HERMITAGE ACADEMY

YEAR 8

KNOWLEDGE ORGANISER

Year 8 Topic 10 Graphs Student Knowledge Organiser

Key words and definitions

Coordinate – used to indicate the position of a point

Gradient – how steep the graph is

Y-intercept- where the graph crosses the y axis

Midpoint- the middle coordinate of the line segment

Axis – a fixed reference line for the measurement of coordinates

Horizontal – parallel to the plane of the horizon at right angles to the vertical.

Parallel- Lines which have the same distance continuously between them.

Coordinates

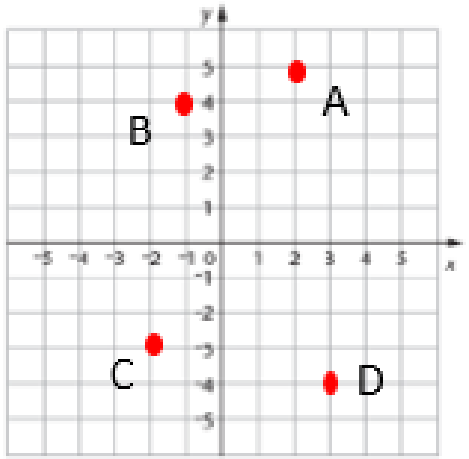
Always **write the X first** (across), then Y (up)

A (2 ; 5)

B (-1 ; 4)

C (-2 ; -3)

D (3 ; - 4)



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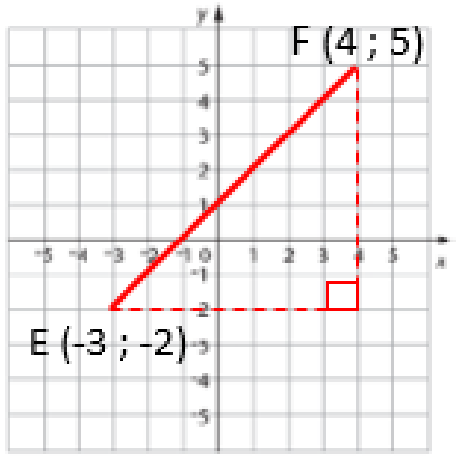
Midpoint

Add the two x values and ÷ **2**

Add the two y values and ÷ **2**

$\frac{(-3+4)}{2}$ $\frac{(-2+5)}{2}$

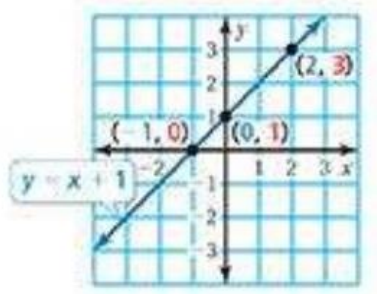
= $(\frac{1}{2}\ ;\ 1\frac{1}{2})$



Linear graphs

- A **linear equation** is an equation whose graph is a line.
- The points on the line are **solutions** of the equation.

x	y	(x, y)
−1	0	(−1, 0)
0	1	(0, 1)
2	3	(2, 3)

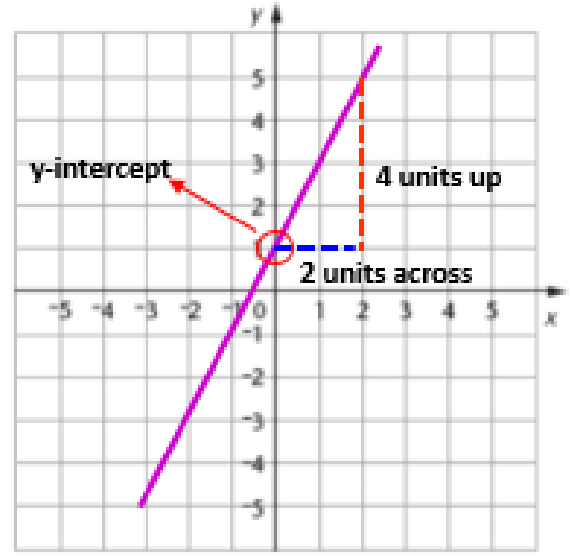


Gradient

$y = mx + c$ is the equation of a straight-line graph

m = Gradient, c = y-intercept

$\text{Gradient} = \frac{\text{change in y}}{\text{change in x}} = \frac{4}{2} = 2$



Equation is therefore $y = 2x + 1$

Hegarty Maths Links

Coordinates - 199 -

Midpoints - 200

Linear graphs = 206. 207, 208, 209

Year 8 Topic 11 Sequences Student Knowledge Organiser

Key words and definitions

Sequence – A set of quantities ordered in the same manner as the positive integers.

Pattern – a set of numbers or objects in which all the members are related with each other by a specific rule.

nth term – a formula that enables you to find any number in a sequence of numbers.

Position-to-term – a rule that defines the value of each term in a sequence.

Term-to-term – is the difference between the numbers in the sequence

Linear – A number pattern which increases (or decreases) by the same amount each time

Using a term-to-term rule

Find the next term in the sequence 28, 37, 46, 55, 64, ___.

① ② ③ ④ ⑤ ⑥

28, 37, 46, 55, 64, 73, ...

+9 +9 +9 +9 +9

ARITHMETIC SEQUENCE

Answer 73

nth term of a linear sequence

3 8 13 18 23

+5 +5 +5

1. Find the *difference* between each term:
   5
2. Always put 'n' next to it (n = term number)
   5n
3. Add or subtract to get the first term in the sequence?
   5-2 = 3

The nth term is **5n -2**

Geometric sequence

A geometric sequence is one where to get from one term to the next you multiply by the same number each time. This number is called the *common ratio, r*.

Eg

1 2 3 4

2, 10, 50, 250 ...

x5 x5 x5

r=5

Sequences from patterns

Shape number	1	2	3	4	5	6	7	8	9	10	50
Number of matchsticks	3	5	7	9	11	13	15	17	19	21	101
Function rule	Number of matchsticks = Shape number × 2 + 1										

Finding missing terms

Find the missing terms and rule for: 48, ___, 70 , ___, 92

48 → 70 (2 jumps!) gives us: Add 22
So our rule for one jump is half this → Add 11 (common diff = +11)
Number after 48 → 48 + 11= 59
[CHECK: 59 → 59 + 11 = 70!]
Number after 70 → 70 + 11 = 81

Hegarty Maths Links

Linear sequences from pictures- 196

Term to term rule – 197

Nth term - 198

Geometric Sequences - 264

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Year 8 Topic 12 Charts and Averages Student Knowledge Organiser

Key words and definitions

Primary data – data collected first hand, in a survey or experiment

Secondary data – data collected by someone else

Discrete – can only take certain values, usually something you can count

Continuous – data that can be measured, can take any value

Average – a typical value for some data, see mean, mode and median

Distribution – how data is spread out, takes account of average & range

Averages

Mode
Most common

Mean
Sum of values / Number of values

Median
Middle value in ascending order

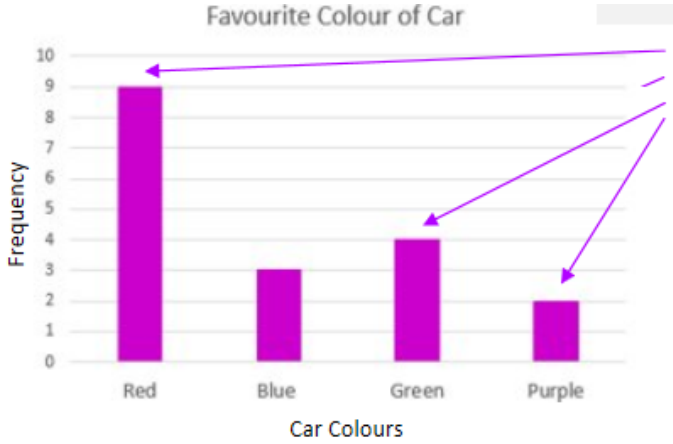
Average	Advantages	Disadvantages
Mean	Every value makes a difference	Affected by extreme values
Median	Not affected by extreme values	May not change if a data value changes
Mode	Easy to find. Not affected by extreme values. Can be non-numerical	There may not be one. There may be more than one.

Tally Charts and bar charts

Complete a tally chart for the most popular colour of car

Red, blue, red, green, red, purple, red, green, red, purple, green, blue, red, green, blue, red, red, red

Colour	Tally	Frequency
Red	𝍸 IIII	9
Blue	III	3
Green	IIII	4
Purple	II	2



The number of red, blue, green and purple cars is the **frequency (height of the bars).**

IMPORTANT

The **bars** are the **SAME width**

The **gaps** between the bars are the **SAME width**

Both axes are **labelled**

The graph has a **title**

Frequency starts at 0

Range

Range

Largest value – smallest value

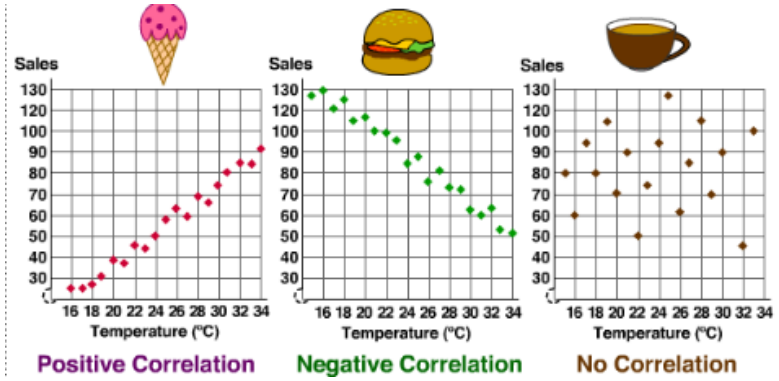
Pie chart

1	Sum (add up) the frequency
2	360° ÷ frequency 360° ÷ 72 = 5
3	Multiply each category x5 to find sector size

Fish	Frequency	
Perch	10	x 5 = 50°
Bream	23	x 5 = 115°
Carp	39	x 5 = 195°
TOTAL	72	360°
360° ÷ 72 = 5		

Draw an accurate pie chart to show this information.
This table give information about then number of fish in a lake.

Scatter graphs



Hegarty Maths Skills Links

Averages	404, 405, 406, 407, 408, 409, 410, 413
Tally and bar charts	401, 425
Scatter graphs	453, 454
Pie charts	427, 428, 429

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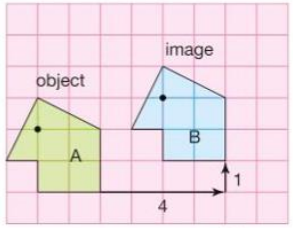
Transformations Student Knowledge Organiser

Key words and definitions

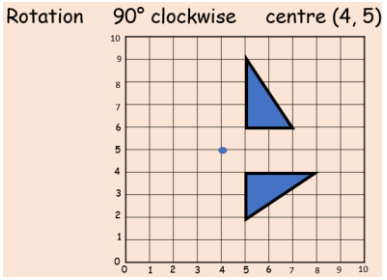
Enlarge – To make a shape larger (or Smaller)
Reflect – To produce an image of a shape as seen in a mirror
Rotate – To turn a shape about a centre point
Translate – To move a shape left or right and up or down
Column Vector - Used to describe a translation $\begin{pmatrix} x \\ y \end{pmatrix}$ with x being left or right, y being up or down.
Congruence – Two shapes are congruent if they are both the same size and shape.
Similarity – Two shapes are similar if one is an enlargement of the other.
Scale Factor – By multiplying each side of a shape by this number you produce an image that has been enlarged.

Translation



The shape is translated by $\begin{pmatrix} 4 \\ 1 \end{pmatrix}$.

Rotation



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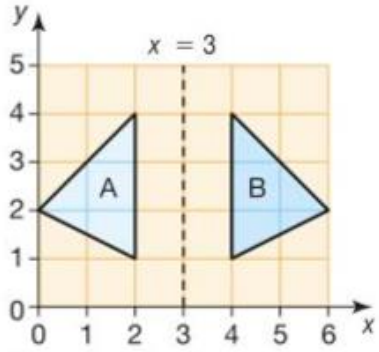
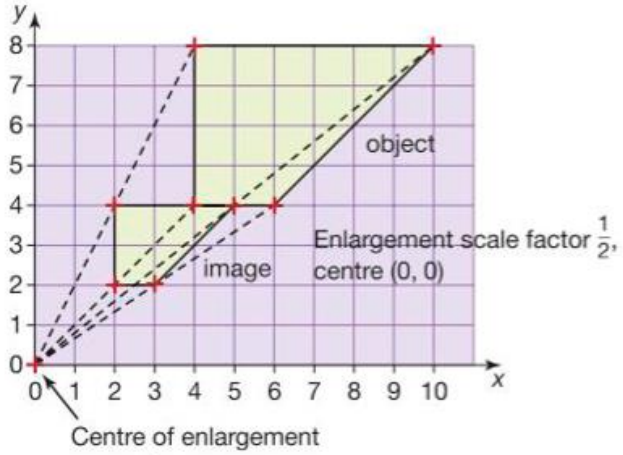
Reflection



The mirror line is $x = 3$.

Enlargement

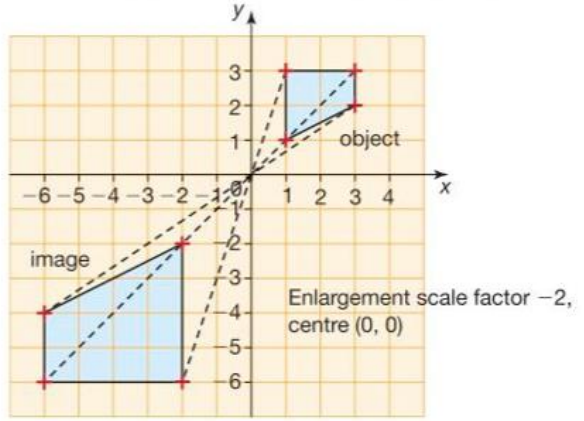
Enlargement with a fractional scale factor reduces the size of the shape.



Scale factor $\frac{1}{2}$: all lengths on the image are half the corresponding lengths on the object.

Enlargement – Negative Scale factor

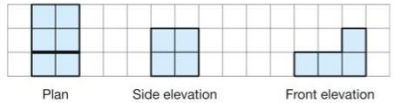
Enlargement with a negative scale factor produces a shape upside down on the opposite side of the centre.



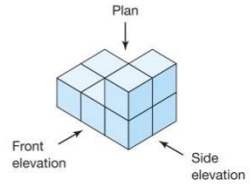
Scale factor −2: all lengths on the image are twice the corresponding lengths on the object; the image is inverted.

Plans and Elevations

- A **plan** of a solid is the view from directly overhead (bird's eye view).
- An **elevation** is the view from the front or the side of the solid.



Notice the extra bold line in the plan, when the level of the cubes alters.



Hegarty Maths Links

Translations – 637,638
Reflections – 639-641
Rotations – 648,649
Enlargement – 642 – 647
Describing Transformations – 650 – 654
Combined Transformations – 656,657
Similarity - 608-614
Plans and Elevations – 837-844

Fruit & Veg

Year 8

What will you learn?

Working across a range of media including tonal pencil, biro pen, oil pastel and watercolour, you will build upon your knowledge of drawing processes and apply this when recording from observation, combining a range of media to generate independent, creative outcomes. Looking closely at line direction and mark-making techniques, you will be able to generate form, allowing your drawings to appear 3D and realistic! By investigating the work of botanical artist and illustrator Billy Showell, you will learn to develop your watercolour painting skills through a range of layering and blending techniques.

Click the links to read the stories

Reading

- **James & the Giant Peach – Roald Dahl**

James and the Giant Peach | Roald Dahl - Read Aloud With Animation & Text Chapters 1-8 (youtube.com)

- **My Sweet Orange Tree – Jose Mauro das Vanconcelos**

Education

Falmouth University – Illustration

https://www.falmouth.ac.uk/study/online/undergraduate/illustration?utm_term=illustration%20online%20degree&utm_campaign=Online+Courses_UG_Illustration_Generic_Exact&utm_source=adwords&utm_medium=ppc&hsa_acc=6657266163&hsa_cam=15147401743&hsa_grp=148436120565&hsa_ad=661352975030&hsa_src=g&hsa_tgt=kwd-2115622980204&hsa_kw=illustration%20online%20degree&hsa_mt=b&hsa_net=adwords&hsa_ver=3&gad_source=1&gclid=EAIaIQobChMI-7OXwviChQMVR8zCBB25aAIVEAAYASAAEgINhvD_BwE

Careers http://www.creativejourneyuk.com

Click the link to discover careers linked to this topic

- Fine artist
- Illustrator
- Surface pattern designer
- Concept designer

Key Words

- Shape
- Tone
- Texture
- Detail
- Colour
- Form
- Pattern
- Gradient
- Mark-making
- Line direction
- Layering
- Blending
- Hatching
- Crosshatching

POST-16

CAREERS

OILPASTELAPPLE.mp4

Line Direction

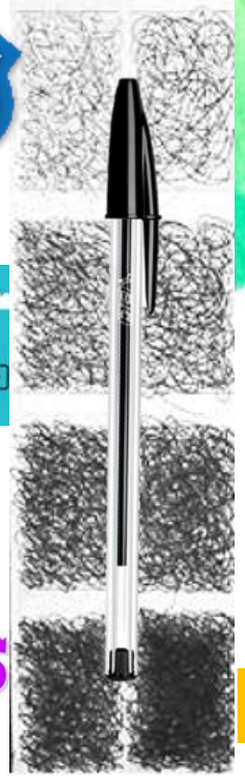
Line direction is extremely important when using any media as it allows you to express the idea of the shape of an object. For example, using straight lines such as hatching or cross hatching may suggest a flat surface whereas using curved lines will suggest that an object is round or curved.

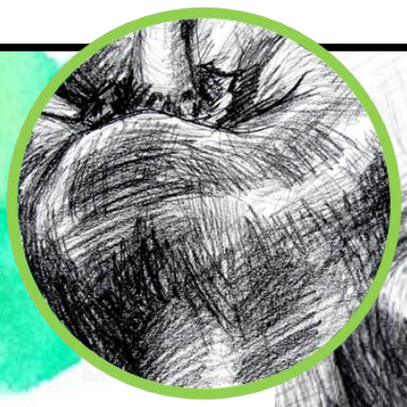
Click me!

BIRO PEN PEPPER SKO 23-24.pptx

Mark Making

Mark making is very important when creating texture and tone. It allows you to give the impression of the textural quality of a surface.





Click me!

BIRO PEN PEPPER - step by step video.url

Billy Showell

I think it is the dream to paint the delicacy of life and developing the ability to capture to momentary, the fragility of a particular time in the lifecycle of a plant. One can go blindly through life never looking at things properly but when you paint plants you get to know every piece of it, every twist, notch and element; it is always enlightening and even if you don't have the desire to learn all the science, the discovery of seeing how plants grow helps you appreciate how wonderful it is, this precious life on earth.

https://billyshowell.com/

Click me!

HERMITAGE STUDENT POD

Sound like an expert

What is the subject of the work?

- The subject of the work is.....
- [Artist name] produces [media] based on the subject of.....

How is the work produced?

- The work is produced by....
- [Artist's name] produces their work by...

Why has the artist chosen to use these materials, techniques or processes?

- The artist has chosen to use these materials because...
- [Artist's name] has chosen to use these techniques and processes in order to...

Use these sentence starters to sound like an expert and have a postcard sent home!

Fruit & Veg

Biro Pen Pepper

Step 1 – Light pencil outline

To begin with, you will need to sketch out the shape of your object. You will need to make sure that you use light pencil to sketch outlines and basic shapes. You may want to use the grid method to help you draw your shapes accurately.

Step 2 – Biro Pen & line direction

To begin with, you will need to sketch out the shape of your object. You will need to make sure that you use light pencil to sketch outlines and basic shapes. You may want to use the grid method to help you draw your shapes accurately.

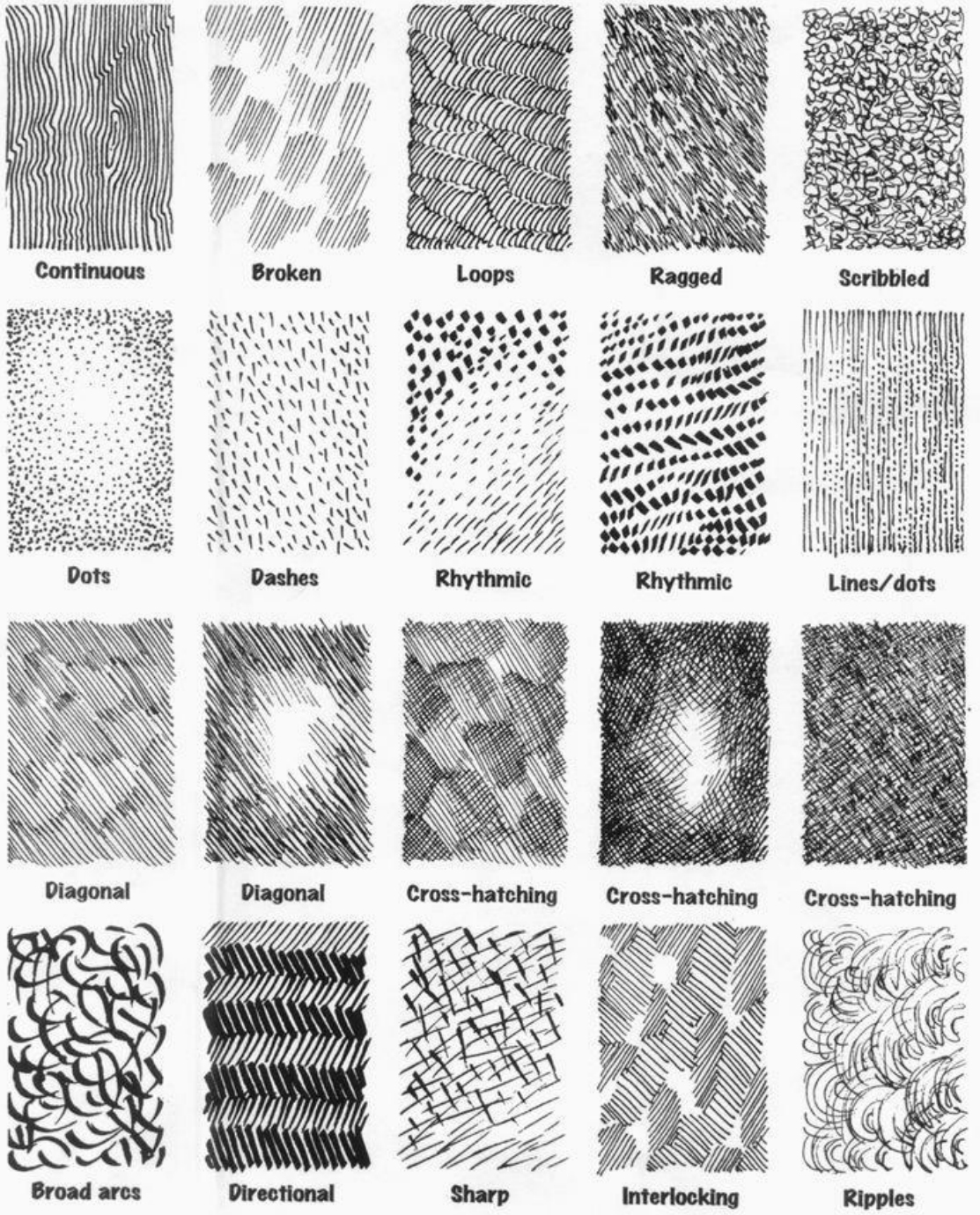
Step 3 – Mark-making & layering

To begin with, you will need to sketch out the shape of your object. You will need to make sure that you use light pencil to sketch outlines and basic shapes. You may want to use the grid method to help you draw your shapes accurately.

Step 4 – Shadows & highlights

To begin with, you will need to sketch out the shape of your object. You will need to make sure that you use light pencil to sketch outlines and basic shapes. You may want to use the grid method to help you draw your shapes accurately.

Creating tone with biro pen

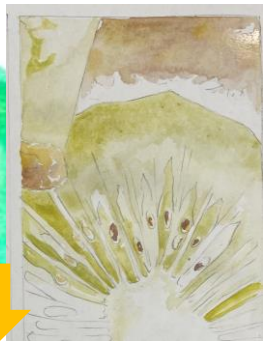


HERMITAGE STUDENT POD

BIRO PEN PEPPER - step by step video.url

Fruit & Veg

Mixed-media Fruit & Veg Study



Step 1 – Lightest colours first

To begin with, you will need to select the appropriate colours. Use your pallette lid to mix a range of light colours by using a small amount of paint and lots of water. Very gentle apply a light wash across the different shapes with your paintbrush. Be careful not to scrub the paper.

Step 2 – Layering

Then, you need to think about which colours you should use next to achieve the midtones. You will begin layering your midtones over your light coloured wash to build up tone. Make sure each layer is dry before applying the next as you do not want to distress the paper.
Start by painting the outline before working into the center of the shape to achieve more control.

Step 3 –Line direction

It is important to consider the direction that you are moving your paintbrush in when making lines as this will help you to create a more realistic and 3D outcome. Your directional lines should follow the contour of the surface (curved lines for curved surfaces).

Step 4 – Blending

It is important to blend the colours on the paper to create new shades of a colour. You must not scrub the paper when blending the colours, gentle use the paintbrush against the paper. Try using the water on your brush when blending the colours to achieve a more subtle effect from your lightest to your darkest colour.

Step 5 – Texture/Coloured Pencils

To create a more realistic outcome, use mark-making techniques using coloured pencils such as stippling, crosshatching or hatching. Use line direction and a change of pressure on your pencil to add a layer of shading. Layering coloured pencils over the paint will allow you to build up more detail to achieve a more realistic outcome.

CORE PE

Knowledge Organisers

Physical Education → Athletics Y7/8

Key Skills	Physical Attributes	Knowledge	Rules
Sprinting – 100m, 200m, 300/400m Jumping – long, triple and high Long distance running – 800m, 1500m Throwing – discus, javelin and shot put	Speed Agility Co-ordination Power Cardiovascular fitness Muscular endurance Reaction time Strength Flexibility Balance	Core skills Advanced skills Basic rules Basic regulations Tactics Warming up and cooling down Major muscle groups Heart rate and exercise intensity Outwitting opponents Analysis of performance	Awareness of the rules and regulations of the event and their application (including officials commands/signals)

Teaching Focus	Literacy
<u>Year 7</u> • Repetition of **core skills** through **isolated drills** in order to develop **control** and **accuracy** • Application of **core skills** within a **competitive environment** in order to develop **confidence** whilst **under pressure** • Understanding of **basic rules** and **regulations** specific to each event • **Analysis** of **own performance** against practical criteria	Rules Regulations Tactics Analysis Track Field Starting Finishing Posture Leg action Arm action

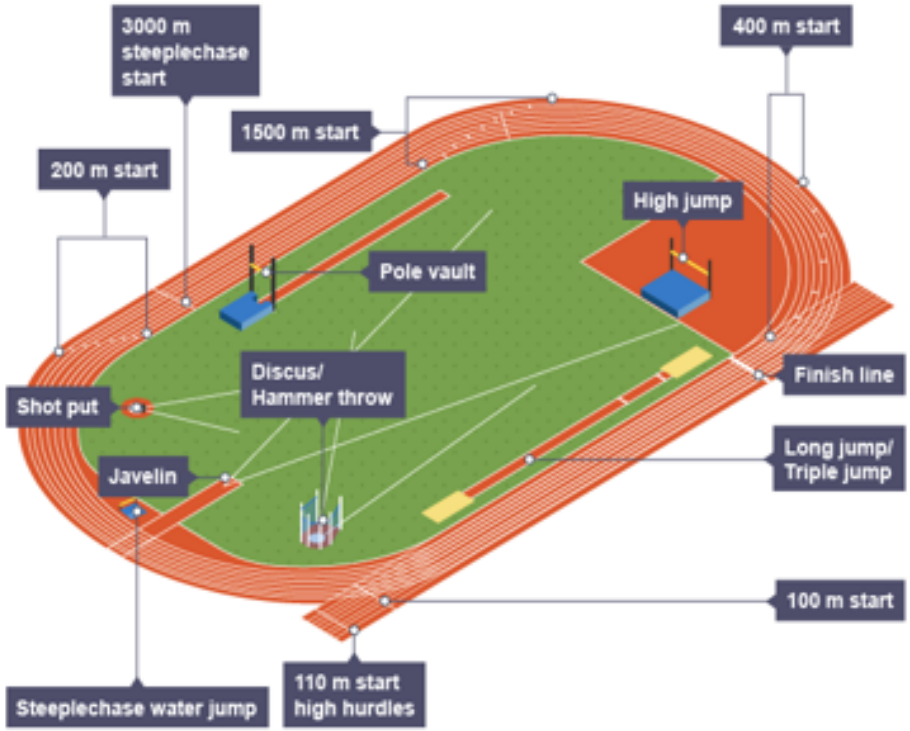
<u>Year 8</u> • Repetition of **advanced skills** through **isolated drills** in order to develop **precision, control** and **fluency** • Application of **advanced skills** within a **competitive environment** in order to develop **confidence** whilst **under pressure** • Ability to **adapt** to **new situations** within **competitive situations** • Understanding of **all rules** and **regulations** specific to each event • **Analysis** of **own performance and the performance of others** against practical criteria	Head carriage Stride Bend running Approach Flight Take off Landing Synchronisation Stance Release phase Recovery phase Follow through Heart rate Intensity Blood flow Major muscles; Biceps, Triceps, Quadriceps, Hamstrings, Gastrocnemius, Gluteals, Abdominals, Deltoid and Pectorals. Outwitting opponents Accuracy

Useful resources
www.uka.org.uk www.englandathletics.org www.britishathletics.org

Subject Knowledge Organiser
Athletics – Competition, Scoring & Officials

Competition
Athletics is a collection of sporting events that consist of the three major areas of running, jumping and throwing. The running events include sprints, middle and long-distance events and hurdling. Jumping events include the long jump, high jump, triple jump and pole vault, while the throwing events include the discus throw, hammer throw, javelin throw and shot put. There are also combined events, such as the decathlon for men, which consists of ten events, and the heptathlon for women, which consists of seven events.

Shown below is a typical competition area for athletics.



Scoring
Success in athletics is judged on times and distances rather than points or goals.

Track events – These races are started with an electronic pistol which is only sounded again on a false start. In races that are very close, officials use a digital line-scan camera across the finish line to give them a photo finish picture. The clock stops when an athlete has passed through the finish line.
Jumping events – These events are measured from the front edge of the take-off board to the first mark made in the sand by the athlete. The distance is always measured to the nearest centimetre and athletes will always be given a minimum of three jumps.
Throwing events – These events are measured from the front edge of the throwing line to the first mark made in the ground by the implement. The distance is always measured to the nearest centimetre and athletes will always be given a minimum of three attempts.

Officials
An athletics competition requires a wide range of officials. These include:

Starter – Starts all track events.
Starter's marshals – Line up competitors in correct order ready for starting.
Timekeepers – Provide official times for all track competitors.
Place judges – Ensure the correct order of positions are given.
Field event judges – Measure, record and let athletes know when it is safe to compete.
Relay judges – Make sure runners at change-overs are in the correct lane and within the change-over box.

Key Vocabulary

- Batting - Bowling - Fielding - Running - Throwing
- Stumps - Wicket - Stumps - Wicket Keeper - Umpire
- Innings - Wide - No Ball - Over - Four - Six

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Basic Cricket skills
4. Positions/playing area
5. Throwing
6. Catching
7. Batting
8. Bowling

Cricket

KS3 Knowledge Grid

Aim of the game

The object of Cricket is to either outscore a team with the most runs when batting or stop the opposition scoring the most runs when bowling and fielding.

Rules of the game

There are various versions of cricket such as Test, One Day, 50 over, 20/200, indoor and quick cricket.

- A game in school typically has two teams of eleven players
- Each team bats once in each innings before the sides switch.
- The fielding team has a bowler, wicket keeper, and then the field is set depending on the size of pitch
- A batter must successfully strike the ball and run between the stumps as many times as possible with their partner or hit the ball over set a set boundary. If the ball rolls over this boundary it is 4 points if the ball without bouncing reaches this point they get 6 runs.
- Batters can be out by being bowled (ball hitting stumps), LBW (Ball hits the **L**eg **B**efore **W**icket) or by being Caught (by the fielding team)
- Once all Batters are out, they can swap and the bowling/ fielding team become the batting team.
- Typically cricket is played with a hardball and is split by genders.
- The number of innings or number of overs can be pre-set and make up the duration of the game

Playing Positions and basic skills

Basic Cricket skills:

BATTING – The batter will swing the bat and aim to strike the ball that is bowled from the bowler

BOWLER – The bowler deliver six balls (Over) at the batter in an attempt to hit there stumps to get them out or have them caught out.

THROWING – Fielders will throw the ball to where it is needed in an attempt to get the batters out, usually at the stumps

CATCHING – Fielders have will either catch a ball that is hit by the batter or that is thrown by a fielder

RUNNING – Batter will run as fast as they can between the stumps with their partner

FIELDING – The aim is to get the batting players out by catching the ball after it is hit, or by throwing it back to the stumps and running the batter out at the stumps

Fielding positions and playing area:

Key Vocabulary

- Batting - Bowling - Fielding - Running - Throwing
- Base - Back Stop - Rounder - Half Rounder - No Ball
- Innings - Obstruction - Catching

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Basic Rounders skills
4. Positions/playing area
5. Throwing
6. Catching
7. Batting
8. Bowling

Rounders

KS3 Knowledge Grid

Aim of the game

The object of Rounders is to either outscore a team with the most runs when batting or stop the opposition scoring the most runs when bowling and fielding.

Rules of the game

WE ARE ALL ROUNDERS

ROUNDERS ENGLAND

SIMPLIFIED RULES

TEAMS

- Games are played between two teams. Each team has a maximum of 15 and a minimum of 6 players. No more than 9 players may be on the field at any one time
- If a mixed team—there should be no more than 5 male players
- List of players and substitutes should be submitted to the Umpire prior to play
- Games are usually played over 2 innings
- Players once substituted may return during the game, but batters only in the position of their original number

BATTING

- Wait in the backward area well away from 4th post
- If out, wait in the backward area well away from 1st post
- Enter the batting square when called to do so by the Umpire
- You will have one good ball bowled to you
- Batter can use 2 hands
- You can take a no ball and score in the usual way, but once you reach 1st post you cannot return. You cannot be caught out or stumped out at 1st post on a no ball

NO BALLS

- Not smooth underarm action
- Ball is above head or below knee
- Ball bounces on way to you
- Wide or straight at body
- The Bowler's foot is outside the square during the bowling action

Playing Positions and basic skills

Basic Cricket skills:

BATTING – The batter will swing the bat and aim to strike the ball that is bowled from the bowler

BOWLER – The bowler will bowl at the batter in an attempt to get them caught out.

THROWING – Fielders will throw the ball to where it is needed in an attempt to get the batters out, usually at the bases.

CATCHING – Fielders have will either catch a ball that is hit by the batter or that is thrown by a fielder

RUNNING – Batter will run as fast as they can between the bases and score Rounders base on where they can get to.

FIELDING – The aim is to get the batting players out by catching the ball after it is hit, or by throwing it back to the stumps and running the batter out at the stumps

Fielding positions and playing area:

Key Vocabulary

- Hitting - Throwing - Catching - Base running - Fielding - Pitching
- Pitcher - Catcher - Base fielder - Deep fielder - Short stop - Innings
- Home run - Foul area - Outfield - Dead ball area - Tied game

Lesson Overview

1. Aim of the game
2. Rules of the game
3. Basic softball skills
4. Positions/playing area
5. Throwing
6. pitching
7. Batting
8. Catching

Softball

KS3 Knowledge Grid

Aim of the game

The object of softball is to hit the ball with a bat and try to run around a pitch with four bases. Once a player manages to get right round without being given out, a run is scored. The team with the most runs at the end of the game is deemed the winner.

Rules of the game

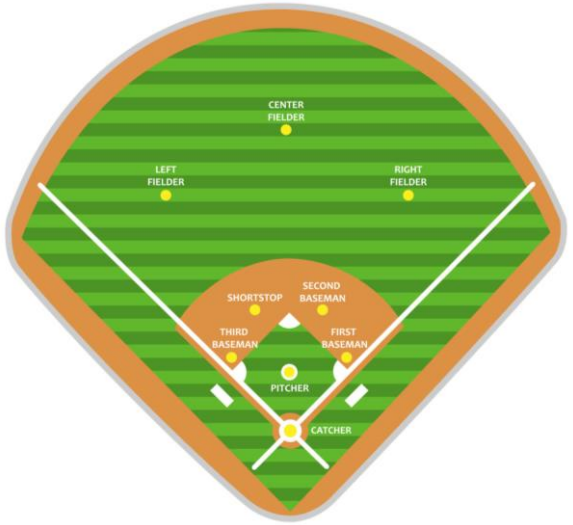
- Each team consists of 9 players and teams can be of mixed gender
- A game lasts for 7 innings and is split into two sections; the top and bottom of the innings.
- Each team bats once in each innings before the sides switch.
- The fielding team has a pitcher, catcher, a player on first base, second base, third base, three deep fielders and short stop.
- A batter must successfully strike the ball and run around as many bases as possible. Once they get all the way around and back to home plate without being given out, a run is scored.
- The fielding team can stop the batter by making them miss the ball, catching the ball, tagging one of the bases before they reach it or tagging the batter whilst they are running with the ball in hand.
- Behind the first and third base line is a foul area. Once the ball crosses this line before it bounces the ball is deemed 'dead' and play restarts with a new pitch.
- A home run can be scored by hitting the ball over the outfield and into a dead ball area. The batter can then stroll around the bases to score along with any additional batters on base.
- The winners of the game will be decided after the 7 innings have all been completed. The team with most runs after 7 innings will be declared the winner. If after 7 innings the game is tied, then an extra innings will be played until a winner is found

Playing Positions and basic skills

Basic softball skills:

HITTING – The batter will swing the bat and aim to strike the ball that is pitched from the mound
THROWING – Fielders will throw the ball to where it is needed in an attempt to get the batters out
CATCHING – Fielders have will either catch a ball that is hit by the batter or that is thrown by a fielder
BASE RUNNING – Batter will run as fast as they can in between the bases
FIELDING – The aim is to get the batting players out by catching the ball after it is hit, or by touching a base with the ball before they reach it.
PITCHING – A method of throwing the ball at the batter waiting to hit

Fielding positions and playing area:



Y8 English - Adventures Around the World – Fiction Writing KO

Tier 2 Vocabulary

Wondrous	Inspiring a feeling of wonder or delight.
Opaque	Not transparent, not letting light through.
Relentless	Not stopping, continuous.
Luminous	Giving off light; bright or shining; very bright in colour.
Dazzling	Extremely bright, blinding; extremely impressive.
Abundant	Existing or available in large quantities; plentiful.
Despondent	Sad because of loss of hope or courage.
Voluminous	Extremely large, plentiful and full.
Exquisite	Beautiful and delicate.
Nauseous	Sickening.
Turbulent	Violent, disordered, confused.
Ubiquitous	Present, appearing, or found everywhere.
Repulsive	Causing intense distaste or disgust.
Engulfed	To eat or swallow (something) whole; to surround it completely.
Sporadic	Occurring at irregular intervals; scattered or isolated.

Fiction Writing	A piece of writing which is not factual or real: it has been invented, changed, or added to and embellished by a writer or author, e.g. a novel, poem, play, short story.
Narrative Writing	A spoken or written account of connected events; a story.
Descriptive Writing	Writing which creates a "picture in words" and focuses on description not plot.

TAM

Tone	Usually refers to "tone of voice" and how a text sounds, e.g. humorous or serious
Atmosphere	The writer creates the atmosphere by describing the setting – it is a feeling, but not necessarily one a person feels, e.g. eerie or bustling
Mood	Connected to readers and how they feel or respond to texts, e.g. playful, lonely, warm

Word Classes

Noun	Identifies a person (girl), place (London), thing (wall), idea (luckiness) or state (anger).
Verb	Describes an action (jump), event (happen), situation (be) or change (evolve).
Adjective	Describes a noun (**happy** girl, **grey** wall).
Adverb	Gives information about a verb (jump **quickly**), adjective (**very** pretty) or adverb (**very quickly**).

PAF

Purpose	Why are you writing? e.g. *To entertain, to inform*
Audience	Who are you writing for? e.g. *Young adults, children, teachers*
Form	What type of text are you going to write? e.g. *A recipe, an article, a story*

Sentence Types

Fragment	An incomplete sentence (no subject verb agreement). *"Nothing." "Silence everywhere."*
Simple	A sentence with one independent clause (subject and verb). *"She went to the shop."*
Compound	A sentence with multiple independent clauses joined by conjunctions. *"She went to the shop and bought a banana"*
Complex	A sentence with one independent clause and at least one dependent clause. *"Sometimes, when she goes to the shop, she likes to buy a banana."*

Punctuation

,	Clauses and lists
;	Lists and two equal weight clauses
!	Use sparingly
…	Use sparingly

Writing Techniques

Simile	A comparison using *like* or *as*.
Metaphor	A comparison using *is*, *was* or *were*.
Pathetic Fallacy	Using the weather to reflect emotions.
Personification	Giving human attributes to something non-human.
Sensory Language	Using or appealing to the 5 senses.
Alliteration	Repeating the same letter.
Connotations	Associated words or meanings.

Sentence Starters

Fronted Adverbial	Beautifully, the light glittered on the sea.
Simile	Like a lazy cat, she lay down to sleep.
Two adjectives	Soft and golden, the sun shone down on the children.
Start with a verb	Running rapidly, Jack cried for help.
Time	Afterwards, the snow melted away.

Year 8 – English - Term 3.2 - Of Mice and Men – Knowledge Organiser

Language Subject Terminology	
1. Word Classes	
Noun	Identifies a person (girl), thing (wall), idea (luckiness) or state (anger).
Verb	Describes an action (jump), event (happen), situation (be) or change (evolve).
Adjective	Describes a noun (**happy** girl, **grey** wall).
Adverb	Gives information about a verb (jump **quickly**), adjective (**very** pretty) or adverb (**very quickly**).
Preposition	Describes the location of something, e.g. the pen was found **under** the table.
2. Sentence Structures	
Simple	A sentence with one independent clause. *"She went to the shop."*
Compound	A sentence with multiple independent clauses. *"She went to the shop and bought a banana"*
Complex	A sentence with one independent clause and at least one dependent clause. *"Sometimes, when she goes to the shop, she likes to buy a banana."*
3. Language Techniques	
Simile	Something is presented as like something else.
Metaphor	Something is presented as something else.
Imagery	When the writer provides mental "pictures".
Personification	Giving human traits to something non-human.
Alliteration	The occurrence of the same sound/letter at the beginning of words
Repetition	Repeating something to emphasises or reinforce.
Emotive Language	Words/phrases which appeal to the emotions.
Three Rule	Three words/phrases grouped together for effect.
Oxymoron	a figure of speech in which apparently contradictory terms appear in conjunction .
Juxtaposition	the fact of two things being seen or placed close together with contrasting effect.
Pathetic Fallacy	Giving human feelings and responses to inanimate things or animals.

4. Tier 2 Vocab	
Juncture	A place where two or more things come together
Recumbent	Lying down; in a position of comfort or rest
Lumber	Move heavily or clumsily
Brusquely	In a blunt direct manner
Fraternal	Relating to brothers, or being friendly like brothers
Elaborate	Intricate or rich in detail
Pugnacious	Ready and able to resort to force or violence.
Gingerly	In a careful or cautious manner;
Apprehensive	Uneasy and worried
Disengage	Uneasy and worried
Profound	Release from something that holds fast or entangles.
Complacently	Showing intellectual penetration or emotional depth.
Poised	Marked by balance or equilibrium.
Cower	To crouch or curl up.
Marginalisation	The act of treating someone or something as if they are not important.
Aloof	Emotionally distant.
Meagre	Deficient in amount or quality.
Crestfallen	Brought low in spirit.
Console	Give moral or emotional strength to.

5. The Author—John Steinbeck

- He wrote the book ' Of Mice and Men' in 1936
- He came from Salinas, California
- Like 'Of Mice and Men' many of his books deal with the lives and problems of working people.
- Many of his characters in his books are immigrants
- who went to California looking for work or a better life.

Of Mice and Men	
6. Characters	
George	Small and quick, dark of face, with restless eyes and sharp, strong features"
Lennie	"A huge man, shapeless of face, with large pale eyes, with wide sloping shoulders"
Candy	His right hand is simply a stump because he lost his hand in a ranch accident.'
Curley	"He hates big guys. He's alla time picking scraps with big guys"
Curley's Wife	She had full, rouged lips and wide-spaced eyes, heavily made up. Her fingernails were red.
Slim	"Slim's as good a skinner as I ever seen"
Carlson	A powerful, big-stomached man came into the bunk house.'
Crooks	"Crooks, the negro stable buck, had his bunk in the harness room"

7. Historical Information

The Roaring 20s

1930s Great Depression

Immigrant Workers

Black Rights Movement

The Wall Street Crash

The American Dream

The Dustbowl

8. Themes

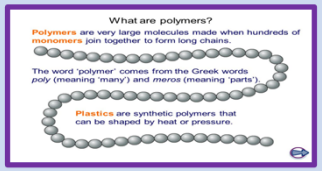
Racism
Prejudice
Hope and Dreams
Loneliness and Companionship
Brutality and Dignity
Class
Gender

Knowledge Organiser – Year 8 – Atoms and the Periodic Table

1. Key Words!

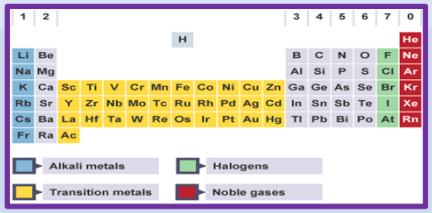
Periodic table: Shows all the elements arranged in rows and columns.
Physical properties: Features of a substance that can be observed without changing the substance itself.
Chemical properties: Features of the way a substance reacts with other substances.
Groups: Columns of the periodic table.
Periods: Rows of the periodic table.
Elements: What all substances are made of, and which contain only one type of atom.
Atom: The smallest particle of an element that can exist.
Molecules: Two to thousands of atoms joined.
Compound: Pure substances made up of two or more elements strongly joined.
Chemical formula: Shows the elements present in a compound and their relative proportions.
Polymer: A molecule made of thousands of smaller molecules in a repeating pattern.

2. Polymers



Natural polymers like wool and cotton are made by plants and animals. Polymers do not occur naturally. They are formed during chemical reactions.

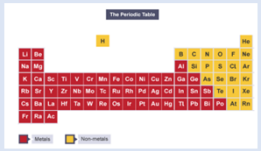
3. Periodic table



The horizontal rows are called periods. The vertical columns are called groups.
Group 1: Alkali metals
Group 7: The Halogens
Group 0: Nobel Gases
Middle Section: Transition elements

4. Metals and non-metals

Metal = left Non-metal = right



Properties of a typical metal (when solid)	Properties of a typical non-metal (when solid)
good conductor of electricity	poor conductor of electricity
good conductor of heat	poor conductor of heat
shiny	dull
high density (heavy for its size)	low density (light for its size)
malleable (you can hammer it into different shapes) and ductile	brittle (breaks easily)

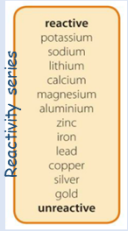
Type of substance	State at 20 °C	Is this type of substance an acid or a base?
metal oxide	most are solid	most are bases
non-metal oxide	most are gases	most are acids

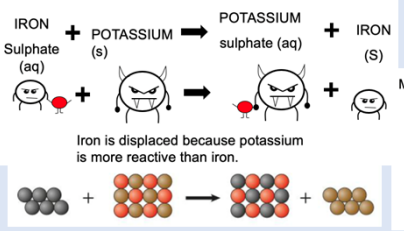
Metals: Shiny, good conductors of electricity and heat, malleable and ductile, and usually solid at room temperature.
Non-metals: Dull, poor conductors of electricity and heat, brittle and usually solid or gaseous at room temperature.

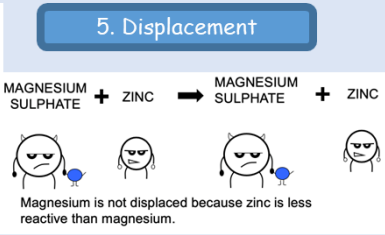
Iron, nickel and cobalt are magnetic elements.
Mercury is the only metal that is **liquid** at room temperature.
Bromine is the only non-metal that is **liquid** at room temperature.

5. Displacement

Reactivity: The tendency of a substance to undergo a chemical reaction.
Reactivity series: A list of metals in order of how vigorously they react.
Displace: A more reactive metal displaces (or pushes out) a less reactive metal from its compound.
Displacement: A reaction where a more reactive metal takes the place of a less reactive metal in a compound.







Chemical properties When added to water all group 1 metals produce hydrogen gas. The reactions also produce an alkaline solution so universal indicator turns purple.
As you move down the group the reactions become more vigorous.

Physical properties The melting points decrease as you move down the group. They all have one electron in their outer shell. They are shiny but react quickly with oxygen in the air to tarnish. They are soft metals and can be easily cut with a knife.

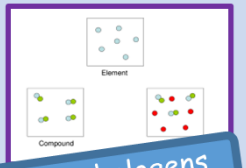
5. Group 1

6. Elements, mixtures, compounds.

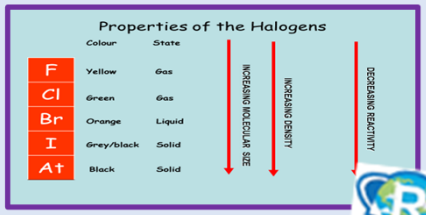
The atoms of some elements do not join together, but instead they stay as separate atoms. Helium is like this. The atoms of other elements, such as hydrogen and oxygen, join together to make **molecules**.

A **compound** is a substance that contains atoms of two or more different elements chemically joined together. For example, water is a compound of hydrogen and oxygen.

This is a common examination question. You must be able to recognise diagrams of a element, mixture and compound.

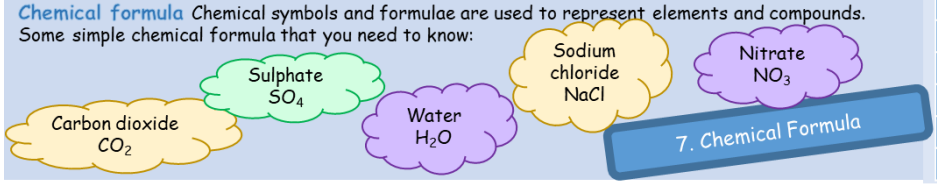


4. The halogens



These are group 7 elements. They all have 7 electrons in the outer shell. A more reactive halogen will displace a less reactive halogen.

Chemical formula Chemical symbols and formulae are used to represent elements and compounds.
Some simple chemical formula that you need to know:



7. Chemical Formula

8. Further Reading

Atomic Structure	https://www.youtube.com/watch?v=cpBb2bgFO6I
Atomic Model Development	https://www.youtube.com/watch?v=xazQRcSCRaY
Bonding	https://www.youtube.com/watch?v=NgD9yHSJ29I
Group 0 Elements	https://www.youtube.com/watch?v=qNaBMvJXdJ4
Group 7 Elements	https://www.youtube.com/watch?v=yW_C10cEzMk
Periodic Table Song	https://www.youtube.com/watch?v=VgVQKCcfwnU
Group 1 Elements	https://www.youtube.com/watch?v=CmiitvJiCPc

Knowledge Organiser – Year 8 – Science – Energy and Reactions

1. Key Words!

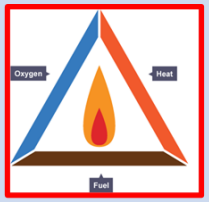
Catalysts: Substances that speed up chemical reactions but are unchanged at the end.
Exothermic reaction: One in which energy is given out, usually as heat or light.
Endothermic reaction: One in which energy is taken in, usually as heat.
Chemical bond: Force that holds atoms together in molecules.
Fuel: Stores energy in a chemical store which it can release as heat.
Chemical reaction: A change in which a new substance is formed.
Physical change: One that changes the physical properties of a substance, but no new substance is formed.
Reactants: Substances that react together, shown before the arrow in an equation.
Products: Substances formed in a chemical reaction, shown after the reaction arrow in an equation.
Conserved: When the quantity of something does not change after a process takes place.

2. Thermal Decomposition

Some chemical reactions need energy to start them off. This energy can be in the form of heat, light or electricity. When you use energy to split up compounds they are **decomposed**. Some compounds break down when heated, forming two or more products from one reactant. This type of reaction is called **thermal decomposition**. For example, copper carbonate breaks down easily when it is heated:
copper carbonate→ copper oxide + carbon dioxide
$CuCO_3 \rightarrow CuO + CO_2$

3. Fire Triangle

If one of the sides of the fire triangle is removed, a fire will not start, and a fire that is already burning will go out. Fire-fighting relies on this principle. The fire will go out when the fuel runs out, but it is often unsafe to leave a fire that long



Heat: A source of heat is required in order for ignition to occur, and different materials have different 'flash points'
Fuels: A fire cannot begin if there is no material to burn. Homes and businesses are full of flammable materials, such as paper, oil, wood and fabrics.
To sustain the combustion reaction, oxygen is needed, as it reacts with the burning fuel to release heat and CO2. Earth's atmosphere consists of 21% oxygen, so there is plenty available to trigger a fire if the other two components are present.

4. Combustion

Complete Combustion:
Hydrocarbon fuels are made from the elements carbon and hydrogen.
When hydrocarbons burn they use oxygen and form carbon dioxide and water, and release heat energy. We can show the reaction using a word equation.

methane + oxygen → carbon dioxide + water

If there is plenty of air, **complete combustion** happens:
the hydrogen atoms combine with oxygen to make water vapour, H2O
the carbon atoms combine with oxygen to make carbon dioxide, CO2
the maximum amount of energy is released

Incomplete Combustion:
If there is not enough oxygen available, carbon monoxide or even soot is produced during **incomplete combustion**.

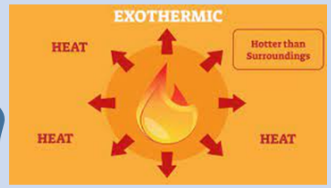
5. Endothermic Reactions

Endothermic reactions take in energy from the surroundings. The energy is usually transferred as heat energy, causing the reaction mixture and its surroundings to get colder. The temperature decrease can also be detected using a thermometer.
Some examples of endothermic reactions are:

Thermal decomposition

Cooking an egg

FUN FACT!
Endothermic reactions can be used for everyday purposes. For example, certain sports injury cold packs use endothermic



6. Exothermic Reactions

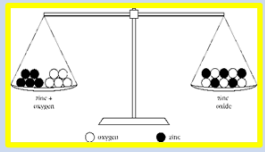
Exothermic reactions **transfer energy to the surroundings**. The energy is usually transferred as heat energy, causing the reaction mixture and its surroundings to become hotter. The energy level decreases in an exothermic reaction. This is because energy is given out to the surroundings.

Some examples of exothermic reactions are:

Making an ice cube.
Snow forming in clouds.
Burning of a candle.
Rusting of iron.
Burning of sugar.

7. Law of Conservation of Mass

In a chemical reaction, the mass of the reactants is always the same as the mass of the products. This is because atoms are not created or destroyed in chemical reactions; they are just rearranged into different compounds.



8. Further Reading

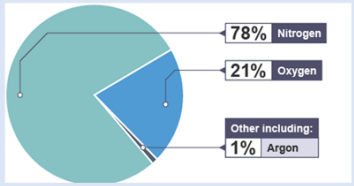
Fire Triangle	https://www.youtube.com/watch?v=URIyms6XGGk
Physical and Chemical Changes	https://www.youtube.com/watch?v=x49BtB5dOwg
Combustion	https://www.youtube.com/watch?v=cRnpKjHpFyg
Decomposition	https://www.youtube.com/watch?v=o9ArhzjrQNY
Endothermic and Exothermic Reactions	https://www.youtube.com/watch?v=eJXL0IrbtqE

Knowledge Organiser – Year 8 – Earth

1. Key Words!

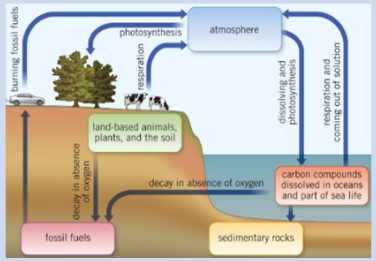
Global warming: The gradual increase in the surface temperature of the Earth.
Fossil fuels: Remains of dead organisms that are burned as fuels, releasing carbon dioxide.
Carbon sink: Areas of vegetation, the ocean or the soil, which absorb and store carbon.
Greenhouse effect: When energy from the sun is transferred to the thermal energy store of gases in Earth's atmosphere.
Natural resources: Materials from the Earth which act as raw materials for making a variety of products.
Mineral: Naturally occurring compound or element.
Ore: Naturally occurring rock containing sufficient minerals for economical extraction.
Extraction: Separation of a metal from a metal compound.
Recycling: Processing a material so that it can be used again.
Electrolysis: Using electricity to split up a compound into its elements.

2. Composition of the Atmosphere



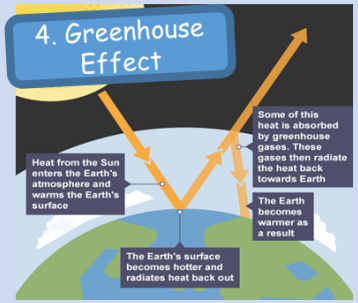
The Earth's atmosphere is the relatively thin layer of gases that surround the planet. It provides us with the oxygen we need to stay alive.

3. Carbon Cycle



A carbon sink is an area of vegetation, the ocean or the soil, which absorb and store carbon.
The carbon cycle shows carbon sinks and summarises how carbon and its compounds enter and leave the atmosphere and these sinks.

4. Greenhouse Effect



1	The Earth is warmed by light from the Sun.
2	The Earth emits infrared radiation.
3	Some infrared radiation escapes into outer space. Some is trapped/absorbed by greenhouse gases.
4	The Earth maintains a temperature suited to life
5	Greenhouse gases in the atmosphere increase.
6	More infrared radiation is trapped, and the Earth's temperature increases.

5. Global Warming

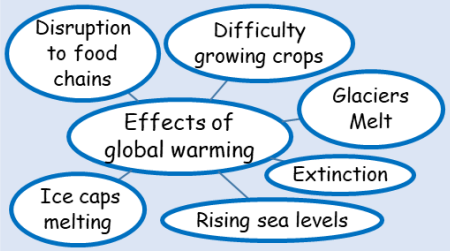
Extra greenhouse gases in the atmosphere causes global warming. Global warming can cause:

- Changes to local weather patterns.
- Increased rainfall and floods.
- Droughts and heatwaves leading to crop failure.

<u>Humans are contributing to global warming by:</u>

- Burning fossil fuels to generate electricity/transport.
- Deforestation to make space for crops and cattle.
- Farming animals for products such as meat.

6. Climate Change



We can reduce these effects by burning fewer fossil fuels and using more renewable energy sources, plant more trees and eating less meat.

7. Recycling

Materials are collected and taken to a recycling plant → Items are washed, and labels are removed → Items are compressed and shredded → Melting, cooling and remoulding.

Recycling reduces the need to extract resources.

<u>Advantages</u>
Limits the consumption of the Earth's natural resources and uses less energy than obtaining materials from scratch.

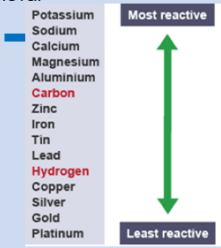
<u>Disadvantages</u>
Lorries collecting rubbish burn fossil fuels contributing to global warming and the process is expensive.

8. Extracting Metals

Most metals are found chemically bonded with other elements in compounds. Most metals are usually found in ores as metal oxides.

<u>Metals less reactive than carbon</u>
Extracted from their ores by a displacement reaction.
Carbon replaces the metal from the metal compound.
This is also a reduction reaction as oxygen is removed from the metal oxide.

<u>Metals more reactive than carbon</u>
Extracted by electrolysis. This process uses electricity .
It is a very expensive process as the ore needs be become molten (liquid) which requires very high temperatures and uses a lot of electricity.



9. Further Reading

General	https://www.bbc.com/bitesize/topics/z3fv4v
Carbon Cycle	https://www.youtube.com/watch?v=r75NL3gN5yU
Global Warming	https://www.youtube.com/watch?v=oJAbATJCugs
Recycling	https://www.youtube.com/watch?v=b7GMpjx2jDQ
Extracting Metals	https://www.youtube.com/watch?v=fxBIgbRT8fw

Knowledge Organiser Forces – Forces

1. Key Words!

Equilibrium: State of an object when opposing forces are balanced.
Deformation: Changing shape due to a force.
Linear relationship: When two variables are graphed and show a straight line which goes through the origin, and they can be called directly proportional.
Newton: Unit for measuring forces (N).
Resultant force: Single force which can replace all the forces acting on an object and have the same effect.
Friction: Force opposing motion which is caused by the interaction of surfaces moving over one another. It is called 'drag' if one is a fluid.
Tension: Force extending or pulling apart.
Compression: Force squashing or pushing together.
Contact force: One that acts by direct contact
Fluid: A substance with no fixed shape, a gas or a liquid.
Pressure: The ratio of force to surface area, in N/ m2, and how it causes stresses in solids.
Upthrust: The upward force that a liquid or gas exerts on a body floating in it.
Atmospheric pressure: The pressure caused by the weight of the air above a surface.

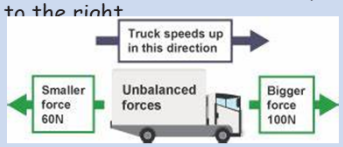
2. Forces

Contact forces are **forces** that act between two objects that are physically touching each other. Examples of contact forces include: reaction forces, tension, friction and air resistance.

Non-contact forces are **forces** that act between two objects that are not physically touching each other. Examples of non-contact forces include: magnetic, electrostatic and gravitational forces.

When two or more forces act on an object, the resultant force can be found by adding up the individual forces in opposite direction.

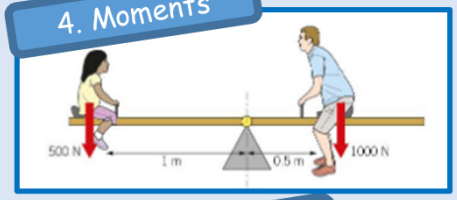
In the example below there is 60N left and 100N right.
We calculate the resultant force by 100-60 = 40 to the right



3. Friction

Friction is a **contact force** and it vcan be useful or unhelpful. For example friction between tyres and the ground stops us skidding but ff you do not lubricate your bike regularly with oil, the friction in the chain and axles increases. Your bike will be noisy and difficult to pedal. Friction always works to slow something down. It can also be known as drag, water resistance (when in water) or air resistance (when in air).

4. Moments



The turning effect of a force is called a **moment**
Force x distance on the right (1000N x 0.5m = 500Nm)
Force x distance on the left (500N x 1m = 500Nm)
The forces are equal, so the see-saw is balanced

5. Pressure and stress on a surface

Fluid pressure (N/m2) = Force (N) / Area (m2)

Example: A force of 20 N acts over an area of 4 m^2. Calculate the pressure. 20 N ÷ 4 m^2 = 5 N/m^2
Notice that the unit of pressure here is N/m^2 (newtons per square metre). Sometimes you will see another unit being used. This is called the **pascal** and it has the symbol Pa.

If you walk through snow, you usually sink into it. This is because your shoes have a small surface area. Your weight is only spread out over a small area, so the pressure on the snow is high. However, you will not sink so far into the snow if you are on skis. This is because your weight is spread out over a greater surface area, so the pressure on the snow is low.

6. Pressure in liquids and gases

A fluid is a substance with no fixed shape – a gas or a liquid.
Liquid pressure acts in **all directions** – liquids are **incompressible**.
Upthurst acts on objects that are floating or submerged. If the force hitting the bottom of an object in water is more than the air above the object, then it will float due to the resultant force.

You increase the pressure of a gas by **reducing the area** it is in, therefore squashing the particles closer together. **Heating** a gas will also increase the pressure.

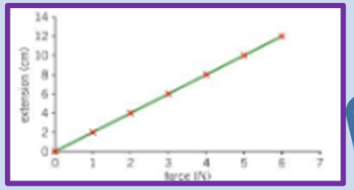
Atmospheric pressure is pushing down on you all the time, but your body is pushing gases and liquids out which balances it and therefore you don't feel it.

Atmospheric pressure decreases with height, and liquid pressure increases with depth.

7. Hooke's law

The amount an object is stretches is called **extension**. A bungee cord will stretch when the person falls and bring them back up when it has reached its **limit**.

An object obeys **Hooks law** when the force and extension are **directly proportional** – this means when one **doubles** the other **doubles**



Further Reading

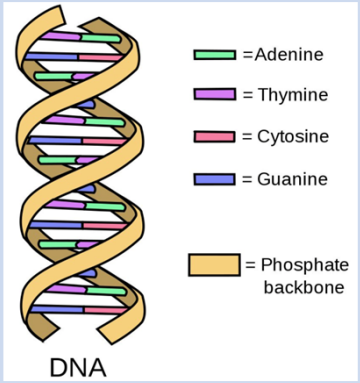
Friction	**https://www.youtube.com/watch?v=n2gQs1mcZHA**
Moments	https://www.youtube.com/watch?v=22VGQM1jCn8
Pressure, Liquids and Gases	https://www.youtube.com/watch?v=yP9usmMpQeQ
Hooke's Law	https://www.youtube.com/watch?v=zJs27xNdKOM

Knowledge Organiser – Year 8 – Genes

1. Key Words!

Population: Group of organisms of the same kind living in the same place.
Natural selection: Process by which species change over time in response to environmental changes and competition for resources.
Extinct: When no more individuals of a species remain.
Biodiversity: The variety of living things. It is measured as the differences between individuals of the same species, or the number of different species in an ecosystem.
Competition: When two or more living things struggle against each other to get the same resource.
Evolution: Theory that the animal and plant species living today descended from species that existed in the past.
Inherited characteristics: Features that are passed from parents to their offspring.
DNA: A molecule found in the nucleus of cells that contains genetic information.
Chromosomes: Thread-like structures containing tightly coiled DNA.
Gene: A section of DNA that determines an inherited characteris

2. DNA



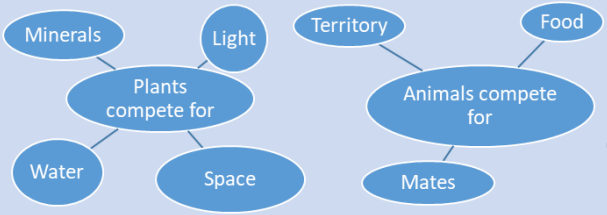
DNA: A molecule found in the nucleus of cells that contains genetic information.
It stands for deoxyribonucleic acid.
It is a chemical made up of two strands. The strands are twisted into a spiral shape called a double helix.
The strands are held together by bonds between base pairs.

The structure of DNA was discovered using the work of several scientists.

Rosalind Franklin used x-rays to make images of DNA.

Watson and Crick used information from one of these images to describe the structure of DNA. Wilkins supported their model.

3. Competiton and adaptations



In order to survive, plants and animals compete for different things…

Living organisms have special features known as **adaptations**. These are features which help them to survive in a particular environment, even when the conditions are extreme.

Small ears- prevents heat loss

Camouflage – helps them hide from **prey**

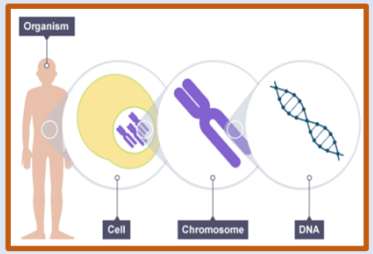
Thick fur and layer of blubber – provides insulation

Sharp claws- helps grip onto ice and catch prey

Large, flat feet – prevents sinking in the snow

4. Inheritance

Chromosomes are long strands of coiled DNA. They are found in the nucleus of cells. A section of a chromosomes that codes for a characteristics such as eye colour is called a gene. One copy of each of your genes is called your genome.

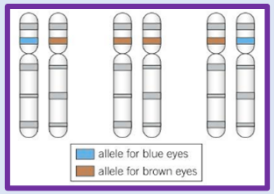


During sexual reproduction gametes fuse.
In human sperm and egg cells each carry 23 chromosomes. When they fuse a fertilised egg cell is created with 23 pairs of chromosomes.

Each pair contains a chromosome from each parent which is why offspring may look similar but never identical to their parents.

5. Genetics

For each characteristic you have two genes, one from your mother and one from your father. Each gene has a different form.
These are called alleles.
Alleles can be dominant or recessive.
The combination of these alleles determines your characteristic.



The dominant allele for eye colour is brown.
To have brown eyes you need to have at least one dominant allele.
To have blue eyes you must have two recessive alleles

If we know the genotype (the alleles) that parents have, we can predict the inheritance of their offspring using a Punnett square.

Mother \ Father	B	b
b	Bb	bb
b	Bb	bb

This shows that 50% of the offspring would have brown eyes and 50% blue.

6. Further Reading

https://www.youtube.com/watch?v=vnktXHBvE8s
https://www.youtube.com/watch?v=sjeSEngKGrg
https://www.youtube.com/watch?v=GK_vRtHJZu4
https://www.youtube.com/watch?v=jphrpR9ffKA
https://www.youtube.com/watch?v=zwibgNGe4aY

Knowledge Organiser - Year 8 - Genes

7. Charles Darwin

Darwin went on an expedition around the Galapagos islands. Darwin noticed that on different islands the birds had different shaped beaks. He suggested this was because of the food they had available on each island was different and so the finches had adapted to their surroundings.

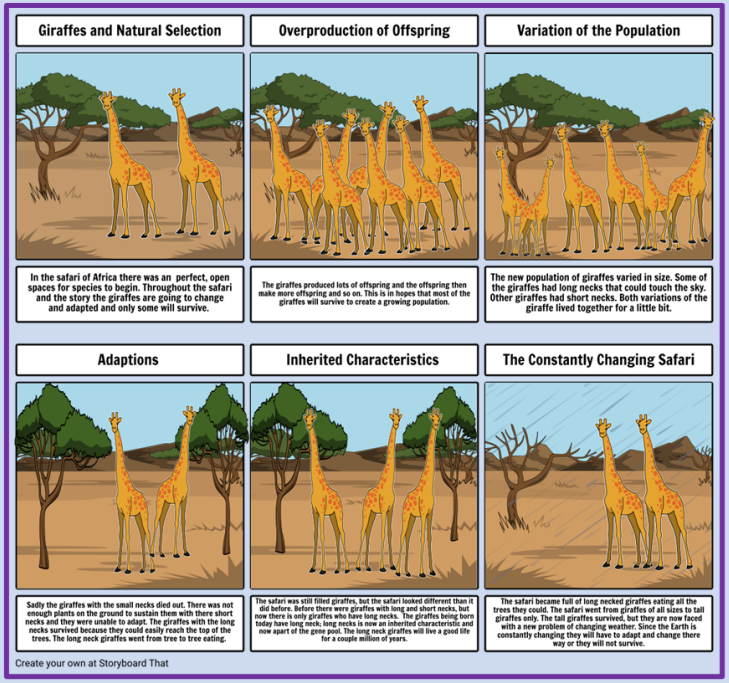
Darwin developed the theory of Natural Selection based upon his findings. At the same time a scientist called Alfred Wallace was developing his theory of evolution at the same time. They read each others work. Checking another scientist's work like this is called peer review.

Darwin's theory went against the idea that God created all organisms and was very controversial. His theory is now accepted by most due to evidence in the form of fossils, extinction of animals and antibiotic resistant bacteria.

8. Natural Selection

Natural selection is a process by which a species **changes** over time in response to changes in the **environment**, or **competition** between organisms, in order for the species to **survive**.

The members of the species with the most desirable characteristics are able to survive and reproduce to produce the **best-adapted** offspring. If a species is unable to adapt then it is at risk of becoming extinct.



9. Biodiversity

Biodiversity means having as wide a range of different species in an ecosystem as possible. It is important to conserve the variety of living organisms on Earth. Not only do we have moral and cultural reasons for conserving endangered species, but conservation:

- maintains the future possibility that plant species might be identified for medicines
- keeps damage to food chains and food webs to a minimum
- protects our future food supply

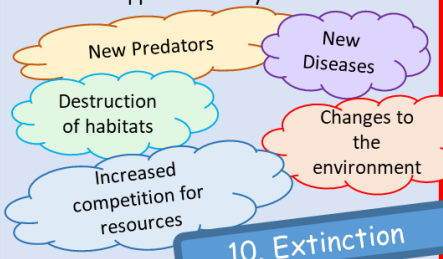
Conservation measures

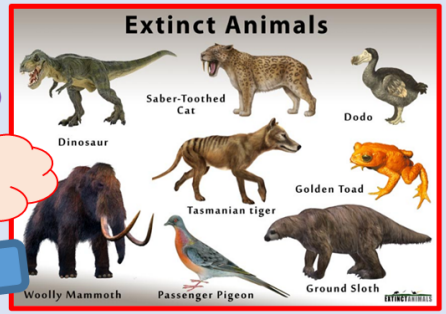
Some species in Britain are endangered, including the skylark, red squirrel and grass snake. They could be helped by conservation measures such as:

- education programmes
- captive breeding programmes
- legal protection and protection of their habitats
- making artificial ecosystems for them to live in

10. Extinction

If a species is unable to adapt quickly enough to its environment, then it is at risk of becoming extinct.
This can happen for many reasons:





These are the key points of evolution by natural selection:

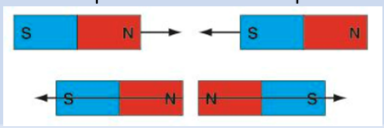
- Individuals in a species show a wide range of **variation**.
- Inherited variation is due to differences in their **genes**.
- Individuals with the features that are best suited to the environment are more likely to survive and reproduce.
- The genes that allow these individuals to be successful are passed to their offspring.
- Individuals that are poorly adapted to their environment are less likely to survive and reproduce. This means that their genes are less likely to be passed to the next generation.
- Over many generations these small differences add up to the new evolution of species.

Knowledge Organiser – Year 8 – Magnetism

1. Key Words!

Electromagnet: A non-permanent magnet turned on and off by controlling the current through it.
Solenoid: Wire wound into a tight coil, part of an electromagnet.
Core: Soft iron metal which the solenoid is wrapped around.
Magnetic force: Non-contact force from a magnet on a magnetic material.
Permanent magnet: An object that is magnetic all of the time.
Magnetic poles: The ends of a magnetic field, called north-seeking (N) and south-seeking poles (S).

Magnets
A magnet has two magnetic poles, a north seeking pole and a south seeking pole.
- North poles repel north poles
- South poles repel south poles
- North poles attract south poles



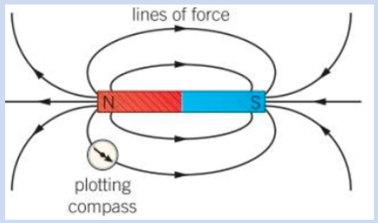
2. Magnetic materials

Not all metals are magnetic
There are four magnetic materials they are:
- **Iron**
- **Steel**
- **Nickel**
- **Cobalt**

I.CO.N.S

3. Magnetic fields

In a magnetic field there is a force on a magnet or a magnetic field. You can find a magnetic field using a plotting compass or iron fillings.
The force experienced depends on:
1. How strong the magnet is
2. How far away from the magnet the object is (the further away the weaker the force).

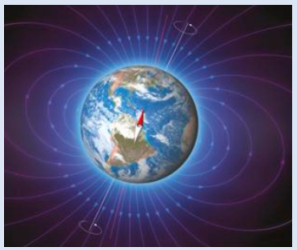


The arrow shows the direction on the magnetic field. It points out of the north and into the south. The field lines are closest together at the poles as this is where the magnetic field is the strongest.

Permanent and induced magnets
A permanent magnet has it's own magnetic field and can attract and **repel. Induced** magnets experiences a force when in the magnetic field of a permanent magnet and will **only attract.**

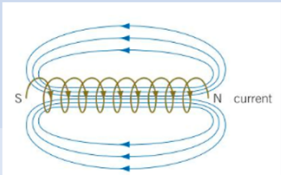
4. The Earth

The Earth
The Earth has a magnetic field, it behaves as if there is a huge bar magnet inside it. People have used compasses to navigate for thousands of years. The needle on a compass is a magnetic material which points to the north pole.



5. Electromagnets

A wire with an electric current flowing through it has a magnetic field around it. The magnetic field around a single loop of wire isn't very strong. You can wind lots of loops together to make a coil, this is called an **solenoid**. If a current flows through a wire it is an electromagnet.

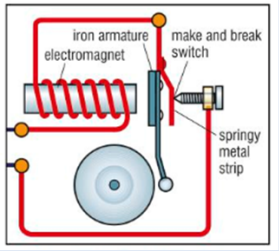


How to increase the strength of an electromagnet:
1. Increase the number of coils
2. Increase the current flowing
3. The core! A magnetic material for the core will make the electromagnet stronger

Remember the 3 Cs
Coil
Core
Current

6. Using electromagnets

Electromagnets are used in day to day life, they are used in circuit breakers, ringing bells, loud speakers and microphones to name a few.



When the doorbell is pressed a switch is closed and current can flow through the wire.
The electromagnet attracts the iron armature.
The armature moves and breaks the circuit and no current flows. As the coil and core are no longer magnetic the springy metal strip returns to its original position and the bell rings once.
Now the circuit is complete again and the armature moves again.

7. Further Reading

Electromagnets	
Electromagnetism and magnetism	https://www.bbc.co.uk/bitesize/guides/z3g8d2p/revision/1
Electromagnets and transformers	https://www.bbc.co.uk/bitesize/guides/zg43y4j/revision/1
Current and magnetic fields	https://www.youtube.com/watch?v=oEEYMhPY5tY
Brainiac electric fence	https://www.youtube.com/watch?v=-n1pSHzdahc
Magnets	https://www.youtube.com/watch?v=yXCeuSiTOug

Dance Music

Key features

- **4 to the floor** → Drum beat on every beat of the bar.
- **Bass drop/Breakdown** → Short break in continuous beat after building up texture.
- **Fast tempo 120-170bpm** → Beats per minute.
- **Repetitive riffs** → Short, repeated melodies.
- **Use of synthesisers** → Electronic sounds, often string-based, with lots of effects added.
- **Drum machine at a very fast tempo** → Electronic beats using FX, not possible acoustically.
- **Sampling** → Using part of another piece for effect.
- **Prominent bass line.**
- **Layering of texture.**

Types of Dance Music

Structure

Mix in → DJ transitions with the previous song.
Basic beat foundation → throughout the track.
Collage of samples/hooks/riffs → repeated ideas.
Breakdown or Bass Drop → reduced texture for effect.
Mix out → DJ matches beats with the next track.

Tango

Key features

- Originated in the 1880s in the slums and bars of Buenos Aires, Argentina.
- Four beats in a bar.
- A characteristic **syncopated ostinato** (repeated) rhythm.
- Frequent use of accented notes.
- Intensity with an often-melancholic mood.
- March-like **staccato** (short and detached notes) phrases.
- Sudden changes in **dynamics** (loud and quiet).

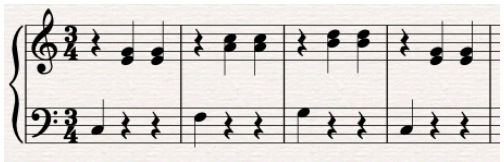
A typical Tango rhythm.

Waltz

Key features

- Evolved from folk dances in Austria and Germany in the mid-18th century.
- Always in **triple time,** usually 3/4, sometimes 3/8 or 3/2.
- Usually have one chord per bar, with the bass note on the first beat → 'Um cha cha'.
- Lyrical melodies.
- Graceful and elegant.

A typical 'Um cha cha' Waltz rhythm.



Year 8: Dying for the Vote

Key Vocabulary	Definitions
MP	Member of Parliament
Parliament	House of Commons and House of Lords. Responsible for making laws
Democracy	System of government where people elect MPs
Election or Ballot	A vote to determine which MPs will sit in parliament
Suffrage or Franchise	The right to vote in political elections
Petition	A written request signed by many people, demanding government action
Protest	An event in which people gather to show disapproval of something
Propaganda	Information used to promote a political cause
Martyr	Someone who suffers for a particular cause
Reform	Make changes to improve something
Constituency	a group of voters in a specified area

Voting in 1800

There were many restrictions; Less than 5% of the population could vote (450,000 out of 20 million). No women could vote. There was no secret ballot. Constituencies were unequal e.g. some areas with very few voters (rotten boroughs). MPs weren't paid. Women couldn't vote.

The Peterloo Massacre, 1819

At St Peter's Field, Manchester, cavalry charged into a crowd of over 60,000 who had gathered to demand the reform of parliamentary representation. 18 people, including a woman and a child, died from saber cuts and trampling. Over 600 were injured.

The Chartists

A working class movement for political reform. Petitions signed by millions of people were taken to the House of Commons. Their demands were listed in the **People's Charter:**

1. A vote for every man 21 yrs
2. The Secret Ballot
3. No Property Qualification for MPs
4. Payment of MPs
5. Equal Constituencies
6. Annual elections

The Suffragists

1897: **NUWSS** (National Union of Women's Suffrage Societies) was set up by Millicent Fawcett. Used peaceful methods e.g. petitions, leaflets, speeches, marches.

The Suffragettes

1903: **WSPU** (Women's Social & Political Union) was set up by Emeline Pankhurst. She was helped by her daughters Christabel and Sylvia. They used **militant** (violent) methods e.g. stone throwing, arson, smashing paintings. They chained themselves to railings outside parliament. Suffragettes were often arrested. Many went on hunger strike & were force fed. They believed in **'Deeds not words.'**

Emily Davison

A Suffragette known for extreme tactics that led to her being arrested & jailed 9 times. On 4 June 1913 she stepped in front of the King's horse Anmer at the Epsom Derby & suffered injuries that resulted in her death. Tens of thousands of people lined the streets for her funeral in London. She was buried in her home town of Morpeth. No one knows whether she intended to kill herself, but she became a **martyr** for the cause.

How did WW1 change the role of women?

When men went to war, women were used to 'plug the gaps'. **Munitionettes** worked in armaments factories. This was dangerous work. They were nicknamed '**canary girls**' as the TNT turned their skin yellow.

Women did many jobs previously thought of as 'man's work' e.g. delivered coal & drove buses.

47,000 women enrolled as volunteer nurses in the VAD (Voluntary Aid Detachment). Women also had admin roles in the armed forces.

During WW1 women proved they were just as capable as men.

1819	1832	1839-48	1867	1884	1897	1903	1914-18	1918	1928
Peterloo Massacre	**Great Reform Act** Men of property can vote	**Chartist's petitions**	**2nd Reform Act** Most working men in towns can vote	**3rd Reform Act** Most working men can vote	**NUWSS**	**WSPU**	**WW1**	**Representation of the People Act** Women of property 30+ can vote, & all men 21+	**Equal Franchise Act** All men & women 21+ can vote

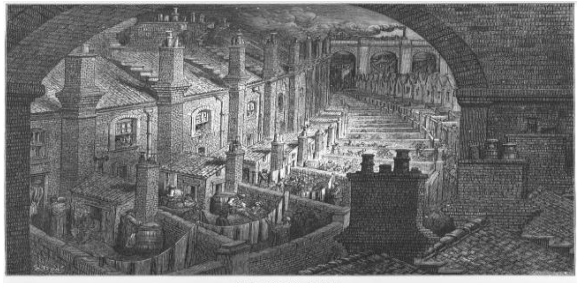
Year 8: The Industrial Revolution

Key Vocabulary	Definitions
Industrial Revolution	A complete **change** in how things were made. A time when **factories** replaced **farming** in the 18th and 19th century.
Manufacturing	make something on a large scale using **machinery.**
Textiles Industry.	A **factory** that produces a type of cloth or woven fabric.
Exhibition	a **public display** of works created by industries such as glass, steel, textiles and coal.
Working class	A **group** of people who are employed for **wages,** especially in manual or **industrial work.**
Coal Miners	Workers who dug out **coal** from underground to use to fuel machines.
Steam engine	A engine that uses steam as a means **of power.**
Locomotive	An engine used to pull trucks or **passengers** along a **track.**
Child labour	the **employment** of children in an industry considered as **exploitative.**
Overseer	A man in charge of workers in a factory. Like a **manager.**
Navvies	Workers employed to build roads, railways, **canals** and factory buildings.

Why was there an industrial revolution and what changes took place?

Between **1750-1900** the population of Britain exploded, going from 7 million to **40 million!** In 1750, most towns were small and people worked on farms or in their own homes. Peoples lives revolved around what they could grow. If there was a bad harvest your family could starve to death. Most families also made goods in their homes such as clothing and shoes and made little money from this. However, by 1900 the i**nvention** of better **machinery** saw people move from towns to cities filled with factories. **Factories** used machinery that could produce goods at a faster rate than people could in their own homes. As a result, families would have to move from the countryside to new cities to work in factories as there was a promise of **regular work and pay**.

As factory owners started to build houses, churches, shops and inns for their workers, places that were previously tiny, clean towns became huge, dirty and **overcrowded** cities filled with poverty and crime!



OVER LONDON BY RAIL.

What were working conditions like in a 19th Century cotton mill?

Conditions were awful! Factory owners cared about **profit** not safety of their workers. Machines were not fitted properly and were open. Many workers fingers would **be cut off,** or even worse, clothing caught in the machines saw many people get trapped in machines and mangled to death! Factories were so **noisy** that people often went deaf and the dust made people ill. They would be hot, sweaty and smelly as workers were not allowed long breaks and had to go to the toilet in a bucket at the end of each room. **Children** as **young as 5** would often go to work I factories also, they were **cheap labour** for owners. Workers could often work **16 hour shifts** Factory owners would punish workers harshly. You could be heavily fined if you were saw talking or singing at your machine.

What was it like to work in a coal mine?

Coal was needed more and more after 1750 to heat homes and to power **steam engines**. The need for coal meant the need for more miners to dig deeper for coal. Mining was a **dangerous** Job, the hours were long and pay was low. There were **many explosions** and accidents from mines caving in which killed thousands of men. Working in a mine was so dangerous that in Scotland, some criminals were given the choice of execution or working down a coal mine! Many miners would develop conditions such as **Black Lung-** coughing up black phlegm, **Nystagmus-** eyes which could not focus due to working in the dark and Arthritis.

How did the railway change peoples lives?

Steam engines first appeared in the 1700's. Inventors such as **George Stephenson** saw their chance to create money from the engine. Stephenson created the first locomotive that pulled coal along a track. This made transportation very quick. In **1825,** Stephenson created the first passenger railway line carrying passengers **from Darlington to Stockton**. The speed of the locomotive reached 12mph and people were so terrified they fainted! The railway connected the country together and allowed industries to expand. It created jobs, allowed food to reach across the country quickly, saw new towns develop, post could reach people quicker and even a standard time for the full country was introduced known as **Greenwich Mean Time.**

Timeline of Key Events

1716-Thomas Newcomen invented the first productive steam engine.

1764 James Hargreaves invented the Spinning Jenny.

1769-James Watt creates the steam engine

1800- 10 million tons of coal mined in Great Britain.

1825-George Stephenson creates steam engine locomotive that ran on rails.

1834 Poor Law created "poorhouses" for the destitute.

1880 Education Act made school compulsory for children up to age 10

1901 This Factory Act raised the minimum work age to 12 years old.

Student Knowledge Organiser 8.4 – Salud

Hábitos	Habits
acostarse tarde	to go to bed late
beber agua	to drink water
cambiarse	to get changed
cenar	to eat dinner
comer verduras	to eat vegetables
correr	to run
desayunar	to have breakfast
descansar	to relax
despertarse*	to wake up
dormir*	to sleep
empezar*	to start
entrenar	to train
estar en formar*	to keep fit
evitar	to avoid
fumar	to smoke
hacer ejercicio*	to do exercise
hacer mis deberes*	to do my homework
jugar*	to play
lavarse	to have a wash
levantarse temprano	to get up early
merendar	to snack
preferir*	to prefer
salir*	to go out
terminar	to finish
ver mis amigos	to see my friends
vestirse*	to get dressed

¿Cuándo?	When?
a menudo	often
a veces	sometimes
ayer	yesterday
cada día	every day
casí nunca	almost never
de la mañana	in the morning
de la tarde	in the afternoon
dos veces a la semana	twice a week
el fin de semana pasado	last weekend
finalmente	finally
frecuentemente	frequently
los lunes	on Mondays
luego	then, later
primero	firstly
todos los días	every day
una vez al mes	once a month

Connectivos	Connectives
que	which
sin embargo	however
porque	because
pero	but
cuando	when
también	also
así que	so, therefore
para + infintiive	in order to + verb
por ejemplo	for example

Key Questions	
¿Llevas una dieta sana?	Do you have a healthy diet?
¿Qué haces para estar en forma?	What do you do to keep fit?
¿Qué hiciste ayer para estar en forma?	What did you do yesterday to keep fit?
¿Qué vas a hacer en el futuro?	What are you going to do in the future?

Estar en forma	Keeping fit
se debe	you should
no se debe	you shouldn't
hay que	you must
tengo que	I have to
para estar en forma	to stay in shape
más	more
menos	less
demasiado	too much
mucho	lots of

¿Por qué?	Why?
pienso que	I think that
me gusta/n	I like
me encanta/n	I love
odio	I hate
soy adicto/a a ...	I'm addicted to ...
activo	active
débil	weak
delgado	thin
fuerte	strong
gordo	fat
malsano	unhealthy
relajante	relaxing
responsable	responsible
sano	healthy

Palabras utiles	Useful words
el alcohol	alcohol
el deporte	sport
el ejercicio	exercise
el estrés	stress
el gimnasio	gym
la dieta	diet
la energía	energy
la grasa	fat
la salud	health
la vida	life

Cuerpo	Body
Me duele(n) ...	My ... hurts
la boca	mouth
la cabeza	head
la mano	hand
la pierna	leg
el brazo	arm
los dientes	teeth
el ojo	eye

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Student Knowledge Organiser 8.5 – Lo que veo y escucho

Key Questions	
¿Qué te gusta ver?	What do you like to watch?
¿Qué te gusta escuchar?	What do you like to listen to?
¿Qué te gusta leer?	What do you like to read?
¿Qué leíste/viste/escuchaste recientemente?	What have you read/watched/listened to recently?
¿Qué vas a leer/ver/escuchar en el futuro?	What are you going to read/watch/listen to in the future?

La televisión	TV
el telediario	the news
los anuncios	adverts
un concurso	a game show
un documental	a documentary
un programa de deportes	a sports programme
un reality	a reality show
una animación	a cartoon
una comedia	a comedy
una serie policíaca	a police series
una telenovela	a soap opera

Las Películas	Films
una película de acción	an action film
una película de animación	an animated film
una película de aventuras	an adventure film
una película de ciencia ficción	a sci-fi film
una película de fantasía	a fantasy film
una película de terror	a horror film

La Música	Music
el rap	rap
el R'n'B	R'n'B
el rock	rock
la música clásica	classical music
la música de ...	...'s music
la música electrónica	electronic music
la música pop	pop music
un grupo	a group
un/una cantante	a singer
una canción	a song

¿Cuándo?	When?
tres veces al día	3 times a day
cada día	every day
a menudo	often
a veces	sometimes
casi nunca	almost never
frecuentemente	frequently
hace dos años	two years ago
la próxima vez	next time
ayer	yesterday
todo el tiempo	all the time
después del insti	after school

¿Por qué?	Why?
aburrido	boring
animado	lively
antiguo	old
apropriado	appropriate
artístico	artistic
caro	expensive
clásico	classic
cultural	cultural
divertido	fun
en vivo	live (music)
enorme	enormous
fácil	easy
famoso	famous
favorito	favourite
genial	great
gracioso	funny
gratis	free
histórico	historic
interesante	interesting
mejor	better
moderno	modern
peor	worse
popular	popular
rápido	quick, fast
relajante	relaxing
ruidoso	noisy
serio	serious
tonto	silly

¿Qué piensas?	What do you think?
pienso que	I think that
me gusta/n	I like
me encanta/n	I love
odio	I hate
soy adicto/a a	I'm addicted to
fue	it was
va a ser	it's going to be

Palabras Útiles	Useful words
el canal	channel
el cine	cinema
el concierto	concert
el radio	radio
la cultura	culture
la pantalla	screen
le escena	scene
las letras	lyrics
los jovenes	young people
un libro	a book
un periódico	a newspaper
un video	a video
una revista	a magazine
una serie	a series

Verbos	Verbs
descubrir	to discover
escuchar	to listen
ir*	to go
jugar*	to play
leer	to read
llamarse	to be called
ver*	to watch

North East Learning Trust

Justice: being fair, treating people fairly.

Injustice: not being fair, not treating people fairly.

- Poverty, homophobia, bullying, racism, homelessness, religious persecution, sexism etc.

Social Justice: refers to human rights and equality.

Capital punishment is the death penalty, is the killing of a person by judicial (legal) process as punishment.

The last executions in the United Kingdom took place in **1964**, prior to capital punishment being abolished for murder (in **1965** in Great Britain and in **1973** in Northern Ireland).

FOR	AGAINST
• It brings justice to the victim's family. • It brings closure to the family. • It protects society from dangerous criminals. • When the crime is so horrific that no other punishment seems fair.	• Two wrongs don't make a right. • Sometimes mistakes can be made and then it is irreversible. • It is more effective for a criminal to suffer in prison and live with their crime(s).

The law is a set of rules that a country/society will abide by in order to keep everyone safe and protected.

Why are laws important?

- Help to achieve justice
- Punish those who have done wrong
- Protect society
- Keep society calm and orderly

What does Justice mean?

Theories of Punishment	
Protection Theory	Punishment is to protect society so that dangerous criminals are off the streets.
Retribution Theory	Punishment severity is in line with the crime committed.
Reformation Theory	Punishments aims to reform the criminal through education so that they do not reoffend.
Deterrent Theory	Punishments are so severe it puts people off committing the crimes in the first place.

Most Muslims would say that they support the use of capital punishment because then Qur'an states crimes that are worthy of the death sentence (e.g. murder and adultery). They believe this is fair, protects society and what is taught in the Qur'an. Some Muslims disagree with capital punishment as they say it is 'acting as Allah', as only he has the power to give and take life.

Most Sikhs do not agree with the death penalty because they believe:

- Dignity is vital. Executing people takes away their right to human dignity.
- The **Ten Gurus** appear to be against the death penalty, as they did not use it for criminals they encountered.
- Sikhs are banned from 'killing in cold blood'. The death penalty may be regarded as 'killing in cold blood'.
- The only time when Sikhs ran an independent nation in the 19th century, no executions were used.

Forgiveness	No longer feel angry towards someone for a wrongdoing they have done.
Reconciliation	Making up after a quarrel or dispute and working together again

Examples of forgiveness and reconciliation:

- Anthony Walker's mum and sister.
- Victims' families of the Rwandan genocide.
- The parable of the unforgiving servant.

Why is forgiveness and reconciliation important?

- Jesus forgave those who wronged him.
- Carrying anger and resentment around will only harm yourself in the long run.
- Allows you to live more peacefully.
- There would be less conflict around the world.

The parable of the Good Samaritan: A traveller is beaten up and robbed, and left for dead along the road. A priest comes by, but deliberately avoids the man. A lawyer also comes by but he too avoids the injured. Finally, a Samaritan comes by, and he helps the injured man, in an act of mercy and compassion. The moral of the story is to truly demonstrate the teaching 'love thy neighbour' by helping those in need and not turning a blind eye.

How do the beliefs of Christians have an impact on their lives and communities?

Sanctity of life

The Sanctity of life is a teaching in many religions. For Christians, human life is sacred and is a gift from God which is to be respected and protected. This teaching is called the sanctity of life .

Parables

A parable is a story that has a message behind it to teach people a moral lesson (what the right and wrong thing to do is).

The parable of the Unforgiving Servant: The King demands that one of his servants repays his debt. The servant is unable to and begs for mercy, and so the King grants it and wipes his debt clean. The servant then asks a fellow servant to pay his debt to him, but the fellow servant is unable to. The servant has him thrown in prison. The king is furious that he did not show the same mercy back, therefore sends him to prison also. The moral of the story is to always forgive, so that God will forgive your sins.

Quality of life

Quality of life is refers to how much pleasure and enjoyment you are getting out of life.

If someone is ill, or is going through a tough time, you could say the quality of life has decreased.

YEAR 8 DT :KNOWLEDGE ORGANISER:

BENCH VISE

COPING SAW

MEASURING TAPE

FILE

HAMMER

TRY SQUARE

PLIER

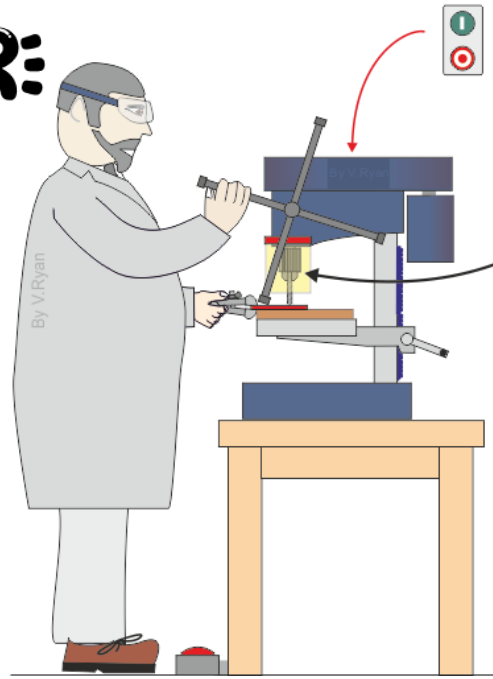
MALLET

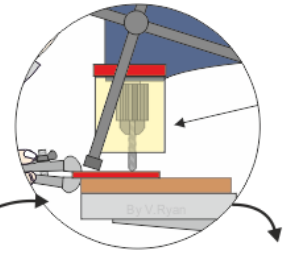
SCREW DRIVER

HACKSAW HANDLE

CLAMP

SPANNER





HAZARD

Possibility of sharp, extremely hot steel 'swarf', flying at high speed, in the direction of the operator.

LEVEL OF RISK

Medium level possibility, due to the physical properties of sheet steel.

CONTROL MEASURE(S)

Fit Guard. Ensure guard is in position. Goggles supplied. Foot stop for any emergency. Staff training, so that drilling is controlled correctly by the operator and the risks are understood. Appropriate protective clothing provided.

Apron		Tied at the back. Aprons will prevent chemicals/paints coming into contact with clothes. Will stop loose clothing being drawn into a piece of machinery.
Dust mask		Sanding can produce dust which can be damaging to the lungs. A dust mask will help prevent inhalation of dust particles.
Ear defenders		Prolonged use of loud machinery can cause hearing damage. Ear defenders help to prevent this from happening.
Safety goggles		Particles of wood, metal and plastic can fly off and hit the eyes when sanding, sawing or drilling. Googles prevent eye damage
Gauntlets (leather gloves with wrist protection)		Certain machinery can get very hot. Gauntlets are designed to prevent burns to hands and fingers.

YEAR 8 DT :KNOWLEDGE ORGANISER:

Smart Materials

- Photochromic
- Micro-encapsulation
- Polymorph
- Piezoelectric
- Thermo-chromic
- Quantum Tunnelling Composite
- Shape Memory Alloy

Smart Materials

•A smart material can be described as a material that has a useful response to external influences or stimuli.

There are many examples of smart materials in everyday use that are not modern developments they include;

• Metal springs

• Light bulbs self regulate because as the filament temperature increases their resistance rises

• Ancient civilisations have long used

porous ceramics for self regulating cooling

Be able to understand what SMART materials are.
Be able to identify different types of SMART materials and their end uses.

Learning Activity 1 -

Thermo- Chromic

Thermo-chromic textiles react to changes in temperature usually by changing colour.

Liquid crystals changes colour all the way through the spectrum with warmth. So can be use in fabric strip thermometers.

The same technique can be used in baby bath toys & feeding spoons which check that bath water or food is of a safe temperature.

Characteristics of Materials

Thermochromic and Photochromic explained!

https://www.youtube.com/watch?v=SZ78qNpq3mA

Name	Stimuli	Properties	Used for
Photo chromic Pigments	UV LIGHT Appearance A pigment that is added to a variety of polymers items. Many shades of colours. It can be bonded onto glass.	This embedded polymer pigment changes with UV light by changing colour or darkening. Once the UV light is taken away they change back.	• Novelty goods • Paints and clothing that change colour in UV light. • Silver halides in glasses.

Year 8 Geography - Evolving Continents

Asia is the largest continent in the world by both land area and population. The continent, which has long been home to the majority of the human population, was the site of many of the first civilisations. Its 4.7 billion people constitute roughly 60% of the world's population.

Key facts:

- 1/3 of Earth's land is Asia
- Contains all weather types and biomes, from tropical to polar
- Highest mountain on Earth (Everest)
- Lowest point on Earth – Dead Sea, 1000m below sea level
- Animals include giant pandas, orang-utans, Komodo dragons, elephants and tigers
- 4.7 billion people+ live there
- 48 countries – Largest being China and India
- 7/10 world's largest cities, 9/10 tallest buildings and all of the largest shopping malls!

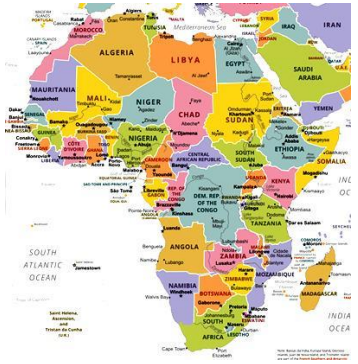
Yemen – Is located in Asia's middle east region and is one of the poorest in Asia. A **civil war began in 2014,** which has been declared by the United Nations as the world's worst humanitarian crisis, with an estimated **24 million people in need of assistance**, over **100,000 people killed**.

Impacts of poverty on Yemen

- **Hunger and Malnutrition:** People are unable to provide food for themselves and live in a safe environment.
- **Water:** Almost 18 million Yemeni citizens simply have no access to clean water. The bacteria and lack of sanitation facilities is causing the spread of **cholera**, a water-borne disease. In 2018, there were over **361,000 suspected cases**. This means that people are becoming sick, with some cases leading to death. This prevents people from working and contributing money to the economy.

- **Education:** As poverty in Yemen continues to worsen, about **2 million children remain out of school**. This significantly reduces their life chances, as they remain unskilled, and unlikely to be able to access good jobs in the future, lowering their quality of life.

Africa is incredibly diverse, with each of the 54 countries having its own distinct language, traditions, arts and crafts, history, way of life and religion.



Some countries have over 20 ethnics groups within them.
There are also many Europeans from colonial times and Arab and Asian migrants.
The continent has suffered from slow economic growth compared to the rest of the world. People live in extreme poverty, suffering famine.

- Of the world's 20 war-related conflicts in 2013, 11 alone were fought on the African continent.
- Diseases such as AIDS, Malaria or Ebola are the cause, but also the result of poverty in Africa.
- Devastating floods and extraordinary drought periods lead to crop failures.

When people are ill, they cannot work and pay taxes to boost the economy. They often become dependent upon aid.

Japan - Located on the Pacific Ring of Fire, in east Asia, this country is made up of 1000's of islands (although people manly live in 4!). A lot of the inland areas of Japan are mountainous and remote, making it difficult to build on. Many are also active volcanoes, which are dangerous. Japan additionally suffers earthquakes and typhoons. However, good climate, soils, minerals and an extensive coastline has made Japan very populated. Tokyo, its capital, is currently the biggest city on Earth!

What are Japan's main physical features?

The North
- Hokkaido is remote and mountainous
- Snow capped peaks cover the centre of the island.
- Summers are relatively dry and cool.
- Winters are very cold with heavy rainfall.

The West
- The west of Honshu is mountainous with little flat land.
- The area is cut by deep, narrow valleys with steep sides.
- Short, fast flowing rivers flow down to the sea.
- Summers are warm and wet.
- Winters are cold and snowy.

The East
- The east of Honshu is mainly mountainous but the largest areas of flat land are here.
- There are several active volcanoes including Mt Fuji, Japan's highest mountain.
- Summers are warm, humid and wet.
- Winters are mild and quite dry.

Japan has 4 main islands where people live. It has 18,000 named mountains and 108 active volcanoes. The most notable is Mount Fuji.

The South
- Kyushu has many active volcanoes, crater lakes and hot springs.
- Coral reefs may be found in the warm seas along the coast.
- The climate is almost tropical with hot, wet summers and warm sunny winters. Typhoons are common in autumn.
- The island has tropical plants and a lush vegetation.

Thailand - is in south east Asia, in a sub tropical area near to the Tropic of Cancer. It has beautiful beaches, ancient temples and amazing food. Bangkok, it's capital is the most visited city on Earth! Tourism however, which has tripled in the last 20 years has both positives and negatives:

Positives	Negatives
Jobs are created in the hospitality industry. This allows people to make an income to improve their quality of life and the government to make money through taxation. **Spreads Culture** allowing people from all over the world to experience the different music, foods and religions (Buddhism) that Thailand offers, increasing awareness.	**Damage to ecosystems from overcrowding**. An increase in people using the beaches and walking on the land damages the landscape, causing habitats to be destroyed. **Traffic congestion and air pollution.** This can be stressful for locals trying to get to work, when the roads are jammed and increased transport emissions can lead to unclean air and respiratory health conditions.

Sustainable tourism – is small scale, involves the local people and ensures that minimal damage occurs to the environment.

China - China is the second largest and fastest growing economy in Asia, with companies such as Huawei.

It has a large population, with a reputation of a strong work ethic and low wages. This has attracted businesses to invest as they can make lots of products and increase their profit.

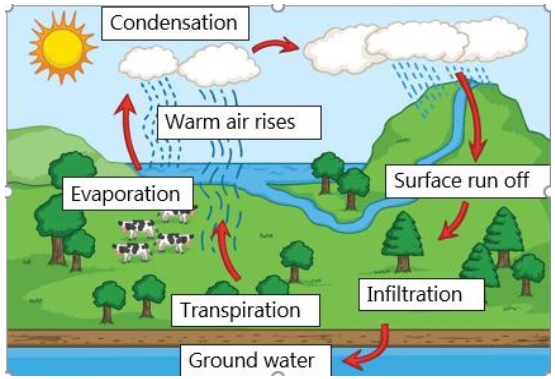
China also joined the world trade organisation. This has meant that they can trade widely around the world, increasing their sales of goods and therefore the money that they make.

Investment from companies like Apple, have created jobs, boosted taxes and attracted more investment.

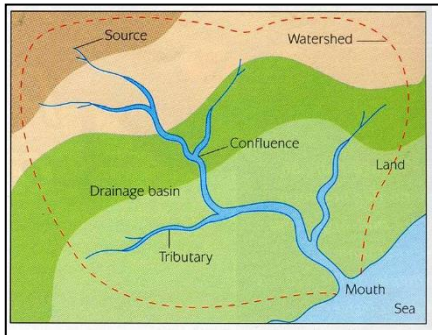
China's influence in Africa – China is funding the building of factories and the construction of roads, railways, ports, airports hospitals, schools and stadiums, spending billions of dollars a year in Africa. Transport projects such as the building of the Addis Ababa (capital of Ethiopia) to Djibouti railway, are part of China's 'Belt and Road' initiative

RIVERS – KNOWLEDGE ORGANISER

The Water Cycle

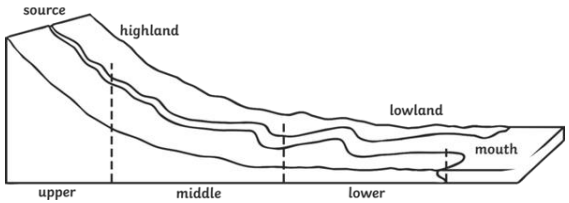


Evaporation – To change from a liquid to a vapour
Condensation – To change from a vapour back to a liquid
Transpiration – Transfer of water vapour from a plant to the air
Surface run off – Water which runs across the surface of the land back to rivers and the sea.
Infiltrate – Downward movement of water through soil at the surface of the ground

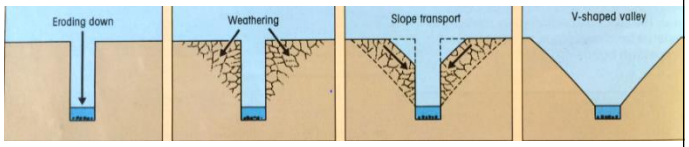


Drainage Basin – Area of land drained by a river and its tributaries

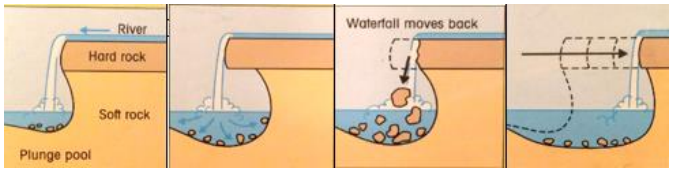
Watershed – The boundary of a drainage basin
Source – Rivers starting point
Mouth – Where the river enters the sea/ lake
Tributary – A small river/ stream flowing into a larger river
Confluence – The point where a tributary and river meet
Channel – Where the water flows



Upper Course Features – V-shaped Valleys and Waterfalls

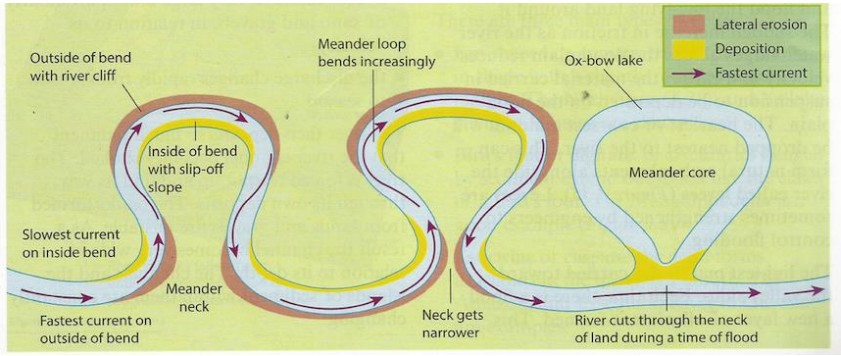


The river erodes downwards (vertical)	The steep sided slopes are attacked by weathering (chemical and mechanical).	The loosened material slowly slumps down the slope. The material is washed away.	Results in a steep-sided valley that has the shape of the letter V.



Hard rock overlies soft rock. Soft rock eroded faster by hydraulic action and abrasion	Plunge pool formed. Weathering from the spray, undercuts harder rock	The hard rock, collapses and is washed away.	This process repeats itself, causing the waterfall to retreat upstream and form a gorge.

Middle and Lower Course Features – Meanders, Oxbow Lakes



Meanders (bends in a river) are formed by erosion from faster flow on the outside. This forms a **river cliff**. The slower flow on the inside causes deposition and a **point bar** to form.

Causes of Flooding	Lots of Rain	Urbanisation	Steep slopes
	No Vegetation	Very Dry Soil	Saturated (wet) Soil

Flood Management Strategy	Advantages	Disadvantages
Dams and Reservoirs (Hard). Big wall built to hold back river and control the flow of water.	Provides electricity Stores water	Very expensive to build Huge areas of land are flooded
Channelisation (Hard) River made wider and deeper to hold more water or straighter to increase speed and move water away.	Long lasting and effective at removing flood waters	Very expensive and unattractive. Increased flooding downstream
Floodplain Zoning (Soft) The land is sectioned. Homes, buildings and schools are built further away from the river to protect them.	Cheap Allows for natural infiltration close to river	Restrictive, preventing building close to river. Can lead to conflict
Washlands (Soft) The river is allowed to flood naturally in farmland areas.	Cheap Allows for natural infiltration close to river Wetland habitats	Restrictive, preventing building close to river. Can lead to conflict
Afforestation Planting of trees	Trees intercept and absorb water reducing the amount reaching the river	Trees take up large amounts of space. More commonly applied in the upper/ middle courses.

Weathering and Erosion

Weathering – Where rock is broken down in its place
Mechanical/ Physical (Freeze Thaw) – Rainwater freezes, expands and breaks rock.
Chemical – Acid rain dissolves rock
Biological - The roots of plants, split the rock apart

Erosion - The breaking down of rocks which are then moved to another location
Hydraulic action – Force of water building up pressure
Abrasion – Rocks rubbing/ scraping away at rock like sandpaper.
Attrition – Rocks in the water hit each other and break up
Solution – Chemical action dissolving rocks in water.

Transportation The movement of sediment by the water

Deposition – When sediment is dropped.
When the water loses energy