

A large, light blue watermark of the Wellington School crest is centered in the background of the page. It features the same lion and 'W' design as the official crest, but in a lighter, semi-transparent color.

**Knowledge Organisers**  
**Year 8**  
**Spring 2020**

# **Knowledge Organisers**

**Autumn Term Knowledge Organisers still need to be brought to school every day, alongside this one.**

Some subjects have knowledge organisers which last two terms or even the whole year. To save on paper these are not printed again and students will need to refer to them in the Autumn Term booklet. Also some subjects like Design Technology organise the curriculum on a carousel, as such all the organisers for that subject are in the Autumn Term booklet.

## **Contents**

An introduction to Knowledge Organisers

Art

Computing

English

Geography

History

Mathematics

MFL

Music

PSHE

Religion, Ethics and Philosophy

Science

# An Introduction to Knowledge Organisers

## What is a Knowledge Organiser?

A knowledge organiser is a document, usually one side of A4, occasionally two, that contains key facts and information that children need to have a basic knowledge and understanding of a topic, or in some cases a series of topics.

Students are expected to bring their Knowledge Organiser Booklet to school every day. Students will be issued with a new booklet each term. However, it is important they keep the booklets to help with revision for end of year exams.

## What are the benefits of knowledge organisers?

The main benefit of knowledge organisers is that they give students and parents the 'bigger picture' of a topic or subject area. Some topics can be complicated, so having the essential knowledge, clear diagrams, explanations and key terms on one document can be really helpful.

Research shows that our brains remember things more efficiently when we know the 'bigger picture' and can see the way that nuggets of knowledge within that subject area link together. Making links, essentially, helps information move into our long-term memory.

## How can the students use them?

As mentioned earlier, students are expected to bring their Knowledge Organiser Booklet to school everyday. In lessons they can be used in a number of ways, for example, to look up the meaning of key words, spell words correctly and do some additional work if they have finished classwork.

At home knowledge organisers can be used to support homework, independent work and revise for tests and exams. Two quick and easy ways to do this are:

1. Look, cover write, check – look at part of the knowledge organiser, cover it, write as much as you can remember and then check it
2. Word up – Pick out any words you don't understand. Use a dictionary or thesaurus to find the meaning. If they don't help ask your teacher.

The more often you do this the better. YouTube has some clips on them; search 'Mr Garner look, cover, write, and check' and 'Mr Garner word up'

## How can parents use them?

- Read through the organiser with your son/daughter – if you don't understand the content then ask them to explain it to you – 'teaching' you helps them to reinforce their learning.
- Test them regularly on the spellings of key words until they are perfect. Get them to make a glossary (list) of key words with definitions or a list of formulae.
- Read sections out to them, missing out key words or phrases that they have to fill in. Miss out more and more until they are word perfect.

## How the booklet is organised

The knowledge organisers are in alphabetical order by subject.

# Knowledge Organiser - Term 2 & 3



- INDIA
- AFRICAN
- NATIVE AMERICAN
- CELTIC
- ISLAMIC
- CHINESE
- MAORI
- JAPANESE
- ABORIGINAL
- MEXICAN
- AZTEC



- KEY WORDS**
- Primary
  - Secondary
  - Tertiary
  - Complementary
  - Highlight
  - Abstract
  - Shadow
  - Shade
  - Tone
  - Cool
  - Warm
  - Application
  - Foreground
  - Background

**Colour Theory:**

The primary colours are the three main colours. They cannot be made but when mixed together they make all other colours.

The secondary colours are made by mixing two primary colours together

The tertiary colours are made by mixing a primary and secondary colour together.

Complementary colours are opposite on the colour wheel. They contrast each other to have a vibrant look.

To make a lighter colour you add white, this is called a tinte.



- Skills**
- Pattern and symbolism
  - Printmaking
  - Culture understanding/application
  - Development of mixed media skills

- Artists inspired by colour**
- Claude Monet
  - Henri Matisse
  - Barbara Rae
  - Georgia O'Keeffe
  - Mark Rothko
  - David Hockney

Warm colours - perceived as energetic

and are generally energetic or exciting.

Cool colours- are

generally perceived as soothing and

<u>WARM COLOURS</u>	<u>COOL COLOURS</u>
RED	BLUE
ORANGE	GREEN
YELLOW	VIOLET

```

from turtle import *

down()
fd(50)
rt(90)
fd(50)
rt(90)
fd(50)
rt(90)
fd(50)
rt(90)
up()

```

This program draws a square. The **sequence** of instructions is important. If they are in a different order, the outcome of the program will be different.

down() and up() tell the turtle to start and stop drawing.

fd(50) moves the turtle forward 50 steps.

rt(90) rotates the turtle 90 degrees to the right (clockwise)

```

from turtle import *

down()
for i in range(4):
    fd(50)
    rt(90)
up()

```

This program does exactly the same thing. However, it uses a loop to repeat instructions, making it shorter and therefore easier to edit if necessary. This is known as **iteration**.

for i in range(4): means to repeat the instructions that are indented 4 times.

```

from turtle import *

sides = 4
steps = 50

down()
for i in range(sides):
    fd(steps)
    rt(360/sides)
up()

```

The program has been improved further here. It uses two **variables**, *sides* and *steps*.

This makes the program more flexible, by being able to draw shapes of different number of sides.

The number of degrees to rotate has been calculated by an **arithmetic operation**:  $360 \div \text{sides}$ . We use `'/'` as the division operator (instead of  $\div$ ) in computing.

## Computing: Programming with Python

```

from turtle import *

sides = input("How many sides?")
sides = int(sides)
steps = 50

down()
for i in range(sides):
    fd(steps)
    rt(360/sides)
up()

print("I've drawn a shape with",sides,"sides")

```

This time the program asks the user how many sides the shape should be. This is known as **user input** and the answer is stored in the variable *sides*.

Once the shape has been drawn, the program **outputs** text to the screen.

```

from turtle import *

print("Type r for a red shape, or b for blue")
col = input("")
if col == "r":
    color("red")
else:
    color("blue")

```

Finally, the user is given a choice of colours.

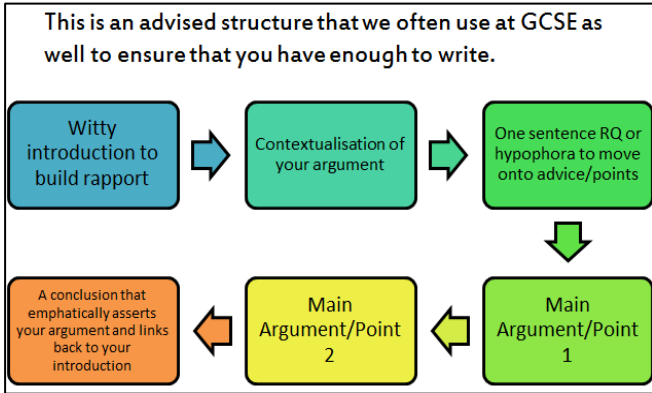
The user enters a colour which is stored as variable `'col'`

This part of the program uses a **Boolean expression** to compare col variable with `'r'`.

If this is *true* (the users types `'r'`), the pen colour is red.

If this is *false* (the user doesn't type `'r'`), the pen will be blue. *If... else* statements are known as **selection**.

**HOW TO STRUCTURE VIEWPOINT WRITING**



**ADVANCED SENTENCE STRUCTURES AND PATTERNS**

*litotes	Begin with the negative: use 'Nothing...' or 'Never...' for example
*hypophora	A rhetorical question that is answered
*diacope	Repeated use of the same word within/across sentences
*isocolon	Series of phrases or sentences structured in the same way: <i>Keep fit, keep active, keep healthy!</i>
*epizeuxis	The repetition of a word or phrase in immediate succession: <i>Run, run, run!</i>
*anaphora	Using a phrase to begin more than one clause of sentence, such as 'I Have a dream...' in Martin Luther King's famous speech
*epistrophe	The repetition of a word at the end of successive clauses or sentences

**ADVANCED PUNCTUATION**

*semi-colon	Used to replace 'and' in a compound sentence: <i>Like an angel, the sun shone; there wasn't a cloud to be seen.</i>
*colon	Means 'Here's my evidence' and follows a simple statement: <i>Majestically, the princess created a stir: she was beautiful!</i>
*dash	Single: Used to emphasise a description at the end of a sentence: <i>Happily, the sun shone - its rays reached across the whole land.</i> Double: Used to emphasise a description with further emphasis: <i>The sun's rays - its burning, radiant rays - shone across the kingdom.</i>

**CONVENTIONS OF DESCRIPTIVE WRITING**

simile	Phrase with 'as' or 'like' to suggest similarity
metaphor	Suggesting something is something else
*motif	A metaphor used across a piece of writing
personification	Given an inanimate object human qualities like movement or emotion
alliteration	Repetition of consonant sounds
assonance	Repetition of vowel sounds
sibilance	Repetition of 's' sounds
pathetic fallacy	Where the weather or setting reflects a mood

**KEY SPELLINGS FOR THIS SCHEME OF WORK**

rhetoric	statistics	epizeuxis	interrogative (sentences)	simile
irony	anaphora	hypophora	imperatives	personification
anecdote	epistrophe	hyperbole	motif	alliteration
tripling	repetition	exclamation	metaphor	assonance

**ROMANTIC POETRY**

- Popular poetry of the late 18<sup>th</sup> and early 19<sup>th</sup> century
- The genre was introduced and developed by William Wordsworth and Samuel Taylor-Coleridge
- Wordsworth's *Lyrical Ballads* (1798) is the first major collection of Romantic Poetry
- Romantic poems celebrated the natural world
- Romantics thought we could learn from nature and understand life better from its example
- Romantics were fascinated by the human mind and imagination

**FAMOUS ROMANTIC POETS**

- William Wordsworth (1770-1850)
- Samuel Taylor Coleridge (1772-1834)
- William Blake (1757-1827)
- P.B. Shelley (1792-1822)
- Lord Byron (1788-1824)
- John Keats (1795-1821)

**‘JERUSALEM’ BY WILLIAM BLAKE**

- This poem was written by Blake by 1820
- It celebrates the past beauty of England by comparing it to the Holy land of Jerusalem
- It is a poem that fears the impact of industrial change on beautiful, rural England

**KEY QUOTES:**

- 'dark satanic mills'
- 'England's green and pleasant land'
- 'Bring me my chariot of fire!'

**‘OZYMANDIAS’ BY P.B. SHELLEY**

- This sonnet was written by P.B. Shelley in 1818
- Shelley wrote this poem, inspired by the discovery of the statue of Ramesses II in Egypt. He wrote it before the statue had even arrived in the British Museum in London, where you can still see it today
- Rameses was a tyrant who had immense power in Egypt; he fought many wars and built many monuments to celebrate this power
- Ozymandias is the Greek name for Ramesses II.

**KEY QUOTES:**

- 'Two vast and trunkless legs'
- 'Look on my works, ye Mighty, and despair!'

**‘SONGS OF INNOCENCE AND EXPERIENCE’ BY WILLIAM BLAKE**

- These collections of poems were counterparts to each other: *Songs of Innocence* was published in 1789 and the *Songs of Experience* in 1794.
- Blake explored childhood innocence in his first collection and then explored the adult world of 'experience' and suffering in a time of industrialisation and war. Here are some examples...

**‘THE LAMB’ (INNOCENCE) AND ‘THE TYGER’ (EXPERIENCE)**

These poems use animal symbolism to explore the innocence of childhood (*The Lamb*) compared to the corruption and industrialisation of the Victorian era (*The Tyger*)

**KEY QUOTES**

**The Lamb:** 'Little Lamb, God bless thee!'

**The Tyger:** 'Tyger tiger, burning bright/In the forests of the night'

**‘THE CHIMNEY SWEEPER’ POEMS**

These poems explore the experiences of young chimney sweepers. Blake criticises how institutions like the Church would justify this child labour through religion with working be the behaviour of good boys.

**KEY QUOTES**

**The Chimney Sweeper (Innocence):** 'If all do their duty they need not fear harm'

**The Chimney Sweeper (Experience):** 'They clothed me in the clothes of death'

**KEY SPELLINGS FOR THIS SCHEME OF WORK**

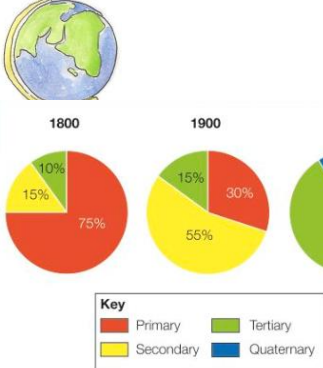
Romanticism	ballad	symbolism	pastoral
sublime	sonnet	refrain	radical
beautiful	meter	enjambment	persona
awesome	rhyme	caesura	speaker

# Year 8 Geography

## Unit 3: Economic Activities



KEYWORDS



**Lesson 1-2:** Economic activities are split into 4 categories, primary, secondary, tertiary, quaternary.

**Lesson 17:**

- In the past, the UK's economy was based on farming. Two types- arable and pastoral farming
- During industrialisation, the UK moved to the secondary sector
- De-industrialisation (factories and industry moving to elsewhere)
- The UK then moved into tertiary and quaternary sectors

**Lesson 2-4:** When choosing a site for a factory to locate, the following factors need to be considered:

**Raw materials-** These are the things that are made into something

**Labour-** These are the workers who work at the factory

**Power-** This is the energy used to make the factory work

**Transport-** This is how the natural resources and finished products are moved

**Market-** This is the place where the finished products are sold

**Site-** This is where the factory is located

**Lessons 10-15:** Shopping patterns, high street change and Altrincham fieldwork.

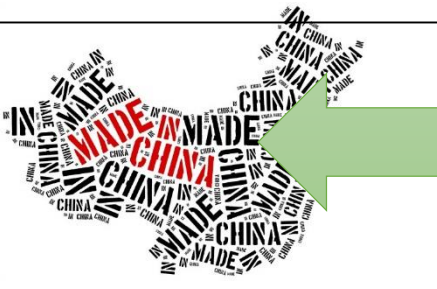


Out of town shopping centres (like the TC) led to a decline in UK high streets, especially Altrincham, resulting in many empty shops. Altrincham has changed its high street to attract more people back to it.

Methodologies carried out during Alt. fieldwork. These were presented as a **bi-polar graph** and **bar chart**.

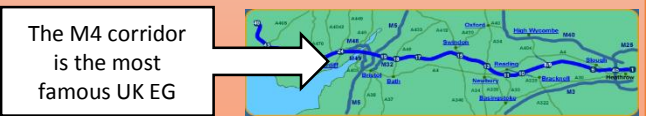
	HOW?	WHY?	POSITIVES?	NEGATIVES?
Land Use Mapping				
Environmental Quality				
Pedestrian Counts				

	Definition
<b>Primary</b>	collecting or producing raw materials e.g coal miner, farmer
<b>Secondary</b>	making something using the processed raw materials. Manufacturing products. e.g a joiner
<b>Tertiary</b>	Selling services or skills. e.g banking or retail jobs
<b>Quaternary</b>	Providing information services. E.g. research and development jobs, government




**Lesson 5-6:** 'Made in China' China now produces goods for the world. This has given China much more money, but has harmed the environment

**Lesson 16:** High tech industries: These are advanced industries, that develop new things. They are located near business/science parks and Universities so they can recruit a highly skilled workforce.



**Lesson 18:** Modern industries, like quarries, can be made more sustainable. This means that the damage they do to the environment can be reduced. One way to do this is by turning old quarries into nature reserves.





# The Growth & Decline of the British Empire

## Big Question – Was the British Empire a force for good or bad in the world?

### Timeline of Key Events

1612	The East India Company began to build up a small empire of trading posts in India.
1757	Robert Clive leads a group of soldiers who beat an Indian army at the Battle of Plassey. This established British control in India
1857	Major rebellion against the rule of the British East India Company by Indian troops known as sepoys. The government took over rule of India from the East India Company.
1881	The Scramble for Africa begins. the occupation, division, and colonization of African territory by European powers (including Britain) begins
1924	The British Empire Exhibition at Wembley Stadium. The Empire looked happy and strong. It controlled nearly 1/3 of the world.
1930	Mohandas Gandhi, who demands Indian independence, holds a non-violent protest against British rule, the Salt March- many poor Indians support him
1948	India & Pakistan are granted independence from Britain. The first major arrival of immigrants from the Caribbean on the Empire Windrush takes place.
1960s	British Prime Minister Harold Macmillan admitted there was a "wind of change" in Africa. Most of Britain's African and Caribbean colonies achieved independence in the 1960s.

### Assessment Objectives


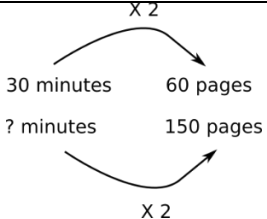
- To explain how and why the empire grew
- To explore different experiences of the empire
- To explain how and why the empire ended
- To reach a judgement on how far the British Empire was a force for good or bad in the world

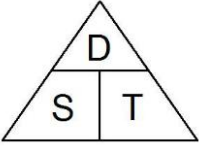
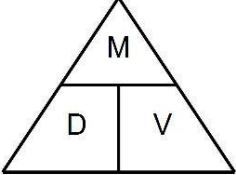
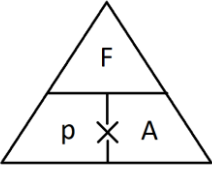
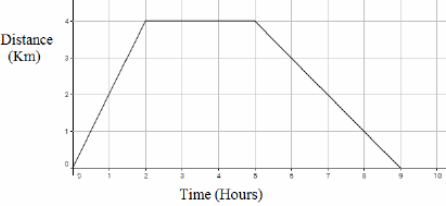
### Keyword

### Definition

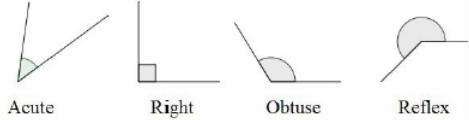
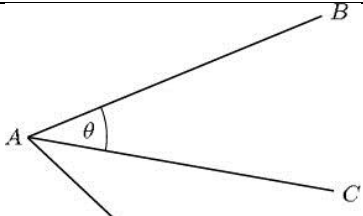
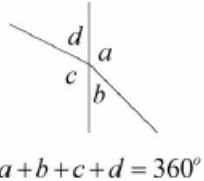
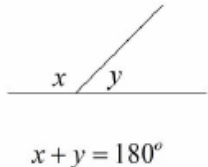
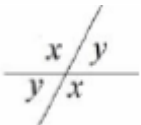
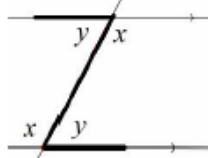
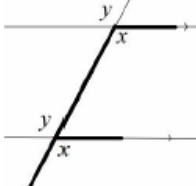
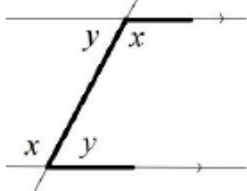
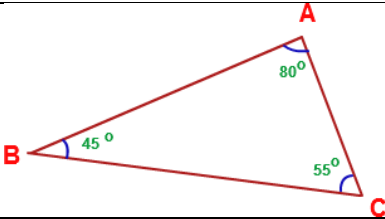
Colony	Area of an Empire
Trade	Exchange of goods
Nationalism	Believing your country is better than others
Independence	Be freeing to run your own affairs
Missionary	Person spreading Christianity
Imperial	Word describing Empire
Legacy	Something left behind
Multi-cultural	Society influenced by many cultures
Atrocity	Terrible crime
Indigenous	People originally from an area
Empire	Control of land outside of your borders
Merchant	Salesperson
Aborigine	Original inhabitants of Australia
Useful Websites	<a href="https://www.bbc.com/education/guides/zf7fr82/revision/1">https://www.bbc.com/education/guides/zf7fr82/revision/1</a>
<b>Key People</b>	
Robert Clive	
Mir Zafar	
Thomas Coryate	
Rammohan Roy	
Mohandas Gandhi	
Harold MacMillan	

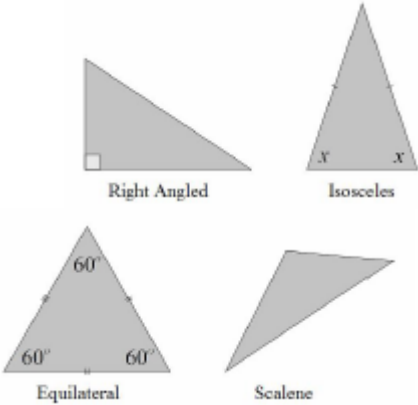
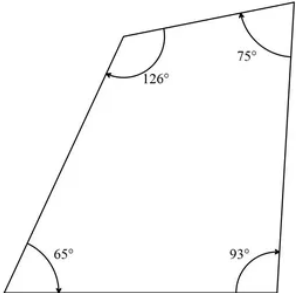
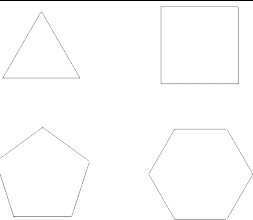
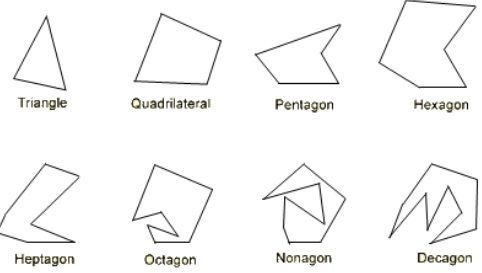
## Stage 8: Proportional Reasoning

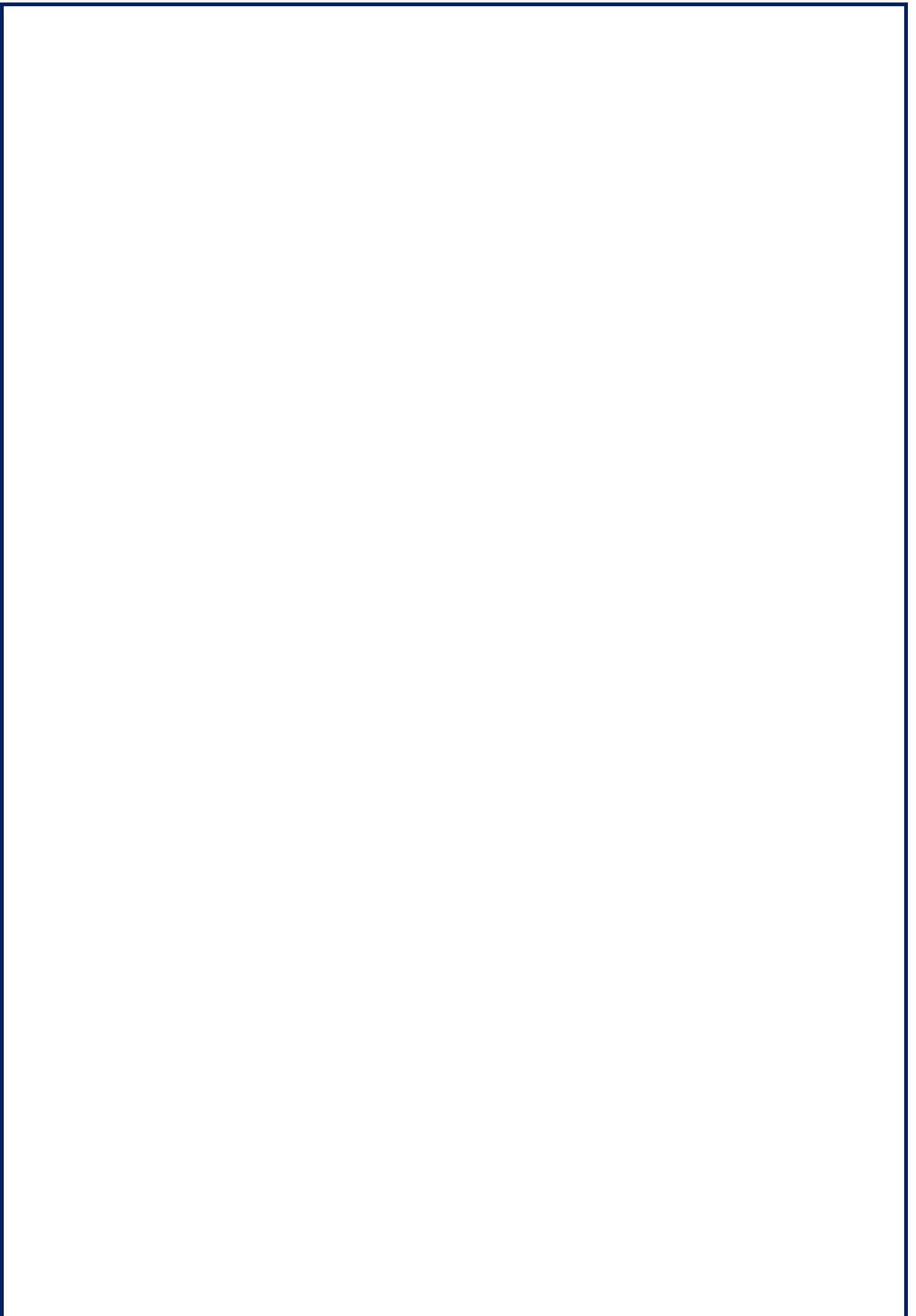
Topic/Skill	Definition/Tips	Example
1. Ratio	Ratio compares the size of <b>one part</b> to <b>another part</b> .  Written using the ':' symbol.	$3 : 1$ 
2. Proportion	Proportion compares the size of <b>one part</b> to the size of the <b>whole</b> .  Usually written as a fraction.	In a class with 13 boys and 9 girls, the proportion of boys is $\frac{13}{22}$ and the proportion of girls is $\frac{9}{22}$
3. Simplifying Ratios	<b>Divide</b> all parts of the ratio by a <b>common factor</b> .	$5 : 10 = 1 : 2$ (divide both by 5) $14 : 21 = 2 : 3$ (divide both by 7)
4. Ratios in the form $1 : n$ or $n : 1$	<b>Divide</b> both parts of the ratio by one of the numbers to make <b>one part equal 1</b> .	$5 : 7 = 1 : \frac{7}{5}$ in the form $1 : n$ $5 : 7 = \frac{5}{7} : 1$ in the form $n : 1$
5. Sharing in a Ratio	<ol style="list-style-type: none"> <li><b>Add</b> the total parts of the ratio.</li> <li><b>Divide</b> the amount to be shared by this value to find the value of one part.</li> <li><b>Multiply</b> this value by each part of the ratio.</li> </ol> Use only if you <b>know the total</b> .	Share £60 in the ratio 3 : 2 : 1.  $3 + 2 + 1 = 6$ $60 \div 6 = 10$ $3 \times 10 = 30, 2 \times 10 = 20, 1 \times 10 = 10$ £30 : £20 : £10
6. Proportional Reasoning	Comparing two things using <b>multiplicative reasoning</b> and applying this to a new situation.  Identify one multiplicative link and use this to find missing quantities.	
7. Unitary Method	Finding the <b>value of a single unit</b> and then finding the necessary value by <b>multiplying</b> the single unit value.	3 cakes require 450g of sugar to make. Find how much sugar is needed to make 5 cakes.  $3 \text{ cakes} = 450\text{g}$ So 1 cake = 150g ( $\div$ by 3) So 5 cakes = 750 g ( $\times$ by 5)
8. Ratio already shared	Find what <b>one part</b> of the ratio is worth using the <b>unitary method</b> .	Money was shared in the ratio 3:2:5 between Ann, Bob and Cat. Given that Bob had £16, found out the total amount of money shared.  $\pounds 16 = 2 \text{ parts}$ So $\pounds 8 = 1 \text{ part}$ $3 + 2 + 5 = 10 \text{ parts, so } 8 \times 10 = \pounds 80$
9. Best Buys	Find the <b>unit cost</b> by <b>dividing the price by the quantity</b> . The <b>lowest</b> number is the best value.	$8 \text{ cakes for } \pounds 1.28 \rightarrow 16\text{p each } (\div \text{ by } 8)$ $13 \text{ cakes for } \pounds 2.05 \rightarrow 15.8\text{p each } (\div \text{ by } 13)$ Pack of 13 cakes is best value.

<p>10. Speed, Distance, Time</p>	<p><b>Speed = Distance ÷ Time</b>  <b>Distance = Speed x Time</b>  <b>Time = Distance ÷ Speed</b></p>  <p>Remember the correct units.</p>	<p>Speed = 4mph  Time = 2 hours</p> <p>Find the Distance.</p> $D = S \times T = 4 \times 2 = 8 \text{ miles}$
<p>11. Density, Mass, Volume</p>	<p><b>Density = Mass ÷ Volume</b>  <b>Mass = Density x Volume</b>  <b>Volume = Mass ÷ Density</b></p>  <p>Remember the correct units.</p>	<p>Density = 8kg/m<sup>3</sup>  Mass = 2000g</p> <p>Find the Volume.</p> $V = M \div D = 2 \div 8 = 0.25m^3$
<p>12. Pressure, Force, Area</p>	<p><b>Pressure = Force ÷ Area</b>  <b>Force = Pressure x Area</b>  <b>Area = Force ÷ Pressure</b></p>  <p>Remember the correct units.</p>	<p>Pressure = 10 Pascals  Area = 6cm<sup>2</sup></p> <p>Find the Force</p> $F = P \times A = 10 \times 6 = 60 \text{ N}$
<p>13. Distance- Time Graphs</p>	<p>You can find the <b>speed</b> from the <b>gradient</b> of the line (Distance ÷ Time)  The steeper the line, the quicker the speed.  A <b>horizontal</b> line means the object is not moving (<b>stationary</b>).</p>	

## Stage 8: Angles

Topic/Skill	Definition/Tips	Example
1. Types of Angles	<p><b>Acute angles</b> are less than <math>90^\circ</math>.</p> <p><b>Right angles</b> are exactly <math>90^\circ</math>.</p> <p><b>Obtuse angles</b> are greater than <math>90^\circ</math> but less than <math>180^\circ</math>.</p> <p><b>Reflex angles</b> are greater than <math>180^\circ</math> but less than <math>360^\circ</math>.</p>	 <p>Acute      Right      Obtuse      Reflex</p>
2. Angle Notation	<p>Can use <b>one lower-case</b> letters, eg. <math>\theta</math> or <math>x</math></p> <p>Can use <b>three upper-case</b> letters, eg. <math>BAC</math></p>	
3. Angles at a Point	<b>Angles around a point add up to <math>360^\circ</math>.</b>	 <p><math>a + b + c + d = 360^\circ</math></p>
4. Angles on a Straight Line	<b>Angles around a point on a straight line add up to <math>180^\circ</math>.</b>	 <p><math>x + y = 180^\circ</math></p>
5. Vertically Opposite Angles	<b>Vertically opposite angles are equal.</b>	 <p><math>y = x</math></p>
6. Alternate Angles	<b>Alternate angles are equal.</b> They look like Z angles, but never say this in the exam.	 <p><math>y = x</math></p>
7. Corresponding Angles	<b>Corresponding angles are equal.</b> They look like F angles, but never say this in the exam.	 <p><math>y = x</math></p>
8. Co-Interior Angles	<b>Co-Interior angles add up to <math>180^\circ</math>.</b> They look like C angles, but never say this in the exam.	 <p><math>y + x = 180^\circ</math></p>
9. Angles in a Triangle	<b>Angles in a triangle add up to <math>180^\circ</math>.</b>	

<p>10. Types of Triangles</p>	<p><b>Right Angle</b> Triangles have a <b>90°</b> angle in.</p> <p><b>Isosceles</b> Triangles have <b>2 equal sides</b> and <b>2 equal base angles</b>.</p> <p><b>Equilateral</b> Triangles have <b>3 equal sides</b> and <b>3 equal angles (60°)</b>.</p> <p><b>Scalene</b> Triangles have <b>different sides</b> and <b>different angles</b>.</p> <p><b>Base angles in an isosceles triangle are equal.</b></p>	
<p>11. Angles in a Quadrilateral</p>	<p><b>Angles in a quadrilateral add up to 360°.</b></p>	
<p>12. Polygon</p>	<p>A <b>2D</b> shape with <b>only straight edges</b>.</p>	<p>Rectangle, Hexagon, Decagon, Kite etc.</p>
<p>13. Regular</p>	<p>A shape is regular if all the <b>sides</b> and all the <b>angles</b> are <b>equal</b>.</p>	
<p>14. Names of Polygons</p>	<p><b>3-sided = Triangle</b>  <b>4-sided = Quadrilateral</b>  <b>5-sided = Pentagon</b>  <b>6-sided = Hexagon</b>  <b>7-sided = Heptagon/Septagon</b>  <b>8-sided = Octagon</b>  <b>9-sided = Nonagon</b>  <b>10-sided = Decagon</b></p>	
<p>15. Sum of Interior Angles</p>	<p><math>(n - 2) \times 180</math>  where n is the number of sides.</p>	<p>Sum of Interior Angles in a Decagon =  <math>(10 - 2) \times 180 = 1440^\circ</math></p>
<p>16. Size of Interior Angle in a Regular Polygon</p>	<p><math display="block">\frac{(n - 2) \times 180}{n}</math></p> <p>You can also use the formula:  <b>180 – Size of Exterior Angle</b></p>	<p>Size of Interior Angle in a Regular Pentagon =  <math display="block">\frac{(5 - 2) \times 180}{5} = 108^\circ</math></p>
<p>17. Size of Exterior Angle in a Regular Polygon</p>	<p><math display="block">\frac{360}{n}</math></p> <p>You can also use the formula:  <b>180 – Size of Interior Angle</b></p>	<p>Size of Exterior Angle in a Regular Octagon =  <math display="block">\frac{360}{8} = 45^\circ</math></p>



## Stage 8: Calculating with Percentages, Decimals, Fractions

Topic/Skill	Definition/Tips	Example
1. Increase or Decrease by a Percentage	<p>Non-calculator: <b>Find the percentage</b> and <b>add</b> or <b>subtract</b> it from the <b>original</b> amount.</p> <p>Calculator: Find the <b>percentage multiplier</b> and multiply.</p>	<p><u>Increase 500 by 20% (Non Calc):</u>            10% of 500 = 50            so 20% of 500 = 100            500 + 100 = 600</p> <p><u>Decrease 800 by 17% (Calc):</u>            100% - 17% = 83%            83% ÷ 100 = 0.83            0.83 x 800 = 664</p>
2. Percentage Multiplier	The <b>number</b> you <b>multiply</b> a quantity by to <b>increase or decrease</b> it by a <b>percentage</b> .	<p>The multiplier for increasing by 12% is 1.12</p> <p>The multiplier for decreasing by 12% is 0.88</p> <p>The multiplier for increasing by 100% is 2.</p>
3. Percentage Change	$\frac{\text{Difference}}{\text{Original}} \times 100\%$	<p>A games console is bought for £200 and sold for £250.</p> <p>% change = <math>\frac{50}{200} \times 100 = 25\%</math></p>
4. Reverse Percentage	<p>Find the <b>correct percentage given in the question</b>, then work backwards to <b>find 100%</b></p> <p>Look out for words like <b>'before'</b> or <b>'original'</b></p>	<p>A jumper was priced at £48.60 after a 10% reduction. Find its original price.</p> <p>100% - 10% = 90%</p> <p>90% = £48.60            1% = £0.54            100% = £54</p>
5. Simple Interest	Interest calculated as a <b>percentage of the original</b> amount.	<p>£1000 invested for 3 years at 10% simple interest.</p> <p>10% of £1000 = £100</p> <p>Interest = 3 × £100 = £300</p>
6. Compound Interest	Interest paid on the <b>original amount and the accumulated interest</b> .	<p>A bank pays 5% compound interest a year. Bob invests £3000. How much will he have after 7 years.</p> <p style="text-align: center;"><math>3000 \times 1.05^7 = £4221.30</math></p>
7. Adding or Subtracting Fractions	<p>Find the <b>LCM of the denominators</b> to find a common denominator.</p> <p>Use equivalent fractions to change each fraction to the <b>common denominator</b>.</p> <p>Then just <b>add or subtract the numerators</b> and keep the <b>denominator the same</b>.</p>	<p style="text-align: center;"><math>\frac{2}{3} + \frac{4}{5}</math></p> <p>Multiples of 3: 3, 6, 9, 12, <b>15</b>..            Multiples of 5: 5, 10, <b>15</b>..            LCM of 3 and 5 = 15</p> <p style="text-align: center;"><math>\frac{2}{3} = \frac{10}{15}</math></p>

		$\frac{4}{5} = \frac{12}{15}$ $\frac{10}{15} + \frac{12}{15} = \frac{22}{15} = 1\frac{7}{15}$
8. Multiplying Fractions	<b>Multiply the numerators</b> together and <b>multiply the denominators</b> together.	$\frac{3}{8} \times \frac{2}{9} = \frac{6}{72} = \frac{1}{12}$
9. Dividing Fractions	<p><b>‘Keep it, Flip it, Change it – KFC’</b>            Keep the first fraction the same            Flip the second fraction upside down            Change the divide to a multiply</p> <p>Multiply by the reciprocal of the second fraction.</p>	$\frac{3}{4} \div \frac{5}{6} = \frac{3}{4} \times \frac{6}{5} = \frac{18}{20} = \frac{9}{10}$



## Stage 8: Equations

Topic/Skill	Definition/Tips	Example
1. Solve	To find the <b>answer</b> /value of something  Use <b>inverse operations</b> on both sides of the equation (balancing method) until you find the value for the letter.	Solve $2x - 3 = 7$  Add 3 on both sides $2x = 10$ Divide by 2 on both sides $x = 5$  Solve $3x + 1 = 5x - 3$  Subtract $3x$ (the smallest amount of $x$ ) from both sides $1 = 2x - 3$ Add 3 on both sides $4 = 2x$ Divide by 2 on both sides $2 = x$
2. Inverse	<b>Opposite</b>	The inverse of addition is subtraction. The inverse of multiplication is division.
3. Rearranging Formulae	Use <b>inverse operations</b> on both sides of the formula (balancing method) until you find the expression for the letter.	Make $x$ the subject of $y = \frac{2x-1}{z}$  Multiply both sides by $z$ $yz = 2x - 1$ Add 1 to both sides $yz + 1 = 2x$ Divide by 2 on both sides $\frac{yz + 1}{2} = x$ We now have $x$ as the subject.
4. Writing Formulae	<b>Substitute letters for words</b> in the question.	Bob charges £3 per window and a £5 call out charge.  $C = 3N + 5$  Where $N$ =number of windows and $C$ =cost
5. Substitution	<b>Replace letters with numbers.</b>  Be careful of $5x^2$ . You need to square first, then multiply by 5.	$a = 3, b = 2$ and $c = 5$ . Find: 1. $2a = 2 \times 3 = 6$ 2. $3a - 2b = 3 \times 3 - 2 \times 2 = 5$ 3. $7b^2 - 5 = 7 \times 2^2 - 5 = 23$

## Year 8 French

### Knowledge Organiser HT3

#### La technologie

une maison	a house
un appartement	a flat
la rue	the street
à la campagne	in the country
dans un village	in a village
dans une ville	in a town

#### Rooms in a house

chez moi	in my home
la chambre	the bedroom
la cuisine	the kitchen
le jardin	the garden
la salle à manger	the dining room
la salle de bains	the bathroom
le salon	the living room

#### Prepositions

devant	in front of
derrière	behind
en face de	opposite
sur	on
sous	under

#### Intensifiers

vraiment	really
très	very
assez	quite
trop	too
un peu	a bit

#### Giving an opinion

je pense que	I think that
à mon avis	in my opinion
je préfère	I prefer
je trouve ça	I find it
je suis fan de	I am a fan of
j'ai horreur de	I hate
ça me fait rire	it makes me laugh
ça me fait pleurer	it makes me cry

#### Present tense key verbs

Je regarde	I watch
Tu regardes	you watch
il/elle regarde	he/she watches
nous regardons	we watch
vous regardez	you (formal) watch
ils/elles regardent	they watch
je vais	I go
tu vas	you go
il/elle va	he /she goes
nous allons	we go
vous allez	you go
ils /elles vont	they go
je fais	I do
tu fais	you do
il/elle fait	he/she does
nous faisons	we do
vous faites	you do
ils/elles font	they do

#### Weather

Il fait beau	it is nice
Il pleut	it is raining
Il fait chaud	it is hot
Il fait froid	it is cold
<u>On TV</u>	
les dessins animés	cartoons
les infos	the news
les jeux télévisés	game shows
la météo	the weather
les séries	series
les documentaires	
les émissions de sport	
les émissions de télé-réalité	

#### Internet

Je fais des achats en ligne	I do online shopping
Je fais des recherches	I do searches
J'envoie	I send
Je mets à jour	I update
Je joue à des jeux en ligne	I play games on line

#### Time phrases: When?

le weekend	at the weekend
le matin	in the morning
l'après midi	in the afternoon
le soir	in the evening/at night
<u>samedi</u> matin	on Saturday morning
<u>dimanche</u> après-midi	on Sunday afternoon

#### Past tense

J'ai discuté	I discussed
J'ai écouté	I listened
J'ai envoyé	I sent
J'ai joué	I played
J'ai posté	I posted
J'ai regardé	I watched
J'ai surfé	I surfed
J'ai tchatté	I chatted
J'ai téléchargé	I downloaded

#### Connectives and sequencers

cependant	however
aussi	also
puis	then
d'abord	firstly
ensuite	next
après	after
avant	before

#### Adjectives

ennuyeux	boring
rasant	boring
barbant	boring
passionnant	exciting
amusant	fun/funny
confortable	comfortable
douillet	cosy
assez bien	quite good
chouette	excellent
effrayant	frightening
émouvant	moving
passionnant	exciting
pratique	practical

## Year 8 French Knowledge

### Organiser HT4

#### Intensifiers

vraiment	really
très	very
assez	quite
trop	too
un peu	a bit

#### Giving an opinion

je pense que	I think that
à mon avis	in my opinion
je préfère	I prefer
je trouve ça	I find it
je suis d'accord	I agree
je ne suis pas d'accord	I don't agree

#### Relationships

On s'amuse	We have fun
On se chamaille	We squabble
On se confie des secrets	We tell each other secrets
On se dit	We tell each other
On se dispute	We argue
On s'entend	We get on
On se fâche	We get angry

#### Mon caractère

Je suis	I am
Je pense que je suis	I think that I am
Je ne suis pas	I am not

Je ne suis pas du tout I am not at all

Mon meilleur ami/Ma meilleure amie est... My best friend is

Adorable	adorable
Arrogant(e)	arrogant
Amusant(e)	funny
Casse-pieds	annoying
Curieux/se	curious
Débrouillard(e)	resourceful
Drôle	funny
égoïste	selfish
gentil(le)	nice
intelligent(e)	intelligent
optimiste	optimistic
paresseux/se	lazy
patient(e)	patient
pessimiste	pessimistic
rigolo(te)	funny
sociable	sociable
sympa	nice

#### les vêtements Clothes

Normalement, je porte... Normally, I wear

Des baskets	trainers
Des bottes	boots
Des chaussures	shoes
Une chemise	a shirt
Un chapeau	a hat
Un jean	jeans
Une jupe	a skirt
Un pantalon	trousers
Un pull	a jumper

un sweat à capuche	a hoodie
un tee-shirt	a T-shirt
une veste	a jacket

#### Verbes essentiels Key verbs

Je vais	I am going/I go
Tu vas	You go/You are going
Il/elle va	He/She is going/He/S he goes
On va	We are going/we go

#### Using the past tense

Hier	Yesterday
La semaine dernière	Last week
Je suis allé(e)	I went
J'ai regardé	I watched
J'ai dansé	I danced
C'était	It was...

#### Using the present tense

Normalement	Normally
D'habitude	Usually
Je vais	I go
Je regarde	I watch
Je danse	I dance
C'est	It is

#### Using the future tense

Ce weekend	This weekend
Cet été	This summer
Je vais aller	I'm going to go
Je vais regarder	I'm going to watch

Je vais danser	I'm going to dance
Ça va être	It's going to be

#### Les couleurs

Beige	beige
Blanc(he)	white
Bleu turquoise	turquoise
Gris(e)	grey
Marron chocolat	chocolate brown
Noir(e)	black
Orange	orange
Vert kaki	khaki

#### Les mots essentiels High frequency words

Avec	with
Bien	well
Comme d'hab	as usual
En général	in general
En plus	in addition
Ensemble	together
Même	same
Ou	or
Partout	everywhere
Plutôt	rather
Quand	when
Sinon	otherwise
Surtout	especially
Souvent	often
Tout(e)	all, every
Tout le temps	all the time
Vraiment	really

### Spanish HT 3

#### Las comidas

¿Qué desayunas?	What do you eat for breakfast?
¿Qué comes?	What do you eat?
¿Qué meriendas?	What do you eat for tea?
¿Qué cenas?	What do you eat for dinner?
Desayuno...	For breakfast I have...
Como...	For lunch I eat...
Meriando...	For tea I eat...
Ceno...	For dinner I eat...
carne con verduras	meat with vegetables
cereales	cereals
fruta	fruit
galletas	biscuits
magdalenas	fairy cakes
pasta	pasta
patatas fritas	chips
pescado con ensalada	fish with salad
pizza	pizza
pollo	chicken
tostadas	toast
un bocadillo	a sandwich

#### Meals

What do you eat for breakfast?
What do you eat?
What do you eat for tea?
What do you eat for dinner?
For breakfast I have...
For lunch I eat...
For tea I eat...
For dinner I eat...
meat with vegetables
cereals
fruit
biscuits
fairy cakes
pasta
chips
fish with salad
pizza
chicken
toast
a sandwich

#### ¿Qué bebes?

Bebo...	I drink...
Cola Cao	Cola Cao (drinking chocolate)
té	tea
zum de naranja	orange juice
No meriendo.	I don't have tea
No desayuno nada	I don't have anything for breakfast
Nunca como	I never have lunch
¿A qué hora desayunas/cenas?	What time do you have breakfast/dinner?
Desayuno a las ocho	I eat breakfast at eight
Como a mediodía	I have lunch/eat at midday
Ceno después de las nueve	I have dinner after 9 o'clock

#### What do you drink?

I drink...
Cola Cao (drinking chocolate)
tea
orange juice
I don't have tea
I don't have anything for breakfast
I never have lunch
What time do you have breakfast/dinner?
I eat breakfast at eight
I have lunch/eat at midday
I have dinner after 9 o'clock

#### ¿Con qué frecuencia?

siempre	always
generalmente	generally
normalmente	normally
a veces	sometimes

#### How often?

always
generally
normally
sometimes

#### En el mercado

¿Qué quieres?	What would you like?
Un kilo de...	A kilo of...
dos kilos de...	2 kilos of...
medio kilo de...	half a kilo of...
quinientos gramos de...	500g of
jamón	ham
manzanas	apples
peras	pears
queso	cheese
tomates	tomatoes
uvas	grapes
zanahorias	carrots
un cartón de leche	a carton of milk
un chorizo	a chorizo (spicy Spanish sausage)
una barra de pan	a baguette/loaf of bread
una botella de agua	a bottle of water
una lechuga	a lettuce
¿Algo más?	Anything else?
Sí, quiero...	Yes, I'd like...
por favor	please
Nada más, gracias.	Nothing else, thank you.
¿Cuánto cuesta?	How much is it?
Un euro	One euro.
Dos euros y veinte céntimos.	€2,20
Ochenta céntimos.	Eighty cents

#### Una cena especial

El fin de semana pasado...	Last weekend...
salí con...	I went out with...
Fui a...	I went to...
un restaurante español	a Spanish restaurant
un restaurante muy caro	a very expensive restaurant
Comí una ensalada.	I ate a salad
Mi amigo/a comió gambas.	My friend ate prawns
Compartimos una paella	We shared a paella
Bebimos agua	We drank water
Hablamos de música	We talked about music
¡Fue genial!	It was brilliant!

#### En el restaurante

¿Qué vas a tomar?	What are you going to have?
De primer plato...	As a starter...
De segundo plato...	As a main course..
De postre...	As a dessert
quiero	I want.../I'd lie...
fruta	fruit
pescado	fish
pollo	chicken
un flan	a crème caramel
un helado (de chocolate)	a (chocolate) ice cream
una ensalada	a salad
una paella (de mariscos)	a (seafood) paella
una sopa	a soup
unas gambas	some prawns
¿Para beber?	And to drink?
(Quiero)... por favor	I want/I'd like...please
agua	water
una Coca Cola	a Coke
una limonada	a lemonade
Tengo hambre	I'm hungry
No tengo hambre	I'm not hungry
Tengo sed	I'm thirsty
La cuenta por favor	The bill, please

#### ¿Qué te gusta comer?

Me gusta (mucho) comer...	I (really) like eating...
No me gusta (nada) comer...	I (really (don't) like eating...
A veces como...	Sometimes I eat...
Nunca como...	I never eat...
Me gusta beber...	I like drinking...
Nunca bebo...	I never drink...
Normalmente como...	Normally I eat...
Nunca bebo...	I never drink...
Normalmente bebo...	Normally I drink...
Normalmente como...	Normally I eat...
El fin de semana pasado...	last weekend...
comí...	I ate...
bebí...	I drank...
Mañana voy a comer...	Tomorrow I'm going to eat...

#### Los números

cien	100
ciento diez	110
doscientos	200
trescientos	300
cuatrocientos	400
quinientos	500
seiscientos	600
setecientos	700
ochocientos	800
novecientos	900
mil	1000

#### Palabras muy útiles

##### Very useful words

normalmente
de
nada
nunca
algo
mucho/a/os/as



## Unit 6 – Mira 2

### En la ciudad

¿Qué hay en Barcelona?	What is there in Barcelona?
En Barcelona hay...	In Barcelona there is/are...
muchas cosas	lots of things
el acuario	the aquarium
el cine IMAX	the IMAX cinema

¿Adónde vas? Where are you going (to)?

Voy...	I'm going...
al acuario	to the aquarium
al Camp Nou	to the Camp Nou
al cine IMAX	to the IMAX cinema
al monumento Colón	to the Columbus Monument
al museo Picasso	to the Picasso Museum
al Tibidabo	to the Tibidabo funfair
a la playa de Barceloneta y el mar	to Barceloneta beach and the sea
a la plaza de Cataluña	to the Plaza Cataluña
a la Sagrada Familia	to the Sagrada Familia church
a la torre Agbar	to the Agbar Tower
a la Villa Olímpica	to the Olympic Villiage
a las ramblas	to the Ramblas
Me gusta Barcelona porque...	I like Barcelona because...
me encanta...	I love...
me gusta (mucho)...	I (really) like...
ir de compras	going shopping
mirar pinturas	looking at paintings
montar en las atracciones	going on rides
sacar fotos	taking photos
tomar el sol	sunbathing
ver partidos de fútbol	watching football matches
ver películas	watching films
ver tiburones	watching sharks
Le gusta (mucho)...	He/She (really) likes...
Le encanta...	He/She loves...

### De compras

- ¿Dónde se puede comprar...?
- Where can you buy...?

carne	meat
comida	food
pan	bread
ropa	clothes
un café	a coffee
un regalo	a present

- ¿Dónde se pueden comprar...?
- Where can you buy...?

pasteles	cakes
joyas	jewellery
zapatos	shoes
libros	books
CDs	CDs

- Se puede(n) comprar... en...
- You can buy...in...

un supermercado	a supermarket
una cafetería	a café
una carnicería	a butcher's
una joyería	a jeweller's
una librería	a bookshop
una panadería	a baker's
una pastelería	a cake shop
una tienda de música	a music shop
una tienda de ropa	a clothes shop
una zapatería	a shoe shop

### Las direcciones

Perdón	Excuse me
¿Dónde está ...?	Where is ...?
¿Dónde están?	Where are...?

A ver...	Let's see...
Bueno...	Well...
Pues...	Well...
luego...	then...

Sigue todo recto	Go straight on
Dobla a la derecha	Turn right
Dobla a la izquierda	Turn left
Cruza la plaza	Cross the square
Toma la segunda calle	Take the 2nd street
Está al final de la calle	It's at the end of the street
Está a la derecha	It's on the right
Está a la izquierda	It's on the left

### Soy turista...

Hoy...	Today
Estoy en Barcelona.	I am in Barcelona.
Es genial.	It's great.
Anteayer...	The day before yesterday...
Ayer por la tarde	Yesterday afternoon
fui a la playa	I went to the beach
comí paella	I ate paella
bebí limonada	I drank lemonade
descansé un poco	I rested a little bit
Lo pasé fenomenal.	I had an amazing time.
Me gustó.	I liked it.
No me gustó.	I didn't like it.
Mañana...	Tomorrow...
Pasado mañana...	The day after tomorrow...
voy a ir al museo	I am going to go to the museum
voy a ir de compras	I am going to go shopping
voy a comprar unas camisetas	I am going to buy some T-shirts

### Palabras muy útiles

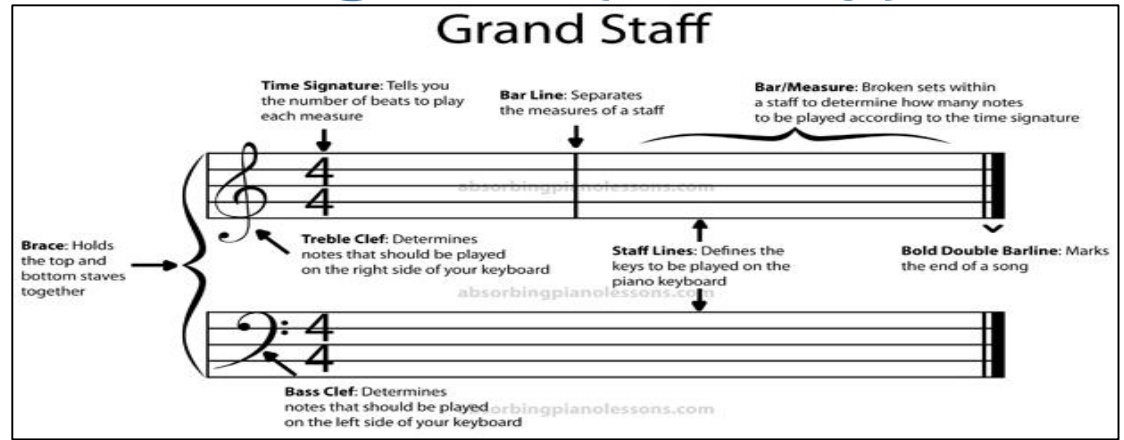
#### Very useful words

a (al)	to
hay	there is/are
¿dónde?	where?
¿adónde?	whereabouts?
en	in
hoy	today
ayer	yesterday
anteayer	the day before yesterday
mañana	tomorrow

# Year 8 Music – Composer’s Logbook (melody)

## KEYWORDS

- 1- Time Signature:** to specify how many beats are to be contained in each bar and which note value is equivalent to one beat.
- 2- Bar:** Each bar usually has the same number of beats in it. Music that feels like 1-2-3-4 will be divided into bars with four beats worth of music in each bar.
- 3- Barline:** The bar line is a vertical line written in the music which separates the **bars**.
- 4- Rest:** an interval of silence in a piece of music, marked by a symbol that corresponds to a particular note value.
- 5- Melody:** the main tune of a song.
- 6- Phrase:** a short musical passage; a musical sentence.
- 7- Pentatonic:** 5-notes. A pentatonic scale is a series of 5-notes used to create a piece.
- 8- Call and Response:** 2 phrases that occur in different parts one after another. Often a solo part then repeated by a chorus (African music).
- 9- Question and Answer:** 2 phrases that occur one after another, the second in direct response, and complimentary to the first.
- 10- Ostinato:** a persistent phrase or motif repeated over several bars or more.
- 11- Dorian mode:** a medieval **mode** whose scale pattern is that of playing d to d on the white keys of a piano (T-s-T-T-s-T).
- 12- Drone:** an accompaniment where a note is continuously heard/played throughout a piece
- 13- Harmony:** parts that play together simultaneously create harmony. Often accompanying or secondary parts to a melody.
- 14- Dictation:** the ability to hear a piece of music and quickly write it down.



Note	Name	Beats	Rest	Note	Name	Beats	Rest
	Semibreve, Whole Note	4 beats			Dotted Semibreve, Dotted Whole Note	6 beats	
	Minim, Half Note	2 beats			Dotted Minim, Dotted Half Note	3 beats	
	Crotchet, Quarter Note	1 beat			Dotted Crotchet, Dotted Quarter Note	1½ beats	
	Quaver, Eighth Note	1/2 beat			Dotted Quaver, Dotted Eighth Note	¾ beat	
	Semiquaver, Sixteenth Note	1/4 beat			Dotted Semiquaver, Dotted Sixteenth Note	¾ beat	

Oh Suzana in C major pentatonic

C D E G G A G E C D E E D C

D C D E G G A G E C D E E D D C



### 5 characteristics of a good melody

A Good Melody...

1. Starts and ends on the same note (C)
2. Moves mainly by step
3. Has a smooth contour/shape
4. Has 2 or 4 bar phrases
5. Uses similar short motifs to give it a clear character

Annotate the melody above to identify its use of the ‘5 characteristics of a good melody’.

# Unit 2: Animal Rights

## Year 8

### Skills

- Engage with and reflect on different ideas, opinions and beliefs to help develop personal opinion.
- Express and explain opinions through discussion and written assessments.
- Reflect on the knowledge and skills needed for setting realistic targets and personal goals.
- Work individually and with others to negotiate, plan and take action.
- Analyse and reflect upon action taken and progress made.

### Knowledge

Learn and understand about Animal Rights & the law related to animals

Understand what is Battery farming & the law on battery farming

Appreciate why animals are used in research





# Unit 3: Sex Education

## Year 8

### Skills

- Engage with and reflect on different ideas, opinions and beliefs to help develop personal opinion.
- Can express and explain opinions through discussion and written assessments.
- Develop empathy with the situations others may find themselves in

### Knowledge

Be aware of current teenage pregnancy statistics

Develop awareness of the different methods of contraceptives

Gain knowledge and understanding about STIs and the dangers of them

Eliminate myths about STIs

Gain knowledge and understanding about HIV & AIDS





# Y8: Unit 2 Hinduism

Hinduism is the third biggest religion in the world, existing for around 4000 years. Hinduism is made up of a variety of different religious beliefs and practices which originated near the river Indus in India. In this unit of work, you will learn about the Hindu religion, analyse and understand ethical ideas such as potential consequences of actions and equality among all and philosophical questions surrounding human existence.

## Curriculum Organiser

### Religions

#### Lesson 1

##### **Hinduism: What is it all about?**

*How and where did Hinduism originate?*

*Describe a day in a life of a typical Hindu teenager.*

*Give 3 ways that Hinduism is different to Judaism (Unit 1).*

#### Lesson 4

##### **Hindu festivals – what is celebrated?**

*What is the story behind Diwali?*

*Name and explain the traditions behind one other Hindu festival.*

*“Religious festivals are just an excuse for a party”.  
Give 3 reasons to agree and disagree.*

#### Lesson 7

##### **Samskaras – what are significant events in the life of a Hindu?**

*What does the term samskara mean?*

*Explain 5 different samskaras.*

*Compare 3 samskaras with 3 Jewish life events. What are the similarities and differences?*

### Ethics

#### Lesson 2

##### **Karma, samsara and rebirth – how does it work?**

*How do Hindus reach moksha?*

*Explain the concept of karma and how it relates to the samsara cycle.*

*Is there any evidence for rebirth? Give 2 reasons for and against.*

#### Lesson 5

##### **Equality P4C - Are some people more important than others?**

*What is the difference between equality and fairness?  
What are the 9 protected characteristics of the Equality Act 2010?*

*Some people say that we don't need a law to tell us that we're all equal – do you agree or disagree? Explain your view.*

#### Lesson 8

##### **Should we all have goals that benefit others? Or just ourselves?**

*What are the 4 key goals in a Hindu's life?*

*Do you think that you are achieving your dharma in life?*

*“Money doesn't bring happiness” – what would a Hindu say to this?*

### Philosophy

#### Lesson 3

##### **How do Hindus understand God?**

*Explain the difference between monotheism and polytheism. Which is Hinduism?*

*Explain how the Trimurti represents Brahman.*

*How might a Hindu's belief in God influence their daily lives?*

#### Lesson 6

##### **The Caste system - What is the perfect way to organise society?**

*Describe the different levels of the caste system.*

*What decides the caste that someone is in?*

*“Life is easier if everyone knows their place.” Give 2 reasons to agree and disagree.*

#### Lesson 9

##### **Is this whole world an illusion? What is real?**

*Explain the terms maya and moksha.*

*Could a Hindu still be a scientist?*

*How could the belief in maya influence a Hindu's daily life?*

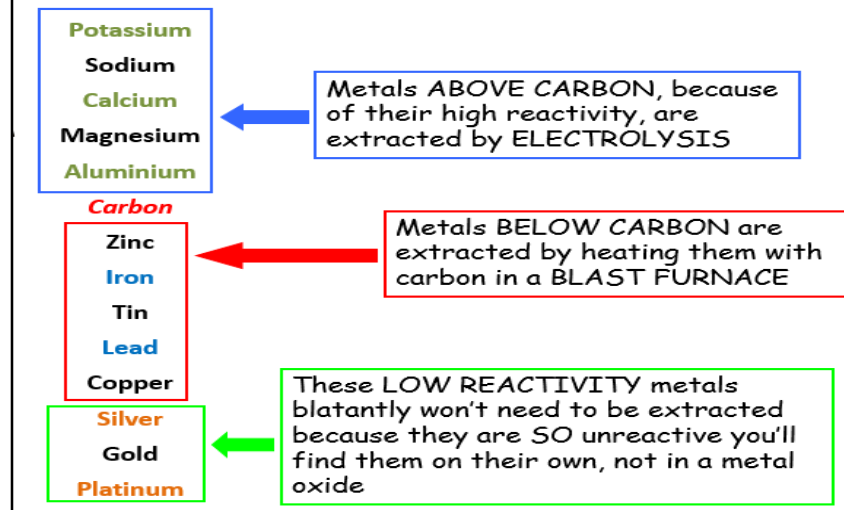
*\*Following these 9 lessons pupils will be assessed and feedback will be given in exercise books.*

# 8C2 Metals

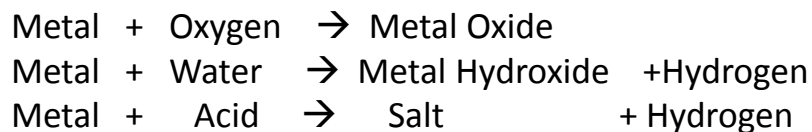
## Properties of metals and non-metals

Property	Metals	Non-metals
Appearance	Shiny	Dull
State at room temp	Solid (except mercury)	Half are solids, half are gases, one is liquid (bromine)
Density	High	Low
Strength	Strong	Weak
Malleable or brittle	Malleable (can bend without breaking)	Brittle (will shatter when hammered)
Conduction (heat/electricity)	Conduct both well	Poor (graphite only non-metal conductor)
Magnetic	Only iron, cobalt and nickel	None

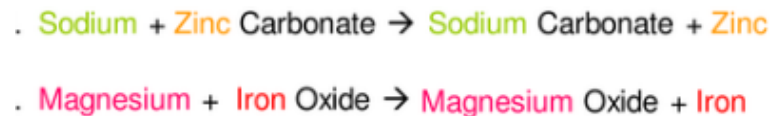
## How metals are extracted



## General Equations for metal reactions



**Displacement-** When a more reactive metal will displace a less reactive metal from solutions of its compounds



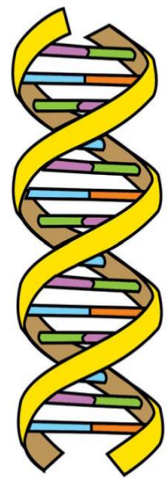
Metal		Reaction with AIR	Reaction with WATER	Reaction with ACIDS
Potassium	K	Burn vigorously to form metal oxides	React with <b>cold water H<sub>2</sub>O (l)</b> to form H <sub>2</sub> (g) and (metal)OH <sub>(aq)</sub>	Strong reaction with <b>diluted acid (aq)</b> to form H <sub>2</sub> (g). Metal replaces H in compound to form a salt.
Sodium	Na			
Calcium	Ca	Burn with decreasing vigour down the series to form metal oxides	Only reacts with <b>steam H<sub>2</sub>O(g)</b> to form H <sub>2</sub> (g) and metal oxide	
Magnesium	Mg			
Aluminium	Al			
Zinc	Zn			
Iron	Fe			
Lead	Pb	React slowly (when heated) to form an oxide layer	No reaction	React with <b>concentrated acid (l)</b> . Metal replaces H to make a salt. Some of the acid decomposes into <b>NO<sub>2</sub>(g)</b> and <b>H<sub>2</sub>O (l)</b> .
Copper	Cu			
Mercury	Hg			
Silver	Ag	No reaction	No reaction	No reaction
Gold	Au			

### Advantages of Recycling

- Conserves raw materials.
- Less energy is used so less fossil fuels are used.
- Reduces waste in landfill.
- Avoids the use of mining for ores.
- Less damage to habitats.
- Less energy needed to melt and reform metals than to extract them.
- Produces less carbon dioxide.

### Disadvantages of Recycling

- Carbon dioxide is a greenhouse gas.
- Greenhouse gases cause global warming.
- Electricity for electrolysis is expensive and usually comes from fossil fuels.



- Adenine
- Thymine
- Cytosine
- Guanine
- Sugar-phosphate backbone

In DNA, the complementary base pairs are held together by hydrogen bonds.

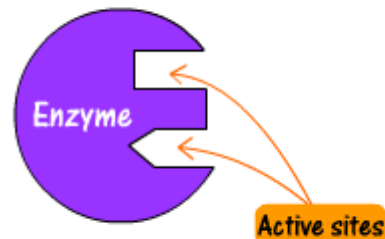
DNA is the molecule which controls our characteristics. It makes up 'genes' which code for proteins

# Year 8 Knowledge Organiser : 8A – Genes and inheritance

<b>carbohydrase</b>	=	breaks carbohydrate into sugar molecules
<b>lipase</b>	=	breaks fat into glycerol and fatty acids
<b>protease</b>	=	breaks protein into amino acids

## Enzymes

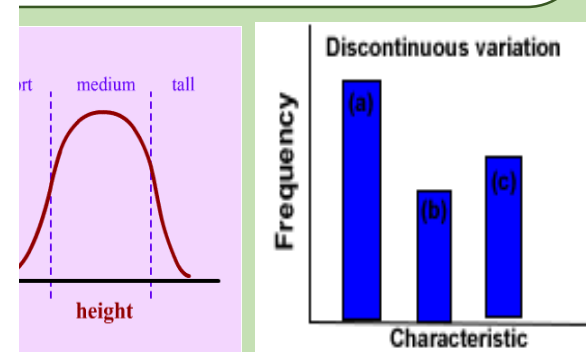
Enzymes are biological catalysts. They speed up chemical reactions within the cell.



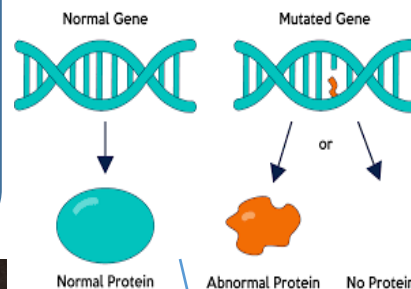
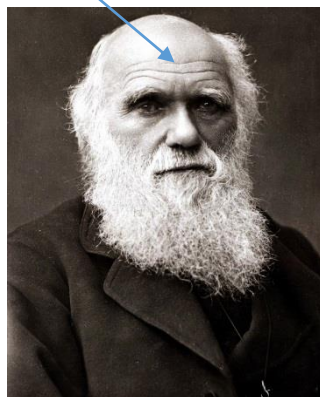
Enzymes are found in the cells of all living things

They are protein machines.

Variation is the difference between members of the same species. It can be caused by environmental or genetic factors.

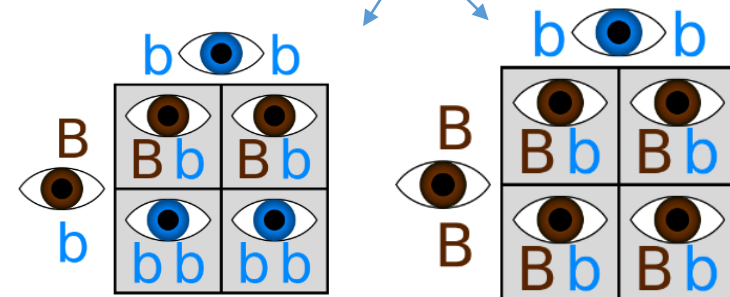


Charles Darwin proposed the theory of 'natural selection' to explain evolution



Punnett squares are used to help you determine what genes the child of two parents will have. Everyone has 2 copies of a certain gene (called an **allele**): 1 copy comes from your mum and 1 copy comes from your dad. But since your mum and dad each have 2 copies, how do you know which ones you will get?

Mutation is the change in the base sequence of DNA.



Term	Description
Species	A group of individuals that are physically similar that can produce fertile offspring
Variation	The presence of differences between living things of the same species
Competition	Interaction between groups of organisms seeking to access limited supplies of factors required for life e.g. light, space, food
Natural selection	A process that causes populations to change over time.
Evolution	The change in species over long periods of time
Gene	The basic units of genetic material inherited from our parents. A gene is a section of DNA which controls part of a cell's chemistry - particularly protein production.

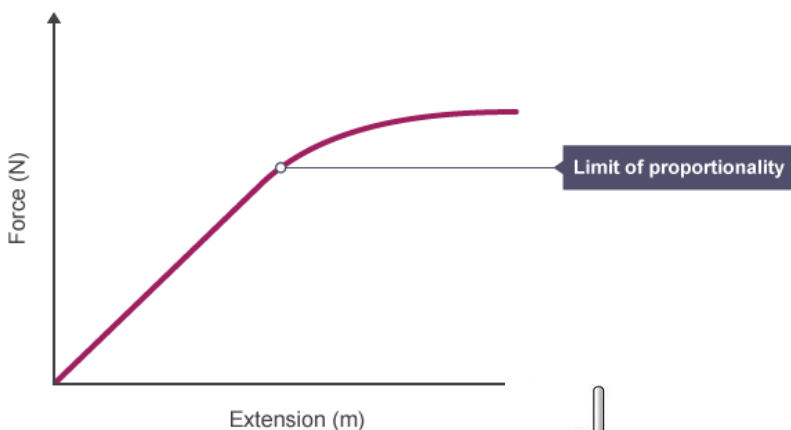
# 8P2 – Pressure knowledge Organiser

## Hooke's law

Extension happens when an object increases in length, and compression happens when it decreases in length. The extension of an elastic object, such as a spring, is described by Hooke's law:

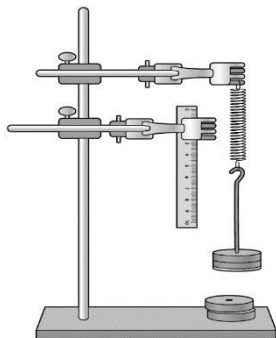
$$f = k \times x$$

force = spring constant  $\times$  extension



## Deforming

After going past their elastic limit, a spring or rubber band will not return to its original shape and therefore will behave differently.



## Measuring density

You need to know two things to measure the density of a substance:

- the mass of a sample of some of it
- the volume of that sample

The mass is measured using a balance. The volume of a liquid is easily measured using a measuring cylinder. The volume of a solid can be measured by:

- measuring the side of a cube or block of the substance, then using mathematics to calculate its volume, or
- using a displacement can (also called a eureka can) – the sample is lowered into a container of water and the volume of water it displaces or pushes out of the way is the same as the volume of the object

## Density Properties

### Solids

The particles in solids are very close together. They are tightly packed, giving solids high densities.

### Liquids

The particles in liquids are close together. Although they are randomly arranged, they are still tightly packed, giving liquids high densities. The density of a substance as a liquid is usually only slightly less than its density as a solid.

Water is different from most substances: it is less dense as a solid than as a liquid, because its particles move apart slightly on freezing. This is why ice cubes and icebergs float on liquid water.

### Gases

The particles in gases are very far apart, so gases have a very low density.

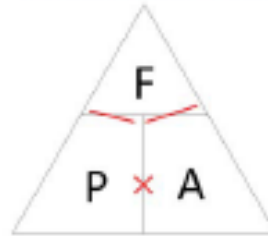
## Pressure on surfaces

You may have been warned about swinging around on one leg of a chair. Apart from the risk that you will damage the chair or hurt yourself, the chair leg can damage the floor. This is because it puts too much pressure on the floor.

## Calculating pressure

To calculate pressure, you need to know two things:  
the force or weight exerted  
the surface area over which the force or weight is spread

$$\text{Pressure} = \text{Force} \div \text{Area}$$



## Example

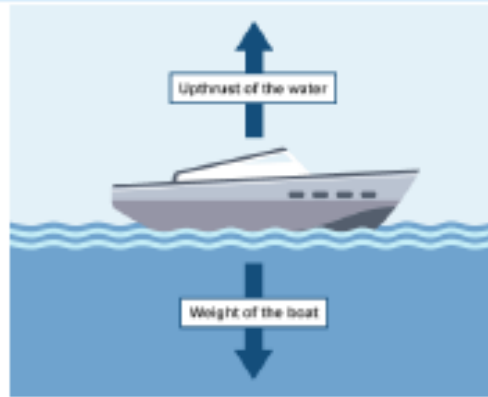
A force of 20 N acts over an area of 4 m<sup>2</sup>. Calculate the pressure.

$$\begin{aligned} \text{pressure} &= \text{force} \div \text{area} \\ &= 20 \text{ N} \div 4 \text{ m}^2 = 5 \text{ N/m}^2 \end{aligned}$$

Notice that the unit of pressure here is N/m<sup>2</sup> (newtons per square metre). Sometimes you will see another unit being used. This is called the pascal and it has the symbol Pa. 1 Pa = 1 N/m<sup>2</sup>, so in the example above the pressure is 5 Pa.

## Pressure in liquids

Liquid pressure is exerted on the surface of an object in a liquid. This pressure causes upthrust. An object placed in a liquid will begin to sink. As it sinks, the liquid pressure on it increases and so the upthrust increases. For a floating object, the upthrust is equal and opposite to the object's weight. An object will continue to sink if its weight is greater than the maximum upthrust.



## Pressure in fluids

Liquids and gases are fluids. A fluid is able to change shape and flow from place to place. Fluids exert pressure on surfaces, and this pressure acts at 90° to those surfaces – we say that it acts normal to the surface.

$$p = \rho \times g \times h$$

*Pressure*  
*= density x gravity x height*

$$\text{Density} = \frac{\text{Mass (kg)}}{\text{Volume (m}^3\text{)}} \quad (\text{kg/m}^3)$$

