and that a king could not be tried by his people.** Charles was then removed from the rest of his trial. There are many questions around the fairness of Charles' trial. **On 27th January 1649 he was sentenced to death.** On the morning of 30th January Charles rose early. He **asked for two shirts. It was cold and he did not want to appear to be shivering from fear.** He was taken to Whitehall, where he ate a piece of bread and drank some wine before he prayed. **At 2pm on the 30th January 1649 he stepped onto the scaffold and was executed.**



Key Words and Spelling

Civil War – A war between the citizens of the same country.

Divine Right of Kings – The king's power is given from God and therefore they cannot be held accountable for their actions by the people.

Parliament – An assembly of people who represent the nation and make laws and decisions on their behalf.

Roundheads – Those who fight for and support parliament during the English Civil War.

Cavaliers – Those who fight for and support the King during the English Civil War.

Artillery – large guns used to fire shells/bombs at the enemy from large distances.

Musketeers – A soldier who is armed with a musket (an early type of gun).



Matthew Hopkins and The Witch Hunts

People in the 17th century were very superstitious and believed in the Devil as much as they did God. Poor harvests, bad events and unexpected deaths were often blamed on the Devil.

Witches were seen as the followers of the Devil. It was normally the most vulnerable people in society who were accused of witchcraft. The terrors of the English Civil War caused an increase in those accused of witchcraft.

Born in 1620, Matthew Hopkins was a self-appointed witch hunter, the Witchfinder General in East Anglia, during the English Civil War. Hopkins used psychological exhaustion and physical intimidation to get confessions of witchcraft. He also used 'ducking stools', claiming that any woman who floated must be a witch.

Witches also had the devil's marks which Hopkins claimed were moles or marks on the body. He also said that a witch would keep a familiar – which is a black pet (dog, cat, pig etc.) Hopkins died suddenly in 1647, ending the witch craze in East Anglia.



Oliver Cromwell

Before the English Civil War Oliver Cromwell served as a Member of Parliament and was critical of Charles I. Cromwell played a major role in winning the English Civil war for Parliament. He created the Model New Army who were well organised, disciplined and fought with strong religious beliefs. This army won the Battle of Naseby. Following the defeat of King Charles I in the English Civil War, and later his trial and execution, Oliver Cromwell became 'Lord Protector' in 1653.

Cromwell was a Puritan, a strict Protestant, and made significant changes based on his beliefs:

- Cromwell shut many inns (pubs) and theatres.
- Boys caught playing football on Sunday would be whipped.
- Swearing was a crime and repeat offenders would be imprisoned.

Following Cromwell's death, there was a growth in support for the return of the Monarchy. This led to the Restoration, which saw Charles II become King of England.



Restoration of Charles II and the Glorious Revolution

The republic set up by Oliver Cromwell did not survive once he died peacefully in his own bed in 1658. Cromwell's son Richard did not have the support needed and after 11 years of Republican rule the monarchy was restored in May 1660.

Charles II, the son of Charles I, was invited to return from the Netherlands to be crowned King. This was known as the Restoration. Charles II opened theatres and stopped the harsh Puritan moral codes. However, within 30 years of the monarchy being restored, England was once again on the verge of Civil War – this is known as The Glorious Revolution (1688-1689). This revolution resulted in the Catholic King James II being overthrown and replaced by his Protestant daughter Mary and her husband William of Orange. The event ultimately changed how England was governed – giving parliament more power over monarchy and building the foundations of a political democracy.



Key Words and Spelling

Witch – A person thought to have magic powers, especially evil ones, who works for the Devil.

Monarchy – A form of government with a monarch (king or queen) as the leader.

Puritan – A group of English Protestants who had a simple and strict form of worship.

MP (Member of Parliament) – A person who has been elected to the parliament of a country.

General – A commander of an army, or an army officer of high rank/position.

Restoration – The action of returning something to what it was previously.





What is E-safety?

Phishing

Phishing is when attackers send scam emails or text messages that either:

1. Contain malware (such as ransomware) which can sabotage computer systems.
2. Or they might be designed to trick users into revealing sensitive information such as password or bank details
3. Or try and trick you into transferring money from your bank account

TOP TIPS

- Do not give out private information.
- Do not download or click on any links.
- Do not respond to any messages.

Research how you can spot a phishing message

Hoaxes and Fake News

- **Fake news** are false stories that might make you feel worried or scared about what's happening in the world.
 - **Viral messages** containing false information can easily be shared on messaging apps like WhatsApp and Messenger between friends so you are more likely to believe it
 - **Deep fakes** are videos where people's faces are edited to make it look like they said or did something they didn't.
- Top Tip: Become a critical thinker: Where/who did it come from? Is the Source Reliable? What evidence is there to support it? Is that evidence trustworthy?**

Who can you report inappropriate content to online?

Cyberbullying

Bullying someone through any use of technology.



Before you:



T Is it True?

H Is it Helpful?

I Is it Inspiring?

N Is it Necessary?

K Is it Kind?



Sextortion

is a crime when an online predator tricks someone into giving them nude images and then demands money or more images by threatening to share the images with the victim's friends or family if they don't comply.

This crime is sweeping the web and 11-17 year olds especially boys are becoming victims

Key Words



Cyberbullying
Online Safety
E-safety
Username
Password
Social media
Sextortion
Fake News
Phishing
Malware
Scam





What is E-safety?

Key Words 

File

Email Address

Attachment

Internet

E-safety

Username

Password

Private information

Deep Fakes

Fake News

Critical Thinker

Social media

Inappropriate
content

Cyberbullying

Hacking

Malware

Stay Safe Online

Don't post personal information online.

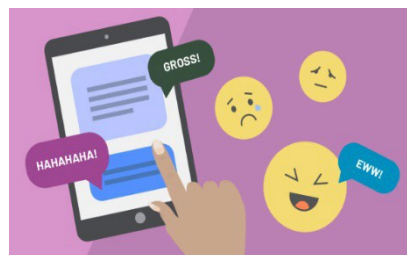
1. Think carefully about positing any images or videos of yourself.
2. Keep privacy settings as high as possible.
3. Keep your password safe.
4. Don't befriend people you don't know.
5. Don't meet up with people you have met online.
6. Think before you say.
7. Treat others with respect, don't be rude!
8. If you see something which makes you feel unsafe, scared or uncomfortable. Report it!

Cyberbullying

Cyberbullying is bullying someone through any use of technology

TOP TIPS if you are being bullied online:

- Block them
- Keep the evidence
- Tell people: a trusted adult or friend
- Don't reply Don't retaliate
- Click on the report button



Who can you report inappropriate content to online?



Or tell an adult!

A strong password should have:

- Letters
- Capital Letters
- Numbers
- Symbols
- 8 or more characters



Stretch and Challenge
Can you design an advert for a new e-safety campaign for Year 7 pupils?

Spreadsheets Advanced

Spreadsheets are used to store information and data. Once we have our information in a spreadsheet we can run powerful calculations, make graphs and charts and analyse patterns.

Other uses for spreadsheets –

- Modelling and Planning
- Home/Business Finance and Budgeting
- Wages/Invoices
- Predictions / Simulations / Calculations
- Creating charts and graphs



Golden rule: every formula always starts with an =

Cell references begin with a letter, and finish with a number. EG: **A1**

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

A range is a selection of cells. EG: **A2:F4**

	A	B	C	D	E	F	G
1							
2							
3							
4							
5							

Operators

+	Adds two numbers / cells
-	Subtracts one cell or number from another
*	Multiplies two numbers/cells
/	Divides one number / cell from another one
<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to

Extra Reading

<http://www.bbc.co.uk/education/guides/zdydmp3/revision>

<http://www.bbc.co.uk/schools/gcsebitesize/ict/modelling/0spreadsheetsrev1.shtml>

Charts and graphs

Charts and graphs provide a visual representation of data, which can often be easier to understand. To make a chart, use the chart wizard or the gallery, then follow the onscreen instructions. There are several types of charts. Choose a chart based on the type of data to be displayed. The charts you can choose from include:

- line graph – to show a change over time
- pie chart – show the individual parts that make up a whole
- bar chart – compare things that aren't directly related
- scatter graph – look for a pattern or link between two sets of data

Cell formatting

To access a cell's formatting options, right-click on the cell and click 'Formatting options'. A dialogue box with the following tabs will appear:

- number – tell the spreadsheet what type of data the cell contains, eg currency, percentage, date, time, etc
- alignment – align the text in the cell vertically (top, bottom or middle), horizontally (left or right) or at an angle
- font – change the font used, text size and colour
- border – add a solid, dotted, dashed or coloured border to the cell

What is a Function?

A **function** is a standard routine used to perform common tasks. It represents a complex formula that uses reserved words e.g. VLOOKUP, IF. A **function** performs a specific set of operations on its input values to produce a single output value.

What is a Formula?

Using **formulas** in **spreadsheets** can allow you to quickly make **calculations** and get totals of multiple cells, rows, or columns in a **spreadsheet**.

Conditional Formatting

is a tool that allows you to apply **formats** to a cell or range of cells, and have that **formatting** change depending on the value of the cell or the value of a formula. For example, you can have a cell appear bold only when the value of the cell is greater than 100.

Common Formulas/Functions

= SUM	Adds a range of cells together
= AVERAGE	Finds an average for a range of cells
= MIN	Returns the smallest value in range
= MAX	Returns the highest value in a range
= COUNT	Counts cells if they meet a condition

IF

one of the logical **functions**, to return one value **if** a condition is true and another value **if** it's false. For example: =IF(A2>B2,"Over Budget","OK") =IF(A2=B2,B4-A4,"")

Count IF

=COUNTIF (Where do you want to look?, What do you want to look for?)

Auto SUM

Excel automatically enters a formula (that uses the **SUM**function) to **sum** the numbers

= COUNT

Counts cells if they meet a condition





Python Turtle

Subprogram	Description
<turtle>.begin_fill()	Call just before drawing a shape to be filled
<turtle>.end_fill()	Call just after drawing the shape to be filled. You must call <turtle>.begin_fill() before drawing.
<turtle>.fillcolor (<colour>)	Sets the colour use to fill. The input argument can be a string or an RGB colour. For example: "red", "#551A8B2", "(0,35,102)"

Subprogram.	Description
<turtle>.pencolor (<colour>)	Sets the colour of the pen. The input argument can be a string or an RGB colour. For example: "red", "#551A8B2", "(0,35,102)"
<turtle>.pendown()	Puts the pen down
<turtle>.pensize(<width>)	Makes the pen the size of <width> (positive number)
<turtle>.penup()	Lifts the pen up

Subprogram	Description
<window>.setup(<width>, <height>)	Sets the size of the turtle window to <width> x <height> in pixels. Requires use of turtle.Screen() to create <window> first.
turtle.done()	Use as the last line of the file to keep the turtle window open until it is closed using the exit cross in the upper right-hand corner of the window
turtle.mode(<type>)	<type> is one of the strings "standard" or "logo". A turtle in standard mode, initially points to the right (east) and angles are counter clockwise. A turtle in logo mode, initially points up (north) and angles are clockwise.
turtle.Screen()	Returns a variable to address the turtle window. Use with <window>.setup()
turtle.screensize (<width>,<height>)	Makes the scrollable drawing canvas size equal to <width> x <height> in pixels. Note, use with turtle.done() so scrollbars will be active

Subprogram	Description
<turtle> = turtle.Turtle()	Creates a new turtle with the variable name <turtle>
<turtle>.back (<steps>)	Move backward (opposite-facing direction) for number of <steps>
<turtle>.forward (<steps>)	Move forward (facing direction) for number of <steps>
<turtle>.hideturtle()	Makes the <turtle> invisible
<turtle>.left(<degrees>)	Turns anticlockwise the number of <degrees>
<turtle>.right(<degrees>)	Turns clockwise the number of <degrees>
<turtle>.showturtle()	Makes the turtle visible
<turtle>.speed(<value>)	The <value> can be set to "fastest", "fast", "normal", "slow", "slowest". Alternatively, use the numbers 1 to 10 to increase the speed. The value of 0 is the fastest

Subprogram	Description
<turtle>.home()	Moves to canvas origin (0,0)
<turtle>.reset()	Clears the drawing canvas, sends the turtle home and resets variables to default values
<turtle>.setheading(<degrees> >)	Sets the orientation to <degrees>
<turtle>.setposition(<x>, <y>)	Positions the turtle at coordinates (<x>, <y>)

Subprogram	Description
<turtle>.circle(<radius>, <extent>)	Draws a circle with the given <radius>. The centre is the <radius> number of units to the left of the turtle. That means, the turtle is sitting on the edge of the circle. The parameter <extent> does not need to be given, but provides a way to draw an arc, if required. For example, an extent of 180 would be half a circle

List of turtle colours available			
blue	black	green	yellow
orange	red	pink	purple
indigo	olive	lime	navy
orchid	salmon	peru	sienna
white	cyan	silver	gold

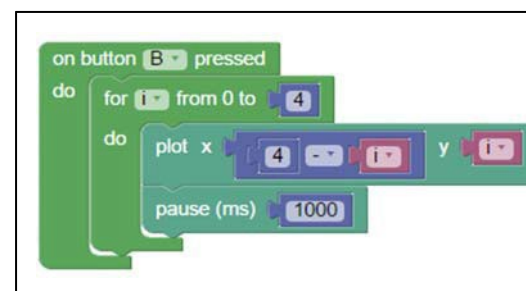
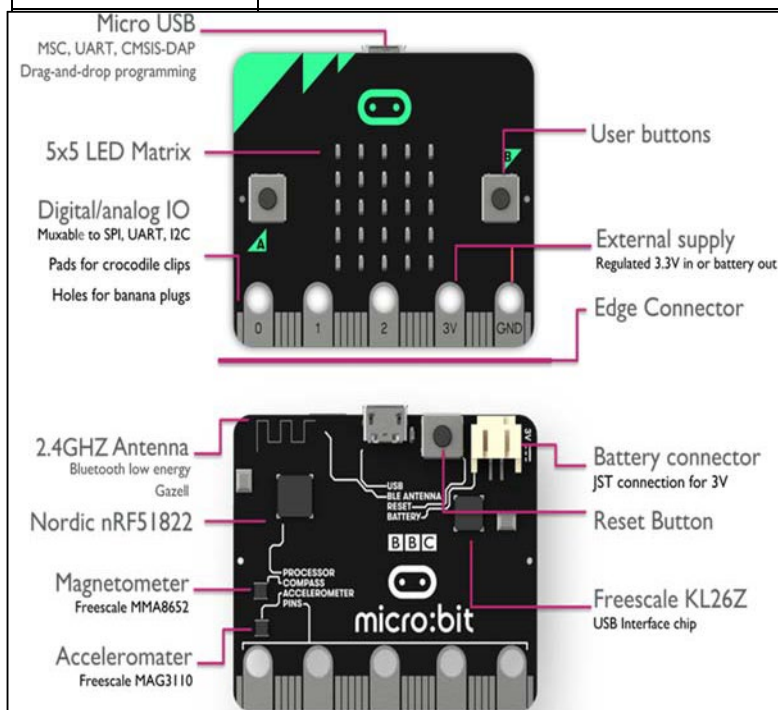
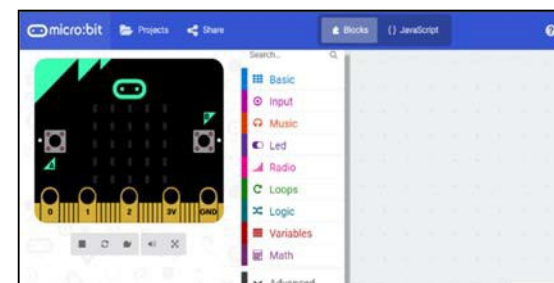
Year 7 – Topic 2 : Micro:bit Programming



Computational thinking	The thought process involved in finding a solution to a problem.
Abstraction	The removal of unnecessary detail within the program to focus on the more important aspects.
Decomposition	Breaking a problem down into smaller, more manageable pieces
Pattern Recognition	Looking for patterns within the problem to allow them to be solved together.
Micro:bit	A device that we will use to program.
Sequence	Putting instructions in a suitable order for your program to function properly.
Selection	A decision within a program which can either be Yes/No, True/ False. Allowing your program to take different paths. (IF statements)
Iteration	Repeating something – either using Forever, For, While or Repeat.

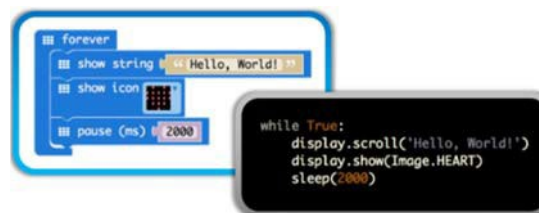
Website:

www.microbit.org – Here you can research, code and find out more about what your microbit can do.



Fancy a Challenge

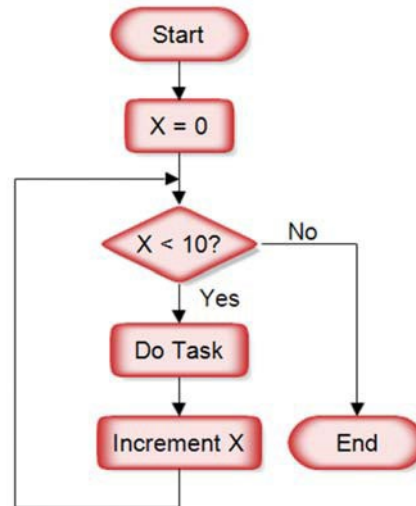
Code using text or code.



Symbol	Name	Function
	Start/end	An oval represents a start or end point
	Arrows	A line is a connector that shows relationships between the representative shapes
	Input/Output	A parallelogram represents input or output
	Process	A rectangle represents a process
	Decision	A diamond indicates a decision

Flow Chart

A flowchart is a type of diagram that represents an algorithm, workflow or process, it shows the steps as shapes of various kinds.



Iteration

```

set pressed to 0
while pressed == 0
do
  show string "Press it!" with interval (ms) 150
  if button A is pressed
  do
    set pressed to 1
  end if
end while
show string "Done!" with interval (ms) 150
  
```

Sequence

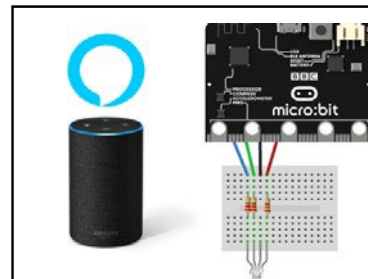
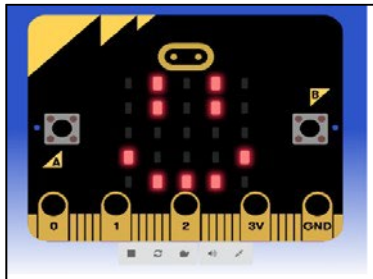
```

on button A pressed
do
  if count > 0
  do
    set count to count - 1
  end if
end do
  
```

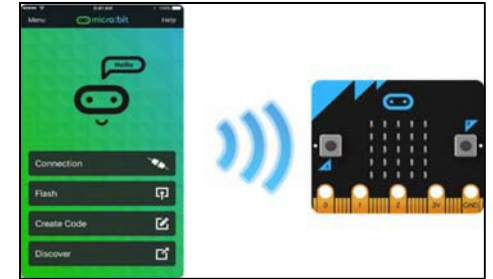
Selection

```

micro:bit loop
do
  if button A is pressed
  do
    show image image Animals DUCK
  end if
  elif button B is pressed
  do
    show image image Animals GIRAFFE
  end if
else
  clear display
end do
  
```



"Alexa, Ask the Microbit to turn on the light"



French – Year 7

Greetings			17	I am eleven years old	J'ai onze ans	34	because it's nice	parce que c'est sympa
1	Hello!	Bonjour !	18	He is twelve years old	Il a douze ans	Tu es comment ? What are you like ?		
2	Hi!	Salut !	19	She is thirteen years old	Elle a treize ans	36	I am small and shy	je suis petit(e)
3	Goodbye	Au revoir	Qu'est-ce que tu aimes ? What do you like?			37	I am strong	je suis fort(e)
4	See you later	À plus	20	I like my life	J'aime ma vie	38	I am quite chatty	je suis assez bavard(e)
5	My name is...	Je m'appelle...	21	I don't like my phone	Je n'aime pas mon portable	39	I am very funny	je suis très amusant(e)
6	How are you?	Ça va ?	22	he likes dance	Il aime la danse	40	I am not patient	je ne suis pas patient(e)
7	I'm okay	Ça va	23	she likes music	Elle aime la musique	41	He is shy	Il est timide
8	I'm bad	Ça va mal	24	he doesn't like sport	Il n'aime pas le sport	42	She is intelligent	Elle est intelligente
8	I'm very well, thanks.	Ça va très bien, merci.	25	she doesn't like bikeriding	Elle n'aime pas le vélo	43	He is nasty	Il est méchant
9	Not bad, thanks.	Pas mal, merci.	26	I love school	J'adore le collège	44	She is not very fun	Elle n'est pas très amusante
As-tu des frères ou des sœurs ? Do you have any brothers or sisters ?			27	I hate to study	Je déteste étudier	45	He is not arrogant	Il n'est pas arrogant
10	I have one brother	J'ai un frère	28	I like to dance	J'aime danser	C'est quand ton anniversaire ? When is your birthday ?		
11	I have two sisters	J'ai deux sœurs	29	I love to swim	J'adore nager	46	my birthday is the...	mon anniversaire c'est le...
12	I have stepsister/ half-sister	J'ai une demi-sœur	Pour quoi? Why?			47	the first of July	le premier juillet
13	I haven't got any brothers or sisters	Je n'ai pas de frères ou sœurs	30	because it's fun	parce que c'est amusant	48	the second of May	le deux mai
14	I have a stepbrother/ half-brother	J'ai un demi-frère	31	because it's rubbish	parce que c'est nul	49	the twenty first of August	le vingt-et-un août
15	I am an only child	Je suis fils / fille unique	32	because it's old fashioned	parce que c'est démodé			
16	How old are you?	Quel âge as-tu?	33	because it's cool	parce que c'est cool			

French – Year 7

Quel temps fait-il? What is the weather like?			18	on joue au golf	we play golf	35	j'adore partager des photos	I love to share photos
1	il fait beau	it's good weather	19	on ne joue pas au ping pong	we don't play table tennis	36	j'aime tchatter avec mes amis	I love to chat with my friends
2	il fait mauvais	it's bad weather	Qu'est-ce que tu fais? What do you do?			37	j'aime télécharger des chansons	I like to download songs
3	il fait chaud	it's hot	20	je fais de la gymnastique	I do gymnastics	38	je n'aime pas regarder des films	I don't like to watch films
4	il fait froid	it's cold	21	je fais de la natation	I do swimming	39	je déteste jouer aux échecs	I hate to play chess
5	il y a du soleil	it's sunny	22	je fais du patin à glace	I do ice skating	Pourquoi? Why?		
6	il y a du vent	it's windy	23	je fais de l'équitation	I do horse riding	40	parce que...	because...
7	il y a du brouillard	it's foggy	24	je ne fais pas d'escalade	I don't do climbing	41	c'est amusant	it's fun
8	il pleut	it's raining	25	il fait du théâtre	he does drama	42	c'est marrant	it's funny
9	il neige	it's snowing	26	elle fait des randonnées	she does hiking	43	c'est ennuyeux	it's boring
Tu es sportif/sportive? Are you sporty?			27	on fait de la cuisine	we do cooking	44	c'est facile	it's easy
10	je suis sportif/sportive	I am sporty	28	je ne fais pas d'athlétisme	I don't do athletics	45	c'est intéressant	it's interesting
11	je ne suis pas sportif/sportive	I am not sporty	29	elle ne fait pas de canoë-kayak	she doesn't do canoeing	46	c'est génial	it's great
12	je joue au basket	I play basketball	30	on ne fait pas de sports nautiques	we don't do watersports	47	ça m'intéresse	it interests me
13	je joue au foot	I play football	Tu aimes faire ça? Do you like to do that?					
14	je ne joue pas au hockey	I don't play hockey	31	j'aime écouter de la musique	I like to listen to music			
15	je joue à la pétanque	I play petanque	32	j'aime envoyer des SMS	I like to send texts			
16	il joue aux échecs	he plays chess	33	j'adore regarder la télé	I love to watch the TV			
17	elle joue au tennis	she plays tennis	34	j'adore jouer sur mon portable	I love to play on my phone			

German – Year 7

Who I am Wer bin ich			18	My favourite animals are dogs	Meine Lieblingstiere sind Hunde	What do you have in your room? Was hast du in deinem Zimmer?		
1	I am called...	Ich heiße...	19	My favourite subject is German	Mein Lieblingsfach ist Deutsch	36	In my room I have	In meinem Zimmer habe ich
2	I am twelve years old	Ich bin zwölf Jahre alt	20	My favourite subject is English	Mein Lieblingsfach ist Englisch	37	I have a guitar	Ich habe eine Gitarre
3	I have brown hair	Ich habe braune Haare	What can he/she/it do? Was kann er/sie/es machen?			38	I have a laptop	Ich habe einen Laptop
4	I have grey eyes	Ich habe graue Augen	21	He can run	Er kann laufen	39	I would like to have	Ich hätte gern
5	I am very funny	Ich bin sehr lustig	22	He can play	Er kann spielen	40	I would like to buy...	Ich möchte ... kaufen
Where do you live? Wo wohnst du?			23	He can not jump	Er kann nicht springen	What did you do yesterday? Was hast du gestern gemacht?		
6	I come from England	Ich komme aus England	24	She can swim	Sie kann schwimmen	41	Yesterday...	Gestern...
7	I live in Germany	Ich wohne in Deutschland	25	She can read	Sie kann lesen	42	Last week...	Letzte Woche...
8	I used to live in Austria	Ich habe früher in Österreich gewohnt	26	She can not write	Sie kann nicht schreiben	43	...I danced with my cat	...habe ich mit meiner Katze getanzt
9	I would like to live in Italy	Ich möchte in Italien wohnen	27	It can jump	Es kann springen	44	...I played badminton	...habe ich Federball gespielt
10	My parents used to live in Portugal	Meine Eltern haben in Portugal gewohnt	28	It can not play	Es kann nicht spielen	45	...I read a book	...habe ich ein Buch gelesen
What is your favourite colour? Was ist deine Lieblingsfarbe?			29	I find that great	Das finde ich toll	What will you do tomorrow? Was wirst du morgen machen?		
11	My favourite colour is purple	Meine Lieblingsfarbe ist lila	30	That is a shame	Das ist schade	46	Tomorrow...	Morgen...
12	My favourite colour is blue	Meine Lieblingsfarbe ist blau	Do you have a pet? Hast du ein Haustier?			47	Next weekend...	Nächstes Wochenende...
13	My favourite music is pop	Meine Lieblingsmusik ist Popmusik	31	I have a guinea pig	Ich habe ein Meerschweinchen	48	...I will listen to music	...werde ich Musik hören
14	My favourite music is rap	Meine Lieblingsmusik ist Rapmusik	32	I have two goldfish	Ich habe zwei Goldfische	49	...I will go to the cinema	...werde ich ins Kino gehen
15	My favourite sport is handball	Mein Lieblingssport ist Handball	33	I have three horses	Ich habe drei Pferde	50	...I will buy a new mobile phone	...werde ich ein neues Handy kaufen
16	My favourite sport is table tennis	Mein Lieblingssport ist Tischtennis	34	I have four snakes	Ich habe vier Schlangen			
17	My favourite animals are cats	Meine Lieblingstiere sind Katzen	35	I have no pets	Ich habe keine Haustiere			

German – Year 7

What do you like playing?		Was spielst du gern?	17	I go into town	Ich gehe in die Stadt	34	I watch videos or films	Ich sehe Videos oder Filme
1	I like playing badminton	Ich spiele gern Federball	18	I do sport	Ich mache Sport	35	I surf the net	Ich surfe im Internet
2	I quite like playing tabletennis	Ich spiele ziemlich gern Tischtennis	19	I text	Ich simse	36	I play computer games	Ich spiele Computerspiele
3	I really like playing handball	Ich spiele sehr gern Handball	20	I watch TV	Ich sehe fern	37	I chat (message) with my friends	Ich chatte mit meinen Freunden
4	We like playing football	Wir spielen gern Fußball	21	We cycle	Wir fahren Rad	38	I search for information online	Ich suche Infos im Internet
5	We quite like playing basketball	Wir spielen ziemlich gern Basketball	22	We swim	Wir schwimmen	39	That is dangerous	Das ist gefährlich
6	We really like playing rugby	Wir spielen sehr gern Rugby	23	We dance	Wir tanzen	40	That is wonderful	Das ist wunderbar
7	I don't like playing tennis	Ich spiele nicht gern Tennis	24	We read	Wir lesen	What will you do next week?		Was wirst du Nächste Woche machen?
8	I don't like playing computer games	Ich spiele nicht gern Computerspiele	25	We do judo	Wir machen Judo	41	I will listen to music	Ich werde Musik hören
9	We don't like playing football	Wir spielen nicht gern Fußball	26	It is crazy/insane (positive)	Es ist irre	42	I will go to the cinema	Ich werde ins Kino gehen
10	We don't like playing tabletennis	Wir spielen nicht gern Tischtennis	27	It is boring	Es ist langweilig	43	I will play football	Ich werde Fußball spielen
What do you do in your free time?		Was machst du in deiner Freizeit?	28	It is annoying	Es ist nervig	44	I will read	Ich werde lesen
11	I play the guitar	Ich spiele Gitarre	29	It is exciting	Es ist spannend	45	We will swim	Wir werden schwimmen
12	I chill with my friends	Ich chille mit meinen Freunden	30	It is fantastic	Es ist fantastisch	46	We will go to the park	Wir werden in den Park gehen
13	I go shopping	Ich gehe einkaufen	What do you do online?		Was machst du Online?	47	We will go shopping	Wir werden einkaufen gehen
14	I go to the cinema	Ich gehe ins Kino	31	I do my homework	Ich mache meine Hausaufgaben	48	It will be exciting	Es wird spannend sein
15	I listen to music	Ich höre Musik	32	I download music	Ich lade Musik herunter	49	It will be boring	Es wird langweilig sein
16	I go to the park	Ich gehe in den Park	33	I take photos	Ich mache Fotos	50	It will be ("make") fun	Es wird Spaß machen

Spanish – Year 7

Mis datos personales			18	I am not serious	no soy serio/a	34	we went to the city	fuimos a la ciudad
1	I am called	Me llamo...	19	I am not silly	no soy tonto/a	35	I saw a film	vi una película
2	I have (am) 12 years old.	Tengo doce años	20	I am not honest	no soy sincero/a	36	I saw a football match	vi un partido de fútbol
3	I have (am) 13 years old	Tengo trece años	Mi tiempo libre			37	it was amazing	fue flipante
4	I live in Wymondham	Vivo en Wymondham	21	I tend to go to the cinema	suelo ir al cine	38	it was fun	fue divertido
5	I live in England	Vivo en Inglaterra	22	I tend to watch the television	suelo ver la televisión	39	it was boring	fue aburrido
6	We live in Madrid	Vivimos en Madrid	23	we tend to play football	solemos jugar al fútbol	40	it was awful	fue fatal
7	We live in Spain	Vivimos en España	24	we tend to read	solemos leer	Mi familia		
8	My birthday is the	Mi cumpleaños es el...	25	I prefer to play videogames	prefiero jugar a videojuegos	41	I have a brother	tengo un hermano
9	1st of August	uno de agosto	26	my passion is sport	mi pasión es el deporte	42	I have two sisters	tengo dos hermanas
10	21st of December	veintiuno de diciembre	27	because it's fun	porque es divertido	43	My younger sister is called	mi hermana menor se llama...
De caracter			28	because it's cool	porque es guay	44	My older brother is called	mi hermano mayor se llama...
11	I am nice	soy simpático/a	29	because it's interesting	porque es interesante	45	My parents are called	mis padres se llaman...
12	I am mean	soy antipático/a	30	because it's great	porque es genial	46	he/she is lazy	es perezoso/a
13	I am boring	soy aburrido/a	¿Qué hiciste la semana pasada?			47	he/she is intelligent	es inteligente
14	I am fun	soy divertido	31	I went to the cinema	fui al cine	48	he/she is not shy	no es tímido
15	I am calm	soy tranquilo/a	32	I went to the stadium	fui al estadio	49	he/she is not talkative	no es hablador(a)
16	I am cool	soy guay	33	we went to the beach	fuimos a la playa	50	I am an only child	soy hijo/a unico/a
17	I am intelligent	soy listo/a						

Spanish – Year 7

What do you do in your free time? ¿Que te gusta hacer en tu tiempo libre?			18	I do martial arts	hago artes marciales	What do you like to do when... ?¿Qué haces cuando...?		
1	I'm interested in chatting online	me interesa chatear en línea	19	I do athletics	hago atletismo	35	it is hot	hace calor
2	I like to write emails	me gusta escribir correos	20	I do horseriding	hago equitación	36	it is cold	hace frío
3	I love to listen to music	me encanta escuchar música	21	I do swimming	hago natación	37	it is sunny	hace sol
4	I don't like to read	no me gusta leer	22	I play basketball	juego al baloncesto	38	it is good weather	hace buen tiempo
5	I don't like to send texts	no me gusta nada mandar SMS	23	I play football	juego al fútbol	39	it is bad weather	hace mal tiempo
6	I hate to watch TV	odio ver la television	24	I play tennis	juego al tenis	40	it is raining	llueve
7	I really like to go out with my friends	me gusta mucho salir con mis amigos	25	I play volleyball	juego al voleibol	41	it is snowing	nieva
8	I really don't like playing videogames	no me gusta nada jugar a los videojuegos	Why? ¿por qué?			42	there are storms	hay tormentas
9	I prefer to play football	prefiero jugar al fútbol	26	because it is interesting	porque es interesante	What are you going to do tomorrow? ¿Qué vas a hacer mañana?		
10	I'm crazy about surfing the net	me chifla navegar por Internet	27	because it is cool	porque es guay	43	I am going to play tennis	voy a jugar al tenis
What do you like to do? ¿Qué te gusta hacer?			28	because it is fun	porque es divertido	44	I am going to play football	voy a jugar al fútbol
11	I dance	bailo	29	because I'm good at it	porque se me da bien	45	I am going to do my homework	voy a hacer mis deberes
12	I sing	canto	30	because it is stupid	porque es estúpido	46	I am going to do horseriding	voy a hacer equitación
13	I talk with my friends	hablo con mis amigos	31	because it is boring	porque es aburrido	47	I am going to watch TV	voy a ver la television
14	I ride my bike	monto en bici	32	because it is entertaining	porque es entretenido	48	It is going to be cool	va a ser guay
15	I take photos	saco fotos	33	because it is active	porque es activo	49	It is going to be entertaining	va a ser entretenido
16	I go out with my friends	salgo con mis amigos	34	because it is healthy	porque es sano	50	It is going to be interesting	va a ser interesante
17	I play the guitar	toco la guitarra						

Wymondham High Academy Knowledge Organiser – Drama – Year 7- Melodrama, Mime & Slapstick

Key content/ ideas/ concepts

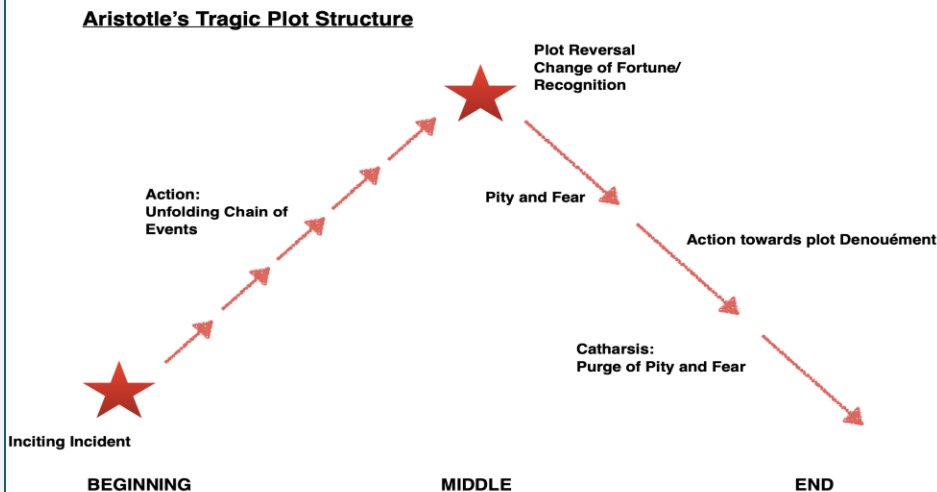
MELODRAMA is a style of drama which is characterized by its sensationalism. It was popular during the Victorian period. The characters are stereotypical, and their reactions are exaggerated and highly emotional. The storylines are extremely eventful, often with ‘life and death’ situations, intending to entertain and shock the audience. Good triumphs over Evil in Melodrama, with the baddies getting their come-uppance.

MIME is a style of drama which is characterized by no words. The performers communicate character, action and emotions without words and use movement, gestures and facial expressions.

SLAPSTICK is a style of drama which relies on physical comedy. The choreographed comedic routines usually contain absurd situations.

STRUCTURE

The structure of a play is the ‘shape’ of the action. Typically, in Melodrama, Mime and Slapstick we begin with **exposition** (who’s who and what is going on), build **tension** towards the **climax** and then draw the plot together through the **denouement**.



DESIGN

COSTUME

With the characters being stereotypical the costume design would reinforce this. Colour might be used symbolically (red for danger, white for purity) and accessories might be added for dramatic effect e.g. a cloak to swish menacingly.

SET AND LIGHTING

During 18th Century the stage and its scenery looked like a three-dimensional picture frame, many theatres still have this design today it is called PROSCENIUM ARCH. Productions went to great lengths to create a sense of realism with huge painted backcloths and skillfully constructed scenery. Gas lights replaced candlelight and were much brighter and more able to be controlled. It was the beginning of modern stage lighting.

SOUND

Music was used to underscore the acting. Fast music might increase the tension for a chase sequence or slow creepy music might add tension to a dangerous situation.

Keywords/Definitions

STOCK CHARACTER

A stereotypical fictional person or type of person in a work of art such as a novel, play or film who audiences recognise from frequent recurrences in literature or popular culture. Their appearance, behaviour and speech is predictable in melodrama we would expect to see a hero, villain and damsel in distress. Other stock characters could include the side kick and the aged parent.

ASIDE An Aside is when the action freezes and a character speaks directly to the audience. This can also be done with the action continuing although other characters will be unaware of the aside taking place.

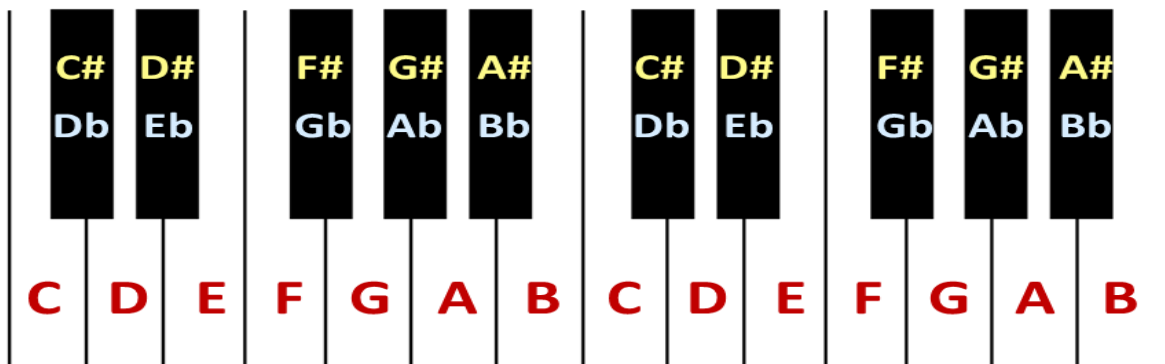
EXAGGERATION Making something bigger or more obvious. It is used to create highly melodramatic characters. This can be achieved through voice, movement and facial expressions to exaggerate an emotion

INTERTITLES Short lines of dialogue visually presented to the audience to read used in silent films

Wymondham High Academy Knowledge Organiser – Drama – Year 7- Language of Drama

Key words and definitions			TECHNIQUES	
VOICE		MOVEMENT	Marking the moment	Highlighting a key moment in a scene.
Volume	How loudly or softly the voice level is.	Gesture	Thought tracking	Character in a still image or freeze frame speak their inner thoughts out loud.
Tone	The emotional quality of the voice.	Posture	Hot seating	A character is questions about their background, behaviour and motivation.
Pitch	How high or low the voice sounds.	Facial Expression	Cross cutting	The dramatic action switches between two scenes in the same space.
Pause	A break or a breath when speaking.		Choral speaking	Many actors speaking the same lines at the same time.
Silence	Deliberately not speaking.		Slow motion	Performing a moment extremely slowly to create tension.
Accent talking	A particular way of associated with a geographical area or social class.	Body Language	Narration	One or more performers speak directly to the audience to tell a story or give information.
Projection	Using the voice so that he audience can hear everything being said.	Gait	Role on the wall	Developing thoughts and ideas about a character.
Articulation	How clearly the speaker pronounces words.		Soundscapes	A group creates a sound of a place/location using voices and bodies.
		Stillness	Flashback/forward	Create before and after a scene.
		Proxemics	Freeze frame	Like pressing pause on the TV remote control.
			Still image	Arranging the actors in an image.
			Improvisation	Creating a scene spontaneously

Year 7: Autumn Music KO



c) Articulation

How you play or sing a note.

Staccato



Performed short and briefly. Notes sound detached from each other.

Pizzicato



Perform the notes by plucking them with the fingers.

Accent



Emphasise a note so that it sounds louder than others.

Legato



Perform the notes smoothly. Notes sound connected to each other. A smooth articulation between two notes is called a **SLUR**.

Vibrato – A slight “wobbling” of the pitch of a note for expression. An important vocal technique as well as for instruments.

Tonging – The technique used by brass and wind players. Faster rhythms often require the technique of double or triple tonguing.

Bend – Guitarists can use their fingers to bend the string from one note to another. Brass and wind players can also do this with different mouth shapes and air pressure.

d) Dynamics

How loud or quiet music is played.

Fortissimo ***ff*** VERY LOUD

Forte ***f*** LOUD

Mezzo-forte ***mf*** Fairly Loud

Mezzo-piano ***mp*** Fairly Soft

Piano ***p*** Soft

Pianissimo ***pp*** Very Soft

Crescendo



Gradually getting louder

Diminuendo



Gradually getting softer

a) Melody

The “Tune” or Main Idea

Pitch



How high or low a note is

Interval



The distance between any two notes.

Motif



A fragment of a melody.

Melodic Movement

Steps – Movement between notes that are next to each other in the scale. Also known as **Conjunct**.

Skips – Movement equal to two steps. You “skip” over a note in the scale. Also known as **Disjunct**.

Leaps – Any movement that is larger than a skip.

Scalic – When a section of a melody moves along using note in scale order.

Chromatic – Movement using steps including notes that are not in the key.

Passing note – Notes which link chord tones.

b) Compositional Devices

Repetition – Repeat a melodic idea.

Sequence – Repeat a melodic idea but starting on a different note.

Imitation – Repeat a melodic idea in another instrument.

Variation – Change the melodic idea slightly.

Ostinato – Constant repetition of a melodic idea.

Inversion – Turn the melodic idea upside down.

Retrograde – Play the melodic idea backwards.

Year 7: Autumn Music KO

Basic Note and Rest Lengths					Dotted Notes and Rests	
Semibreve 4 Beats	Minim 2 Beats	Crotchet 1 Beat	Quaver ½ Beat	Semiquaver ¼ Beat	A dot placed after a note or rest tells you to increase the note or rest by HALF ITS ORIGINAL VALUE	
Note:  Rest: 	 	 	  Adjacent quavers can be joined together with a BEAM  	  Adjacent semiquavers can be joined together with a BEAM  	 1 Beat  1 and a half beats	 2 Beats  3 Beats

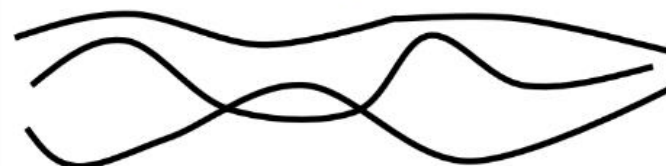
f) Texture What we call the different layers/parts of music.

Monophonic



A single melodic voice or instrument

Polyphonic



Different musical lines that interweave with each other

Homophonic

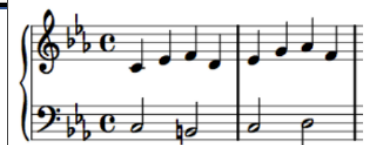


A texture based on chords

Examples of THIN texture Examples of THICK texture

Solo instrument
Acoustic guitar and vocal
Piano and cello

An orchestra
A rock band
A samba ensemble



Counterpoint
Two or more different melodies playing together.

g) Structure – The different sections of a piece of music and how they are ordered.

Binary Form

Music that has two sections.
These are labelled A and B.

A B

Ternary Form

Music that has three sections.
The A section is heard again after B.

A B A

Rondo Form

A recurring theme (A) contrasted by different sections.

A B A C A D A E

e) Tempo – How fast or slow the music is.

Italian term	English meaning	B.P.M.
Largo	Slowly and broadly	40 - 60
Adagio	Slowly (but not as slow as largo)	60 - 75
Andante	At a walking pace	75 - 105
Moderato	At a moderate pace	105 - 120
Allegro	Quite fast	120 - 155
Vivace	Quick and lively	155 - 175
Presto	Very fast	175 - 200

Song Structure

Intro

The introduction sets the mood of a song. It is often instrumental but can occasionally start with lyrics.

Verses

Verses introduce the song theme. There are usually new lyrics for each verse which helps to develop the song's narrative

Choruses

All the choruses usually have the same lyrics. This section relays the main message of the song.

Middle 8/Bridge

This section adds some contrast to the verses and choruses by using a different melody and chord progression.

YEAR 7 HALF TERM 1: WHAT IS PHILOSOPHY?

SOCRATES AND PLATO

- Socrates lived 2500 years ago, in Greece, which was a polytheistic society, meaning people worshipped many different Gods. Socrates began to question what people believed about these Gods. His way of asking questions became known as the **Socratic method**.
- Socrates asked questions like: “why?” “How do you know?” “Have you thought about...?” “What happens if...?” to challenge what people believed.
- He annoyed the rules of Greece so much he was charged with “**corrupting the youth**” by making them question the gods. He was sentenced to death by drinking a poison called hemlock. As he drank the poison, he famously declared: “**an unexamined life is not worth living!**”
- **Plato** was another ancient Greek philosopher, and student of Socrates. Plato began to develop a philosophy called **rationalism**, the idea that we can know many important truths through our own mind and **reason**. He showed this through his **allegory of the cave**.

ARISTOTLE

- **Aristotle** was an **empiricist**: he thought we could use our senses to find the everything we need to know about the world. It is our sense that give our minds the information they need to find the truth.
- Aristotle was also interested in **persuasion**. Aristotle noticed there were three things that made a difference in persuasion:
 - **Pathos** is persuasion based on emotions
 - **Ethos** is persuasion based on the reputation of the speaker
 - **Logos** is persuasion based on logic, do the ideas of the speaker make sense?
- Given his focus on using our senses to learn about the world, Aristotle thought *logos* was the best way to try to persuade others. He used a type of argument called a **syllogism** to show the most persuasive way to argue.

APPLYING PHILOSOPHY TODAY

PHILOSOPHER

Socrates

Diotima

Plato

Aristotle

Diogenes

APPLICATION

Challenging people in power by applying the Socratic method of questioning: “why?” “how do you know?” “who benefits?”

Encouraging others to develop their ideas and showing respect to all.

Paying attention to what’s real and what’s fake in a world of AI images, videos, and writing.

How do people try to persuade us? Politicians, companies, and adverts try to influence us, but are they using *logos*?

Many people choose to live lifestyles that don’t fit social conventions.

KEY TERMS

Philosophy

The love of wisdom

Religion

An organised system of attitudes, beliefs, practices, and moral guidelines

Ethics

Principles of right and wrong

Socratic Method

Socrates’ method of asking challenging questions

Diversity

Understanding that everyone is unique and different

Deep Fake

Images / Audio or Videos created by AI

Polytheism

Belief in many Gods

Monotheism

Belief in one God

YEAR 7 HALF TERM 2: WHAT HAPPENS WHEN IDEAS SPREAD?

GREEK AND INDIAN PHILOSOPHY

- When Alexander the Great took his army to India, he took several philosophers with him. He was fascinated by the naked philosophers he met in India, and gave them many rewards.
- The Indian philosophers were very different from the Greeks, some of their ideas were...
 - *Insight*: it's not enough to know about the world, we have to learn to see past our own desires, even our desire to learn.
 - *Paradox*: sometimes impossible problems can make people think about their own beliefs in different ways.
 - *Ways of living*: the way we live is a way to persuade others, we should demonstrate our beliefs about philosophy. Actions speak louder than words.
 - *Discipline*: desire and comfort are distractions from what's truly important, with self-control and meditation we can focus on what matters.

GREEK BUDDHISM

- Greek kingdoms like Bactria began to include beliefs from Indian philosophers, including Buddhism in their religions. This includes artwork, including the oldest images of the Buddha.
- When different belief systems begin to merge together, it's known as syncretism.
- Buddhist teachers like Nagasena used examples like a chariot to teach the Greeks Buddhist beliefs, like the idea we are always changing (*anatta*).
- Philosophers like Pyrrho adopted Buddhist ideas and thought that we should be sceptical of what we see and hear, because we can easily be deceived.
 - Today, we can learn from Pyrrho's scepticism, by always looking for evidence and questioning what's true until we know enough to decide.



PLURALISM

- Britain today is a multicultural society in which people are free to hold any religious beliefs, or none. We are a pluralistic society; tolerance and respect for other's beliefs are considered fundamental British values.
- When different religious believers disagree, John Hick reminded people about an ancient Indian parable: the blind people and the elephant.
 - A group of blind people encounter an elephant for the first time.
 - They each touch a different part of the elephant to try to understand what it is like.
 - One grabs the tusk and thinks the elephant is a spear. One grabs the tail and thinks the elephant is a rope. One touches its leg and thinks the elephant is a tree.
 - None of these people is wrong, but neither is any of them right. They each have a piece of information that can only be fully understood when taken together as a whole.
- John Hick thought different religions each understood something real but different about God.

KEY TERMS

- | | |
|---------------------|--|
| <i>Syncretism</i> | the blending of different cultures, religions, or belief systems into something new |
| <i>Scepticism</i> | Pyrrho's philosophy of doubting confident claims and suspending judgement until there's good evidence |
| <i>Gymnosophist</i> | a member of a group of ascetic Indian philosophers Alexander the Great's army met; literally "naked philosopher" |
| <i>Pluralism</i> | the idea that more than one religion or belief system may each hold a genuine part of the truth |
| <i>Exclusivism</i> | the view that only one religion or belief system holds the whole truth |
| <i>Buddhism</i> | An Indian religion that has more than 500 million followers. It focuses on freeing humans from suffering. |

KEY TERMS AND SPELLINGS

KEY TERMS 1	DEFINITION	KEY TERMS 2	DEFINITION
<i>Religion</i>	n. an organised system of beliefs, practices, and moral guidelines	<i>Bactria</i>	n. an ancient region (roughly modern Afghanistan, Tajikistan, and Uzbekistan) where Greek settlers lived after Alexander the Great's conquests
<i>Philosophy</i>	n. the love of wisdom, a system for asking “big questions”	<i>Indo-Greek Kingdom</i>	n. a kingdom, founded from around 180 BCE, where Greek rulers governed parts of north-west India
<i>Ethics</i>	n. a branch of philosophy, the questions of right and wrong	<i>Syncretism</i>	n. the blending of different cultures, religions, or belief systems into something new
<i>Supernatural</i>	Adj. Something that can't be explained naturally	<i>Scepticism</i>	n. Pyrrho's philosophy of doubting confident claims and suspending judgement until there's good evidence
<i>Polytheism</i>	n. The belief that there is more than one god	<i>Epoché</i>	n. suspending judgement on purpose, rather than deciding without enough evidence
<i>Corrupt</i>	v. to make something bad	<i>Ataraxia</i>	n. a state of calm, free from worry, that Pyrrho believed came from not needing to be certain about everything
<i>Socratic Method</i>	n. Socrates' method of asking challenging questions	<i>Gymnosophist</i>	n. a member of a group of ascetic Indian philosophers Alexander the Great's army met; literally “naked philosopher”
<i>Diversity</i>	n. the unique features of different members of a group	<i>Symbol</i>	n. an image, object, or gesture that represents an idea too big to explain quickly in words
<i>Deep Fake</i>	n. a realistic image made by AI.	<i>Pluralism</i>	n. the idea that more than one religion or belief system may each hold a genuine part of the truth
<i>Stereotype</i>	n. a simplified idea about a person or group of people	<i>Exclusivism</i>	n. the view that only one religion or belief system holds the whole truth
<i>Discrimination</i>	n. the unfair treatment of someone because they belong to (or someone thinks they belong to) a particular group	<i>Worldview</i>	n. the framework of beliefs and values a person uses, often without noticing it, to understand life
<i>Rationalism</i>	n. The philosophy that reason alone is the source of all knowledge	<i>Enculturation</i>	n. the process of absorbing the beliefs, values, and practices of the family and culture around you
<i>Empiricism</i>	n. The philosophy that evidence from our senses is the source of all knowledge	<i>Bactria</i>	n. an ancient region (roughly modern Afghanistan, Tajikistan, and Uzbekistan) where Greek settlers lived after Alexander the Great's conquests

Warming Up

A good warm-up should include:

- Pulse raiser – gradually raising heart rate in preparation for exercise.
- Stretching – stretch all relevant muscles involved in the activity.
- Skill Based Practices – Perform skills that allows the performer to familiarise themselves to the activity they are taking part in e.g. passing a football / netball.
- Mental Preparation – Starting to get focused, using techniques to control arousal e.g. mental imagery.

The benefits of a good warm-up are as follows:

1. Body temperature will increase ready for exercise.
2. Stretching will increase the range of movement possible.
3. There will be a gradual (not over demanding) increase in effort towards ‘competition pace’, i.e. you gradually work up to the intensity required for the game/event.
4. You will be focused and psychologically prepared.
5. Movement skills that will be used have been practised before starting the game/match/event.
6. There will be less chance of suffering injury.
7. There will be an increase in the amount of oxygen being carried to the working muscles – helping with the production of energy.

Physical Health and well-being



- Relates to the bodies systems and how well they are working.

Exercising positively affects physical health and well-being as it can:

- Improve your heart function
- Improve the efficiency of cardiorespiratory and musculoskeletal systems
- Reduce the risk of illness e.g. diabetes
- Help to prevent obesity
- Enable you to carry out everyday tasks without getting tired

Effects of obesity on Physical Health:

- Contributes to cancer
- Causes heart disease / heart attacks
- Causes high blood pressure
- Can cause diabetes
- Causes cholesterol levels to rise

Effects of obesity on Fitness:

- Limits a persons cardio-vascular endurance / stamina therefore making it difficult for them to take part in physical activities for a long period of time.
- Limits a persons flexibility making it difficult for performers to use a full range of movement at a joint when performing a skill e.g. lunging forward for the shuttle in badminton.
- Limits a persons agility making it difficult for them to change direction quickly.
- Limits a persons speed / power making it hard to react quickly enough or produce any forceful movement.

Consequences of choosing a sedentary lifestyle are:

- Weight Gain / become obese
- Suffering from heart disease
- Suffering from diabetes
- Suffering from poor sleep / insomnia
- Suffering from poor self-esteem / confidence
- Feeling tired and lethargic
- Having a lack of friends



Mental Health and well-being

- Relates to a persons emotions and state of mind.

Exercise positively affects mental health and well-being as it can:

- Reduce stress / tension levels.
- Release feel-good hormones in the body such as serotonin.
- Enable a person to control their emotions and work productively.

Effects of obesity on Mental Health:

- Can lead to depression
- Cause a loss of confidence
- Make an individual feel like they cannot contribute to society

Improvements in fitness will:

- Improve your ability to cope with the demands of your daily environment
- Reduce the chances of you suffering injuries
- Make it easier for you to complete physical work
- Make you feel more content / happy

Safety Principles When Training

- The training type and intensity used should match the training purpose.
- A warm-up and cool down should be completed prior to and after training.
- Over training should be avoided e.g. use of appropriate weights.
- Appropriate clothing and footwear should be worn which protect / support and allow movement.
- Taping / bracing should be used as necessary to protect and support areas of weakness.
- Hydration should be maintained with fluid intake.
- Stretches should not be overstretched or bounce.
- Technique used should be correct e.g. weight lifting technique.
- Appropriate rest should be given in between sessions to allow for recovery.
- Spotters should be used when weight training if heavy weights are being attempted.

Social Health and well-being

- Relates to basic human needs being met (food, shelter) as well as being able to socially interact with others in society.

Exercise positively affects social health and well-being as it can:

- Provide opportunities to socialise and make friends
- Encourages co-operation and team work

Effects of obesity on social Health:

- Inability to socialise
- Make people feel uncomfortable in social situations.

Cool Down

An effective cool down should include:

- An activity to maintain an elevated breathing and heart rate, e.g. walk, jog.
- A gradual reduction in intensity, e.g. jog to light-jog to walk.
- Stretching of all main muscles used in the activity.

The benefits of a good cool down are as follows:

- 1) It allows the body to start to recover after exercising.
- 2) It helps with the removal of lactic acid, carbon dioxide and waste products.
- 3) It can help to prevent the delayed onset of muscle soreness, sometimes referred to as DOMS.

DURATION

- DAY ONE: People clean their homes and shop for gold or kitchen utensils to help bring good fortune.
- DAY TWO: People decorate their homes with clay lamps and create design patterns called rangoli on the floor using colored powders or sand.
- DAY THREE: On the main day of the festival, families gather together for Lakshmi puja, a prayer to Goddess Lakshmi, followed by mouth-watering feasts and firework festivities.
- DAY FOUR: This is the first day of the new year, when friends and relatives visit with gifts and best wishes for the season.
- DAY FIVE: Brothers visit their married sisters, who welcome them with love and a lavish meal.



WHEN

Every autumn between mid-October and mid-November. The main day of the festival, known as Lakshmi Puja, always falls on the darkest new moon night based on the Hindu lunar calendar

WHERE

It is celebrated mainly in India, but also in places with Hindu, Sikh and Jain populations like Nepal, Malaysia, Singapore & Sri Lanka



COLOURS

Each colour has specific meanings, contributing to the overall festive atmosphere.

RED

Passion, love and destruction of the devil

GOLD & YELLOW

Represents wealth, luck and optimism.

GREEN

Nature, harvest & fresh beginnings

DIWALI

Knowledge Organiser

FESTIVAL

Diwali is India's biggest, most important holiday of the year. The festival gets its name from the row of clay lamps (deepa) that Indians light outside their homes to symbolise the inner light that protects from spiritual darkness.



HOW

Families celebrate together across the 5 days

Small oil lamps (diyas)
Colourful floor patterns (rangoli)
Bright lights to welcome Goddess Lakshmi.

Family feasts
Exchanging sweets
Wearing new clothes
Setting off fireworks to symbolize good over evil



WHAT IS IT?

Diwali, also known as Deepavali, is the vibrant Hindu festival of lights



FOOD

Traditional indulgent dishes. Rich, syrup-soaked sweets (mithai) and savoury, crispy snacks, designed to be shared with family, friends, and neighbours

CELEBRATIONS

Different parts of India celebrate different stories of Diwali

WESTERN

In western India the festival marks the day that Lord Vishnu, the Preserver (one of the main gods of the Hindu trinity) sent the demon King Bali to rule the nether world.

NORTHERN

In northern India, they celebrate the story of King Rama's return to Ayodhya after he defeated Ravana by lighting rows of clay lamps

SOUTHERN

Southern India celebrates it as the day that Lord Krishna defeated the demon Narakasura.