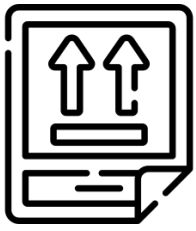
The Rudheath Senior Academy

Powerful Knowledge Booklet

Year 9
Spring Term 2- HT2

Look, Cover, Write, Check: How to Effectively Learn and Recall Powerful Knowledge

	Pick a **section** of your powerful knowledge sheet and **read it aloud or write it down** several times. Try to pick a section you're least confident with.
	**Cover up the section** you want to test yourself on, either with a piece of paper or turn the page over so you can't read the content beneath.
	**Write out the powerful knowledge** you can recall on a separate piece of paper. Trying to recall the knowledge out loud can also be effective.
	**Check the knowledge** you have recalled against your powerful knowledge sheet and repeat until you are confident recalling the section. Aim to spend **10 minutes** on this at a time

HT2

Y9

English Powerful Knowledge- DNA

Term	Definition
Authority	The power or control someone has over others.
Bullying	Repeatedly hurting or intimidating someone weaker.
Conscience	A person's sense of right and wrong.
Guilt	The feeling of regret or responsibility for doing something wrong.
Manipulation	Controlling or influencing someone unfairly.
Peer Pressure	Being influenced to do something by people your own age.
Tension	A feeling of stress or suspense in a scene.
Violence	The use of physical force to hurt someone.

Key Characters

- **Phil** – A quiet but controlling leader.
- **Leah** – Thoughtful and talkative, questions morality.
- **Jan & Mark** – Start the play by telling the story of Adam's 'death.'
- **Brian** – Nervous and easily manipulated.
- **Richard** – Challenges Phil's authority.
- **Cathy** – Enjoys violence and has no remorse.
- **Adam** – The victim who surprisingly returns.

Key Themes

- **Bullying** – How characters mistreat and manipulate others.
- **Guilt & Responsibility** – The group's reaction to their actions.
- **Power & Control** – How some characters dominate others.
- **Peer Pressure** – How people do things they wouldn't normally do to fit in.

HT2

Y9

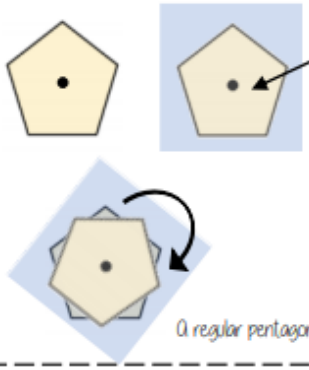
Maths Powerful Knowledge

Key Terms

Rotate: a rotation is a circular movement
Symmetry: when two or more parts are identical after a transformation
Regular: a regular shape has angles and sides of equal lengths
Invariant: a point that does not move after a transformation
Vertex: a point two edges meet
Horizontal: from side to side
Vertical: from up to down

Rotational Symmetry

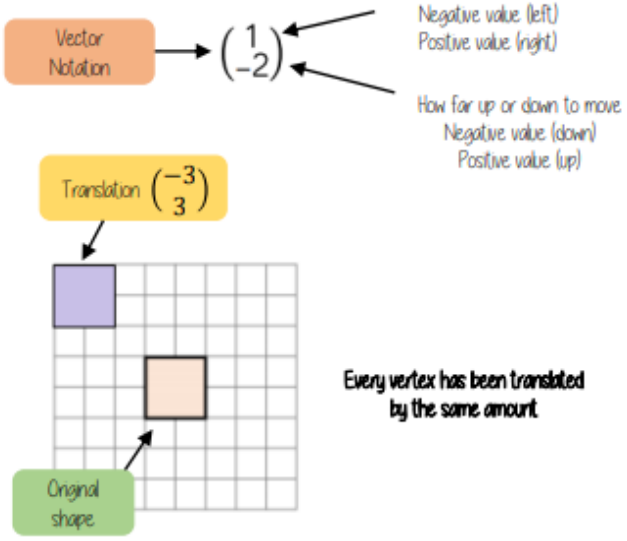
Tracing paper helps check rotational symmetry



1. Trace your shape (mark the centre point)
2. Rotate your tracing paper on top of the original through 360°
3. Count the times it fits back into itself

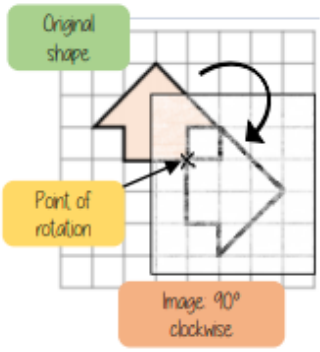
A regular pentagon has rotational symmetry of order 5

Translation and vector notation



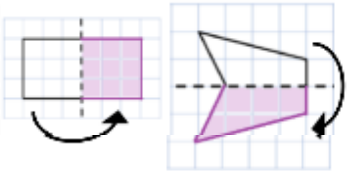
Every vertex has been translated by the same amount

Rotate from a point (in a shape)



1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape

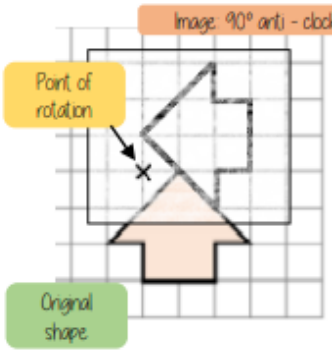
Compare rotations and reflections



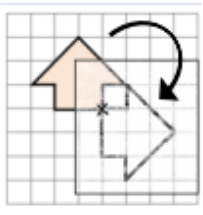
R Reflections are a mirror image of the original shape

Information needed to perform a reflection
- Line of reflection (Mirror line)

Rotate from a point (outside a shape)



1. Trace the original shape (mark the point of rotation)
2. Keep the point in the same place and turn the tracing paper
3. Draw the new shape



Rotations are the movement of a shape in a circular motion

Information needed to perform a rotation
- Point of rotation
- Direction of rotation
- Degrees of rotation

HT2

Y9

Maths Powerful Knowledge

Key Terms

Square number: the output of a number multiplied by itself
Square root: a value that can be multiplied by itself to give a square number
Hypotenuse: the largest side on a right angled triangle. Always opposite the right angle.
Opposite: the side opposite the angle of interest
Adjacent: the side next to the angle of interest

Squares and square roots (R)

This can also be written as 6^2

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

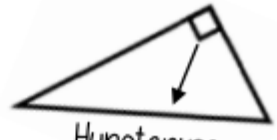
eg $\sqrt{64} = 8$

Because $8 \times 8 = 64$

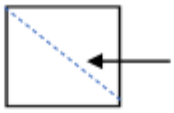
1×1	2×2	3×3	4×4	5×5	6×6	7×7	8×8	9×9	10×10
1	4	9	16	25	36	49	64	81	100

Square numbers

Identify the hypotenuse

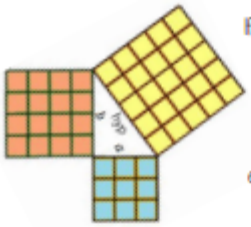


The hypotenuse is always the longest side on a triangle because it is opposite the biggest angle.



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

Determine if a triangle is right-angled



a = 3 b = 4 c = 5

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

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

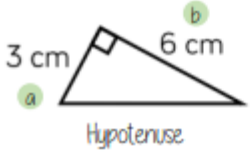
eg $a^2+b^2 = hypotenuse^2$

$3^2 + 4^2 = 5^2$

$9 + 16 = 25$

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

Calculate the hypotenuse



Either of the short sides can be labelled a or b

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

1 Substitute in the values for a and b

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

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

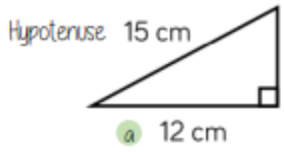
$45 = \text{hypotenuse}^2$

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

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

$6.71cm = \text{hypotenuse}$

Calculate missing sides



Either of the short sides can be labelled a or b

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

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

1 Substitute in the values you are given

$144 + b^2 = 225$

$-144 \quad -144$

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

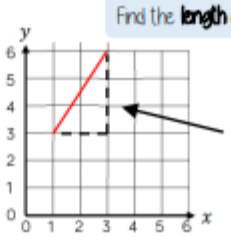
Square root to find the length of the side

$b^2 = 111$

$b = \sqrt{111} = 10.54\ cm$

Pythagoras' theorem on a coordinate axis

Find the **length** of the line segment



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

The line segment is the **hypotenuse**

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

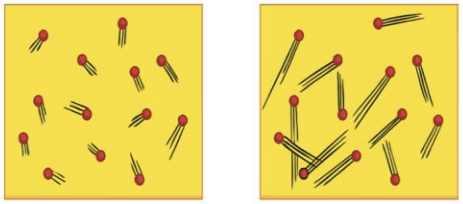
The lengths of a and b are the sides of the triangle

Be careful to check the scale on the axes

Particles

Internal Energy

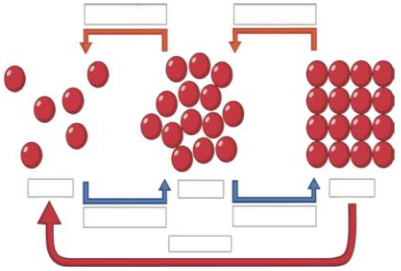
Particles within a system have kinetic energy when they vibrate or move around. The particles also have a potential energy store. The total internal energy of a system is the kinetic and potential energy stores.



Low Temperature | High Temperature

If the system is heated, the particles will gain more kinetic energy, so increasing the internal energy.

Changing State

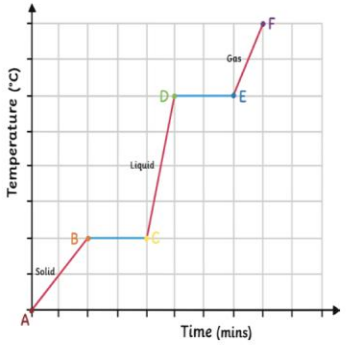


If a system gains more energy, it can lead to a change in temperature or change in state. If the system is heated enough, then there will be enough energy to break bonds.

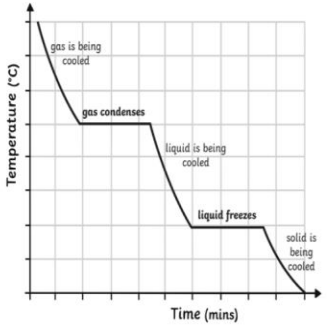
When something changes state, there is no chemical change, only physical. No new substance is formed. The substance will change back to its original form. The number of particles does not change and mass is conserved.

Specific Latent Heat

Energy is being put in during melting and boiling. This increases the amount of internal energy. The energy is being used to break the bonds, so the temperature does not increase. This is shown by the parts of the graph that are flat.



When a substance is condensing or freezing, the energy put in is used to form the bonds. This releases energy. The internal energy decreases, but the temperature does not go down.



The energy needed to change the state of a substance is called the latent heat.

Specific latent heat is the amount of energy needed to change 1kg of a substance from one state to another without changing the temperature. Specific latent heat will be different for different materials.

- solid ⟶ liquid - specific latent heat of **fusion**
- liquid ⟶ gas - specific latent heat of **vaporisation**

Specific Latent Heat Equation

The amount of energy needed/released when a substance of mass changes state.

energy (E) = mass (m) × specific latent heat (L)

E = mL

"Opening Children's Eyes to the Wonderful World of Possibility"

Science Powerful Knowledge

HT2 Y9

Inheritance & Genetics

Inheritance, Variation and Evolution Knowledge Organiser

Keywords

allele – An alternative form of a gene.

asexual reproduction – The production of offspring from a single parent by mitosis. The offspring are clones of the parent.

chromosome – Structures that contain the DNA of an organism and are found in the nucleus.

cystic fibrosis – A disorder of cell membranes that is caused by a recessive allele.

DNA - A polymer that is made up of two strands that form a double helix.

dominant – An allele that is always expressed, even if only one copy is present.

fertilisation – The fusion of male and female gametes.

gamete – Sperm cell and egg cell in animals; pollen and egg cell in plants.

gene – A small section of DNA that codes for a specific protein.

genome – The entire genetic material of an organism.

genotype – The combination of alleles.

heterozygous – A genotype that has two different alleles, one dominant and one recessive.

homozygous – A genotype that has two of the same alleles. Either two dominant alleles or two recessive alleles.

meiosis – The two-stage process of cell division that reduces the chromosome number of the daughter cells. It makes gametes for sexual reproduction.

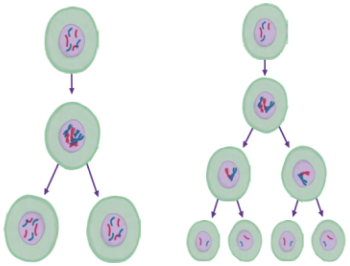
mutation – A change in DNA.

phenotype – The characteristic expressed because of the combination of alleles.

polydactyly – Having extra fingers or toes. It is caused by a dominant allele.

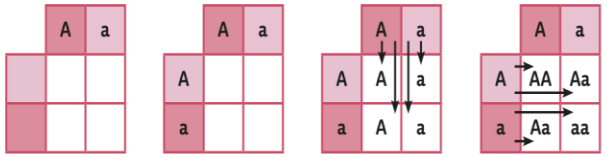
recessive – An allele that is only expressed if two copies of it are present.

sexual reproduction – The production of offspring by combining genetic information from the gametes of two parents. Leads to variation in the offspring.



Mitosis	Meiosis
Produces two daughter cells.	Produces four daughter cells.
Daughter cells are genetically identical.	Daughter cells are not genetically identical.
The cell divides once.	The cell divides twice.
The chromosome number of the daughter cells is the same as the parent cells. In humans, this is 46 chromosomes.	The chromosome number is reduced by half. In humans, this is 23 chromosomes.
Used for growth and repair, and asexual reproduction.	Produces gametes for sexual reproduction.

How to Complete a Punnet Square

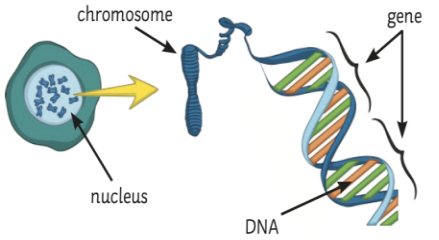


Step 1:
Put the two alleles from one parent into the boxes at the top. This parent is a heterozygote. This means they have one dominant and one recessive allele.

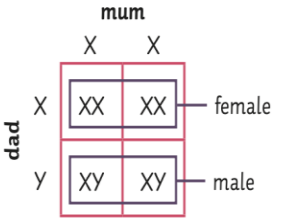
Step 2:
Put the two alleles from the second parent into the boxes on the left. This parent is also a heterozygote.

Step 3:
Put the alleles from the first parent into the two boxes underneath them.

Step 4:
Put the alleles from the second parent into the two boxes to the right of them.



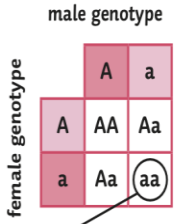
Sex Determination



Females carry two X chromosomes.
Males carry one X and one Y chromosome.

Probability

There are four possible combinations of gametes that offspring can inherit.



One of these four has the genotype aa – that's $\frac{1}{4}$, 25% or 0.25.

The recessive phenotype has a ratio of 1:3 because only one combination will show the phenotype while the other three will not.

Our values: Excellence & Kindness

#REMARKABLE RUDHEATH

Year- 9 Subject- History Topic/Concept- WWII and the Holocaust

HT2
Y9

History Powerful Knowledge

"Opening Children's Eyes to the Wonderful World of Possibility"

REMARKABLE RUDHEATH

Our values: Excellence & Kindness

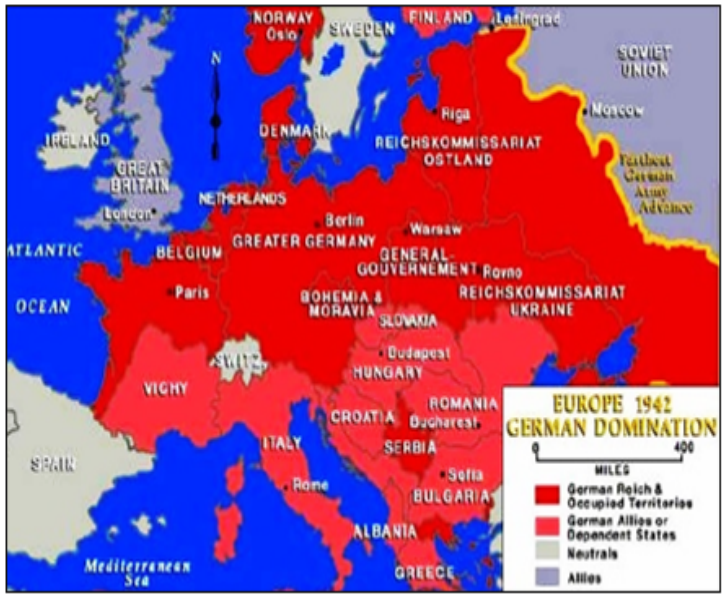
Key Terms			
Big Question – Was Britain right to try and 'appease' Adolf Hitler?		**Blitz Spirit**	Determination to keep going despite the challenges of the Blitz.
Lesson One – Appeasement		**Big Question: How did the war affect people in Britain?**	
Appeasement	Giving someone what they want to make them happy.	**Lesson Five – Evacuation**	
Nazism	Adolf Hitler's extreme political system in Germany.	**Evacuee**	A person who was evacuated, normally a child.
Communism	A political system that limited freedom and democracy.	**Lesson Six – Rationing**	
Big Question: What were the key turning points of World War Two?		**Import**	Bringing goods and food into the country from abroad.
Lesson Two – Dunkirk		**Shortage**	A lack of access to goods, in this case certain types of food.
Evacuate	To urgently send people away from a place.	**Ration Book**	A set of tokens in a book that were exchanged for food during rationing.
British Expeditionary Force	The name given to the British army in Western Europe.	**Big Question: What lessons must we learn from the Holocaust?**	
Interpretation	A conclusion or argument based on evidence.	**Lesson Seven – Nazi beliefs about the Jews**	
Lesson Three – The Battle of Britain		**Discrimination**	Different attitudes towards people based on their race/gender etc.
RAF	The 'Royal Air Force' – the air force of Great Britain.	**Persecution**	Harmful actions against people based on their race/gender etc.
Luftwaffe	The German air force.	**Anti-Semitism**	Actions, thoughts, feelings or words that hurt Jewish people.
Spitfire	A British fighter plane.	**Lesson Eight – Nazi persecution of the Jews**	
Messerschmitt	A German fighter plane.	**Synagogue**	The place where Jewish people worshipped – like a church or mosque.
Lesson Four – The Blitz		**Ghetto**	A cramped, overcrowded and disease-infested part of a city.
Blitz	The Nazi strategy to bomb Britain until it surrendered.	**Lesson Nine – The Holocaust?**	
Air Raid	A bombing attack on a city, normally at night.	**Crematorium**	A large oven used in death camps for burning bodies quickly.

Key questions for using historical sources.

What type of source is it?
What is the author's purpose?
Who wrote it?
Who was intended to read/see it?
What did the author want the reader to think?
What information about the event did the author have?

Foods rationed in Britain

Bacon & Ham	4 ounces
Other meat	1 shilling 2 pence
Butter	2 ounces
Cheese	2 ounces
Margarine	4 ounces
Cooking fat	4 ounces
Milk	3 pints
Sugar	8 ounces
Preserves	1lb every 2 months
Tea	2 ounces
Eggs	1 fresh egg (+ dried)
Sweets	12 ounces per 4 weeks



Timeline of Jewish Persecution

1933	Attacks on Jews and Jewish property. Police/courts no longer protect Jews. Boycotts of Jewish shops, and Jewish books burnt.
1934	Jews prevented from studying medicine and law, and excluded from military service.
1935	Nuremberg Laws deny Jews basic civil rights. Marriage between Jews and non-Jews banned.
1936	Jews banned from voting, banned from parks, restaurants and swimming pools, no longer allowed passports or records.
1938	ID cards issued to Jews. Excluded from cinema, theatre, beaches/holiday resorts. Must add Sarah/Israel to their names.
1939	Jews evicted from their homes, radios confiscated.
1940	Jews' telephones confiscated, do not receive ration cards for clothes.
1941	Jews forced to wear a Yellow Star of David with 'Jew' written on it.
1942	Wannsee Conference. Meeting where Nazis agree to start mass murdering Jews. Seen by many as the start of the Holocaust.

The Holocaust in numbers

6 million Jews killed during the Holocaust

40,000 Camps and prisons were set up by the Nazis

91% Polish Jews were killed

1,100 Jewish ghettos across Europe

1.1 million Children and babies killed during the Holocaust

60% of the world's Jews lived in Europe

How was morale built on the Home Front during the Second World War? – The Big Picture

On **1st September 1939**, Germany invaded Poland. Britain **declared war** two days later. They had been worried about the rising power of Germany for a number of years and this act of aggression was a step too far. War was declared in 1939 but Germany did not attack until 1940. This period of time before the fighting is known as the '**Phoney War**'.

The Germans attacked using their '**Blitzkrieg**' tactics. They used very powerful tanks to defeat the French forces. The British forces were also easily defeated by the strength of the German army and found themselves trapped on the beaches of **Dunkirk** in May 1940. The British and French troops were left in a very dangerous position.

On **29th May 1940**, it was announced that there would be a rescue mission to bring the soldiers back to Britain and avoid them being attacked by the Germans. All sizes of ships set sail from Britain to try to rescue the troops. **198,000** British troops were saved during the effort and this was called the '**Miracle of Dunkirk**' by Winston Churchill.

However, some saw Dunkirk as a **military disaster**. Britain had lost all of its military equipment and had given power over to the German army in Europe. It made a German invasion of Britain very likely.

From **September 1940 until May 1941**, German aircraft attacked British ports and cities. This was known as the **Blitz**. One third of London was destroyed and **43,000 civilians** lost their lives. Air raid shelters and sirens were introduced to make sure that the British people got to safety.

Due to the danger of war, the government felt that children should be **evacuated** to the countryside. This was known as **Operation Pied Pieper**. **3 million children** were evacuated between 1939 and 1944. This was a very traumatic experience as they were taken away from their families and lived with strangers.

On 8th January 1940, the British government introduced **rationing**. This was due to a shortage of food such as bacon, butter and sugar. By 1942, most food was rationed **apart from fruit and vegetables** which people were encouraged to grow. This was introduced to ensure that everyone received a fair amount of food during the war.

Despite some very difficult times during the Second World War, British morale remained high. The government used propaganda to keep spirits high and ensure that the public were behind the war effort. Key phrases such as '**Keep Calm and Carry On**' and '**Dig for Victory**' appeared on posters whilst the government gave advice on how to cook, make clothes and get to safety.

The Second World War created very difficult times for the British population. Many people went hungry due to **rationing**, were separated from their family due to **evacuation** or felt great fear due to the **Blitz**. The **government** provided the public with reassurance and guidance in **propaganda** that is now often referred to as '**The Blitz Spirit**' where the British people kept going despite the problems.

HT2
Y9

History Powerful Knowledge

"Opening Children's Eyes to the Wonderful World of Possibility"

REMARKABLE RUDHEATH

Our values: Excellence & Kindness

HT2

Y9

Geography Powerful Knowledge

Topic

Development

Development categories. Measuring development using data.
Opportunities and barriers for development.
Issues and challenges for developing countries.
Focus on Brazil.

Key Words

Development
The progress of a country in terms of economic growth, the use of technology and human welfare.

Development gap
The difference in standards of living and wellbeing between the world's richest and poorest countries (between HICs and LICs).

Gross national income (GNI)
A measurement of economic activity that is calculated by dividing the gross (total) national income by the size of the population. GNI takes into account not just the value of goods and services, but also the income earned from investments overseas.

Human Development Index (HDI)
A method of measuring development in which GDP per capita, life expectancy and adult literacy are combined to give an overview. This combined measure of development uses economic and social indicators to produce an index figure that allows comparison between countries.

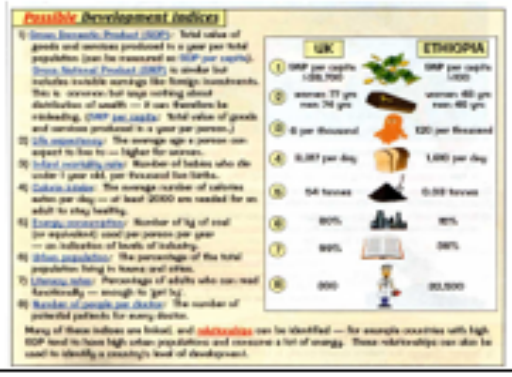
International aid
Money, goods and services given by the government of one country or a multilateral institution such as the World Bank or International Monetary Fund to help the quality of life and economy of another country.

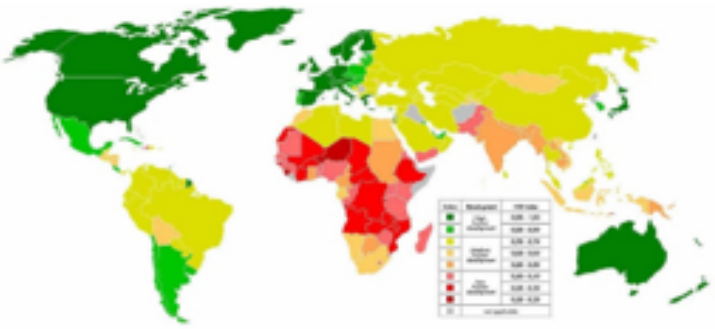
Life expectancy
The average number of years a person might be expected to live.

Literacy rate
The percentage of people who have basic reading and writing skills.

Squatter settlement
An area of poor-quality housing, lacking in amenities such as water supply, sewerage and electricity, which often develops spontaneously and illegally in a city in an LIC.

Key Diagrams





HT2

Y9

Spanish Powerful Knowledge

¿Cuál es su nacionalidad?	What is his/her nationality?
Es…	He/She is…
argentino/a	Argentinian
boliviano/a	Bolivian
colombiano/a	Colombian
mexicano/a	Mexican
¿De dónde es?	Where is he/she from?
Es de…	He/She is from…
¿Dónde vive?	Where does he/she live?
Vive en…	He/She lives in…
¿Con quién vive?	Who does he/she live with?
Vive con sus padres.	He/She lives with his/her parents.
¿Qué hace por la mañana?	What does he/she do in the morning?
Desayuna.	He/She has breakfast.
Tengo derecho…	I have the right…
al amor y a la familia	to love and to family
al juego	to play
a la educación	to an education
a la libertad de expresión	to freedom of expression
a la protección	to protection
a un medio ambiente sano	to a healthy environment
No puedo…	I cannot…
dar mi opinión	give my opinion
ir al insti(tuto)	go to school
jugar con mis amigos	play with my friends
respirar	breathe
Voy a caballo.	I go on a horse.
Voy a pie.	I go on foot. / I walk.
Voy en autobús.	I go by bus.
Voy en barco.	I go by boat.
Voy en bici.	I go by bike.
Voy en coche.	I go by car.
Voy en metro.	I go by underground.
Voy en tren.	I go by train.
¿Por qué?	Why?

norteamericano/a	North American
peruano/a	Peruvian
inglés/inglesa	English
español(a)	Spanish
pakistaní	Pakistani
Organiza sus cosas.	He/She organises his/her things.
Va al insti.	He/She goes to school.
¿Qué hace durante el día?	What does he/she do during the day?
Ayuda a su madre.	He/She helps his/her mother.
Estudia.	He/She studies.
Hace los deberes.	He/She does his/her homework.
Prepara la cena.	He/She prepares dinner.
salir a la calle	go out in the street
vivir con mi familia	live with my family
porque…	because…
soy un(a) chico/a	I am a boy/girl
mi padre es muy estricto	my father is very strict
tengo que ganar dinero	I have to earn money
tengo que trabajar	I have to work
el aire está contaminado	the air is polluted
en mi país a veces hay violencia	in my country sometimes there is violence
¡No es justo!	It isn't fair!
Es inaceptable	It is unacceptable
Porque es…	Because it is…
más rápido que ir a pie	quicker than walking
más verde que ir en autobús	greener than going by bus
más barato que ir en taxi	cheaper than going by taxi
más práctico que ir en coche	more practical than going by car
más seguro que nadar	safer than swimming
la única opción	the only option

HT2

Y9

Food Technology Powerful Knowledge

Temperature probe

- Make sure it's clean to stop cross contamination
- Make sure it is working and that the batteries haven't run out
- Always place the probe into the middle part of the food you are testing
- If the food is not at the right temperature clean the probe again with a damp cloth before using it again
- Make sure the end of the probe never touches the base of the hot pan as it will give a false reading
- Clean before putting away so bacteria doesn't spread to someone else's food

Bacteria ……..

High Risk ……..

Storage …….

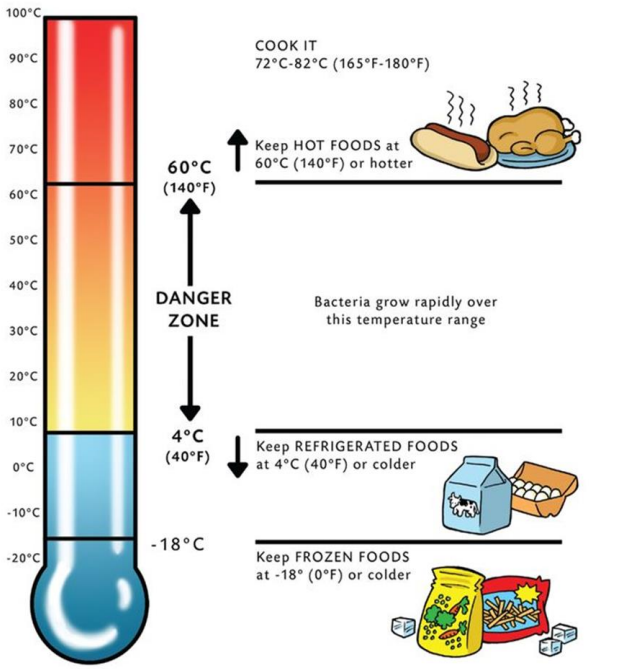
E Coli ……..

Salmonella …….

Listeria ……..

Meat ……..

Temperature Danger Zone



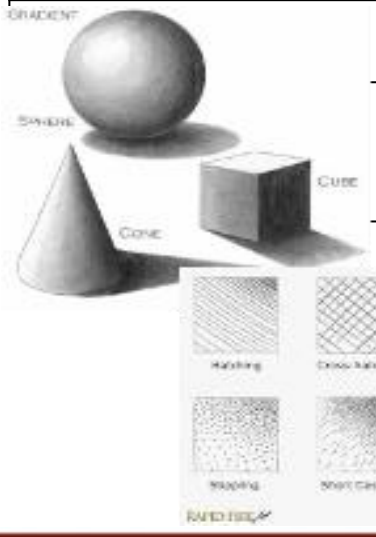
REMARKABLE RUDHEATH

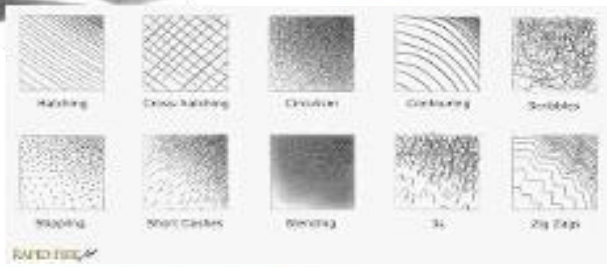
HT2

Y9

Art Powerful Knowledge

Term	Definition
Grid Method	A method that involves drawing a grid over your reference photo, and then drawing a grid of equal ratio on your paper or canvas Then you draw the image, focusing on one square at a time, until the entire image has been transferred.
Tone	In painting, tone refers to the relative lightness or darkness of a colour.
Gradient	Is the **gradual blending from one colour to another colour or shade dark- light**
Elongate	Stretched out, or extended so that it's longer than usual.
Perspective	Perspective in art usually refers to the representation of three-dimensional objects or spaces in two dimensional artworks. It creates depth.
Form	An element of art that is three-dimensional and encloses. volume; includes height, width AND depth (as in a cube, a sphere, a pyramid, or a cylinder)
Scale	Scale refers to the overall physical size of an artwork or objects in the artwork.





Music Powerful Knowledge

Y9

What are we learning about?:

A. What is Minimalism?
B. Keywords
C. How does a composer develop a motif?
D. To what extent can a piece be long in length, but small in content?

Keywords for this Half Term

Minimalism
Metamorphosis
Retrograde

A:
What is Minimalism?

Minimalism is a branch of modern classical music developed in the early 1960s.
Minimalism is a form of art music or other compositional practice that employs limited or minimal musical materials.

Musical Features of Minimalism

- Motif
  Short musical idea
- Ostinato
  Repeated phrase
- Phase Shifting
  Two identical parts which gradually go out of sync as they are repeated together
- Metamorphosis
  Making a slight change within the Music

B:	Keywords
Minimalism	A form of Classical Music developed in the early 1960s
Metamorphosis	Making a change within the Music. Similar to a variation
Retrograde	A melody that is reversed

C:
How does a composer develop a motif?

A composer is someone who writes a piece of Music. When a composer writes a piece of Music they must develop musical changes to ensure that the piece of Music remains interesting.

- Motif
  Short musical idea
- Repetition
  Repeating this musical idea
- Augmentation
  Lengthening a melody or rhythm
- Diminution
  Making a melody or rhythm shorter in size

D:
To what extent can a piece be long in length, but small in content?

A piece of Music might be long in length, but the actual musical content might be quite minimal.

For instance, in Minimalism the whole piece of Music is based on a motif which is a short musical idea. With this musical idea it is musically manipulated and repeated to create a longer piece of Music.

Term	Symbol	Value
semibreve	𝅝	4 beats
minim	𝅗𝅥	2 beats
crotchet	♩	1 beat
quaver	♪	1/2 beat

Term	Symbol	Value
semiquaver	𝅘𝅥𝅯	1/4 beat
crotchet rest	𝄽	1 beat
quaver rest	𝄾	1/2 beat
semiquaver rest	𝄿	1/4 beat

HT2

Y9

Drama Powerful Knowledge

Year 9– Spring Term
Devising from a stimulus

- What are elements of Theatre?
- How do we devise a piece of theatre using a Stimulus?

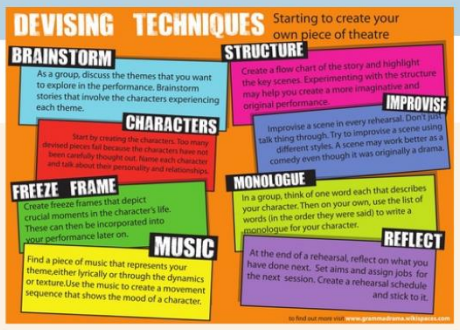
Structure

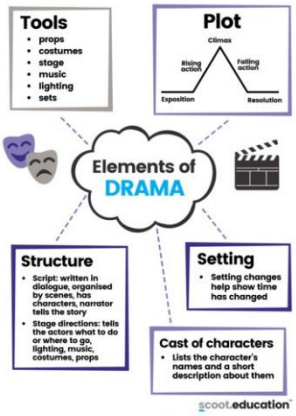
Linear

• You could choose to start at the beginning of the story and build in tension towards a climax at the end of the piece. When your work runs in chronological order like this, it is called a linear structure. If your work is inspired by Stanislavski you should use a linear structure to ensure it is naturalistic.

Non-linear

• If you decided to begin by presenting the outcome of the story first and then move back in time to how it all began, this would be a non-linear structure





Drama Keywords

Stimuli - The starting point in a piece of devised drama is known as the stimulus. Describe the stimulus and consider the initial response to it, discussing and then developing practical ideas

Rehearsal techniques- activities in rehearsal to develop and create material. (Hot seating, improvisition, team games)

Dramatic techniques

Slow motion- reduce the speed at which a drama is enacted, to highlight a scene or bring a big moment into focus. Slow Motion can also be used to create dramatic tension by slowing the action when building up to an important event.

Monologue- an extended speech by one person. It is a speech given by a single character in a story. In drama, it is the vocalization of a character's thoughts;

Narration- Narration is a technique whereby one or more performers speak directly to the audience to tell a story, give information or comment on the action of the scene or the motivations of characters.

Using a chorus-a group of performers who comment on the main action, typically speaking and moving together;

Cross Cutting - is a device to move between two or more scenes staged in the space at the same time. It's important that the audience know which part of the action they should follow so one part of the action remains in still image while another scene is played out, directing the audience 's focus. Using this technique you can move backwards and forwards between separate locations and time frames.

Using placards (signs) - A placard is a sign or additional piece of written information presented onstage. Using placards might be as simple as holding up a card or banner. Multimedia or a PowerPoint slideshow can also be used for this effect.

Multi-role - s when an actor plays more than one character onstage. The differences in character are marked by changing voice, movement, gesture and. body language but the audience can clearly see that the same actor has taken on more than one role.

Elements of Theatre- All the different parts of the performance that work together. Acting/performing, lighting, sound, set and props, costume, hair and makeup,.

HT2

Y9

I.T. Powerful Knowledge

Advanced Programming

Term	Definition
IDLE	In Python, IDLE (Integrated Development and Learning Environment) is an interactive development environment that provides a simple interface for writing, testing, and debugging Python code. It includes a Python shell and an editor for creating scripts
Python	Python is a high-level, interpreted programming language known for its readability, simplicity, and versatility. It is widely used in web development, data analysis, machine learning, automation, and more.
Debugging	Debugging is the process of identifying, isolating, and fixing errors or bugs in a computer program

Iteration

Algorithms consist of steps that are carried out (performed) one after another. Sometimes an **algorithm** needs to **repeat** certain steps until told to stop or until a particular condition has been met. ***Iteration is the process of repeating steps.***

Iteration allows us to **simplify** our **algorithm** by stating that we will **repeat** certain **steps** until told otherwise. **Iteration** is implemented in **programming** using **FOR** and **WHILE** statements.

There are **two** ways in which **programs** can **iterate** or **'loop'**:

- count-controlled loops
  - Sometimes it is necessary for **steps** to **iterate** a **specific number** of times.
- condition-controlled loops
  - **iteration** continues **while**, or **until**, a **condition** is met.

Each type of **loop** works in a slightly different way and produces different results.

IF Statements

When designing **programs**, there are often points where a **decision** must be made. This **decision** is known as **selection** and is implemented in **programming** using **IF** statements. In **programming**, **selection** is usually represented by the statements **IF** and **ELSE**.
For **selection**, Python uses the statements **if** and **else** (note the lowercase **syntax** that **Python** uses):

Consider the age-related **algorithm** using **Python**. The steps are:

- Ask how old you are
- if you are 70 or older, say "You are aged to perfection!"
- else say "You are a spring chicken!"

The above algorithm would be written in Python (3.x) as:

```
age = int(input("How old are you?"))

if age >= 70:

        print("You are aged to perfection!")

else:

        print("You are a spring chicken!")
```

HT2

Y9

I.T. Powerful Knowledge

Advanced Programming

Arrays

An **array** is a series of **memory** locations – or **'boxes'** – each of which holds a single item of **data**, but with each box sharing the same name. All **data** in an **array** must be of the same **data type**.

Arrays are named like **variables**. The number in brackets determines how many **data** items the **array** can hold. The array **score(9)** would allow ten data items to be stored.

Any **facility** that holds more than one item of **data** is known as a **data structure**. Therefore, an **array** is a **data structure**.

Lists are **data structures** similar to **arrays** that allow **data** of more than one **data type**.

Functions

A **function** is also a small section of a **program** that performs a specific task that can be used repeatedly throughout a **program**, but the task is usually a **calculation**. **Functions** perform the task and return a value to the main **program**.

Every **function** needs:

1. A name
2. The values that it needs to use for calculation
3. The **program** code to perform the task
4. A value to return to the main program

HT1

Y9

PE- Orienteering

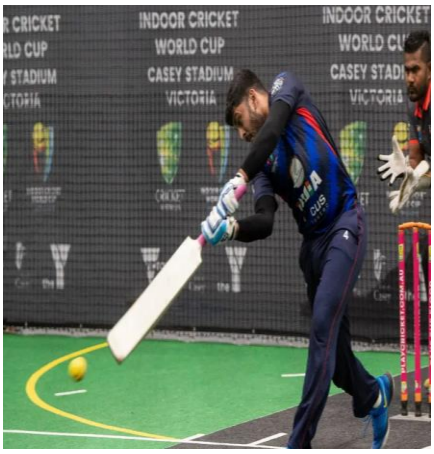
A competitive sport in which runners must find their way across rough country with the aid of a map and compass.

Key Skill or Term	Description
Orientating a map	Being able to rotate your map to face north.
Navigate	Using a map to plan a route.
Catching features	Be able to identify catching features – an identifiable point or boundary on a map used to navigate to control points. E.g. Buildings, trees, fences.
Line features	Be able to identify line features – anything linear (makes a line) on a map used to navigate to control points. E.g. Rivers, paths, tracks, roads.
Map reading	Understanding features and being able to use a legend (key).
Control 	What the competitor is looking for! A course consists of visiting a sequence of controls each of which is marked by a circle on the map. At each control you will find an orange and white "kite" and a punch and possibly an electronic control box.

HT1

Y8

PE – Indoor Cricket



Scoring

The aim for the batter in cricket is to try to score as many runs as possible throughout their innings. To score a run requires the batter to strike the ball and run to the opposite end of the pitch while their batting partner runs in the other direction. In situations where the fielding team has not recovered the ball, the batters can return back to score two or more runs. It is also possible to score runs without running the length of the pitch, if a batter can hit the ball past the boundary line (four runs) or over the line without bouncing (six runs).

Fielding positions