KNOWLEDGE ORGANISER

YEAR 8 – TERM 5

THOMAS HALL SCHOOL

Think Like An
Environmentalist

Community, Collaboration and Challenge

ATTENDANCE MATTERS

EVERY DAY COUNTS
Missing just 1 day every 2 weeks is the same as missing 10% of the school year.

LEARNING
Being in school allows you the best opportunity to learn.

WELLBEING
Attending school supports your mental and emotional health.

FUTURE SUCCESS
Regular attendonce at school is vitol for building the key skills needed for future employment

EQUIPMENT


School Bag


Knowledge Organiser

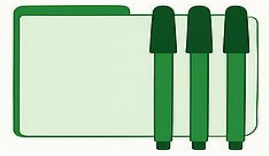

Black and Green Pens


Pencil case


Calculator


Pencil


Rubber


Whiteboard and whiteboard pen


Highlighters


Ruler

SCHOOL DAY

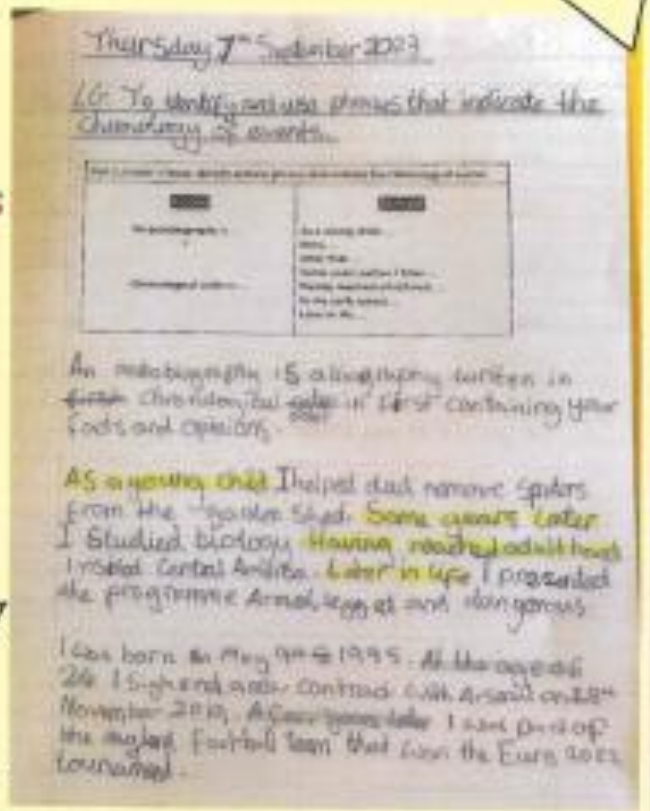
9:00–9:05	AM Reg
9:05–10:20	Lesson 1
10:20–11:35	Lesson 2
11:35–12:05	Break 1
12:05–13:20	Lesson 3
13:20–13:50	Break 2
13:50–15:05	Lesson 4
15:05–15:30	PM Reg – assembly or guided reading

Long date and learning goal (LG) on left and underlined.

Minimise errors

Use pencil or blue or black pen for <u>all</u> written work, ruler for straight lines.

Worksheets glued in straight, next to margin.


Thursday 7th September 2023

LO: To identify and use phrases that indicate the chronology of events.

An autobiography is a biography written in chronological order in first person, giving your facts and opinions.

As a young child I helped dad remove spiders from the garden shed. Some years later I studied biology. Having reached adulthood I visited Central America. Later in life I presented the programme Animal Eggs at one dangerous

I was born on May 9th 1995. At the age of 24 I signed a new contract with Arsenal on 28th November 2019. A few years later I was part of the England Football team that won the Euro 2021 tournament.


Monday 18th September 2023

Music notes:

Numbered questions written in margin.

Always try your best to be neat (even when note taking).

Feel proud

Prepare for the future

Respond to feedback in green pen.

Easier to read and give better feedback

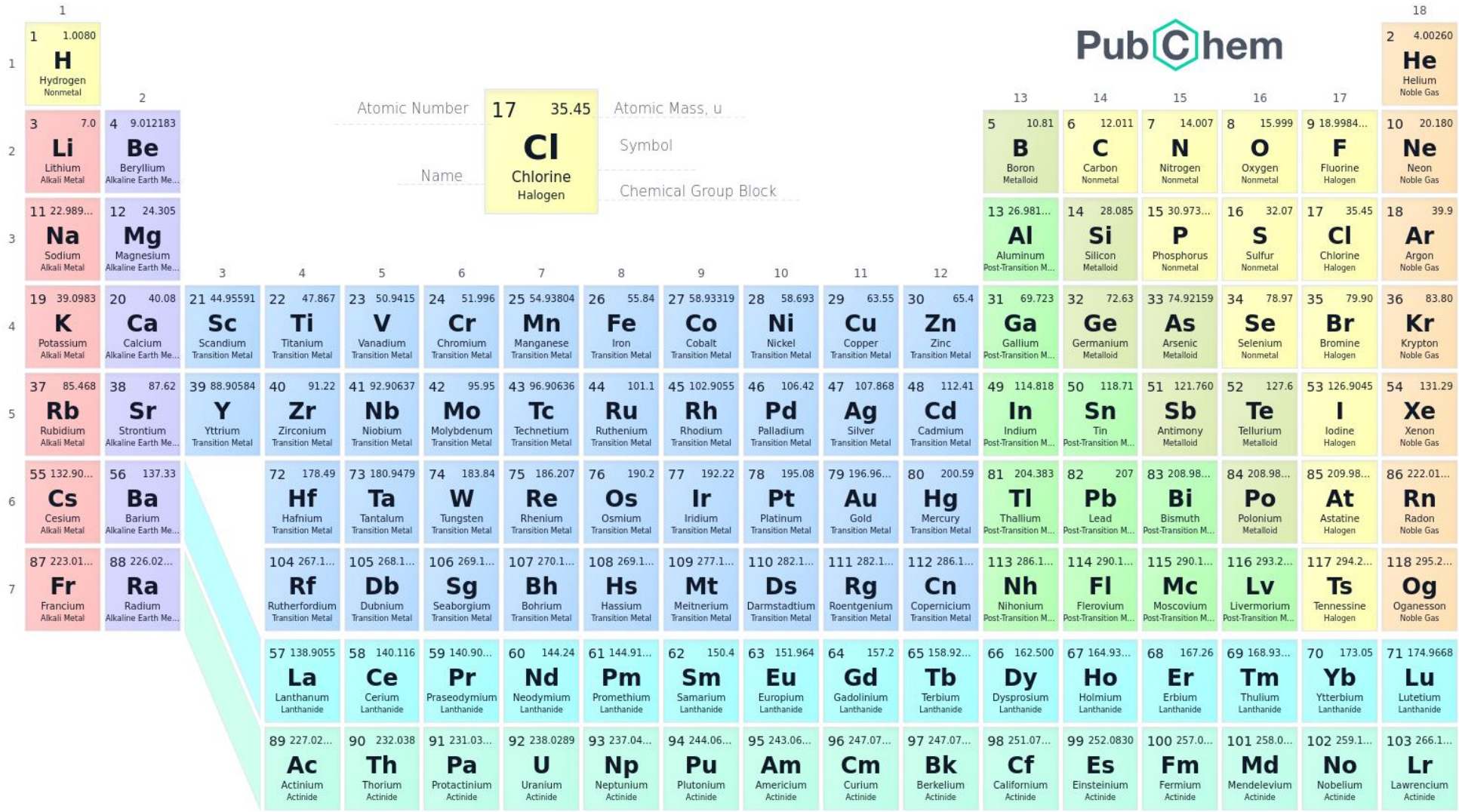
Single line through mistake. No scribbles.

Multiplication Grid

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

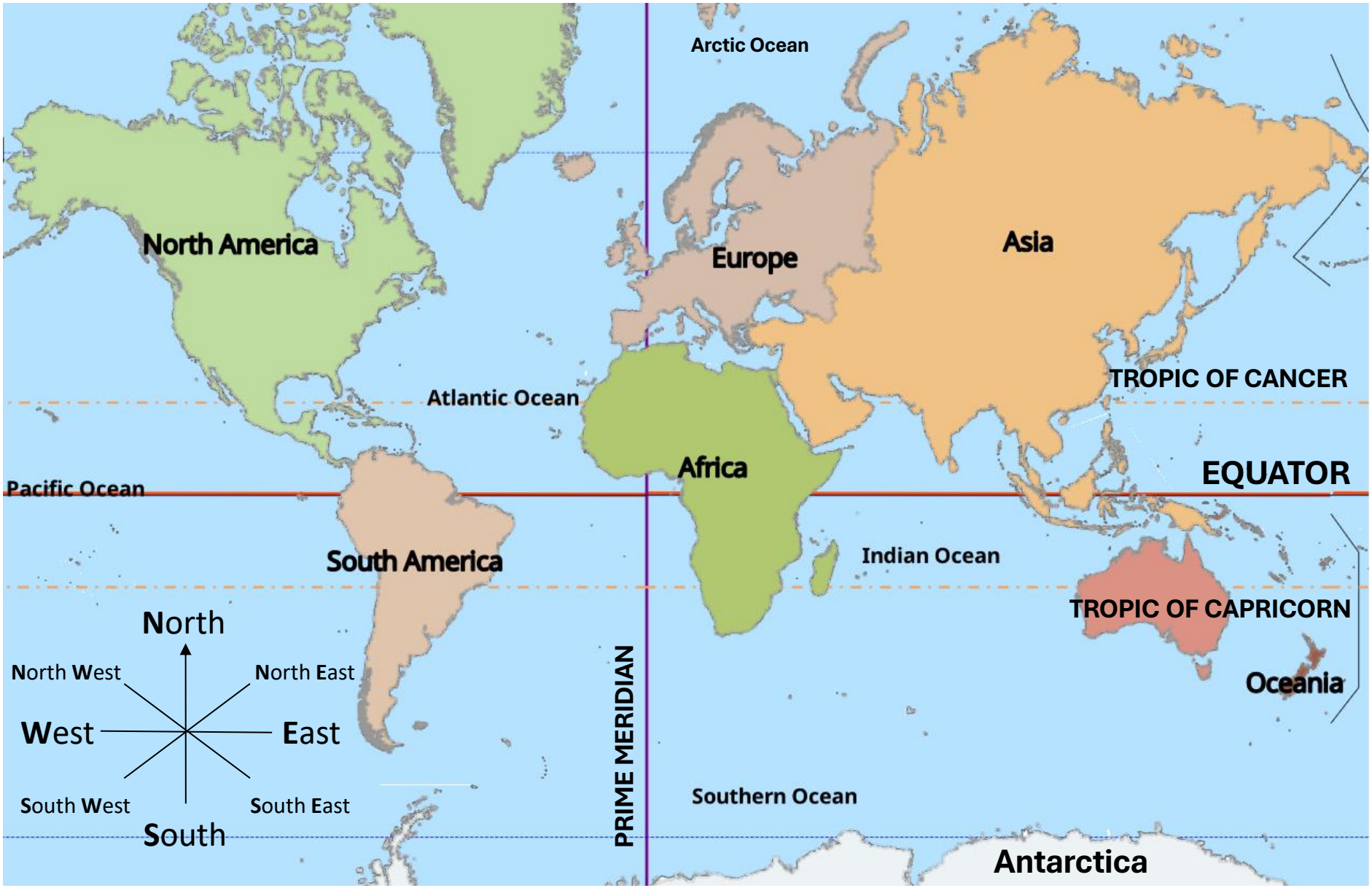
PERIODIC TABLE OF ELEMENTS

Chemical Group Block




01 Adjectives
THAT DESCRIBE:
age: young, old
colour: red, blue
condition: new, used
size: large, medium
speed: fast, slow
etc.
COMPARATIVE:
smaller, better...
SUPERLATIVE:
the smallest,
the worst,
the best...
02 Adverbs
PLACE:
here, there,
outside, everywhere,
upstairs, nowhere,
somewhere....
TIME:
ago, before, since,
yet, for, still,
afterwards...
FREQUENCY:
often, never,
sometimes, always
MANNER:
just, quite,
quickly, hardly,
well, carefully,
barely, almost,
scarcely,
beautifully...
03 Conjunctions
COORDINATING:
and, or, but,
yet, nor, for, so
CORRELATIVE:
both... and...,
either... or...,
just as... so...,
whether... or...,
neither... nor...,
not only... but also...
SUBORDINATING:
after, since, if,
while, although,
before, because,
unless
04 Determiners
TELLS US WHICH:
each, every,
some, none,
all...
TELLS US WHOSE:
my, your, her, his, its,
our, your, their (= possessive
adjectives or determiners)
05 Nouns
COMMON NOUNS: house, dog, laptop...
PROPER NOUNS:
(Capitalised)
London, Paris,
James, William,
Julia, Jennifer...
> VERBAL:
swimming...
> COLLECTIVE:
choir, jury...
> COMPOUND:
mother-in-law...
> COUNTABLE:
book, day...
> UNCOUNTABLE:
traffic, calm...
> ABSTRACT V. CONCRETE:
wit vs. road...
06 Prepositions
PLACE / DIRECTION:
in, at, on,
under, above,
across,
among,
between...
TIME:
in, at, on,
over, until, about,
during, before,
after, while,
through...
OTHER (agent,
phrase...):
by, with, on, over,
to, up, within,
beyond, for...
07 Pronouns
PERSONAL
(subject):
I, you, he, she, it,
we,
you, they
PERSONAL
(reflexive):
myself, yourself,
himself, herself,
itself, ourselves,
yourselves,
themselves
DEMONSTRATIVE:
this, these,
that, those
PERSONAL
(object):
me, you, him, her,
it, us, you, them
POSSESSIVE:
mine, yours, his,
hers, its, ours,
yours, theirs
INTERROGATIVE:
how, where,
when, which...?
INDEFINITE:
somebody,
anyone...
RELATIVE:
that, which,
whose, whom...
08 Verbs
ACTION:
to run, to organise,
to read, to think...
> Transitive
or
> Intransitive
LINKING:
to be,
to look, to appear,
to seem, to smell...
HELPING
(= AUXILIARY):
can, may,
will, must,
should, to be,
to have...
Word Classes

World Map


Arctic Ocean
North America
Europe
Asia
Atlantic Ocean
TROPIC OF CANCER
Africa
EQUATOR
Pacific Ocean
South America
Indian Ocean
TROPIC OF CAPRICORN
Oceania
North
North West
North East
West
East
South West
South East
South
PRIME MERIDIAN
Southern Ocean
Antarctica

Art

Year 8 Ceramics Art Term 5

Clay Coil Pot Lesson Plan
Theme: Exploring Form and Function through Clay Coil Pots
Focus: Building practical skills in ceramics, understanding historical and cultural contexts, and developing creative design.


Building Coils
- **Objective**: Practice coil rolling and beginning to build the pot.
- **Activities**:
- Clay safety and etiquette briefing.
- Demonstration: Rolling and attaching a base slab.
- Students create the base for their pots.
- Demonstration: Even coil rolling and slip-and-score technique.
- Begin building: 3–4 coils attached to the base.
- Emphasis on neat joins and structural stability.

Building Coils
- **Objective**: Continue building, experimenting with shape and height.
- **Activities**:
  - Demonstration: Controlling form (inward/outward curves).
  - Continue building up walls; apply some decorative textures using found materials.
- Design 2 or more pattern ideas for surface decoration, creating tiny holes using straws and stamps.

Surface Texture & Decoration
- **Objective**: Add texture or relief designs to the pot.
- **Activities**:
- Demonstration: Texture tools, incising, impressing, relief.
- Add patterns, textures, and details.
- Finish building – refine edges and check for cracks.



Drying & Bisque Firing
- **Objective**: Understand the firing process.
- **Activities**:
  - Prepare pieces for drying and firing.
  - Presentation: Kilns, firing stages, glaze vs. paint.
  - Begin colour planning in sketchbook – sample colour swatches and test schemes.

Decorating – Underglaze or Paint
- **Objective**: Apply colour using appropriate ceramic materials.
- **Activities**:
- Demonstration: Glazing or painting technique.
- Apply finish to bisque-fired pots (students can choose glaze, acrylic, or both).


Computing

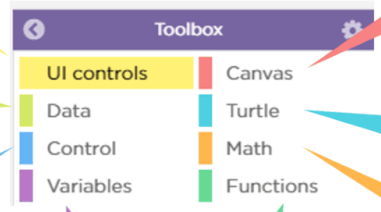
App Lab Knowledge Organiser

App Lab Toolbox Guide

UI Controls
Anything that involves showing/displaying any item on the screen is going to be here.

Data
Allows you to save data to a Database and get data from a Database.

Control
Allows you to use blacks such as IF statements or loop to control the flow of your program.



Variables
Allows you to set variables or read variables.

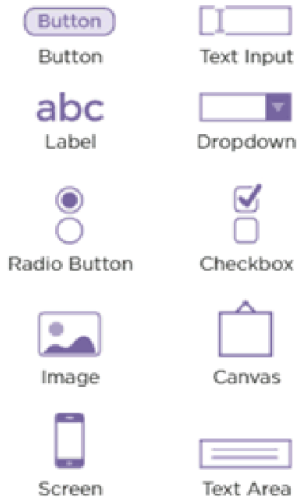
Functions
Allows you to build your own functions to run certain pieces of code.

Canvas
Allows you to put a canvas on the screen and add various objects to it.

Turtle
Allows you to put a turtle on the screen to draw lines, and create shapes and turn.

Math
Allows you to add all of your basic Maths functions to your program.

Design Elements



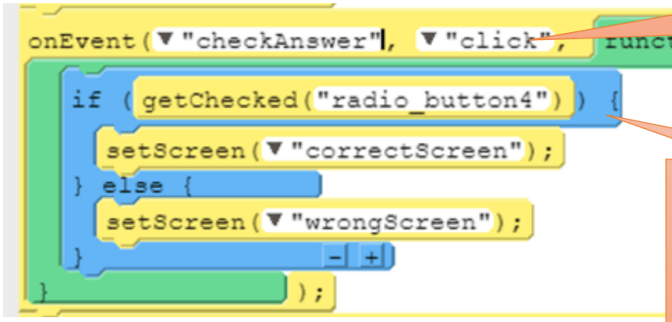
What is event-driven programming?

Event-driven programming is an approach to programming in which code is written to respond to events. Events can be triggered by users, such as clicking on a button or entering some text. In automated systems, sensors can be used to detect events such as when a particular temperature is reached in a glasshouse or a specific water level is detected on a flood defence system.

Buttons are usually followed by the 'click' event.

Drop down boxes are usually followed by the 'change' event.

IF statements can help set conditions to tell the program what to do.



Drama

Year 8

Drama

Term 5

Script Writing Techniques

Act One Scene 1 - This is the start of the play. An act is a way of dividing up a play (a bit like a chapter in a story book). An act can be made up of different scenes.
Scene - When you are writing a script, you start a new scene when the location, scenery or time changes.
Script - The script has information that tells everyone where the action takes place. It gives more detail about the scene and which characters are going to be in it:

Scene 3 - A cave in the middle of the desert.
A young boy called Aladdin is in a cave, surrounded by piles of treasure. Nearby there is a lamp.

Dialogue - When a character speaks in a play, we usually see their name in capitals. This is followed by the dialogue that the character is to say. Script writers can also get actors to perform the dialogue in a particular way. They do this by adding the direction in brackets:

ALADDIN: ***(whispered)*** **I've found the magic lamp!**

ALADDIN walks over to the lamp. He picks it up and rubs it. In a puff of smoke, a magical genie appears in front of him.

The script gives the director and actors all the words and instructions to tell a story in just they way the writer wishes.

Terminology

Genre - a style or category of art, music or literature
Dialogue - a conversation between two or more people as a feature of a book, play, or film.
Adaptation - changing from one genre to another
Silent Film - action without any words
Proxemics - the use of space between characters on a stage to communicate their relationships, status, and situation
Stimulus - a starting point or a source of inspiration.

Children's Theatre Techniques

Mime - the art of expressing ideas, emotions, and stories without using words.
Narration - the story told directly to the audience.
Sound effects - noises made to enhance the action.
Characterisation - the process an actor uses to develop a complete and believable character
Exaggeration - overstating or overemphasising a situation, emotion, or character for effect.

Adaptations to enjoy

Matilda (Book, play and film)
The Hunger Games (Book, play and film)
Under Milk Wood (radio, play and film)
My neighbour Totoro (film and play)

Adapting for Stage

English

CONTEXT (Elizabethan England & Verona)

Patriarchal Society: Fathers controlled daughters' marriages. Women were expected to obey and remain chaste. Juliet's defiance is shocking for the time.	Honour & Reputation: Family honour was vital. Insults led to duels and revenge. The feud reflects this obsession. Religion: Marriage was sacred. Friar Lawrence's secret ceremony shows conflict between faith and love.	Marriage & Social Status: Wealthy families married for money, power, and alliances. Juliet is treated as a bargaining tool by her father.
Fate & The Plague: Fate is a driving force ('star-crossed lovers'). The plague quarantine prevents the vital message reaching Romeo.	Tragic Hero : Romeo's impulsiveness and emotional intensity lead to catastrophe.	Setting – Verona: A city of wealth and rivalry, mirroring Elizabethan fears of disorder and social conflict.

THEMES (Key Ideas & Motifs)

- Love & Impulsiveness: Romeo & Juliet fall in love at first sight. Their love is genuine but reckless and leads to destruction.
- Family & Honour: Honour shapes every decision. Characters cannot ignore insults. Violence escalates until the lovers' deaths force peace.
- Women & Power: Women have limited influence. Juliet is seen as her father's property. She values virtue and chastity but also asserts independence.
- Marriage & Duty: Arranged marriages were common. Juliet is torn between duty and personal happiness. Romeo & Juliet reject family expectations.
- Fate & Luck: Fate is introduced in the prologue. Chance events (the servant inviting Romeo, delayed message, Paris at the tomb) drive the tragedy.
- Religion & Morality: Religion shapes behaviour and expectations. Friar Lawrence tries to help but contributes to the tragedy.
- Youth & Conflict: Rash decisions and emotional extremes show the destructive power of youthful passion.
- Death & Reconciliation: Death becomes the only way to unite love and end hatred.

PLOT (Act-by-Act Summary)

Prologue: Introduces the Montague–Capulet feud. Warns the audience that the lovers will die because of their families' hatred.

Act 1: Romeo crashes the Capulet ball and meets Juliet. They fall in love instantly despite their families' hatred.

Act 2: Romeo and Juliet secretly marry with Friar Lawrence's help, hoping their union will end the feud.

Act 3: Tybalt kills Mercutio. Romeo kills Tybalt in revenge and is banished. Juliet is devastated but remains loyal to Romeo.

Act 4: Juliet's parents arrange her marriage to Paris. She takes a sleeping potion to avoid the marriage.

Act 5: Romeo, misinformed, believes Juliet dead and drinks poison. Juliet wakes, sees Romeo dead, and kills herself.
Resolution: The families reconcile, realising their hatred caused the tragedy.

Russia Geography

1. Russia's Location

3. Russia's Physical Characteristics

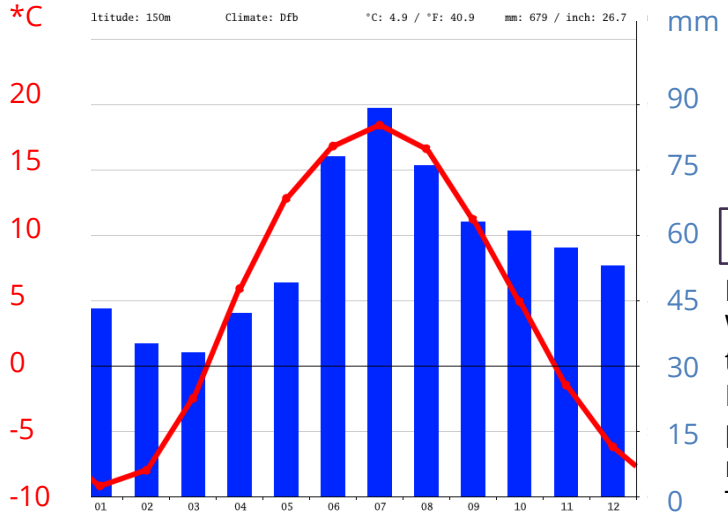
Key
- Taiga
- Steppe
- Desert
- Temperate woodland
- Tundra

Russia is the largest country in the world. It covers an area of 17,098,242 km², which is around 70 times greater the size of the UK. The country spans 11 time zones.
Russia contains several biomes examples of which include:

Taiga: vegetation covers most of the country. This is Evergreen forest, with trees such as spruce, fir and pine.
Tundra: biomes are found in the far north of Russia. Small shrubs, mosses and lichens grow, and these provide food for animals such as reindeer. Larger species of vegetation struggle to exist in the cold, dry conditions found here.

Temperate woodland and steppe: are found in the south of Russia. These are warmer landscapes consisting of deciduous trees and grasses.
Deserts: located in the far south of Russia. These areas have very little precipitation and so few plants can grow here.

2. Russia's Climate - Moscow



4. Russia's Human Characteristics

Life expectancy and literacy rates:
With approximately 144 million people, Russia is the ninth most populous country in the world. Life expectancy is almost 73 years, so the average person in Russia can expect to live beyond retirement age. Literacy rates are 100 per cent. This means that all Russian people can read and write.

Population distribution:
Most people live in the west of the country. This is where the capital city of Moscow and is located, as well as many other larger cities, such as St Petersburg and Kazan. Around 75 per cent of Russia's population live in cities, where there are jobs and opportunities. Few people live in the far north, where temperatures are very low.

History

Knowledge Organiser – HISTORY Topic: WW2

Key Events in World War 2	
September 1st 1939	Germany invades Poland.
September 3rd 1939	Britain and France declare war on Germany (Start of WW2).
January, 1940	Rationing introduced across the UK.
May – June, 1940	Dunkirk evacuated and France surrenders to Germany. Germany uses blitzkrieg to take over much of Western Europe.
July, 1940	Germany launches air attacks on Great Britain (The Battle of Britain and the Blitz begin) Germany, Italy and Japan sign the Tripartite Pact creating the axis alliance.
December 7th 1941	The Japanese attack the US navy in Pearl Harbour. The next day, the USA enters the war fighting with the allies
June 6th 1944	D-day and the Normandy invasion. Allied forces invade France and push back the Germans.
April 30th 1945	Adolf Hitler commits suicide
May 7th 1945	Germany surrenders and Victory in Europe is declared the next day.
August 1945	Atomic bombs dropped on Hiroshima and Nagaski, Japan by the USA killing approximately 226,000 people.
September 2nd 1945	Japan surrenders signalling the end of WW2
July 1954	Rationing ends in the UK

Leaders

United Kingdom	Germany
	
Born: 30th Nov 1874 Died: 24th Jan 1965	Born: 20th April 1889 Died: 30th April 1945
"I am easily satisfied with the very best." **Winston Churchill**	"Strength lies not in defence but in attack." **Adolf Hitler**

Countries involved in WW2

Allies	Axis
USA, Britain, France, USSR, Australia, Belgium, Brazil, Canada, China, Denmark, Greece, Netherlands, New Zealand, Norway, Poland, Czechoslovakia, Yugoslavia, India, South Africa	Germany, Italy, Japan, Hungary, Romania, Bulgaria, Finland

Key Vocabulary

Allies	Countries which fought on Britain's side.	Axis	Countries which fought on Germany's side.
Evacuee	Someone who was evacuated. Moved from a dangerous place to be safer.	Nazi	Member of a fascist German political party. They came to power in 1933.
Black out	Ensuring no lights were visible after dark so buildings can't be spotted.	Blitz	Aerial bombings on the UK, mainly cities including London, by Germany.
Rationing	The controlled distribution of limited resources such as food and clothing.	Holocaust	Mass murder of Jewish people and other groups by the Nazis.
Air raid shelter	A building to protect people from bombs. Made from corrugated iron usually found in people's gardens.	Fascism	Right wing political view associated with not allowing apposition and total control by a dictator.
Trenches	A long narrow ditch used for troops to shelter from enemy attack.	Blitzkrieg	Translates to 'lightning war'. Germany's quick strike invasion of Western Europe.

			
Enigma, machine used by Nazis to communicate	Children being evacuated out of London	Swastika, the Nazi party symbol	Supermarine Spitfire Mk 1, British fighter plane

YEAR 8 - DEVELOPING GEOMETRY...

@whisto_maths

Angles in parallel lines and polygons

What do I need to be able to do?

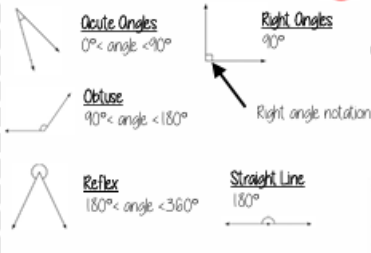
By the end of this unit you should be able to:

- Identify alternate angles
- Identify corresponding angles
- Identify co-interior angles
- Find the sum of interior angles in polygons
- Find the sum of exterior angles in polygons
- Find interior angles in regular polygons

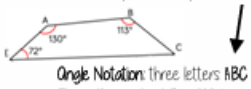
Keywords

Parallel: Straight lines that never meet
Angle: The figure formed by two straight lines meeting (measured in degrees)
Transversal: A line that cuts across two or more other (normally parallel) lines
Isosceles: Two equal size lines and equal size angles (in a triangle or trapezium)
Polygon: A 2D shape made with straight lines
Sum: Addition (total of all the interior angles added together)
Regular polygon: All the sides have equal length, all the interior angles have equal size

Basic angle rules and notation (R)



The letter in the middle is the angle
The arc represents the part of the angle



Angle Notation: three letters ABC
This is the angle at B = 113 °
Line Notation: two letters EC
The line that joins E to C

Vertically opposite angles
Equal

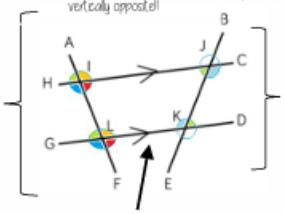
Angles around a point
360 °

Parallel lines

Still remember to look for angles on straight lines, around a point and vertically opposite!!

Lines QF and BE are **transversals** (lines that bisect the parallel lines)

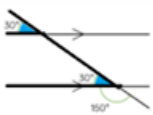
Corresponding angles often identified by their **"F shape"** in position



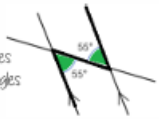
Alternate angles often identified by their **"Z shape"** in position

This notation identifies parallel lines

Alternate/ Corresponding angles

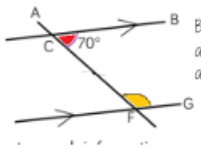


Because alternate angles are equal the highlighted angles are the same size



Because corresponding angles are equal the highlighted angles are the same size

Co-interior angles



Because co-interior angles have a sum of 180° the highlighted angle is 110°

As angles on a line add up to 180° co-interior angles can also be calculated from applying alternate/ corresponding rules first

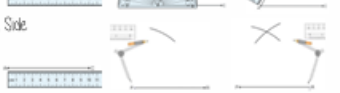
Triangles & Quadrilaterals

Link to steps (R)

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side

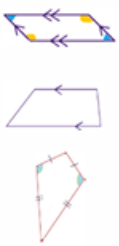


Properties of Quadrilaterals

Square
All sides equal size
All angles 90°
Opposite sides are parallel

Rectangle
All angles 90°
Opposite sides are parallel

Rhombus
All sides equal size
Opposite angles are equal



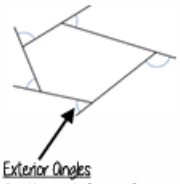
Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Trapezium
One pair of parallel lines

Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

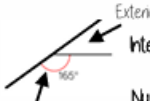
Sum of exterior angles

Exterior angles all add up to 360°



Exterior Angles
Are the angle formed from the straight-line extension at the side of the shape

Using exterior angles



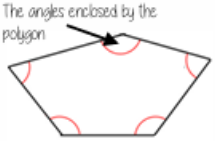
Interior angle + Exterior angle = straight line = 180°
Exterior angle = 180 – 165 = 15°

Number of sides = 360° ÷ exterior angle
Number of sides = 360 ÷ 15 = 24 sides

Sum of interior angles

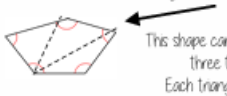
(number of sides – 2) x 180

Interior Angles
The angles enclosed by the polygon



This is an **irregular** polygon – the sides and angles are different sizes

Sum of the interior angles = (5 – 2) x 180

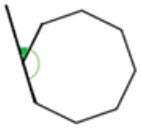


This shape can be made from three triangles
Each triangle has 180°

Sum of the interior angles = 3 x 180
= 540°

Remember this is **all** of the interior angles added together

Missing angles in regular polygons



Exterior angle = 360 ÷ 8 = 45°

Interior angle = $\frac{(8-2) \times 180}{8} = \frac{6 \times 180}{8} = 135°$

Exterior angles in regular polygons = 360° ÷ number of sides

Interior angles in regular polygons = $\frac{(\text{number of sides} - 2) \times 180}{\text{number of sides}}$

Maths

YEAR 8 - DEVELOPING GEOMETRY...

Area of trapezia and Circles

@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

- Recall area of basic 2D shapes
- Find the area of a trapezium
- Find the area of a circle
- Find the area of compound shapes
- Find the perimeter of compound shapes

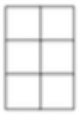
Keywords

Congruent: The same
Area: Space inside a 2D object
Perimeter: Length around the outside of a 2D object
Pi (π): The ratio of a circle's circumference to its diameter.
Perpendicular: At an angle of 90° to a given surface
Formula: A mathematical relationship/ rule given in symbols: E.g. b x h = area of rectangle/ square
Infinity (∞): A number without a given ending (too great to count to the end of the number) – never ends
Sector: A part of the circle enclosed by two radii and an arc.

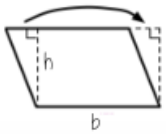
Area – rectangles, triangles, parallelograms

R

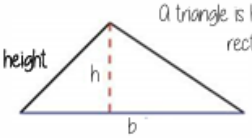
Rectangle
Base x Height



Parallelogram/ Rhombus
Base x Perpendicular height



Triangle
½ x Base x Perpendicular height

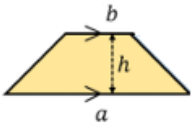


A triangle is half the size of the rectangle it would fit in

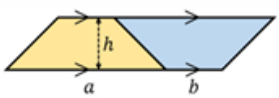
Area of a trapezium

Area of a trapezium

$$\frac{(a+b)\times h}{2}$$



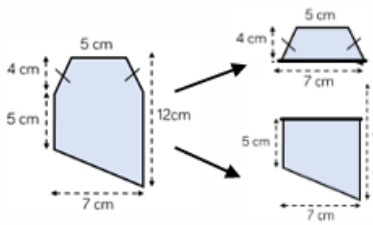
Why?



- Two congruent trapeziums make a parallelogram
- New length (a + b) x height
- Divide by 2 to find area of one

Compound shapes

To find the area compound shapes often need splitting into more manageable shapes first. Identify the shapes and missing sides etc. first.



Shape A - Isosceles trapezium

Shape B - non-standard trapezium

Units

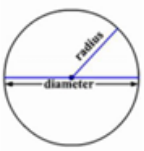
Shape A + Shape B = total area

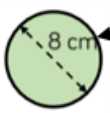
$$\frac{(5+7)\times 4}{2} + \frac{(5+8)\times 7}{2} = 24 + 45.5 = 69.5\text{cm}^2$$

Area of a circle (Non-Calculator)

Read the question – leave in terms of π or if $\pi \approx 3$ (provides an estimate for answers)

Area of a circle
π x radius^2





Diameter = 8cm
∴ **Radius** = 4cm

π x radius^2
= π x 4^2
= π x 16
= 16π cm^2

Find the area of one quarter of the circle

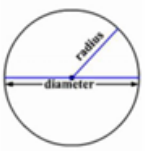
Radius = 4cm

Circle Area = 16π cm^2
Quarter = 4π cm^2

Area of a circle (Calculator)

SHIFT ×10^x

Area of a circle
π x radius^2



How to get π symbol on the calculator

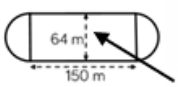
It is important to round your answer suitably – to significant figures or decimal places. This will give you a decimal solution that will go on forever!

Compound shapes including circles

Circumference
π x diameter

Compound shapes are not always area questions. For Perimeter you will need to use the circumference

Spotting diameters and radii



This dimension is also the diameter of the semi circles

Arc lengths = π x 64
= 64 π

Don't need to halve this because there are 2 ends which make the whole circle

Arc lengths + Straight lengths = total perimeter

= 64 π + 150 + 150
= (300 + 64 π) m
OR = 501.1 m

Still remember to split up the compound shape into smaller more manageable individual shapes first

Maths

YEAR 8 - DEVELOPING GEOMETRY...

Line symmetry and reflection

@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

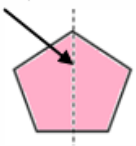
- Recognise line symmetry
- Reflect in a horizontal line
- Reflect in a vertical line
- Reflect in a diagonal line

Keywords

Mirror line: a line that passes through the center of a shape with a mirror image on either side of the line
Line of symmetry: same definition as the mirror line
Reflect: mapping of one object from one position to another of equal distance from a given line
Vertex: a point where two or more line segments meet
Perpendicular: lines that cross at 90°
Horizontal: a straight line from left to right (parallel to the x axis)
Vertical: a straight line from top to bottom (parallel to the y axis)

Lines of symmetry

Mirror line (line of reflection)



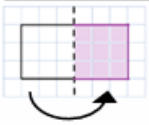
Shapes can have more than one line of symmetry...
This regular polygon (a regular pentagon has 5 lines of symmetry)

Rhombus
two lines of symmetry

Parallelogram
No lines of symmetry

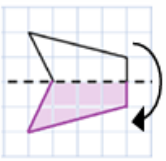
A circle has an infinite amount of lines of symmetry

Reflect horizontally/ vertically (1)



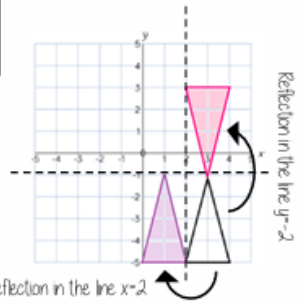
Note: a reflection doubles the area of the original shape

Reflection in a vertical line



Reflection in a horizontal line

Reflection on an axis grid

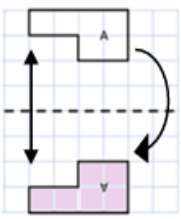


Reflection in the line y=-2

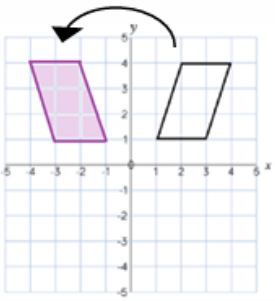
Reflection in the line x=2

Reflect horizontally/ vertically (2)

All points need to be the same distance away from the line of reflection



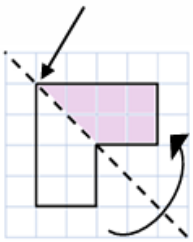
Reflection in the line y axis – this is also a reflection in the line x=0



Lines parallel to the x and y axis
REMEMBER
Lines parallel to the x-axis are y = ____
Lines parallel to the y-axis are x = ____

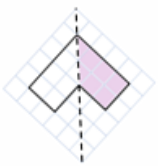
Reflect Diagonally (1)

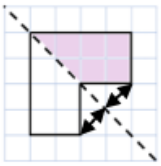
Points on the mirror line don't change position



Fold along the line of symmetry to check the direction of the reflection

Turn your image
If you turn your image it becomes a vertical/ horizontal reflection (also good to check your answer this way)



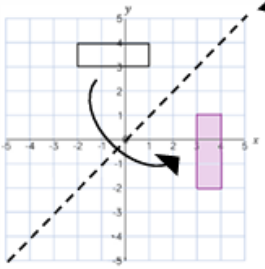


Drawing perpendicular lines

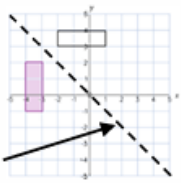
Perpendicular lines to and from the mirror line can help you to plot diagonal reflections

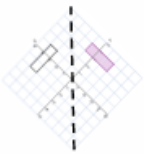
Reflect Diagonally (2)

This is the line **y = x** (every y coordinate is the same as the x coordinate along this line)



This is the line **y = -x**
The x and y coordinate have the same value but opposite sign





Turn your image
If you turn your image it becomes a vertical/ horizontal reflection (also good to check your answer this way)

Maths

Music

Year 8 Music Term 5

Year 8: Song writing – Playing / Analysing.

Rock – Chords and lyrics – Use Keyboard phone App

```
D
She's got a smile that it seems to me
  C
Reminds me of childhood memories
        G
Where everything
                                  D
Was as fresh as a bright blue sky
D
Now and then when I see her face
    C
She takes me away to that special place
          G
And if I stared too long
                                D
I'd probably break down and cry
[Chorus]
A                C                D
Whoa oh, sweet child o' mine
A                C                D
Whoa, oh, oh, oh sweet love o' mine
```

Ballad – Chords and lyrics –

Use Keyboard phone App

```
G                                D
  When the rain is blowing in your face
F                                C
  And the whole world is on your case
Cm                               G
  I could offer you a warm embrace
A7              D7               G
  To make you feel my love

G                                    D
  When evening shadows and the stars appear
F                                    C
  And there is no one there to dry your tears
Cm                                   G
  I could hold you for a million years
A7              D7               G
  To make you feel my love
```

(Play normal 'D' and 'A' before using D7 and A7)

Country – Chords and lyrics –

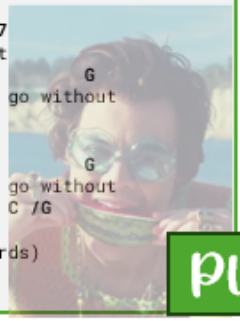
Use Keyboard phone App

```
G                Em                D
  Almost Heaven, West Virginia,
                                C          G
Blue Ridge Mountains, Shenandoah River.
G                          Em
  Life is old there, older than the trees,
D
younger than the mountains,
C                          G
growin' like a breeze.
[Chorus]G                        D
Country Roads, take me home,
          Em          C
to the place I belong
            G                    D
West Virginia, mountain mama,
            C                    G
take me home, country roads.
```

Modern pop – Chords and lyrics –

Use Keyboard phone App

```
 Dm7                                Am7
Tastes like strawberries On a summer evening
C                                  G
  And it sounds just like a song
       Dm7                         Am7
I want more berries and that summer feeling
C                                  G
  It's so wonderful and warm
           Dm7                Am7
Breathe me in, breathe me out
          C                                G
I don't know if I could ever go without
          Dm7              Am7
I'm just thinking out loud
          C                                G
I don't know if I could ever go without
[Chorus]          Dm7 / Am7 / C /G
Watermelon sugar high
(4 times – cycle through chords)
```



Keywords:

Extended chords – **Chords** with **notes beyond** a **basic triad.**

Seventh Chords – **Chords** with a **7th note** – adds drama.

Sus Chords – **Chords** with a **suspended note (4th)** – an unresolved sound.

Verse – The "**Story**" part of song, with words that **rhyme** but **don't repeat.**

Chorus – **Main message** of song – Words are the **same each time.**

Rock'n'Roll – Chords and lyrics

Use Keyboard phone app

```
D Dsus4 D            Dsus4 D G
This thing,        called love,
   C              G
 I just can't handle it,
             D Dsus4 D            Dsus4
This thing,        called love,
D G           C          G
I must, get 'round to it,
            D
I ain't ready,
Bb            C             D
Crazy little thing called love.
      D     Dsus4 D          Dsus4
This thing,      called love,
D   G            C           G
it cries, in a cradle all night,
      D     Dsus4 D        Dsus4
It swings,       it jives,
D   G                        C     G
it shakes all over like a jellyfish,
                  D
I kinda like it,
                  C             D
Crazy little thing called love.
```

Playing /Analysing songs

PE

Year 8 Physical Education Term 5

1 Introduction to the Muscular System

Muscles enable movement by contracting and relaxing. There are over 600 muscles in the body, mainly skeletal muscles.

Every sport movement—from running to throwing—requires muscle use.

Muscular System

2 Major Muscles of the Body

Key muscles: biceps, triceps, deltoids, quadriceps, hamstrings, gluteals, etc. Each has a specific movement function.

e.g. Quadriceps extend the knee when kicking a football; deltoids lift arms in netball.

Muscular System

3 How Muscles Work in Pairs

Muscles work in **antagonistic pairs**: one contracts, the other relaxes. Agonist = working muscle, antagonist = opposing.

e.g. Sprinting uses hamstrings (agonist) and quadriceps (antagonist) in rapid alternation.

Muscular System

4 Types of Muscle Contractions

Types: **Concentric** (shortens), **Eccentric** (lengthens), **Isometric** (holds). Each helps control movement.

e.g. Wall sit = isometric, bicep curl = concentric/eccentric phases.

Muscular System

5 Introduction to the Cardiovascular System

Made up of the **heart, blood, and blood vessels**. Transports oxygen and nutrients.

Delivers oxygen to working muscles during games and training.

Cardiovascular System

6 Structure of the Heart

The heart has four chambers and works as a pump. Blood moves from the heart to lungs (to pick up oxygen) then around the body.

e.g. The heart works faster during high-intensity sport to pump more oxygen.

Cardiovascular System

Science

Keyword	Definition
Photosynthesis	The chemical reaction by which plants make glucose using light, carbon dioxide and water
Xylem	Tissue that carries water from the roots to the leaves
Phloem	Tissue that carries dissolved sugars around the plant
Transpiration	The loss of water vapour through pores in the leaf
Transpiration stream	Movement of water through roots and xylem to the leaves
Reactants	Chemicals required for a chemical reaction
Product	Chemicals produced in a chemical reaction

Part of Plant	Adaptations
Roots	Root hair cells to increase surface area for absorption of water
Stem	Tube like xylem to carry water Tube like phloem to carry dissolved sugars
Leaf - Epidermis/cuticle	Reduces water loss and prevents the entry of pathogens
Leaf - Palisade mesophyll	Regular shaped cells with large numbers of chloroplasts to increase the rate of photosynthesis
Leaf - Spongy mesophyll	Provides air gaps to allow gas exchange (oxygen out, carbon dioxide in)
Leaf - Guard cells	Allow pores (stoma) to be opened and closed to control water loss

$$\text{Water + carbon dioxide} \xrightarrow[\text{chlorophyll}]{\text{light}} \text{oxygen + glucose}$$

How do plants use glucose?

Respiration
Production of large molecules:

- Starch
- Proteins
- Oils and fats

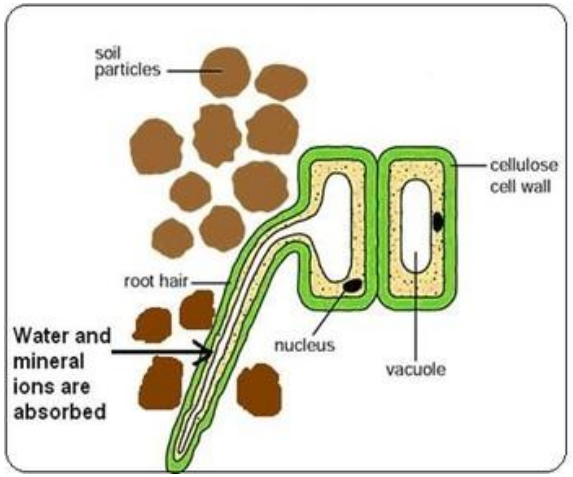
Roles of roots

- Stability of plant
- Absorb water
- Absorb minerals

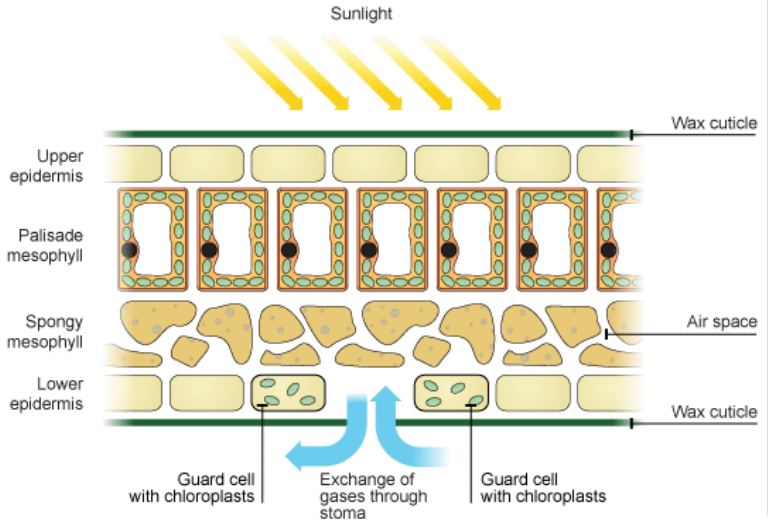
Factors affecting the rate of photosynthesis:

Light intensity
Colour of light
Carbon dioxide concentration
Availability of water
Temperature
Number and size of leaves

Root structure showing root hair cell



Cross section of a leaf:



Photosynthesis

Science

Keywords

Breathing	The inflation and deflation of the lungs by the contraction of the diaphragm and intercostal muscles.
Lung volume	Measure of the amount of air breathed in or out.
Respiration	Reaction which release energy from glucose.
Gas exchange	Process involving gases moving in and out of our blood.
Aerobic respiration	Breaking down glucose with oxygen to release energy and producing carbon dioxide and water.
Anaerobic respiration	Releasing energy from the breakdown of glucose without oxygen, producing lactic acid (in animals).
Fermentation	Yeast anaerobically respiring to produce ethanol and carbon dioxide.

Respiration

<u>Aerobic respiration in animals:</u>

Glucose + oxygen → carbon dioxide + water

$C_6H_{12}O_6 + 6O_2 \rightarrow 6CO_2 + 6H_2O$

<u>Anaerobic respiration in animals:</u>

Glucose → lactic acid

$C_6H_{12}O_6 \rightarrow 2C_3H_6O_3$

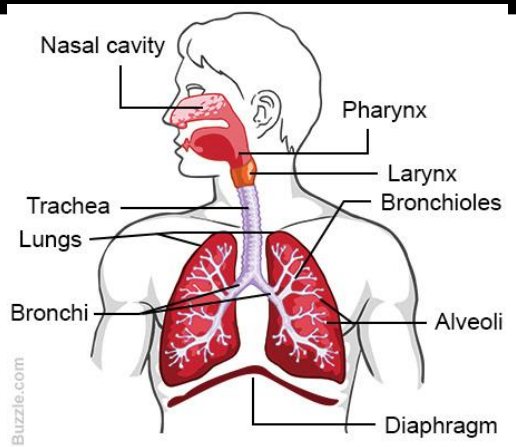
A poisonous waste product called lactic acid is produced, which can be removed by reacting it with oxygen:

Lactic acid + oxygen → carbon dioxide + water

<u>Anaerobic respiration in yeast (fermentation):</u>

Glucose → Ethanol + carbon dioxide

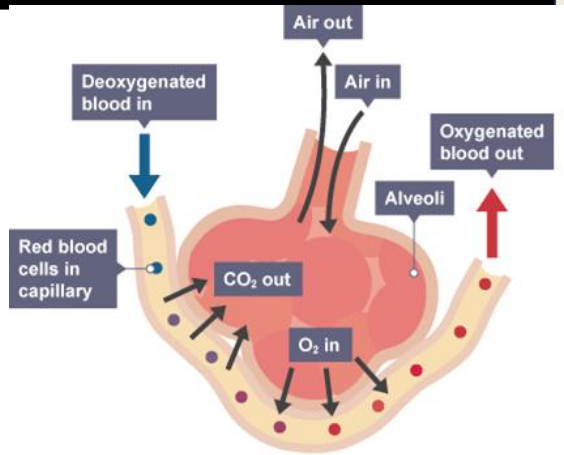
Structure of the Lungs



Trachea - Carries air from the mouth and nose to the lungs.
Bronchi - Two tubes which carry air to the lungs.
Bronchioles - Small tubes in the lung.
Alveoli - Small air sacs found at the end of each bronchiole.
Diaphragm - A sheet of muscle found underneath the lungs.

Gas Exchange

Gas exchange takes place in the alveoli, the tiny air sacs at the end of the bronchioles.
1. Oxygen molecules diffuse **from** the alveolus **into** the blood in the capillary, moving from higher to lower concentration.
2. Carbon dioxide molecules diffuse **from** the blood in the capillary **into** the alveolus, moving from higher to lower concentration.



Respiration

Science

Chemical Reactions

Physical Change	Chemical Change
Changes the physical state of a substance	New products are formed from the reactants
No new substances are formed	New substances are formed
Reversible - easily undone	Often irreversible.
No new matter created	No new matter created
Examples: change in state, making a mixture.	Examples : Colour change, gas or heat given off.

Chemical Equations

Chemical equations tell us what happens in a chemical reaction

General: Reactant(s) → Product(s)

Example:
Word equation: Magnesium + oxygen → magnesium oxide

The law of conservation of mass

Atoms are not created or destroyed during reactions so:

Mass of reactants = mass of products

Thermal decomposition : A single reactant is broken down into simpler products by heating.

Example: Metal carbonate → metal oxide + carbon dioxide

Fuel: Store of chemical energy which can be released as heat.

Combustion: A reaction with oxygen where energy is transferred to the surroundings as heat and light.

Types of combustion:

Complete combustion - plenty of oxygen

Fuel + oxygen → carbon dioxide + water

Incomplete combustion - not enough oxygen

Fuel + oxygen → carbon monoxide + carbon + water

Types of chemical reaction

+ O_2 **Oxidation**: The addition of oxygen
- Example: combustion

− O_2 **Reduction**: The removal of oxygen

Decomposition: Breaking down a compound
- Example: Thermal decomposition

Displacement: A more reactive substance takes the place of a less reactive substance

Neutralisation: Involves acids and bases