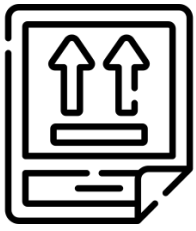
The Rudheath Senior Academy

Powerful Knowledge Booklet

Year 8
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

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English Powerful Knowledge
Voices from Around the World- Poetry

Term	Definition
Culture	The way a group of people live, including their customs, beliefs, food, language, and traditions.
Race	A way people are grouped based on physical features like skin color, hair, and facial traits.
Ethnicity	A group of people who share common traditions, language, or ancestry.
Tradition	A special way of doing things that is passed down from generation to generation.
Oppressed	When a group of people is treated unfairly and denied rights or opportunities.
Empathy	Understanding and caring about how someone else feels.
Origin	Where something or someone comes from.

Poetic Technique	Definition
Enjambment	When a sentence or thought continues beyond the end of a line in a poem without a pause.
Metaphor	A way of comparing two things by saying one thing *is* another, without using "like" or "as" (e.g., "The classroom was a zoo").
Simile	A comparison between two things using "like" or "as" (e.g., "Her smile was as bright as the sun").
Personification	Giving human qualities to something that isn't human (e.g., "The wind whispered through the trees").
Caesura	A pause or break in the middle of a line of poetry, often marked by punctuation.
Stanza	A group of lines in a poem, like a paragraph in writing.
Rhyme	When two or more words have the same ending sound (e.g., "cat" and "hat").

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Maths Powerful Knowledge

Key Terms

Percent: parts per 100 – written using the % symbol
Decimal: a number in our base 10 number system. Numbers to the right of the decimal place are called decimals
Fraction: a fraction represents how many parts of a whole value you have
Equivalent: of equal value
Reduce: to make smaller in value
Growth: to increase/ to grow
Integer: whole number, can be positive, negative or zero
Invest: use money with the goal of it increasing in value over time (usually in a bank)

Convert FDP

R

$\frac{70}{100}$ → This also means 70 ÷ 100 → 70 out of 100 squares → **70 "hundredths" = 7 "tenths" = 0.7** → 70 hundredths = 70%

Using a **calculator**

□ → S⇔D → Convert to a decimal

This will give you the answer in the simplest form

× 100 converts to a percentage

Be careful of recurring decimals
e.g. $\frac{1}{3}$ = 0.3333333 = 0.3
The dot above the 3

Fraction/ Percentage of amount

R

Find $\frac{3}{5}$ of £60

Remember $\frac{3}{5}$ = 60%

10% of £60 = £6
50% of £60 = £30
60% of £60 = £36

Remember
$\frac{3}{5}$ = 60% = 0.6

60% of £60
= 0.6 × 60
= £36

Convert FDP < and > 100%

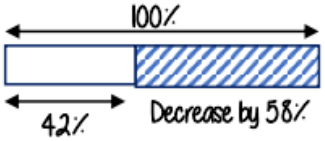
100 hundredths
10 tenths
100%

40 hundredths
4 tenths
40%

140 hundredths
14 tenths
140%

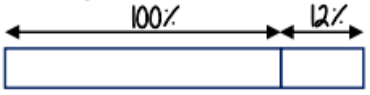
100% + 40%
1 + 0.40
= 140

Percentage decrease: Multipliers



100% − 58% = 42%
100 − 0.58 = 0.42 ← **Multiplier** Less than 1

Percentage increase: Multipliers



100% + 12% = 112%
100 + 0.12 = 1.12 ← **Multiplier** More than 1

Express as a % - Non-calculator

Percent – per hundred

7 per every 10 are orange → $\frac{7}{10}$ → This means that 70 per every 100 are orange → $\frac{70}{100}$ → 70%

27 per every 50 shaded → $\frac{27}{50}$ → 54 per every 100 shaded → $\frac{54}{100}$ → 54%

Denominator 100 | Equivalent fractions

Express as a % - Calculator

$\frac{13}{30}$ → □ → $\frac{13}{30}$ → × 100 → 43.3333...% = 43%

Can't use equivalence easily to find 'per hundred'

This the same as 13 ÷ 30

Decimal percentages are still a percentage

Percentage change

I bought a phone for £200
A year later sold it for £125

100%
£200
£125

All values of change compare to the ORIGINAL value

Percentage loss
$\frac{75}{200}$ × 100 = 37.5%

$$\frac{\text{Difference in value}}{\text{Original value}} \times 100$$

I bought a house for £180,000, I later sold it for £216,000

100%
£180,000

Percentage profit
Money made (profit value) $\frac{36000}{180000}$ × 100 = 20%

Choose appropriate method

The language and wording of the question is the key

Have you represented the question in a bar model?
Can you use a calculator?

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Maths Powerful Knowledge

Key Terms

Standard (index) Form: A system of writing very big or very small numbers
Commutative: an operation is commutative if changing the order does not change the result
Base: The number that gets multiplied by a power
Power: The exponent – or the number that tells you how many times to use the number in multiplication
Exponent: The power – or the number that tells you how many times to use the number in multiplication
Indices: The power or the exponent
Negative: A value below zero

Positive powers of 10

1 billion – 1 000 000 000
$10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10^9$

Addition rule for indices $10^a \times 10^b = 10^{a+b}$

Subtraction rule for indices $10^a \div 10^b = 10^{a-b}$

Standard form with numbers > 1

Any number between 1 and less than 10 → $A \times 10^n$ ← Any integer

Example
3.2×10^4
$= 3.2 \times 10 \times 10 \times 10 \times 10$
$= 32000$

Non-example
0.8×10^4
5.3×10^{07}

Negative powers of 10

0.001	10^1	10^0	10^{-1}	10^{-2}	10^{-3}
$1 \times \frac{1}{1000}$	10	1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
1×10^{-3}	0	0	0	0	1

Any value to the power 0 always = 1

Negative powers do not indicate negative solutions

Numbers between 0 and 1

$0.054 = 5.4 \times 10^{-2}$

10^0	10^{-1}	10^{-2}	10^{-3}
1	$\frac{1}{10}$	$\frac{1}{100}$	$\frac{1}{1000}$
0	0	5	4

A negative power does not mean a negative answer – it means a number closer to 0

Order numbers in standard form

10^2	10^1	10^0	10^{-1}	10^{-2}	10^{-3}	10^{-4}

6.4×10^{-2} 2.4×10^2 3.3×10^0 1.3×10^{-1}

0.064 240 1 0.13

Look at the power first will the number be = > or < than 1

Use a place value grid to compare the numbers for ordering

Mental calculations

$6.4 \times 10^2 \times 1000$
$= 6.4 \times 10^2 \times 10^3$
$= 6.4 \times 10^5$
Not in Standard Form
Use addition for indices rule

$(8 \times 10^5) \times 3$
$= 24 \times 10^5$ Not in Standard Form
$= 2.4 \times 10^1 \times 10^5$ Use addition for indices rule
$= 2.4 \times 10^6$

$(2 \times 10^3) \div 4$
$= (2 \div 4) \times 10^3$
$= 0.5 \times 10^3$
Divide the values

Remember the layout for standard form
Any number between 1 and less than 10 → $A \times 10^n$ ← Any integer

Addition and Subtraction

Tip: Convert into ordinary numbers first and back to standard from at the end

$6 \times 10^5 + 8 \times 10^5$

Method 1
$= 600000 + 800000$
$= 1400000$
$= 1.4 \times 10^6$

More robust method
Less room for misconceptions
Easier to do calculations with negative indices
Can use for different powers

This is not the final answer

Method 2
$= (6 + 8) \times 10^5$
$= 14 \times 10^5$
$= 1.4 \times 10^1 \times 10^5$
$= 1.4 \times 10^6$

Only works if the powers are the same

Multiplication and division

$\frac{1.5 \times 10^5}{0.3 \times 10^3}$ ← Division questions can look like this

$(1.5 \times 10^5) \div (0.3 \times 10^3)$
$(1.5 - 0.3) \times 10^5 - 10^3$
$= 5 \times 10^2$

For multiplication and division you can look at the values for A and the powers of 10 as two separate calculations

Revisit addition and subtraction laws for indices – they are needed for the calculations

Addition law for indices: $a^m \times a^n = a^{m+n}$

Subtraction law for indices: $a^m \div a^n = a^{m-n}$

Using a calculator

$1.4 \times 10^5 \times 3.9 \times 10^3$

Use a calculator to work out this question to a suitable degree of accuracy

Input 1.4 and press [×10^x] Then press 5 (for the power)
Press [×]
Input 3.9 and press [×10^x] Then press 3 (for the power)
Press [=]
This gives you the solution

Click calculator for video tutorial

To put into standard form and a suitable degree of accuracy
Press [SHIFT] [SETUP] and then press 7 for sci mode.
Choose a degree of accuracy so in most cases press 2

Answer: 5.5×10^8

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Maths Powerful Knowledge

Key Terms

Significant: Place value of importance
Round: Making a number simpler but keeping its value close to what it was
Decimal: Place holders after the decimal point
Overestimate: Rounding up – gives a solution higher than the actual value
Underestimate: Rounding down – gives a solution lower than the actual value
Metric: A system of measurement
Balance: The amount of money in a bank account
Deposit: Putting money into a bank account

Round to powers of 10 and 1 sig figure

R If the number is halfway between we "round up"

5495 to the nearest 1000: 5000 ↑ 6000

5475 to the nearest 100: 5400 ↑ 5500

5475 to the nearest 10: 5470 ↑ 5480

370 to 1 significant figure is 400
37 to 1 significant figure is 40
3.7 to 1 significant figure is 4
0.37 to 1 significant figure is 0.4
0.00037 to 1 significant figure is 0.0004

Round to the first non-zero number

Round to decimal places

2.46192 ← Focus on the numbers **after** the decimal point

"To 1dp" – to one number after the decimal
"To 2dp" – to two numbers after the decimal

2.46192 (to 1dp) - Is this closer to 2.4 or 2.5

24 ↑ 25

2.4 6192 This shows the number is closer to 2.5

2.46192 (to 1.2dp) - Is this closer to 2.46 or 2.47

246 ↑ 247

2.46 192 This shows the number is closer to 2.46

Estimate the calculation

Round to 1 significant figure to estimate

$4.2 + 6.7 \approx 4 + 7 \approx 11$ This is an **overestimate** because the 6.7 was rounded up more

The equal sign changes to show it is an estimation

$21.4 \times 3.1 \approx 20 \times 3 \approx 60$ This is an **underestimate** because both values were rounded down

It is good to check all calculations with an estimate in all aspects of maths – it helps you identify calculation errors

Order of operations

R

Brackets Operations in brackets are calculated first
Other operations e.g powers, roots,
Multiplication/ Division
They are carried out in the order from left to right in the question
Addition/ Subtraction
They are carried out in the order from left to right in the question

Calculations with money

Debit - You have £0 or more in an account
Credit - You have less than £0 in an account

Money calculations are to 2dp

Using a calculator – ensure you are working in the correct units
£1.30 + 50p = 1.30 + 50 (in pence)
= 1.30 + 0.50 (in pounds)

£1 = 100p

Units are important: Useful Conversions

mm ÷10 cm ÷100 m ÷1000 km
(× 10, × 100, × 1000)

g ÷1000 kg (× 1000)

ml ÷1000 L (× 1000)

Metric measures of length

Kilo = 1000 x meter
Centi - $\frac{1}{100}$ x meter
Milli - $\frac{1}{1000}$ x meter

Units of weight/ capacity

Weight = g, kg, t
Capacity (volume of liquid) = ml, L

Time and the calendar

1 Year – the amount of time it takes Earth to go around the sun **365** (and a quarter) **days**
Leap Year – **366 days** (every 4 years)

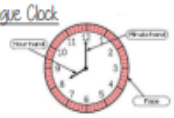
12 Months = one year = 52 weeks
31 days – **Jan, March, May, July Aug, Oct, Dec**
30 days – **April, June, Sept, Nov**
28 days – **Feb** (29 leap year)

1 week – 7 days
Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

1 day – 24 hours
1 hour - 60 minutes
1 minute – 60 seconds

Use a number line for time calculations!

Analogue Clock



12-hour clock
- Use am (morning) and pm (afternoon)
- Only use hour times up to 12

Digital Clock (24-hour times)

24-hour clock
- 0-11 (morning hours)
- 12-23 (afternoon hours)

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.

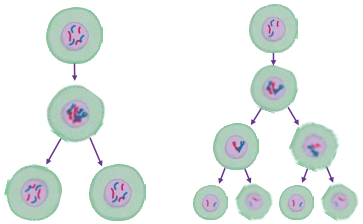
mutation – A change in DNA.

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

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

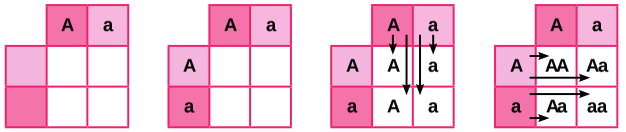
recessive – An allele that is only expressed if two copies of it are present.

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

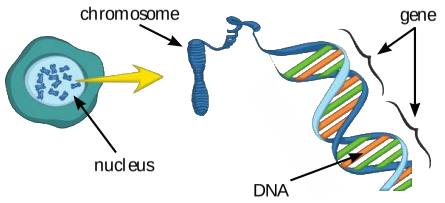


Step 1:
Put the two alleles from one parent into the boxes at the top. This parent is a heterozygote. This means they have one dominant and one recessive allele.

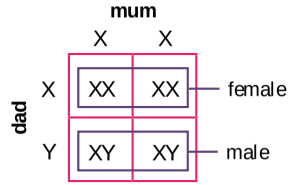
Step 2:
Put the two alleles from the second parent into the boxes on the left. This parent is also a heterozygote.

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.



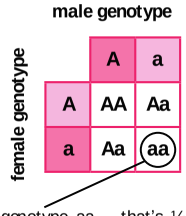
Sex Determination



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 ¼ 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.

Earth and the Atmosphere **Knowledge Organiser**

Key Words

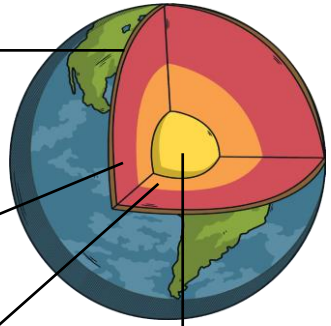
atmosphere	A layer of gases that surrounds the Earth.
climate change	A change in the average temperature and cycles of weather over a long period of time.
erosion	The wearing away and transportation of material by the movement of water, wind or ice.
igneous rock	A type of rock formed when hot, molten rock crystallises and solidifies.
lava	Hot molten rock that flows from a volcano or cracks above the Earth's surface.
magma	Semi-molten rock found beneath the surface of the Earth.
metamorphic rock	A type of rock formed when other rocks undergo changes due to extreme heat and pressure.
metamorphism	The process in which sedimentary and igneous rocks are changed by heat and pressure to become metamorphic rocks.
mineral	A naturally occurring element or compound.
sedimentary rock	A type of rock formed when layers of sediments build up and become cemented together.
weathering	The breaking up of rocks by natural forces, without major movement. There are **three** types: physical, biological and chemical.

Structure of the Earth

crust
The rocky surface of Earth. The rock that makes up the Earth's crust contains **minerals**. These minerals are often mined to produce useful materials such as metals and building materials. The crust is divided into sections called **tectonic plates**.

mantle
A semi-solid layer of molten rock called **magma**. The mantle is very hot and flows very slowly. When magma escapes from the mantle through the crust to the surface of the Earth, it is known as a volcanic eruption.

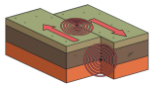
outer core
A molten mixture of iron and nickel metals. The metals flow and move around. This generates the Earth's maghetic fied

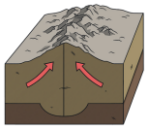


inner core
A solid mixture of iron and nickel metals at the centre of the Earth.

The **fossil record** and the **shapes of the continents** provide **evidence** that the Earth's surface has changed over time.
This happens because convection currents in the mantle cause tectonic plates to move.

Sudden movements caused when tectonic plates move towards or past each other cause earthquakes.





Mountain ranges can be formed when tectonic plates push each other upward.

Valleys, oceanic ridges and volcanoes can form when tectonic plates move away from each other.

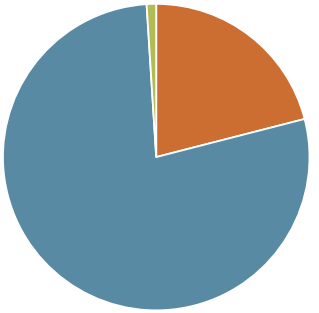
The Atmosphere

For the first billion years after the Earth formed, **carbon dioxide** was the most **abundant** gas in the atmosphere. Since then, the atmosphere has changed:

- **Water vapour** in the early atmosphere condensed and formed the **oceans**.
- Carbon dioxide dissolved in the oceans.
- Plant life evolved and released **oxygen** into the atmosphere when they started to photosynthesise.
- Animal life was then able to evolve.

The composition of the atmosphere today is:

	key
78% nitrogen	
21% oxygen	
1% other gases (including carbon dioxide, methane and noble gases)	



Knowledge Organiser: *Was the Industrial Revolution 'Liberty's Dawn?'*

The **Industrial Revolution** is the name given to the period between 1750 and 1900, when Britain went through huge changes and became very wealthy (rich.

Britain went from a country based on farming, with every living in the countryside to one where people moved to growing cities to work in new factories, which produced goods. It had a huge effect on families, with some claiming it was a disaster for the working class

Liberty's Dawn?

Historian, Emma Griffin has argued that life was not so bad for those in the time, but that it was a **Liberty's Dawn**. A time of **improvement, opportunity and freedom for the working classes of Britain.**

*Men, women and children felt the industrial revolution in very different ways. The patches of sunlight certainly shone more brightly on men than on their wives or children... **the industrial revolution heralded the advent not of a yet 'darker period', but of the dawn of liberty."***


The Industrial Revolution increased job opportunities


Much factory work paid better wages than farm


Higher wages and more opportunities increased status and self-worth


Therefore the Industrial Revolution was Libertys Dawn

Key Words

1	**Wages**	The money you earn from your job	
2	**Population**	The amount of people in a country	
3	**Poverty**	People who live in poverty struggle to have the money to pay for food, their bills and anything else.	
5	**Back to Back**	Housing built in blocks, connected side to side and back to back. They have no garden at all.	
6	**Factory or Mill**	A building with machinery that is use to produce goods e.g. Cloth, pottery and	
7	**Working class**	People who earn money through working in physical jobs such factories, building or being a servant.	

How did the Industrial Revolution impact lives?

Men:

Griffin said *"The patches of sunlight certainly shone more brightly on men"*

- **Men could have better jobs** in new cities e.g.
- **There were lots of jobs available**
- **Factory work was all year**, unlike farming which was only parts of the year
- Men could **earn higher wages, this meant they could live a better life**

George Collyer:
" Working on the railway gives you a lot more freedom than working on a farm."

Sam Catton:
"Samuel Catton found employment at the chemical works for "very good wages""

Women:

Griffin said women's lives improved slightly, but not as much as men

- Unmarried, **single women found work in factories** and mills
- Women did get paid **lower wages** than men
- Very few women continued to work after they had children .They had to stay at home to look **after the children**

Betty Shaw
"Left her job and gave birth almost immediately after her wedding. She had 8 children and never worked again"

Eliza Mitchell
"Eliza worked making children's shoes, which was a skilled job, but she quit once she had children"

Children:

Griffin agrees that life for children was tough in the Industrial Revolution

- **Most children worked**, many in mills, factories and down mines
- **Most children had a job by aged 10**, some were as young as 4
- **Work was very tough and dangerous for children**

Robert Lowery
"I had to rise at 4 a.m. every morning and walk nearly two miles to work, which continued from 5 am until 6 pm"

Emanuel Lovekin
"I was sent to the mines at the age of 7, opening a door for the wagons to pass through"

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History Powerful Knowledge

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

REMARKABLE RUDHEATH

Our values: Excellence & Kindness

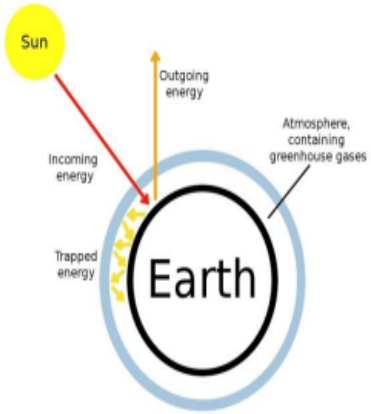
Climate Change Knowledge Organiser

Key terms

Atmosphere - *a layer of gases that surrounds the planet*
Weather - *the current conditions in the atmosphere*
Climate - *the average weather conditions in an area over a period of time*
Greenhouse effect - *the process by which CO^2 and other gases prevent the Earth's heat escaping into space*
Greenhouse gas - *a gas, present in the atmosphere, which reduces the loss of heat into space (carbon dioxide, methane, nitrous oxide, water vapour, CFCs).*
Global warming - *the slow increase in the earth's average temperature*
Carbon emissions - *CO2 added to the atmosphere by burning fossil fuels*
Enhanced Greenhouse effect - *the effect of increased levels of CO^2 and other gases in the atmosphere to prevent more of the earth's heat from escaping into space*

What is the greenhouse effect?

Solar radiation (the sun's rays) power the climate system. Some solar radiation is reflected by the Earth and the **atmosphere**. About half the solar radiation is absorbed by the Earth's surface and warms it. Infrared radiation is emitted from the Earth's surface. Some of this infrared radiation passes through the atmosphere, but most is absorbed and re-emitted in all directions by clouds & **greenhouse gases**. The effect of this warms the earth's surface and lower atmosphere. Human activities can impact the amount of greenhouse gasses in the atmosphere, and can therefore increase global temperatures.



Causes of climate change

Human causes

Burning fossil fuels – fossil fuels like coal and natural gas contain high amounts of carbon; burning them for energy releases this carbon into the atmosphere
Transport emissions – most use petrol or diesel for fuel which releases greenhouse gases into the atmosphere.
Deforestation - trees absorb carbon and transform it into oxygen during photosynthesis; if they are cut down there will be more carbon in the atmosphere
Dumping waste in landfills - when waste is left to decompose in a landfill it produces and gives off methane, another greenhouse gas like carbon
Agriculture - agricultural practices lead to the release of nitrogen oxide & methane into the air

Natural causes

Orbital changes - the Earth has natural periods (like ice ages) where the average temperature changes a lot due to changes in the tilt, wobble and shape of the orbit.
Solar output - the amount of solar radiation from the sun changes; if it is stronger, Earth's temperatures will rise
Volcanic eruptions – during a volcanic eruption carbon dioxide is released.

Impacts of climate change

Climate change affects the whole planet but looks different in different places or seasons. Below are some examples of positive **and** negative effects of climate change.

Positive	Negative
• Longer growing season for agriculture • Energy consumption may decrease due to warmer climate • Frozen regions like Northern Canada may be able to grow crops • As ice melts in the Arctic, faster shipping routes may open up, helping trade • Increase in fish stocks in some areas	• Malaria and cholera increase due to temperature increase • Increase in climate change refugees as areas become unsuitable for human life • Sea level rise will affect ~80 million people • Coral reefs damaged as a result of increased ocean/ sea temperatures • Tropical storms will increase in magnitude (strength) • Species in affected areas (i.e. Arctic) may become extinct • Ski resorts may lose business as snow cover decreases

REMARKABLE RUDHEATH

Our values: Excellence & Kindness

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Y8

Geography Powerful Knowledge

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

Climate Change Knowledge Organiser

Reducing emissions

Individuals can reduce their emissions by:

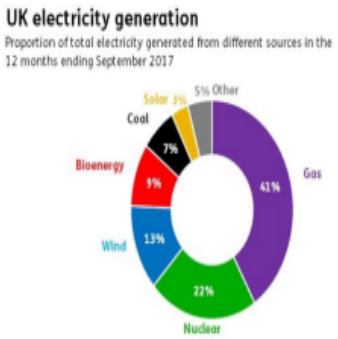
- Driving electric cars
- Using renewable energy sources e.g. solar panels
- Eating less meat
- Planting more tress
- Using public transport or walking/cycling
- Insulating houses
- Buying local produce.
- Reducing waste and recycling

Governments can reduce emissions by:

- International agreements such as the Kyoto Protocol or Paris agreement
- Investing in renewable technology such as wind energy
- Investing in public transport or cycling infrastructure e.g. cycle lanes

Renewable and non-renewable energy sources

We harvest energy from many different sources. These sources are either **renewable** (meaning they can be used over and over again without running out) or **non-renewable** (meaning they can only be used once and will eventually run out). Renewable energy sources are more sustainable because we never have to worry about future generations running out.



Renewable	Non-renewable
Wind power	Coal
Hydro-electric power	Natural gas
Wave & tidal energy	Oil
Solar power	Nuclear power
Geothermal energy	

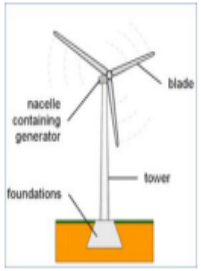
Nuclear Power

Nuclear power is created from the release of energy from nuclear reactions (**fission** or **fusion**). These reactions usually use uranium or plutonium.

Advantages	Disadvantages
- Does not release much carbon - Can provide cheap power to LICs - Only small amounts of fuel needed to produce lots of energy compared to fossil fuels	- **Non-renewable** - Produces dangerous waste to be disposed of - Accidents and leaks can be deadly and last for a long time

Wind Power

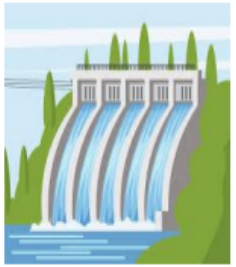
Wind energy is produced when the blades of the turbine spin and thus turn the generator which produces electricity.



Advantages	Disadvantages
- Produce very little pollution - Renewable - Land beneath them can be used for other things e.g. farming	- Wind is unreliable and may not always blow - They can injure birds flying past - Difficult to store excess energy

Hydro-Electric Power

Fast flowing water is used to turn the turbines, thus generating energy. Water is often stored behind a dam in deep valleys.



Advantages	Disadvantages
- Dams can manage flooding and water resources - Reservoirs can be used for water sports - Can be used for irrigating crops	- Can damage wetland and aquatic ecosystems downstream - Expensive to build - Large areas of land must be flooded to create reservoirs

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Spanish Powerful Knowledge

¿Te gustaría ir al cine? Would you like to go to the cinema?

¿Te gustaría ir...?	Would you like to go...?	al parque	to the park
a la bolera	to the bowling alley	a la pista de hielo	to the ice rink
a la cafetería	to the café	al polideportivo	to the sports centre
al centro comercial	to the shopping centre	¿Te gustaría venir a mi casa?	Would you like to come to my house?
al museo	to the museum		

¿Dónde quedamos? Where do we meet up?

al lado de la bolera	next to the bowling alley	enfrente del polideportivo	opposite the sports centre
delante de la cafetería	in front of the café	en tu casa	at your house
detrás del centro comercial	behind the shopping centre		

¿A qué hora? At what time?

a las...	at...	seis y media	half past six
seis	six o'clock	siete menos cuarto	quarter to seven
seis y cuarto	quarter past six	siete menos diez	ten to seven

Lo siento, no puedo I'm sorry, I can't

¿Quieres salir?	Do you want to go out?	pasear al perro	walk the dog
Tengo que...	I have to...	salir con mis padres	go out with my parents
cuidar a mi hermano	look after my brother	No quiero.	I don't want to.
hacer los deberes	do my homework	No tengo dinero.	I don't have any money.
lavarme el pelo	wash my hair	No puede salir.	He/She can't go out.
ordenar mi dormitorio	tidy my room		

¿Cómo te preparas? How do you get ready?

¿Cómo te preparas cuando sales de fiesta?	How do you get ready when you go to a party?	Me visto.	I get dressed.
Me baño.	I have a bath.	Me maquillo.	I put on make-up.
Me ducho.	I have a shower.	Me peino.	I comb my hair.
Me lavo la cara.	I wash my face.	Me aliso el pelo.	I straighten my hair.
Me lavo los dientes.	I brush my teeth.	Me pongo gomina.	I put gel on my hair.

¿Qué llevas normalmente los fines de semana?	What do you normally wear at weekends?	una gorra	a cap
Normalmente los fines de semana llevo...	At weekends I normally wear...	unos pantalones	some trousers
una camisa	a shirt	unos vaqueros	some jeans
una camiseta	a T-shirt	unas botas	some boots
un jersey	a jumper	unos zapatos	some shoes
una sudadera	a sweatshirt	unas zapatillas de deporte	some trainers
una falda	a skirt	¿Vas a salir esta noche?	Are you going to go out tonight?
un vestido	a dress	Voy a ir al/a la...	I am going to go to the...
		Voy a llevar...	I'm going to wear...

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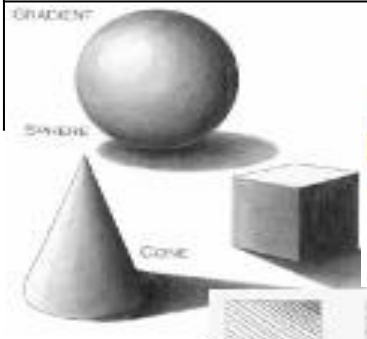
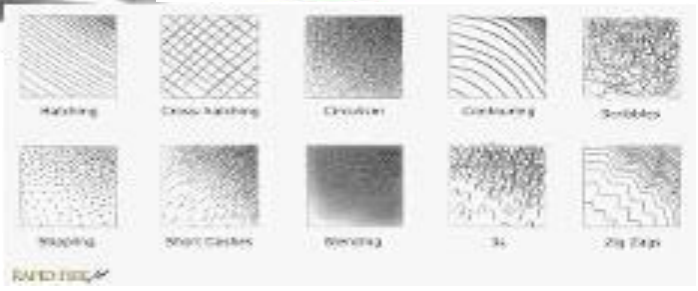
Art Powerful Knowledge

Term	Definition
Shade	A shade is where an artist adds black to a colour to darken it down. A tone is where an artist adds grey to a colour.
Illustration	Drawings in books and visualisations made by an artist, such as a drawing, sketch, painting, photograph.
Observational Drawing	Observational drawing is drawing what you see. It's as simple and as complicated as that. Drawing what is in front of you.
Graphic Design	The art of selecting and arranging visual elements—such as typography, images, symbols and colours—to convey a message to an audience.
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)
Gradient	Is the gradual blending from one colour to another colour or shade dark- light





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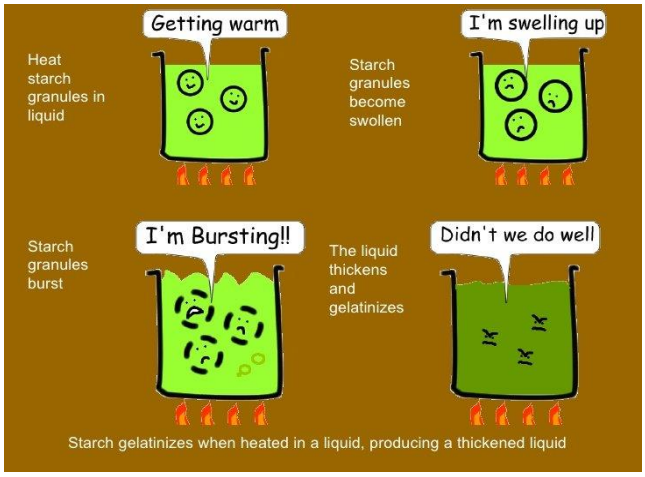
Food Technology Powerful Knowledge

COMPOSITE FOOD

Much of the food we eat is in the form of dishes or meals with more than one kind of food group in them. For example , pizza, casseroles, pies, lasagne and sandwiches are all made with foods from more than one of the five food groups. These are called COMBINATION or COMPISITE foods.

Starch gelatinization is a phenomenon in which the starch granules primarily absorb water, swell and eventually burst out to form a gel in the presence of water and heat.



Benefits of Eating Fruit

- Source of **Vitamins**.
- Source of **Natural Sugars**.
- Give us **Energy**.
- Source of **Water**.
- Source of **Fibre**.

The Eatwell Guide shows how much of what we eat overall should come from each food group to achieve a healthy, balanced diet.

https://www.youtube.com/watch?v=7MIE4G8ntss
https://www.nhs.uk/live-well/eat-well/the-eatwell-guide/

Music Powerful Knowledge

What are we learning about?:

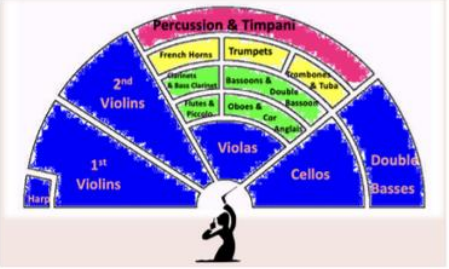
A. What is an Orchestra?
B. Keywords
C. How do Brass and Percussion Instruments produce a sound?
D. How do Strings and Woodwind Instruments produce a sound?

Keywords for this Half Term

Sonority
Fanfare
Articulation

A:
What is an Orchestra?

An orchestra is a large instrumental ensemble typical of classical music, which combines instruments from different families; Strings, Woodwind, Brass and Percussion.
Orchestras play a wide range of repertoire, including symphonies, opera and ballet overtures, concertos for solo instruments, and as pit ensembles for operas, ballets, and some types of musical theatre.



B:	Keywords
Sonority	The individual sound of a Musical Instrument
Fanfare	Short musical flourish that is typically played by Trumpets
Articulation	The way a note should be played or sung

C:
How do Brass and Percussion Instruments produce a sound?

Brass players use their breath to produce sound, but instead of blowing into a reed, you vibrate your own lips by buzzing them against a metal cup-shaped mouthpiece.

A percussion instrument is a musical instrument that is sounded by being struck or scraped by a beater including attached or enclosed beaters or rattles struck, scraped or rubbed by hand or struck against another similar instrument.

D:
How do Strings and Woodwind Instruments produce a sound?

All stringed instruments make sound by vibrating. Musicians make the strings vibrate by using a bow against them, or plucking them.

Woodwind instruments produce sound when the player blows air against a sharp edge or through a thin piece of wood called a reed, causing a column of air to vibrate. The instrument itself does not vibrate.

HT2

Y8

Drama Powerful Knowledge

Year 8 Drama Knowledge Organiser

Spring 2: THEATRE IN EDUCATION

What is Theatre in Education?

HOW CAN THEATRE BE USED TO EXPLORE, INFORM AND EDUCATE?

Theatre in Education (TIE) is theatre created for a particular age group or **specific target audience**. The aim of Theatre in Education is to **educate the audience** about a topic, issue or debate – while also **entertaining** them and **inspiring** them. TIE can also bring stories from history or literature to life.

How Theatre in Education Started

The ground-breaking TIE movement was pioneered in 1965 by the Belgrade Theatre Company in Coventry.

It was developed for young people and used theatre and drama to create a range of learning opportunities for young people to explore political, ethical and moral issues in a safe environment.

They would tour local schools where they would perform short pieces of theatre and lead workshops that allowed students to explore important issues and ideas in active and creative ways.

The main elements

It's important for you to remember the following characteristics that typify TIE:

- There is a clear aim and educational objective running throughout.
- A small cast so actors must be versatile and often have to multi-role.
- A low budget so actors often play instruments too.
- The production must be portable so the design is simple and representational.
- They explore issues from various viewpoints, so we can see the effect of an action upon a range of people.
- There is some level of audience involvement.
- They are rarely wholly naturalistic because direct address or narration is used to engage the audience.
- The costumes are simple and representational, especially if actors have to multi-role.
- They may include facts and figures to educate the audience.
- They may have a strong message or moral running throughout.

"Theatre is a form of knowledge; it should and can also be a means of transforming society. Theatre can help us build a future, rather than just waiting for it." **Augusto Boal**

Drama Keywords:

Flashback/ flashforward open the play with a significant event where everything goes wrong and then flash back to the event leading up to it. OR show someone making a poor decision and then flash back to that moment and have them make the right decision, show how much better everything works out

Choral Narration when the group of perfomers speak together.

Physical Theatre again this is a good way to have everyone involved and if you need objects like Cars in your play, its a lot more interesting that just using 2 chairs.

Monologue A great way to get sympathy for a character is to get them to directly address the audience.

Thought in the head The character could either explain their own thoughts, or other actors could speak them. Perhaps creating an angel/ devil on the shoulder idea.

Conscience alley A rehearsal technique to develop understanding of characters. It involves each character going down the alley one after the other, and everyone else still being 'in role' as their character.

Montage/ Split scene this will allow you to show many events at once, rather than having to set up lots of different scenes- eg if a character tries drugs, you can show them taking progressively stronger drugs over a period of time in one scene. Or using a split scene, you can show the consequences of making the right and the wrong decision, showing both outcomes at the same time.

Placards written messages to the audience, could be statistics or references to real life events- or help present the character's dilemma

HT2

Y8

I.T. Powerful Knowledge

Term	Definition
Select	A set of symbols used in writing and printing. For example, 'A,B.C.D'.
Assets	Mathematical symbols used to represent quantities or values.
Graphics	Characters or marks, for example '$"!%^&*'
Trim	Something that is restricted to a particular person or group and not for public access or knowledge.
Formatting	Individual symbols (letters, numbers, punctuation) that form text.
Animation	Unique identifiers used to access a computer system or online account
Target Audience	A user-specific record on a system or service

Software

Premiere Pro: A professional video editing software used for creating and editing video content.

Photoshop: A graphic design and photo editing software used for manipulating images and creating digital art.

Illustrator: A vector graphic design software used for creating illustrations, logos, and scalable artwork.

HT2

Y8

I.T. Powerful Knowledge

Target Audience - Target audience refers to a specific group of people a business aims to reach with its products. This group is defined by characteristics like age, gender, interests, and needs.

Purpose – The purpose is the reason for your webpage – What is it for? You should make sure your website page meets its purpose.

Copyright – You should only use images that are copy right-free. Many images are owned by people/companies and cannot just be reused.

2. The Internet

a) Web Browser

Software used to access the internet
e.g. Microsoft Edge, Google Chrome

b) Website

Set of web pages under a single domain name
e.g. https://www.youtube.com

c) Publish

Releasing a website onto the world wide web

d) WWW - world wide web

A giant network of connected computers.
Uses HTTP protocol to transfer webpage data to your computer

e) Tim Berners-Lee

Invented the world wide web

f) Protocol

Set of rules (like the highway code for data) so information travels around the web getting to the right destination without data loss

g) URL - uniform resource locator

The address of your site e.g.
http://www.bbc.co.uk

3. Creating Websites

a) HTML

The main language 'code' for webpages

It provides the structure of the page

b) CSS

Used to format the layout of the webpage

c) Tags

Code which commands how a browser displays text and image

d) DIV tags

Code which is used to split a webpage into different sections

e) House Style

Having the same consistent style throughout all pages of a website, such as colour scheme

f) HTML <html>

All html code for a webpage is positioned between the <head>...</head> tags

g) Body <body>

All web page content (text, images, etc) is positioned between the < body >...</body> tags

HT1

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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.

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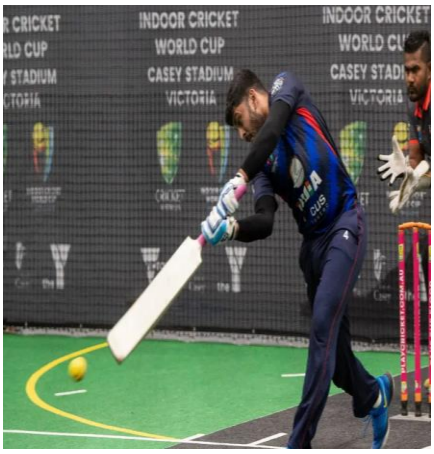
PE – Indoor Cricket



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