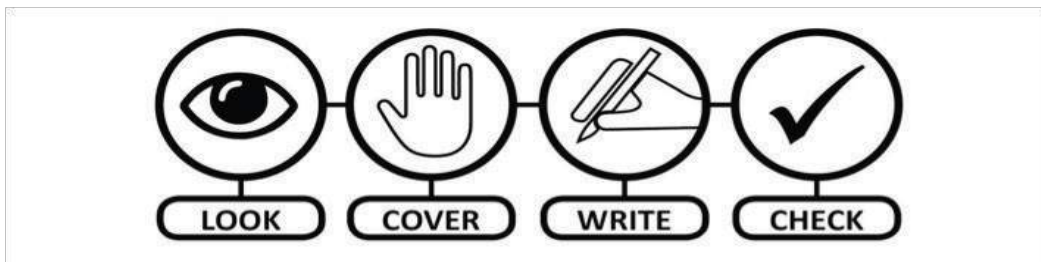




Year8KnowledgeOrganisers: Autumn Book 2:

Name:	
Form:	



There is no learning without remembering.

— Socrates

Knowledge Organisers – Guidance for Parents

What are knowledge organisers?

A knowledge organiser is a set of key facts or information that pupils need to know and be able to recall in order to master a unit or topic. Typically an organiser fits onto one page of A4 this helps pupils to visualize the layout of the page which in turn helps them to memorise the information better.

Why are we moving to knowledge organisers?

Typically, most youngsters leave their revision until a few weeks (best case scenario) or days/hours (worst case scenario) before the examinations and tests. This presents a problem. Our short term memory is designed to be just that and has limited capacity. Pupils find themselves unable to retain the information, they become stressed and often give up, convincing themselves they are no good at revising or that they “can’t do subject ‘x’ ”.

The secret to success is to regularly revisit the knowledge to be learned (known as ‘spaced retrieval’). This helps transfer the knowledge from the short-term memory to the long term memory. This not only helps to make ‘learning stick’ but it also frees up our short-term memory for day to day learning and experiences.

How will a knowledge organiser help my child? Suggested activities for parents

Knowledge organisers will be made available at the start of each unit to help them remember what they’re learning and to help them to see the bigger learning journey in their subjects. Instead of forgetting previous learning, pupils continually revisit and retrieve prior learning from their memories.

Most homework set will be linked to all/some aspects of the organiser. This might be to learn keyword spellings or to write an extended response that uses some/all of the knowledge from the organiser. Here are some strategies that might help you to do this.

- 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. Make a note of the ones they get wrong – is there a pattern to the spelling of those words?
- Get them to make a glossary (list) of keywords 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.

We would recommend that pupils spend thirty minutes per homework learning the knowledge detailed in the organiser. A video on using knowledge organisers can be found at the following link: <https://bit.ly/2MNb2H5>

Knowledge Organisers – Guidance for Pupils

At the start of every 1/2 term, you will be given a knowledge organiser booklet, containing a KO for every subject. These will show you the exact facts, dates, events, characters, concepts and precise definitions that we need you to remember for that topic. Securing this knowledge base will allow you to develop your skills of understanding, analysis and evaluation in lessons more effectively.

You will also be supplied with a knowledge practice book, you will use this book to complete all your home works for all subjects.

How to use a knowledge organiser:



To do this, memorise a section of the organiser then cover up this part of their knowledge organiser, write it out from memory (in a black or blue pen), then self-check and correct any spelling mistakes, missing bits or mistakes (in a purple pen). This way, you will learn the most valuable knowledge in every subject by heart and free up space in their brain to develop your skills

We would recommend that pupils spend thirty minutes per homework learning the knowledge detailed in the organiser.

Your teacher will use low stakes testing to check your learning in your next lesson in the subject.

Day	Homework 1	Homework 2
Monday week 1	English	Art
Tuesday week 1	Maths	Music
Wednesday week 1	Science	Drama
Thursday week 1	RE	MFL
Friday week 1	History	
Monday week 2	Technology	English
Tuesday week 2	Maths	
Wednesday week 2	PE	Science
Thursday week 2	Computer Science	RE
Friday week 2	Geography	

Homework instructions		
Monday 4th November Week 1	English (p17-18) In class you will be reading a non-fiction text called “Denizens of His Mad Realm”. Read it again and write down any examples of the writer using any of the following language features: simile, metaphor, personification, alliteration, emotive verbs/adverbs/adjectives. Can you comment on any of these features and why the writer has chosen to use them?	Art (p19) Produce a fact page on ROY LICHTENSTEIN Include information, drawings, Images and most importantly Include your opinion of his work
Tuesday 5th November Week 1	Maths (p9-15) Using the look, cover, write and check methodology complete the knowledge organiser Page 1 - 8QLMC, 8QDH, 8JCG, 8JMM Page 5 - 8QCG, 8QLG, 8QIB, 8JLMC, 8JME	Music Details to be provided by your teacher
Wednesday 6th november Week 1	Science (p26-27) <u>Respiration and Breathing</u> Look, cover and write Section 1 on Aerobic respiration. Correct mistakes in purple pen. <u>Must be able to:</u> 1. Write the word equation for aerobic respiration. 2. Describe diffusion. 3. Explain why the air sacs (avelio) have a large surface area. 4. Explain the function of red blood cells.	Drama Details to be provided by your teacher
Thursday 7th November Week 1	RE (p20-21) Key words: look, cover, write and check each key word and meaning.	MFL (p33-35) Copy out and translate the weather expressions. Learn how to spell them. Look, cover, write, check.
Friday 8th November Week 1	History (p22-23) Look at Section A of the Knowledge Organiser: the campaign for female suffrage. Use the look, cover, write, check method on all keywords and their definitions (1-17). Don’t forget to check and correct your work with purple pen.	
Monday 11th November Week 2	Technology (p29) <u>Design and Technology -Electronics: (p29)</u> Low Stakes Test 1 - Week 2 of Knowledge Organiser (Numbers: 1 – 3) <ul style="list-style-type: none"> • Use KO to enable you to recall 5 Health and Safety Rules for the workshop and soldering • Use KO to enable to recall what the abbreviation PCB stands for • Use KO to enable you to fully explain the alloy solder and its use • Use KO to be able to name and correctly identify electronic components and their component symbols <u>Design and Technology - Computer Aided Design: (p30)</u> Low Stakes Test 1 - Week 2 of Knowledge Organiser (Numbers: 1 – 5) <ul style="list-style-type: none"> • Be able to explain the abbreviations, CAD and CAM 	English (p17-18) In class you will be reading a non-fiction text called “Punk Beggars”. Read it again and write down any examples of the writer using any of the following language features: repetition, direct address, hyperbole, opinion, rhetorical questions, facts and statistics. Can you comment on any of the writer’s language choices in this text? For example, why does he choose to repeat the word ‘beggars’ so often in the first two paragraphs?

	<ul style="list-style-type: none"> • Be able to describe and explain the advantages and disadvantages of using CAD/CAM both in school and commercially • Use KO to help you to recall and accurately identify five Pro Desktop drawing icons <p>Food: (p30) Low Stakes Test 1 - Week 2 of Knowledge Organiser (Numbers: 1 – 4)</p> <ul style="list-style-type: none"> • Be able to explain and spell all of the key technical words. • Be able to describe the sections of the Eatwell Guide and why it is important to eat a varied and healthy balanced diet. • Be able to describe the difference between a macro and a micronutrient and give examples of each. • Create a mind map explaining the different cooking methods you will learn this term. 	
Tuesday 12th November Week 2	<p>Maths Complete the written homework task set by your class teacher to be handed in on you next maths lesson for feedback</p>	
Wednesday 13th November Week 2	<p>PE Use the PE Knowledge Organiser on ‘Somatotypes’ to complete your homework on Doodle.</p>	<p>Science (p26-27) Respiration and Breathing Look, cover and write Section 2 on Gas exchange system . Correct mistakes in purple pen. Must be able to 1.State the scientific name for breathing in. 2.Describe how the alveoli are adapted for gas exchange. 3.Describe diffusion. 4.Explain how oxygen diffuses into blood. 5. Correctly spell the following words: Respiration, Diffusion, Capillaries Alveoli, Deoxygenated .</p>
Thursday 14th November Week 2	<p>Computer Science FINDING ERRORS User Look, Cover, Write, Check to make sure you understand the process for finding errors in your programs.</p>	<p>RE (p20-21) Write 5 sentences using as many of the key words as you can.</p>
Friday 15th November Week 2	<p>Geography (p24-25) Answer the questions set by your teacher, which are stuck in your Homework book, using the Knowledge Organiser. Use pictures to help you remember the answers. Use the Look, Cover, Write, Check Method to revise for the low stakes test in lesson.</p>	
Monday 17th November	<p>English (p17-18) This week you will be reading a non-fiction text called “The Man With No Name”. Read it again and write down any examples of the writer using the following language features: triples, emotive verbs/adverbs/adjectives. Comment on why the writer might have chosen to use any of these words or phrases?</p>	<p>Art (p19) Write your opinion of a film/tv programme/book that you have recently watched or read.</p> <p>•Give reasons for your opinion, like or dislike.</p> <p><u>Examples of keywords to include:</u> story character plot exciting relevant interesting scene</p>

<p>Tuesday 18th November Week 1</p>	<p>Maths (p9-15) Using the look, cover, write and check methodology complete the knowledge organiser Page 2 - 8QLMC, 8QDH, 8JCG, 8JMM Page 6 - 8QCG, 8QLG, 8QIB, 8JLMC, 8JME</p>	<p>Music Details to be provided by your teacher</p>
<p>Wednesday 19th November Week 1</p>	<p>Science (p26-27) <u>Respiration and Breathing</u> Make flash cards based on Section 3- Getting Oxygen In and Section 4 - Anaerobic respiration. To achieve this split your page in half then cut up into 5 equal rectangles. Write the question on one side and the answer on the back. Then use the cards to test yourself to help you learn the key facts. Must be at least 10 flashcards, 5 of your choice and 5 which must include the following questions: <u>5 out of 10 Flashcard Questions:</u></p> <ol style="list-style-type: none"> 1. State two substances that are transported by blood plasma into cells. 2. Recall the word equation for aerobic respiration. 3. Recall the word equations for anaerobic respiration and explain when this is used. 4. State problems caused by lactic acid. 5. Write the word equation for anaerobic respiration in yeast cells. 	<p>Drama Details to be provided by your teacher</p>
<p>Thursday 20th November Week 1</p>	<p>RE (p20-21) Read the Global Goals and make notes.</p>	<p>MFL (p33-35) Copy out and translate the words. Learn how to spell them. Look, cover, write, check.</p>
<p>Friday 21st November Week 1</p>	<p>History (p22-23) Look at Section B of the Knowledge Organiser: the causes and outbreak of World War One. Use the look, cover, write, check method on all keywords and their definition (1-14) and the key people (15-19). Don't forget to check and correct your work with purple pen.</p>	
<p>Monday 25th November Week 2</p>	<p>Technology <u>Design and Technology – Electronics:(p29)</u> <u>Low Stakes Test 2 - Week 4 of Knowledge Organiser (Numbers:1 – 4)</u></p> <ul style="list-style-type: none"> ● Use KO to enable you to accurately identify and clearly explain the difference between a polarised and non-polarised component ● Use KO and further research to enable you to understand the function of key electronic components within a circuit ● Use KO to help you to understand why soldering is not suitable for modelling circuits ● Use KO to recall and accurately spell the names of workshop tools and equipment <p><u>Design and Technology - CAD & CAM:(p30)</u> <u>Low Stakes Test 2 – Week 4 of Knowledge Organiser (Numbers: 1-7)</u></p> <ul style="list-style-type: none"> ● Use KO to be able to identify the difference between first and third angle projection ● Use KO to enable you to understand and explain the purpose of an engineering drawing 	<p>English (p17-18) Use the GREEN GRID on types of non-fiction text to explain how “Denizens of His Mad Realm” and “Punk Beggars” are different in purpose.</p>

	<ul style="list-style-type: none"> • Use KO to be able to clearly explain the terms “Render” and “Dimensioning” • Use KO to be able to clearly explain the advantages of using CAD to generate designs • Use KO to be able to identify CNC machinery and 3D Printers <p>Food: (p30)</p>	
Tuesday 26th November Week 2	<p>Math (p9-15)</p> <p>Complete the written homework task set by your class teacher to be handed in on your next maths lesson for feedback</p>	
Wednesday 27th November Week 2	<p>PE</p> <p>Make sure you have completed the PE homework on Doodle on ‘Somatotypes’.</p>	<p>Science (p26-27)</p> <p>Genetics</p> <p>Look, cover and write Section 1 - Environmental Variation and Section 2 Inherited Variation, correct mistakes in purple pen.</p> <p>Must be able to</p> <ul style="list-style-type: none"> • Identify different types of environmental variation and explain their causes • Explain how environmental variation can cause problems with classification. • Identify different types of inherited variation. • Explain how sexual reproduction causes inherited variation • Identify and describe normal distribution.
Thursday 28th November Week 2	<p>Computer Science</p> <p>ITERATION</p> <p>Using the rules for iteration, write out the python code to make a triangle using a FOR loop and a WHILE loop. You can use the example code to help you.</p>	<p>RE (p20-21)</p> <p>Research one of the Global Goals and make notes on how it helps solve one of the world’s problems.</p>
Friday 29th November Week 2	<p>Geography (p24-25)</p> <p>Answer the questions set by your teacher, which are stuck in your Homework book, using the Knowledge Organiser. Use pictures to help you remember the answers. Use the Look, Cover, Write, Check Method to revise for the low stakes test in lesson.</p>	
Monday 2nd December Week 1	<p>English (p17-18)</p> <p>Week 5 vocabulary. All words are extracted from the “Denizens” text. Find out what these words mean. Choose 10 and show your understanding by using them in sentences of your own.</p>	<p>Art (p19)</p> <p>Draw out your own name in bold lettering. Aim to fill the page. Inside each letter fill with different pop art patterns and shapes, complete with bright colours.</p>
Tuesday 3rd December Week 1	<p>Maths (p9-15)</p> <p>Using the look, cover, write and check methodology complete the knowledge organiser</p> <p>Page 3 - 8QLMC, 8QDH, 8JCG, 8JMM</p> <p>Page 7 - 8QCG, 8QLG, 8QIB, 8JLMC, 8JME</p>	<p>Music</p> <p>Details to be provided by your teacher</p>
Wednesday 4th December Week 1	<p>Science (p26-27)</p> <p>Genetics</p> <p>Make flash cards based on Section 3-DNA . To achieve this split your page in half then cut up into 5 equal rectangles. Write the question on one side and the answer on the back. Then use the cards to test yourself to help you</p>	<p>Drama</p> <p>Details to be provided by your teacher</p>

	<p>learn the key facts. Must be at least 10 flashcards, 5 which must include the following questions:</p> <p>5 out of 10 Flashcard Questions:</p> <ol style="list-style-type: none"> 1.Outline how the structure of DNA was discovered. 2.Explain why human gametes (egg and sperm) only contain half the number of chromosomes compared to a normal cell? 3.State what a gene is and their function. 4.Describe the relationship between chromosomes, DNA, genes, genetic information and nuclei. 5.State the female and male gametes. 	
Thursday 5th December Week 1	<p>RE (p20-21) Read the biography of Pope Saint John Paul II. Look, cover, write and check 5 facts about his life.</p>	<p>MFL (p33-35) Copy out and learn the directions. Look, cover, write, check.</p>
Friday 6th December Week 1	<p>History (p22-23) Look at Section B of the Knowledge Organiser: the causes and outbreak of World War One. Use the look, cover, write, check method on all keywords and their definition (1-14) and the timeline (20-27). Don't forget to check and correct your work with purple pen. Part of this is repetition - this will help to improve your memory.</p>	
Monday 9th December Week 2	<p>Technology Design and Technology: Electronics:(p29)</p> <ul style="list-style-type: none"> • Create flashcards/mind maps to revise and recall all KO subject content in preparation for formative and summative assessment <p>Design and Technology: CAD & CAM:(p30)</p> <ul style="list-style-type: none"> • Create flashcards/mind maps to revise and recall all KO subject content in preparation for formative and summative assessment <p>Food: (p30)</p>	<p>English (p17-18) Week 6 vocabulary. All words are extracted from the "Punk Beggars" text. Find out what these words mean. Choose 10 and show your understanding by using them in sentences of your own.</p>
Tuesday 10th December Week 2	<p>Maths Complete the written homework task set by your class teacher to be handed in on you next maths lesson for feedback</p>	
Wednesday 11th December	<p>PE Make sure you have completed the PE homework on Doodle on 'Somatotypes'.</p>	<p>Science (p26-27) Genetics Look, cover and write Section 4 Genes and extinction and natural selection, correct mistakes in purple pen.</p> <p>Must be able to</p> <ul style="list-style-type: none"> • Explain how organisms become endangered or extinct • Explain how adaptations affect the survival of organisms • Explain some ways of preserving biodiversity • Recall that individuals in a population vary genetically • Explain how natural selection works on these variations.

Thursday 12th December Week 2	Computer Science CONDITIONALS - Read through the example code you have been given. 1. Explain what will happen IF the user enters "triangle". 2. Explain what will happen IF the user enters "square". 3. Explain what will happen IF the user enters "circle".	RE (p20-21) Write your own biography of Pope Saint John Paul II's life.
Friday 13 December Week 2	Geography (p24-25) Answer the questions set by your teacher, which are stuck in your Homework book, using the Knowledge Organiser. Use pictures to help you remember the answers. Use the Look, Cover, Write, Check Method to revise for the low stakes test in lesson.	
Monday 16th December Week 1	English (p17-18) Week 7 vocabulary. All words are extracted from the "Man With No Name" text. Find out what these words mean. Choose 10 and show your understanding by using them in sentences of your own.	Art (p19) Research a brand which is easily recognisable, •sketch it, •describe it, •write your opinion of it.
Tuesday 17th December Week 1	Maths (p9-15) Using the look, cover, write and check methodology complete the knowledge organiser Page 4 - 8QLMC, 8QDH, 8JCG, 8JMM Page 8 - 8QCG, 8QLG, 8QIB, 8JLMC, 8JME	Music
Wednesday 18th December Week 1	Science (p26-27) Genetics Make flash cards based on keywords used throughout the knowledge organiser . To achieve this split your page in half then cut up into 9 equal rectangles. Write the keyword (in bold) on one side and the definition on the back..Then use the cards to test yourself to help you learn the keyword. <u>Flashcards for the following keywords required:</u> 1.Characteristic 2.Environmental variation- 3.Gamete 4.Normal distribution 5.Inherited variation 6.Gene 7.Biodiversity 8.Evolution 9.Natural selection	Drama
Thursday 19th December Week 1	RE (p20-21) Create a mind map of the life of Pope Saint John Paul II and explain how he can inspire young people today to be better people.	MFL (p33-35) Revise all the words you have done this half term in your Knowledge Organiser. Look, cover, write, check.
Friday 20th December Week 1	History (p22-23) Look at both Sections of the Knowledge Organiser. <ul style="list-style-type: none"> For Section A: the campaign for female suffrage - use the look, cover, write, check method for the timeline (22-31). For Section B: the causes and outbreak of World War One - use the look, cover, write, check method for the timeline (20-27). Don't forget to check and correct your work with purple pen. 	



Imperial Measurements (Weight)

Imperial units of weight include ounce (oz), pound (lb) and stone (st).

The conversions are as follows:

1 ounce is worth 28 grams

1 pound is worth 453 grams.

1 stone is worth 6.3 kilograms

Key Vocabulary

Conversion = The process of changing from one form to another.

Imperial = relating to or denoting the system of non-metric weights and measures (the ounce, pound, stone, inch, foot, yard, mile, acre, pint, gallon, etc.) formerly used for all measures in the UK, and still used for some

Imperial - Metric Conversion (Distance)

1 inch = 25 millimetres

2 inches = 50 millimetres

3 inches = 75 millimetres

4 inches = 100 millimetres

5 inches = 125 millimetres

6 inches = 150 millimetres

7 inches = 175 millimetres

8 inches = 200 millimetres

12 inches = 300 millimetres

1 mile = 1600 metres

2 miles = 3200 metres

3 miles = 4800 metres

4 miles = 6400 metres

5 miles = 8000 metres

6 miles = 9600 metres

7 miles = 11200 metres

8 miles = 12800 metres

9 miles = 14400 metres

Imperial Measurements (Distance)

Metric units of capacity include: inches (in) feet (ft) and mile (mi)

The conversions are as follows:

1 inch is worth 25 millimetres

12 inches is worth 1 foot

1 mile is worth 1600 metres



Relative Frequency

If a coin was flipped a hundred times, the amount of times a head actually did appear would be the relative frequency, so if there were 59 heads and 41 tails the relative frequency of flipping a head would be $\frac{59}{100}$ (or 0.59 or 59%).

Relative frequency is used to estimate probability when theoretical probability cannot be used.

Key Vocabulary

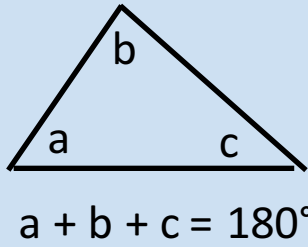
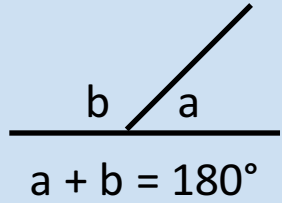
Relative frequency: is an estimate of **probability** and is calculated from repeated trials of an experiment.

Division Tables

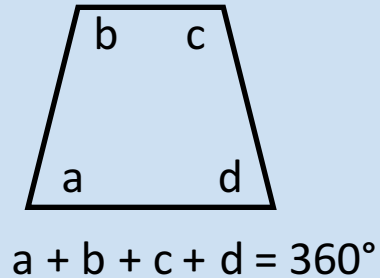
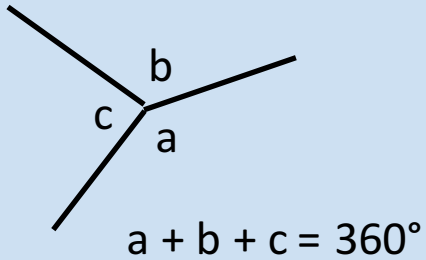
$8 \div 8 = 1$	$11 \div 11 = 1$	$12 \div 12 = 1$
$16 \div 8 = 2$	$22 \div 11 = 2$	$24 \div 12 = 2$
$24 \div 8 = 3$	$33 \div 11 = 3$	$36 \div 12 = 3$
$32 \div 8 = 4$	$44 \div 11 = 4$	$48 \div 12 = 4$
$40 \div 8 = 5$	$55 \div 11 = 5$	$60 \div 12 = 5$
$48 \div 8 = 6$	$66 \div 11 = 6$	$72 \div 12 = 6$
$56 \div 8 = 7$	$77 \div 11 = 7$	$84 \div 12 = 7$
$64 \div 8 = 8$	$88 \div 11 = 8$	$96 \div 12 = 8$
$72 \div 8 = 9$	$99 \div 11 = 9$	$108 \div 12 = 9$
$80 \div 8 = 10$	$110 \div 11 = 10$	$120 \div 12 = 10$

Relative Frequency

The theoretical probability of getting a head when you flip a coin is $\frac{1}{2}$, but if a coin was actually flipped 100 times you **may not get exactly** 50 heads, although it should be close to this amount.



KEY
ANGLE
FACTS



Times Tables Practice

$1 \times 10 = 10$
 $2 \times 10 = 20$
 $3 \times 10 = 30$
 $4 \times 10 = 40$
 $5 \times 10 = 50$
 $6 \times 10 = 60$
 $7 \times 10 = 70$
 $8 \times 10 = 80$
 $9 \times 10 = 90$
 $10 \times 10 = 100$

$1 \times 11 = 11$
 $2 \times 11 = 22$
 $3 \times 11 = 33$
 $4 \times 11 = 44$
 $5 \times 11 = 55$
 $6 \times 11 = 66$
 $7 \times 11 = 77$
 $8 \times 11 = 88$
 $9 \times 11 = 99$
 $10 \times 11 = 110$

$1 \times 12 = 12$
 $2 \times 12 = 24$
 $3 \times 12 = 36$
 $4 \times 12 = 48$
 $5 \times 12 = 60$
 $6 \times 12 = 72$
 $7 \times 12 = 84$
 $8 \times 12 = 96$
 $9 \times 12 = 108$
 $10 \times 12 = 120$

Key Vocabulary

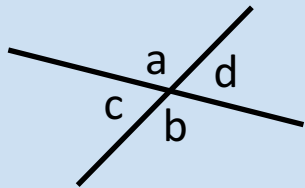
Acute Angle = An angle less than 90°

Right Angle = An angle measuring exactly 90°

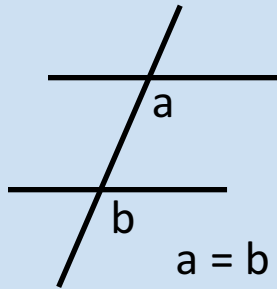
Obtuse Angle = An angle measuring greater than 90°
but less than 180°

Key Conversions

Fraction	Decimal	Percentage
$\frac{1}{8}$	0.125	12.5%
$\frac{3}{8}$	0.375	37.5%
$\frac{5}{8}$	0.625	62.5%

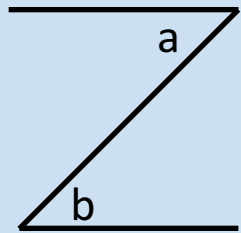


$a = b$
 $c = d$



$a = b$
Because
corresponding
angles are equal

KEY
ANGLE
FACTS



$a = b$
Because
alternate
angles are
equal

Times Tables Practice

- $1 \times 6 = 6$
- $2 \times 6 = 12$
- $3 \times 6 = 18$
- $4 \times 6 = 24$
- $5 \times 6 = 30$
- $6 \times 6 = 36$
- $7 \times 6 = 42$
- $8 \times 6 = 48$
- $9 \times 6 = 54$
- $10 \times 6 = 60$

- $1 \times 8 = 8$
- $2 \times 8 = 16$
- $3 \times 8 = 24$
- $4 \times 8 = 32$
- $5 \times 8 = 40$
- $6 \times 8 = 48$
- $7 \times 8 = 56$
- $8 \times 8 = 64$
- $9 \times 8 = 72$
- $10 \times 8 = 80$

- $1 \times 9 = 9$
- $2 \times 9 = 18$
- $3 \times 9 = 27$
- $4 \times 9 = 36$
- $5 \times 9 = 45$
- $6 \times 9 = 54$
- $7 \times 9 = 63$
- $8 \times 9 = 72$
- $9 \times 9 = 81$
- $10 \times 9 = 90$

Key Conversions

- 1 foot = 12 inches
- 1 inch = 2.54cm
- 1 tonne = 1000kg
- 1kg = 2.2pounds
- 1 yard = 0.9144m
- 1 foot = 0.3048m
- 1 stone = 6.35

- Average Height of a Man = 1.76m
- Average Height of a Female = 1.61m
- Height of Radio City Tower = 138m
- Height of a Liver Bird = 5.5m
- Height of Door = 2m

Key Vocabulary

Straight Line Angle = An angle measuring exactly 180°

Reflex Angle = An angle greater than 180° but less than 360°

Full Turn Angle = An angle that is exactly 360°



Metric Conversion (Time)

Metric units of time include seconds (s), minutes (m) and hours (h)

The conversions are as follows:

60 seconds = 1 minute

60 minutes = 1 hour

24 hours = 1 day

Key Vocabulary

Conversion = The process of changing from one form to another.

Metric = A system or standard of measurement.

Metric Conversion (Capacity)

10ml = 1cl	1000ml = 1L	1L = 1000ml
20ml = 2cl	2000ml = 2L	2L = 2000ml
30ml = 3cl	3000ml = 3L	3L = 3000ml
40ml = 4cl	4000ml = 4L	4L = 4000ml
50ml = 5cl	5000ml = 5L	5L = 5000ml
60ml = 6cl	6000ml = 6L	6L = 6000ml
70ml = 7cl	7000ml = 7L	7L = 7000ml
80ml = 8cl	8000ml = 8L	8L = 8000ml
250ml = 25cl	20000ml = 20L	30L = 30000ml

Metric Conversion (Capacity)

Metric units of capacity include: Millilitres (ml), Centilitres (cl), litres (l)

The conversions are as follows:

10ml is worth 1cl

1000ml is worth 1L



Probability Facts

In maths, probabilities are usually written as **fractions** or **decimals** between 0 and 1, or **percentages** between 0% and 100%.

Key Vocabulary

Probability: is about estimating or calculating how likely or probable something is to happen. Probabilities can be described in words. For example, the chance of an event happening could be 'certain', 'impossible' or 'likely'.

Division Tables

$4 \div 4 = 1$	$6 \div 6 = 1$	$7 \div 7 = 1$
$8 \div 4 = 2$	$12 \div 6 = 2$	$14 \div 7 = 2$
$12 \div 4 = 3$	$18 \div 6 = 3$	$21 \div 7 = 3$
$16 \div 4 = 4$	$24 \div 6 = 4$	$28 \div 7 = 4$
$20 \div 4 = 5$	$30 \div 6 = 5$	$35 \div 7 = 5$
$24 \div 4 = 6$	$36 \div 6 = 6$	$42 \div 7 = 6$
$28 \div 4 = 7$	$42 \div 6 = 7$	$49 \div 7 = 7$
$32 \div 4 = 8$	$48 \div 6 = 8$	$56 \div 7 = 8$
$36 \div 4 = 9$	$54 \div 6 = 9$	$63 \div 7 = 9$
$40 \div 4 = 10$	$60 \div 6 = 10$	$70 \div 7 = 10$

Finding Probability

The probability of an event = $\frac{\text{the number of ways the event can occur}}{\text{the total number of possible outcomes}}$

If you take an unbiased dice with 6 sides calculate the probability that you will roll an even number?

There are 6 sides in total on an unbiased dice and there are 3 even numbers. (2,4 and 6).

Therefore the probability of rolling an even number on an unbiased dice is $\frac{3}{6}$. This also can be simplified to $\frac{1}{2}$



$$A = bh$$

$$A = bh$$

$$A = \frac{bh}{2}$$

$$A = \frac{1}{2}(a + b)h$$

KEY
FORMULAE

Key Vocabulary

Area = Measurement of a surface

Perimeter = The continuous line forming the boundary of a closed shape

Volume = The amount of space that an object occupies

Times Tables Practice

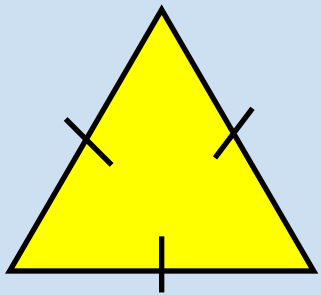
$$\begin{aligned} 1 \times 1 &= 1 \\ 2 \times 1 &= 2 \\ 3 \times 1 &= 3 \\ 4 \times 1 &= 4 \\ 5 \times 1 &= 5 \\ 6 \times 1 &= 6 \\ 7 \times 1 &= 7 \\ 8 \times 1 &= 8 \\ 9 \times 1 &= 9 \\ 10 \times 1 &= 10 \end{aligned}$$

$$\begin{aligned} 1 \times 2 &= 2 \\ 2 \times 2 &= 4 \\ 3 \times 2 &= 6 \\ 4 \times 2 &= 8 \\ 5 \times 2 &= 10 \\ 6 \times 2 &= 12 \\ 7 \times 2 &= 14 \\ 8 \times 2 &= 16 \\ 9 \times 2 &= 18 \\ 10 \times 2 &= 20 \end{aligned}$$

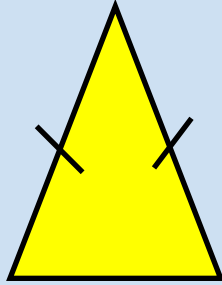
$$\begin{aligned} 1 \times 3 &= 3 \\ 2 \times 3 &= 6 \\ 3 \times 3 &= 9 \\ 4 \times 3 &= 12 \\ 5 \times 3 &= 15 \\ 6 \times 3 &= 18 \\ 7 \times 3 &= 21 \\ 8 \times 3 &= 24 \\ 9 \times 3 &= 27 \\ 10 \times 3 &= 30 \end{aligned}$$

Key Conversions

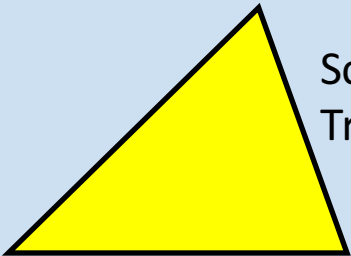
Fraction	Decimal	Percentage
$\frac{1}{2}$	0.5	50%
$\frac{1}{4}$	0.25	25%
$\frac{3}{4}$	0.75	75%



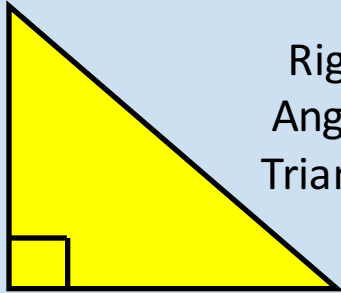
Equilateral Triangle



Isosceles Triangle



Scalene
Triangle



Right
Angled
Triangle

Types of Triangle

Key Vocabulary

Equilateral Triangle = A triangle with 3 equal sides and 3 equal angles

Isosceles Triangle = A triangle with 2 equal sides and 2 equal angles

Scalene Triangle = A triangle with 3 unequal sides and 3 unequal angles

Times Tables Practice

$1 \times 4 = 4$

$2 \times 4 = 8$

$3 \times 4 = 12$

$4 \times 4 = 16$

$5 \times 4 = 20$

$6 \times 4 = 24$

$7 \times 4 = 28$

$8 \times 4 = 32$

$9 \times 4 = 36$

$10 \times 4 = 40$

$1 \times 7 = 7$

$2 \times 7 = 14$

$3 \times 7 = 21$

$4 \times 7 = 28$

$5 \times 7 = 35$

$6 \times 7 = 42$

$7 \times 7 = 49$

$8 \times 7 = 56$

$9 \times 7 = 63$

$10 \times 7 = 70$

$1 \times 12 = 12$

$2 \times 12 = 24$

$3 \times 12 = 36$

$4 \times 12 = 48$

$5 \times 12 = 60$

$6 \times 12 = 72$

$7 \times 12 = 84$

$8 \times 12 = 96$

$9 \times 12 = 108$

$10 \times 12 = 120$

Key Conversions

$1000\text{g} = 1\text{kg}$

$1000\text{m} = 1\text{km}$

$1000\text{ml} = 1\text{l}$

$5\text{miles} = 8\text{km}$

$10\text{mm} = 1\text{cm}$

$100\text{cm} = 1\text{m}$

$100\text{cl} = 1\text{l}$

Units for Distance

Metres, Miles, Inches, Yards, Feet

Units for Weight






Grams, Ounce, Stone, Pound

Units for Volume







Litres, cm^3 , Gallon, Pint, Fluid Ounce

Language features



It's really important to know as many language features or techniques as you can, but it's even more important to know how they can affect a reader. You might be able to name 10-15 language features really easily, but if you put "it makes the reader want to read on" then you're not really discussing the effects of the feature on the reader. Go one step beyond and learn the effects of different features! If you're really struggling with this, many teachers will talk about DAFORREST which is an acronym made up of different language features used in non-fiction writing.

 <p>Simile</p>	<p>Using like/as to compare one thing to another. The man was <u>as</u> tall as a skyscraper. She moved <u>like</u> a snail!</p> <p>Similes help readers to picture a particular object, person or place by comparing something they don't know to something they do. They can also be used for exaggeration.</p>	 <p>Alliteration</p> <p>This where a number of words begin with the same letter or sound. The <u>ang</u>ry, <u>agg</u>ressive <u>g</u>ardvark <u>ate</u> all the <u>ap</u>ricots. Mr <u>W</u> <u>w</u>rote <u>w</u>ildly on the <u>w</u>hiteboard.</p> <p>Alliteration creates a memorable sound in the readers' head that means they notice that particular line more or they can remember it quite well. This means it can be used to emphasise a particular point, idea or feeling.</p>
<p>Metaphor</p>	<p>Transforming one thing into another. He <u>was</u> a <u>monster truck</u> on the football field. She <u>is</u> <u>over the moon</u> about her exam results.</p> <p>Metaphors help readers to picture a particular object, person or place by transforming them into something they understand better. They can also be used for exaggeration.</p>	 <p>Nouns and Verbs</p> <p>Nouns are people, places or objects. E.g. table, window, ceiling, computer, Birmingham, etc. Verbs are actions or 'doing words'. E.g. run, skip, jumping, arguing, shouting, cry, crying, etc.</p> <p>Both can be used carefully to evoke or give off certain emotions or feelings.</p>
 <p>Personification</p>	<p>This is a type of metaphor, where something non-human is described in a human way. The wind <u>whistled</u> past his face. The trees <u>danced</u> in the breeze.</p> <p>Metaphors help readers to picture a particular object or place by transforming them into something they understand better. They can also be used for exaggeration.</p>	 <p>Adjectives and Adverbs</p> <p>Adjectives are words that describe nouns. E.g. tall, short, wide, skinny, ugly, beautiful, amazing, spectacular, boring, etc.</p> <p>Adverbs are words that describe verbs. E.g. quickly, amazingly, powerfully, slowly, shockingly. They usually end in ly.</p> <p>These are both used to add to descriptions and help build specific images or feelings in the readers' heads.</p> <p>The terrifying, disgusting, powerful monster quickly and sharply jumped off the building.</p>

Section B

 <p>Repetition</p>	<p>Repetition is where you repeat a word, phrase or idea again and again.</p> <p>E.g. "Run! Run! Run!" she shouted at him.</p> <p>Repetition helps to stick an idea in the readers' heads or helps to emphasise a particular idea or feeling.</p>	<p>Rhetorical questions</p> <p>This is a question that is asked in order to create a dramatic effect or to make a point rather than to actually get an answer.</p> <p>Example: Why had they put me in this place?</p> 
 <p>Direct Address</p>	<p>This is where a writer will speak directly to their readers in their writing, often using the pronoun 'you'.</p> <p>You must see that this kind of inaction is wrong, you can do something to change it.</p> <p>Direct address makes the reader feel involved in the text, that they have a sense of responsibility for the topic the writer is explaining, arguing or persuading about. Direct address is a very common technique used in speeches as well.</p>	<p>Facts and Statistics</p> <p>These are used to make a piece of writing sound more serious or official. Statistics and facts help to back up opinions and make them sound more authoritative.</p> <p>E.g. 75% of all statistics are made up on the spot.</p> 
 <p>Opinions</p>	<p>It's important to know the differences between facts and opinions when it comes to Paper 2. An opinion is a belief that cannot be proven, but facts are statements of truth that can be proven.</p> <p>Liverpool are the best team in the world – opinion Liverpool beat Crystal Palace 4-3 in January 2019 – fact</p> <p>How do the writers in your two exam texts use facts and opinions? Do they get across a sense of bias or seeming to favour one side of an argument?</p>	 <p>Hyperbole</p> <p>Exaggerated ideas that aren't meant to be taken literally or at face value.</p> <p>Example: This is the worst day of my life.</p> <p>You see, it probably isn't the worst day of your life, but the use of hyperbole accentuates the point that this was an awful day.</p>

Section C

 <p>Triplets</p>	<p>Sometimes these are called 'rules of three' or 'triples', but they all mean the same thing: three ideas in a row.</p> <p>Example: England were <u>rampant, ferocious and destructive</u> against Ireland in the Six Nations</p> <p>Putting three adjectives or ideas together provides emphasis, exaggeration and simply sounds pleasant to the ear. It's true!</p>	 <p>Emotive language</p> <p>This is a term for any words that try to evoke emotions from the reader, so to make them feel guilty, sad or responsible. Like so:</p> <p>Homelessness is a cruel nightmare that robs people of their dignity – it is hard to believe ordinary people could lead such atrocious lives in the 21st century.</p> <p>Emotive language is very useful for emphasis and exaggeration but also in winning over a read to your ideas.</p>
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Section D

Purpose:	WRITING TO ARGUE	WRITING TO PERSUADE	WRITING TO ADVISE	WRITING TO EXPLAIN/INFORM
What is it?	Giving the case for one side of a debate	Convincing someone that your opinion is right	Providing ways forward for someone.	Explaining your opinion on a topic to your reader.
What does it involve?	Being aware of the other side of a debate	Using your language to convince your leader.	Not telling someone what to do but giving them options.	You are not convincing people or advising.
What key features do you often find in this type of writing?	Includes counter-arguments, rhetorical questions, facts, statistics, emotive language	Includes triplets, repetition, emotive language, rhetorical questions, direct address and more...	Includes modal verbs, imperatives, an understanding tone but one that is direct. Provide helpful information.	Includes facts, opinions, an unbiased and neutral tone.

Section E

Destitute
 Jaundiced
 Atrophied
 Dispenses
 Frieze
 Immaculate
 Incarceration
 Bewilderment
 Feigns
 Contorted
 Imperceptible
 Chasm
 Traipse
 Shorn
 Tendency
 Twine
 Continuous

Section F

Mangy
 Sentimental
 Obese
 Taboo
 Malnutrition
 Incapable
 Negotiable
 Parameters
 Moral-code
 Civilisation
 Compassion
 Persistent
 Gimmicks
 Intangibles
 Caste-system
 Aesthetic
 fatigue

Section G

Silhouette
 Retreated
 Customary
 Unsteady
 Procession
 Inserted
 Restructured
 Uncertainty
 Unimaginable
 Snared
 Furtiveness
 Sporadic
 Joviality
 Deferential
 Melodramatic
 Declarations
 incredulous



Year 8 Art & Design - Knowledge Organiser Term 1

A: Key Skills:

- 1: Colour theory
- 2: Technical drawing techniques
- 3: Observation skills
- 4: Colour blending techniques

B: Expressing an opinion: Sentence starters

- I feel/believe that
- In my opinion
- It seems to that
- Based on my experience

1: POP ART:

Pop Art is a visual art movement that emerged in the mid 1950s in Britain, and in the late 1960s in America.

Pop Art is inspired by Mass Culture, such as Advertising, Comic Books, and Everyday Objects.

Pop Art makes use of Minimal Clear images and Bold colours, often with a Thick Black Outline

Pop Artists were inspired by common images from everyday culture such as: advertising, celebrities, comic strips, photographs, consumer goods

Roy Lichtenstein

Roy Fox Lichtenstein was an American pop artist. During the 1960s, along with Andy Warhol, Jasper Johns, and James Rosenquist among others, he became a leading figure in the new art movement.

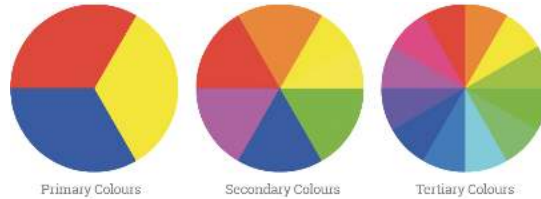


Roy Lichtenstein
'as I opened fire' 1960



Warhol 'Campbells
soup' 1968

Colour Theory:

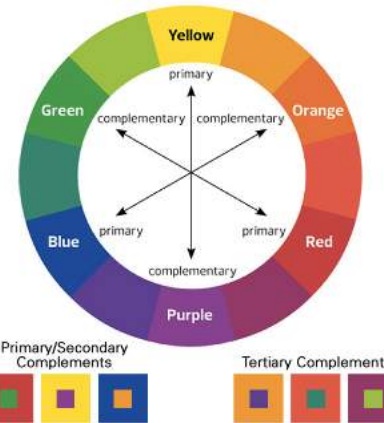


The primary colours are the three main colours. They cannot be made but when mixed together they make other colours.

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.



Literacy: Key Vocabulary

Composition

The arrangement and layout of artwork/objects

Media

Refers to the materials that are used to create a work of art.

Primary

The most important feature.

Detail

Decorative feature in a piece of art work.

Refine

Something that's refined has gone through a process to improve it.

Characteristic

A feature or quality belonging to a person, place or a thing, to identify them.

Comic strip

A sequence of drawings in boxes that tell an amusing story.

RE Year 8 Knowledge organiser 2

Key words

Creation

The act of creating or of causing something to exist.

Dominion

The power or authority to rule or control.

Imago Dei

Humans are made in the image and likeness of God.

Miracle

an event that cannot be explained by the known laws of nature and is thought to be caused by a power not of the earth.

Mystery

Something puzzling that can not be understood or explained.

Origins

The history or beginnings of something/someone.

Responsibility

Something for which a person is in charge of; duty. The ability to make the right decisions.

Stewardship

Responsibility to look after the earth.

Sustainability

Managing or using a resource so that the resource is not depleted or permanently damaged.

Ultimate Questions

Philosophical questions we will never know the answer to.

The Global Goals

In 2015, world leaders agreed to 17 goals for a better world by 2030. These goals have the power to end poverty, fight inequality and stop climate change. Guided by the goals, it is now up to all of us, governments, businesses, civil society and the general public to work together to build a better future for everyone.



In Matthew 22:39 Jesus told us to 'love thy neighbour as you love yourself' can pursuing the global goals help us show God that we are following his instruction?

Pope Saint John Paul II

Pope Saint John Paul II was head of the Catholic Church and sovereign of the Vatican City State from 1978 to 2005. He was elected pope by the second Papal conclave of 1978, which was called after Pope John Paul I, who had been elected in August to succeed Pope Paul VI, who died after 33 days.



Fact File.

Born: 18 May 1920, Wadowice, Poland

Died: 2 April 2005, Apostolic Palace, Vatican City

Full name: Karol Józef Wojtyła

Canonized: 27 April 2014; St. Peter's Square, Vatican City; by Pope Francis

Buried: 8 April 2005, St. Peter's Basilica, Vatican City

Famous Quotes

"The future starts today, not tomorrow."

"Do not abandon yourselves to despair. We are the Easter people and hallelujah is our song."

"(if) the family goes, so goes the nation and so goes the whole world in which we live."

Year 8 Knowledge Organiser Section A: The campaign for suffrage

Key Terms / Events	
1. Suffrage	The right to vote in political elections.
2. Electoral reform	Changes to the system of voting (elections).
3. Parliament	Responsible for making laws.
4. House of Commons	One of the houses of Parliament in the United Kingdom. MPs debate and vote here.
5. Chartism	A working-class movement active between 1838 and 1857 which aimed to get political rights for the working class.
6. Legislation	Another name for a law.
7. Peterloo Massacre, August 1819	Cavalry charged into a crowd of people who had gathered in Manchester to demand better political rights. 15 people were killed and hundreds were injured.
8. Demonstration	Action by a large group or groups protesting against something or demanding something.
9. Suffragists	National Union of Women's Suffrage Societies (NUWSS). A group formed in 1897 (led by Millicent Fawcett) who campaigned for the right to vote for women in a peaceful way.
10. Suffragettes	The Women's Social and Political Union. Formed in 1903 (led by Emmeline Pankhurst) who campaigned for the right to vote for women in a militant and more violent manner.
11. Militant	Favouring confrontational or violent methods in support of a political cause. E.g. the Suffragettes were a militant group.
12. Petition	A request – usually written – that is signed by many people to demonstrate their support for a particular cause.
13. Arson	The act of deliberately setting fire to property. A tactic used by the Suffragettes.
14. Hunger strike	A tactic used by many Suffragettes when in prison. They would refuse to eat.
15. Force feeding	Suffragettes who refused to eat were force fed in order to ensure that they remained alive.
16. 'Cat and Mouse' Act	Passed by the government in 1913. Hunger-striking Suffragettes were released from prison when they appeared weak or ill. However, once they recovered they could be re-arrested.
17. Representation of the People Act, 1918	Gave the right to some women (aged 30 and over who owned property or their husbands did). Also extended the right to vote to men aged 21 and over.



Key People	
18. William Lovett	Wrote the People's Charter which set out the six main aims of the Chartist movement.
19. Millicent Fawcett	Leader of the peaceful Suffragists.
20. Emmeline Pankhurst	Leader of the militant Suffragettes.
21. Emily Davison	Suffragette who was knocked over and killed by the King's horse at Epsom in 1913.

22. August 1819 - Peterloo Massacre.
15 people were killed and hundreds injured during a gathering in Manchester

23. 1832 – Great Reform Act
Increased number of voters. Mainly helped the middle class.

25. 1867 - Representation of the People Act
Gave more working class men the right to vote.

26. 1872
Secret ballots introduced so voting was done privately.

27. 1897
Suffragists formed.

28. 1903
Suffragettes formed.

29. 1913
Emily Davison was killed by the King's Horse at Epsom.

30. 1918 – Representation of the People Act
All men over 21 given the right to vote, and some women over the age of 30.

31. 1928 – Equal Franchise Act
Women were given the right to vote on equal terms to men.

Year 8 History Knowledge Organiser Section B: The causes and outbreak of World War One

Key Terms / Events (1-14)	
1. Assassination	The act of killing an important person for political reasons e.g. the assassination of Archduke Franz Ferdinand.
2. Schlieffen Plan	Germany's plan to attack and quickly defeat France, before turning their forces to face Russia. The Germans thought the Russians would be slow to mobilise their troops.
3. Neutrality	To stay out of a military conflict e.g. Belgium.
4. Tension	A development of conflict between different countries.
5. Alliance	Countries joined together to improve their own position.
6. Nationalism	Support for your own nation. An intense form of patriotism and the idea that your country is supreme.
7. Imperialism	The policy of extending a country's influence and power by taking over other countries (building an empire).
8. Militarism	The belief that a country should have a strong military and be prepared to use it.
9. Arms Race	A competition between countries to develop weapons.
10. Navy	The part of the military which conducts operations at sea.
11. Empire	A group of countries that is ruled by another country (each country within an empire is called a colony).
12. Triple Alliance (1882)	Also known as the Central Powers. This was an alliance between Germany, Austria-Hungary and Italy.
13. Triple Entente (1907)	The alliance between Britain, France and Russia before and during WWI
14. Treaty of London, 1839	A treaty that guaranteed the neutrality of Belgium. Used by Britain as their justification for declaring war on Germany after the invasion of Belgium.

Key People (15-19)	
15. Kaiser Wilhelm II	Emperor of Germany from 1888-1918. He was very militaristic, and wanted Germany to build their empire.
16. Archduke Franz Ferdinand	Heir to the Austro-Hungarian throne. Assassinated in Sarajevo on 28 th June 1914 which sparked the outbreak of WWI.
17. Gavrilo Princip	Assassinated Archduke Franz Ferdinand on 28 th June 1914.
18. Black Hand	The group allegedly involved in the assassination of Franz Ferdinand.
19. Count Schlieffen	German military strategist who came up with the Schlieffen Plan.

EUROPE 1914



25. 1912-1913 – Balkan Wars. Serbia emerged from these wars as the most powerful country in the Balkans. This concerned Austria.

26. 28th June 1914. Assassination of Archduke Franz Ferdinand in Sarajevo.

27. July-August Crisis 1914. The system of alliances led to a global war. Germany declared war on Russia and France, and invaded Belgium. Britain declared war on Germany to protect Belgium.

20. 1882 – The formation of the Triple Alliance (Germany, Austria-Hungary, Italy).

21. 1905-06 – First Moroccan Crisis. The Kaiser was embarrassed. Britain/France showed their solidarity.

22. 1906 Start of the naval race between Britain and Germany.

23. 1908 – Balkan Crisis. Austria took over territory and Germany supported Austria. Made Austria (too) confident of German support

24. 1911 – Second Moroccan Crisis. Increased tension between Germany and Britain/France.

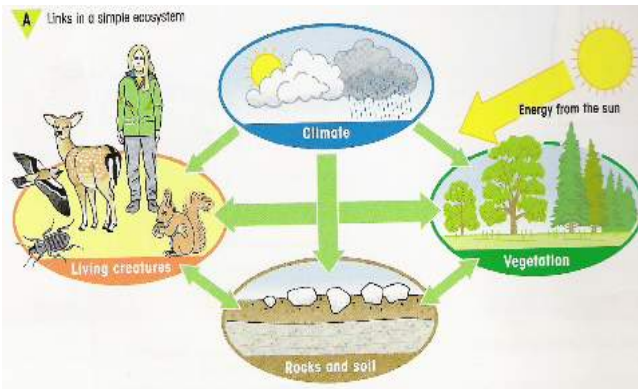
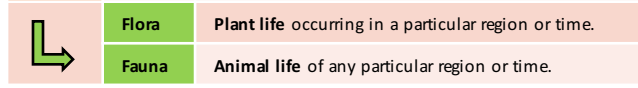
What is an Ecosystem?

An ecosystem is a system in which organisms interact with each other and with their environment.

Ecosystem's Components

Abiotic These are **non-living**, such as air, water, heat and rock.

Biotic These are **living**, such as plants, insects, and animals.



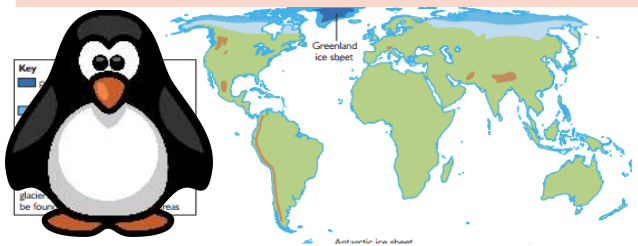
Biome's climate and plants

Biome	Location	Temperature	Rainfall	Flora	Fauna
Tropical rainforest	Centred along the Equator.	Hot all year (25-30°C)	Very high (over 200mm/year)	Tall trees forming a canopy; wide variety of species.	Greatest range of different animal species. Most live in canopy layer
Tropical grasslands	Between latitudes 5°- 30° north & south of Equator.	Warm all year (20-30°C)	Wet + dry season (500-1500mm/year)	Grasslands with widely spaced trees.	Large hooved herbivores and carnivores dominate.
Hot desert	Found along the tropics of Cancer and Capricorn.	Hot by day (over 30°C) Cold by night	Very low (below 300mm/year)	Lack of plants and few species; adapted to drought.	Many animals are small and nocturnal: except for the camel.
Temperate forest	Between latitudes 40°- 60° north of Equator.	Warm summers + mild winters (5-20°C)	Variable rainfall (500- 1500m /year)	Mainly deciduous trees; a variety of species.	Animals adapt to colder and warmer climates. Some migrate.
Tundra	Latitudes of 65°-80° north and south of Equator	Cold winter + cool summers (below 10°C)	Low rainfall (below 500mm/ year)	Small plants grow close to the ground and only in summer.	Low number of species. Most animals found along coast.
Polar	Latitudes of 80°-90° north and south of Equator	Cold summers and Freezing Winters (below 0°C)	Low rainfall (below 500mm/ year)	Almost nothing grows.	Some species of whales found in the Arctic. Limited to Emperor Penguins in the Antarctic

Year 8 - Biomes

Biomes

A biome is a **large geographical area of distinctive plant and animal groups**, which are adapted to that particular environment. The climate and geography of a region determines what type of biome can exist in that region.



Polar Biome

Polar biomes, such as Antarctica, are cold and dry all year round. 99 per cent of it is covered by ice. These harsh conditions limit the complexity of the food web..

Distribution of Tropical Rainforests

Polar region are the areas around the **North Pole** or the **South Pole**. The northern polar **region** consists mainly of floating and **pack ice**, 7–10 feet (2–3 m) thick, floating on the **Arctic Ocean**. The **ice** cap of the southern polar region averages 6,700 feet (about 2,000 m) in thickness, is underlaid by the continental landmass of **Antarctica**.

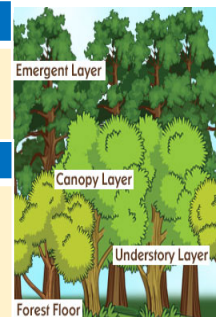
Tropical Rainforest Biome

Tropical rainforest cover about **2 per cent** of the Earth's surface yet they are home to **over half of the world's plant and animals**.



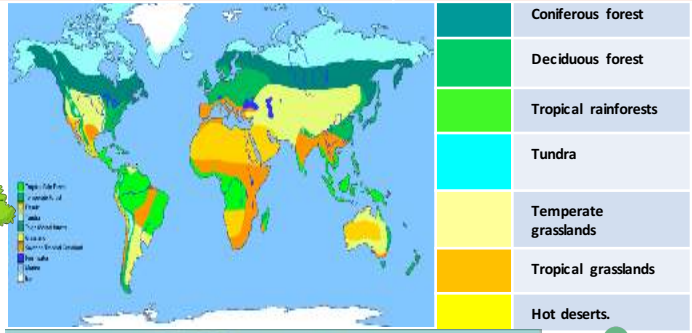
Distribution of Tropical Rainforests

Tropical rainforests are **centred along the Equator** between the Tropic of Cancer and Capricorn. Rainforests can be found in South America, central Africa and South-East Asia. **The Amazon** is the world's largest rainforest and takes up the majority of northern South America, encompassing countries such as Brazil and Peru.



Layers of the Rainforest

Emergent	Highest layer with trees reaching 50 metres .
Canopy	Most life is found here as it receives 70% of the sunlight and 80% of the life .
U-Canopy	Consists of trees that reach 20 metres high .
Shrub Layer	Lowest layer with small trees that have adapted to living in the shade .



Hot Deserts

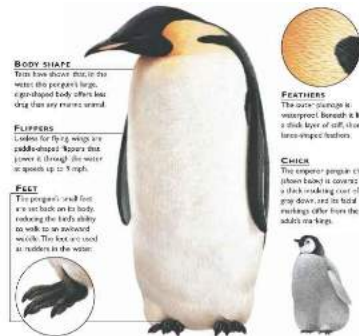
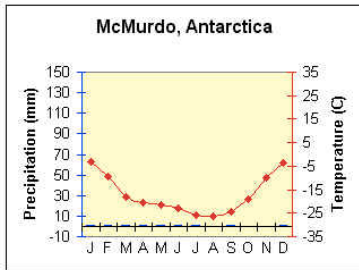
Deserts are dry, arid areas that receive very little rain. Deserts can be hot or cold. Most hot deserts are found near the equator..

Distribution of Hot Deserts

Hot deserts are mainly found around the Tropics of Cancer and Capricorn. The hot deserts of the world are located between 15° and 30° **north** or **south** of the equator, where the air is subsiding or sinking air. The biggest example is the Sahara Desert in North Africa.

Polar Biome

McMurdo station in Antarctica receive almost no rainfall throughout the year. In January and December it is warmest at -5C, but in July and August the temperature is as low as -25C. However the Katabatic winds mean this can feel like -70C.



Adaptations of an Emperor Penguin

Colouring – Penguins are black on the back and white on the front. This is to camouflage in water, the only place they are at risk from seals and walrus. When viewed from below predators can't see them as their white belly blends in with the light surface and when viewed from above predators can't see them as their black backs blend in with the dark depths.

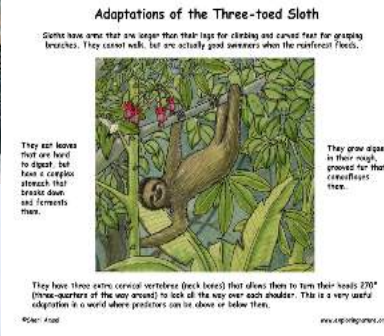
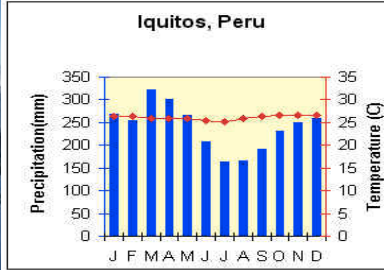
Insulation – Male Emperor Penguins survive on Antarctica throughout the harsh winters when temperatures reach as low as -70C. They have a thick layer of blubber throughout their body, which they build up by gorging on fish, which provides a layer of insulation from the cold. Penguin feathers are also very short and densely packed so that the Katabatic winds do not penetrate the feathers very much.

Relationships – Emperor Penguins have one partner for life. The female will do the hunting and collect food, meanwhile the male, due to being larger and having more insulation, will stay on land and protect the egg throughout the winter. Females will choose males who have more blubber as they are better able to stop the egg from freezing.

Spiral formation – The male penguins form a huddle throughout the winter to share body heat. The males walk constantly in a spiral formation so that they each get equal amounts of time in the warm centre and on the freezing cold outside.

Tropical Rainforest Biome

Iquitos in the Peruvian Amazon receives high levels of rainfall throughout the year. There are two distinct seasons, wet season and dry season. Dry season is from June to November, but even then rainfall is above 150mm per month. During the dry season rainfall reaches 325mm per month in March. It is above 25C all year due to being located near the Equator.



Adaptations of a Three-Toed Sloth

Hair – Sloth hair grows in the opposite direction to other mammals. This is due to spending most of their life upside down. In the canopy of the rainforest, where they spend most of their time, they will be subject to up to 350mm of rainfall per month. The hair allows the rain to flow of their body and drip down to the forest floor.

Claws – Sloth spend most of their time hanging upside down from branches, which would be impossible if the weight was held by just arms and legs as they would become too tired. Instead, the sloth has long, curved claws, which it can hook round and dig into the branches of the trees, so that it can hang upside down for much longer. It also uses these claws to dig under the bark of trees so that it can eat insects such as ants, which provide protein and so it can prize open nuts, to provide it with fats and fibre.

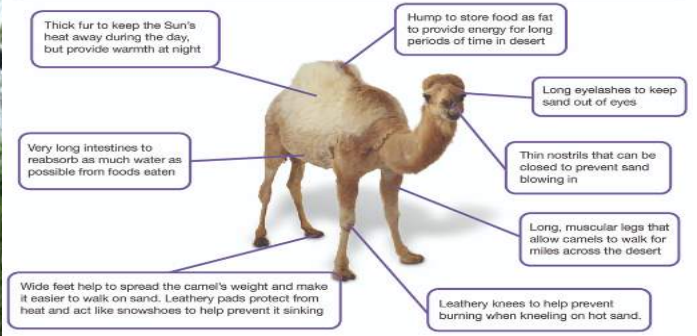
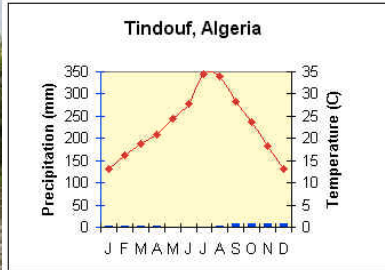
Metabolism – The sloths have no natural predators in the canopy, so they are safe there. However, Jaguars and Boa Constrictors would eat them when they come down to the ground. As a result, sloths have evolved to slow down their metabolism so that they only poo once a month. They only poo whilst on the ground, so this reduces their chances of being caught by a Jaguar or Boa Constrictor. This has had the side effect of making them move very slowly.

Camouflage – Due to moving very slowly and living in such damp conditions, this enables plants such as mosses and lichens to grow on the sloth's fur. This makes some sloths appear green, which gives them extra camouflage from Jaguars and Boa Constrictors.

Hot Deserts

Tindouf in the Algerian part of the Sahara desert is dry all year round.

There are two seasons in the desert, Winter and Summer. Winter in Tindouf is from November to April when temperatures are usually below 20C, but it is much hotter in the Summer, especially in June and July when the temperature exceeds 35C.



Adaptations of a Dromedary Camel

Hump – The camel lives in a desert climate where there is very little rainfall, so there is very little plant growth. As a result, camels have to walk long distances to find food and water. The hump stores fat from the food it does eat in its hump, this is to fuel itself on the long walks across the desert.

Mouth and lips – Due to the arid conditions, most plants in the desert are spiky as the spikes help the plants to reduce water loss. However, these plants are often the only things available for the camel to eat. The camel's mouth and tongue are thick and leathery, so that the camel doesn't get cut by the spikes when eating.

Hair – The camel has thick hair across its back. This helps to protect it from the strong UV radiation from the sun, when temperatures can reach above 40C during the day. It also helps to insulate the camel at night when the temperature plummets below 0C. The camel also has thin hair on its stomach as it needs to absorb as much heat from the sand as possible when it sleeps on its belly at night.

Urine and Faeces – Due to the lack of rainfall, the camel must preserve as much liquid as possible. As a result, the camel's urine is very concentrated as it only gets rid of waste products from the kidneys, all extra water is absorbed into the body. Furthermore, the faeces is dry so that excess water is absorbed into the body.

1 | AEROBIC RESPIRATION

Energy is needed for life processes such as:

- growth and repair
- movement
- control of body temperature in mammals

Respiration is a chemical reaction that happens in all living cells, including plant cells and animal cells.

Aerobic respiration

- Glucose and oxygen react together in cells to produce carbon dioxide and water and releases energy.
- The reaction is called **aerobic respiration** because oxygen from the air is needed for it to work.

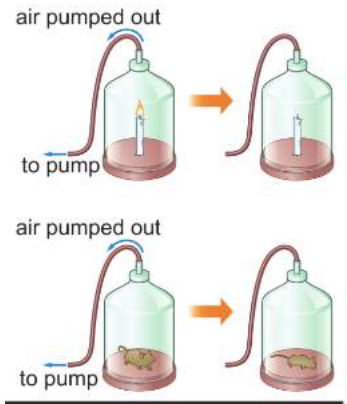
Here is the word equation for aerobic respiration:

glucose + oxygen → carbon dioxide + water

- Energy is released in the reaction.
- The **mitochondria**, found in the cell cytoplasm, are where respiration happens.

Discovering oxygen

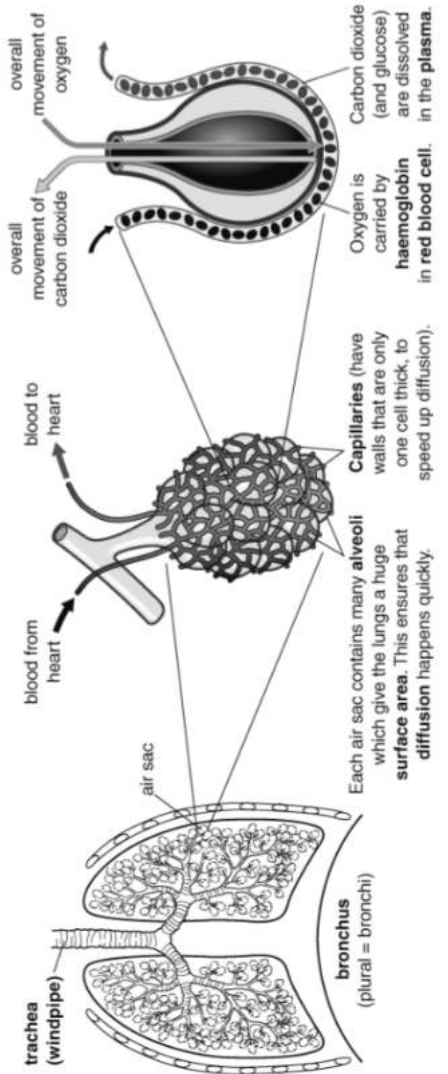
- In 1660 Robert Boyle, placed a burning candle in a jar and he sucked out the air, the diagram show the results.
- The exoeriment had discovered oxygen, which is 21% of air



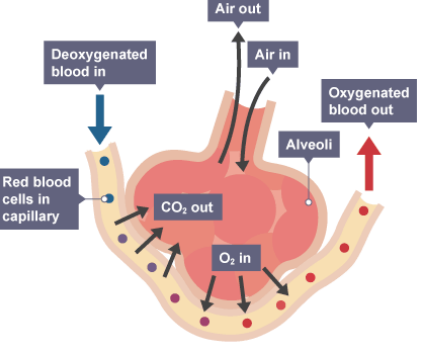
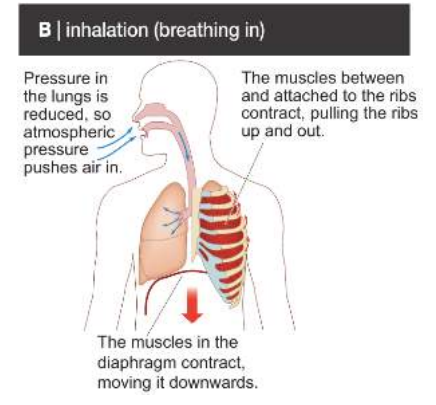
C | Boyle's experiment

2 | GAS EXCHANGE SYSTEM

- The swapping of oxygen and carbon dioxide in the lungs is called **gas exchange**
- The process happens by **diffusion**



3 | GAS EXCHANGE SYSTEM



Features of the alveoli

The **alveoli** are adapted to make gas exchange in lungs happen easily and efficiently.

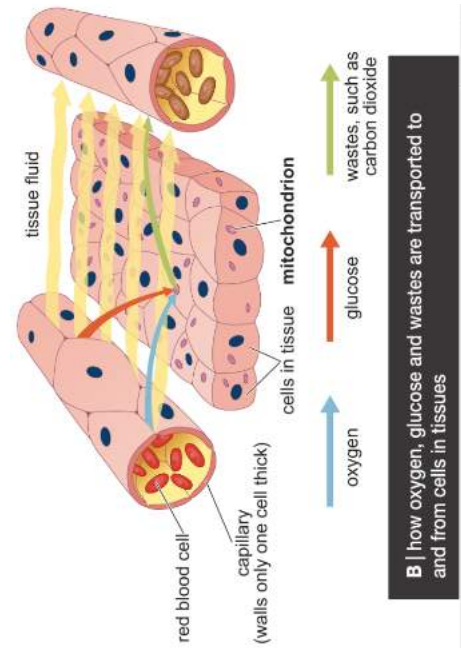
- they give the lungs a really big surface area
- they have moist, thin walls (just one cell thick)
- they have a lot of tiny blood vessels called **capillaries**

The gases move by **diffusion** from where they have a high concentration to where they have a low concentration:

- oxygen diffuses from the air in the alveoli into the blood
- carbon dioxide diffuses from the blood into the air in the alveoli

4 | GETTING OXYGEN

- In the capillaries, oxygen moves from the red blood cells to the plasma.
- The plasma also has glucose dissolved in it.
- The oxygen and glucose are transported to the cells.
- This passes into the tissue to become tissue fluid.
- Carbon dioxide and other waste products from cells dissolve into the tissue fluid and return to other capillaries



B | how oxygen, glucose and wastes are transported to and from cells in tissues

Your cells will not get enough oxygen if:

- Blood cells narrow
- Poisons
- Poor gas exchange in the lungs

5 | ANAEROBIC RESPIRATION

When your cells do not have enough oxygen then aerobic respiration is replaced with **anaerobic respiration**.

- This does not need oxygen for it to happen.
- The word equation for anaerobic respiration **glucose → lactic acid**
- Anaerobic respiration produces much less energy than aerobic respiration.
- The waste product, **lactic acid**, builds up in the muscles causing pain and tiredness. This leads to cramp.
- Lactic acid is only broken down when you start aerobic respiration again.

Anaerobic respiration happens in microorganisms such as bacteria because they need to release energy from glucose too.

Yeast, which are **unicellular** fungi, can carry out an anaerobic process called **fermentation**.

the word equation for fermentation:

glucose → ethanol + carbon dioxide

- The ethanol (alcohol) is useful for brewers and wine-makers.
- the carbon dioxide is useful to bakers because it helps their bread rise.

Respiration Knowledge Organiser



1 | ENVIRONMENTAL VARIATION

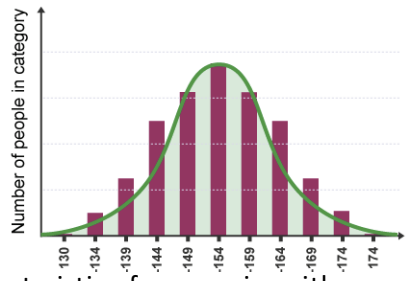
The presence of differences between living things of the same **species** is called **variation**.

- Variation between different species is usually greater than the variation within a species.
- This can be caused by **inherited** or **environmental factors**.

Environmental causes of variation
climate
diet
accidents
lifestyle

Continuous and discontinuous

- Human height is an example of **continuous variation**. It ranges from that of the shortest person in the world to that of the tallest person. Any height is possible between these values. So it is continuous variation.
- If you record the heights of a group of people and draw a graph of your results, it usually looks something like this:



- A characteristic of any species with only a limited number of possible values shows **discontinuous variation**. Human blood group is an example of discontinuous variation.

2 | INHERITED VARIATION

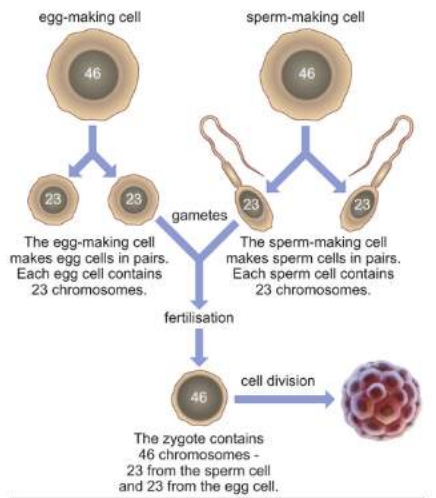
Variation in a characteristic that is a result of genetic information from the parents is called **inherited variation**.

Children usually look a little like their father, and a little like their mother, but they will not be identical to either of their parents. This is because they get half of their **DNA** and inherited features from each parent.

Each egg cell and each sperm cell contains half of the genetic information needed for an individual. When these join at **fertilisation** a new cell is formed with all the genetic information needed for an individual

Each egg cell and each sperm cell contains half of the genetic information needed for an individual. When these join at **fertilisation** a new cell is formed with all the genetic information needed for an individual

Inherited variation in humans
eye colour
hair colour
lobed or lobe-less ears
ability to roll your tongue

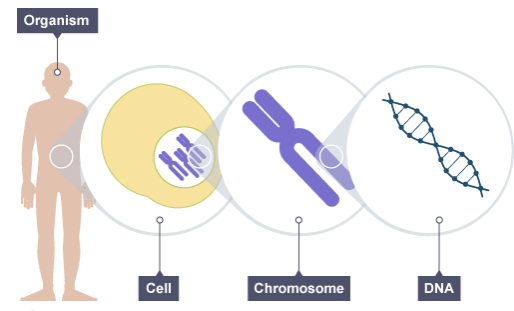


E | A zygote contains the chromosomes carried in both the egg cell and the sperm cell.

3 | DNA

James Watson and Francis Crick discovered the structure of DNA by making use of the data of other scientists, such as Rosalind Franklin and Maurice Wilkins.

The DNA in all of your cells is approximately two meters long, except red blood cells which have none and sperm or eggs which only have about one meter. Because it is so long it is very thin and coiled into structures called **chromosomes**. The chromosomes are found in the nucleus of each cell.



- Human body cells each contain 23 pairs of chromosomes, half of which are from each parent. H
- Human **gametes** (eggs and sperm) each contain 23 chromosomes. When an egg is fertilised by a sperm, it becomes a cell with 23 pairs of chromosomes.
- A **gene** is a section of DNA that is responsible for a characteristic like eye colour or blood group.
- Humans have around 20,000 genes. DNA makes up genes, which makes up chromosomes.
- One copy of all your chromosomes is called your **genome**.

4 | GENES AND EXTINCTION

Animals and plants are **adapted** to where they live; they have characteristics that allow them to survive in that **habitat**.

Changes in an ecosystem can affect species in an area, if they can not adapt. The organisms can become endangered or even extinct. Causes of this could include:

- Changes to the physical environment
- Competition from other organisms
- Disease
- Human activity (e.g. hunting, clearing habitats, using poisons)

Competition

Habitats have limited amounts of the resources needed by living organisms and organisms can only survive if they can get enough of these resources, so they must compete for resources with other organisms. If they are unsuccessful and cannot move to another habitat, they will die.



D | Red and grey squirrels share many adaptations but greys are bigger than reds.

We lose the opportunity to make use of species that become extinct. Extinctions also upset ecosystems and change food webs. So, we need to preserve biodiversity (number of different species) on earth.

NATURAL SELECTION

These are the key points of evolution by **natural selection**:

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

Evolution

- A change over time in the characteristics of an organism is known as evolution.
- Charles Darwin developed a hypothesis that natural selection causes evolution
- As evolution occurs, a population can become a new species.

Inheritance Knowledge Organiser



FINDING ERRORS

1. Have you checked that you have closed all brackets correctly?
2. Have you checked that you have closed all quotes correctly?
3. Are your variable names spelt in the same way consistently? Remember that Python is **case sensitive**
4. Have you remembered to use commas to separate the variables inside print?
5. Have you used quotes around strings which you want to print out word for word?
6. Have you used int or float on number inputs?
7. Have you used lowercase letters in the right place?

ITERATION

For Loop

A count- controlled loop.

Runs a piece of code a set number of times

```
import turtle  
for i in range(4):  
    turtle.forward(100)  
    turtle.right(90)
```

While Loop

A condition-controlled loop.

Runs a piece of code until a condition is met.

```
import turtle  
i=0  
while i < 4:  
    turtle.forward(100)  
    turtle.right(90)  
    i=i+1
```

CONDITIONALS

Where you are going to make a choice in a program.

if – elif –else

```
shape = input("do you want a  
square or a triangle?")  
if shape == "triangle":  
    for i in range (3):  
        turtle.forward(50)  
        turtle.right(120)  
elif shape == "square":  
    for i in range(4):  
        turtle.forward(50)  
        turtle.right(90)  
else:  
    turtle.write("no shape chosen")
```

Year 8 – Design and Technology DH2019

Knowledge Organiser

1. Key Words

Understand and be able to spell the words below.

Thermoplastic
Thermosetting Plastics
Polymer
Finite
Sustainable
Biodegradable
3D Printing
Safety
Computer Numerically Controlled (CNC)
Computer Aided Design (CAD)
Computer Aided Manufacture (CAM)
Sketch
Isometric
Engineering Drawing
Render
Dimension
Specification
Design
Revolve
Extrude
Assemble
Deform
Chamfer
Accuracy
Modify
Evaluate

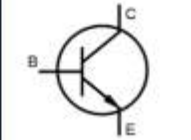


2. Remember the Safety Rules: Tie back long hair to prevent entanglement. Wear an apron to protect your clothing.
Roll up long sleeves to prevent entanglement.
Stack Chairs to prevent tripping. Wear Goggles on Machines to protect your eyes.
One at a time on machines.

3.



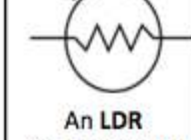
Resistors are used to reduce current flow



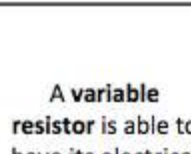
A Transistor works either as an amplifier or a switch



A light-emitting diode (LED) is a special kind of diode that glows when electricity passes through it.



An LDR has a (variable) resistance that changes with the light intensity that falls upon it.



A variable resistor is able to have its electrical resistance adjusted.

A Printed Circuit Board or PCB is essentially a board that connects electronic components.

Solder is a metal alloy commonly comprised of tin or lead that melts when heated and allows a permanent connection to be made between electronic parts or wires.

A soldering iron is used in soldering. It supplies heat to melt solder so that it can flow into the joint between two workpieces.

A polarised component can only be connected to a circuit in one direction. A LED is a polarised component. The positive side is called the anode, and the negative one is called the cathode.



4. A Tennon saw: Used for making straight cuts.

A Bench Hook: Used for supporting wood when sawing.

Try Square: Used for marking and measuring.

Glass Paper: An abrasive paper used for smoothing rough surfaces on wood.

The Laser Cutter is an example of a CNC machine.



Pillar Drill: Used for drilling holes in various materials.



Band Facer: Used for sanding wood.

Computer Aided Manufacture (CAM) uses saved CAD files to make new products or components as prototypes through the use of Computer Numerically Control (CNC) machinery.

5. Isometric projection is a method for visually representing three-dimensional objects.

Computer Aided Design (CAD) is the process of using specialist software to create designs for new products or components.



Red lines or fill areas engrave.

Black lines or fill areas cut.

6. Finish: Complete the manufacture of a product by giving it an attractive or protective surface appearance.

7. **Softwoods** come from coniferous trees which are evergreen, needle-leaved, cone-bearing trees. Examples include pine and spruce.

Hardwoods come from broad-leaved, deciduous trees which tend to lose their leaves in autumn/winter. Examples include, oak and beech.



Year 8 – Design and Technology - CAD

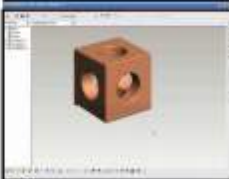
A **design specification** is a document that details the specific requirements of the product to ensure that it is suitable/fit for purpose.

Knowledge Organiser

1. Key Words

Understand and be able to spell the words below:

Thermoplastic
Thermosetting Plastics
Polymer
Finite
Sustainable
Biodegradable
3D Printing
Safety
Computer Numerically Controlled (CNC)
Computer Aided Design (CAD)
Computer Aided Manufacture (CAM)
Sketch
Isometric
Engineering Drawing
Render
Dimension
Specification
Design
Revolve
Extrude
Assemble
Deform
Chamfer
Accuracy
Modify
Evaluate



2. **Computer Aided Design (CAD)** is the process of using specialist software to create designs for new products or components.



Computer Aided Manufacture (CAM) uses saved CAD files to make new products or components as prototypes through the use of Computer Numerically Control (CNC) machinery.

3. 3D Printing

The action or process of making a physical object from a three-dimensional digital model, by laying down many thin layers of a material in succession.

3D printing is used in manufacturing, medicine, architecture, art and design.

Understand and be able to explain the advantages of disadvantages of using CAD/CAM.

4. CAD Advantages. Can be more accurate than hand-drawn designs - it reduces human error. You can save and edit ideas, which makes it easier and cheaper to modify your design as you go along. You can modify existing ideas, which saves time.

CAM Advantages. Is faster because machining speeds are higher. greater accuracy. greater consistency: every finished product is the same.

Disadvantages of CAD/CAM
The software/equipment itself is expensive so initial costs are high. Need to be trained how to use the software and machinery.



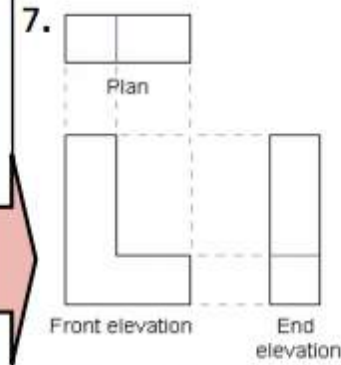
Remember the Pro Desktop icons and drawing tools. Remember to select face, go to work plane and select new sketch when you want to add or remove material to/from your design.

6. An engineering drawing is a type of technical drawing used to define the requirements for engineering products or components. Typically, the purpose of an engineering drawing is to clearly and accurately capture all geometric features of a product or component so that a manufacturer or engineer can produce the required item. It may also describe the process of making the item.

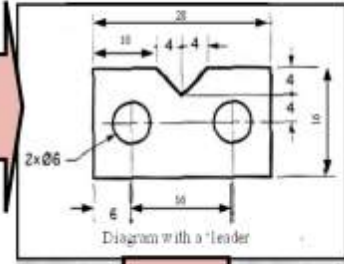


Rendering means the process of adding colour, shading, and texturing to an image. It is used in CAD to make a drawing look realistic.

STL (an abbreviation of "stereolithography") is a file format that allows a CAD drawing to be saved and manufactured using CAM or 3D Printing.



Third Angle Projection



The purpose of dimensioning is to provide a clear and complete description of an object. A complete set of dimensions will permit only one interpretation needed to construct the part.

Tools used for metal



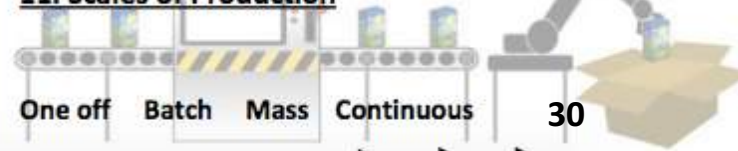
9. **Ferrous Metal** – Contain Iron and are magnetic. They will rust easily.

Non Ferrous Metal – Do not contain iron and are not magnetic- They are more resistant to corrosion.

Alloys are a mixture of two or more metals.

10. Metals are made from **ores**. These are extracted from the earth through **mining**; they are then refined (often via smelting) to extract the valuable element or elements.

11. Scales of Production



Year 8 – Food Technology Knowledge Organiser

1. Key Words

Understand and be able to spell the words below:

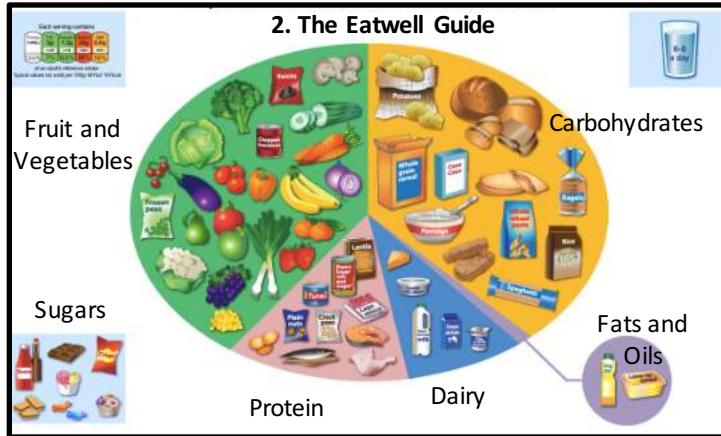
Nutrition
 Heathy Eating
 Eatwell Guide
 Balanced Diet
 Cooking
 Baking
 Chopping
 Slicing
 Health and Safety
 Food Hygiene
 Oven
 Hob
 Designing
 Evaluate
 Sensory
 Analysis
 Seasonality
 Ingredients
 Vegetables
 Savory
 Food Provenance
 Portion Size
 Convenience
 Foods
 Vitamins
 Minerals
 Technique

7. Star Profiling

Sensory Analysis

The scientific way of analysing and measuring human responses to food and drink.

2. The Eatwell Guide



4 Cooking methods



Stir frying – vegetables, meat, fish and chicken are cut into strips and cooked quickly in a little oil



Stewing – a slow method of cooking meat and vegetables in a small amount of liquid on the hob. Low in fat



Boiling – a moist method of cooking in boiling/simmering water used for root vegetables that are low in water soluble vitamins so the nutritional value is not affected by cooking.



Poaching – fish, eggs and fruit can be poached in a minimal amount of water and no fat is added



Steaming - where the food is cooked by the steam from boiling water so it is not placed in the water but in a steamer. Fat is not added when steaming so this is a no fat method.



Baking – cooking in the oven without adding fat e.g. baked potato in it's jacket, baking cakes



Grilling – a fast method of cooking meat under a hot grill (salamander), the fat drains away as it melts

3. Macronutrient and Micronutrient

Macro nutrients are our main **energy providers** and therefore we need a **lot** of them to help our bodies move and **function** throughout the day.

Macro nutrients include:

- Carbohydrates
- Protein
- Fats



Micro nutrients are only needed in small amounts as some of them the body can **produce itself**. Micro nutrients are needed to maintain normal **cell function** on a smaller scale, but they are **just as important** as macro nutrients as a lack of some micro nutrients can lead to **serious health implications**.

Micro nutrients include:

- Vitamins
- Minerals



5. Health and Safety

- Wear a clean apron
- Wash your hands
- Tie back long hair
- Keep food preparation surfaces clean
- Remove nail varnish
- Store food appropriately.
- Do not run
- Wipe up food spills immediately.
- Handle knives and other sharp equipment with care.
- Turn handles of saucepans away from the front of the stove when cooking.
- Wash kitchen and eating utensils after use in hot soapy water.
- Dry equipment properly
- Put away equipment
- Use oven gloves when removing items from the oven

6. Knife handling skills & Colour coding chopping boards



Bridge grip



Claw grip

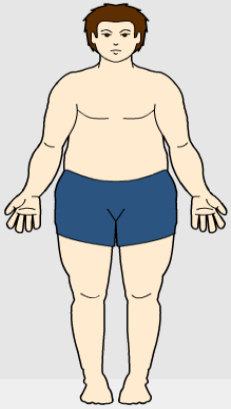


Somatotypes



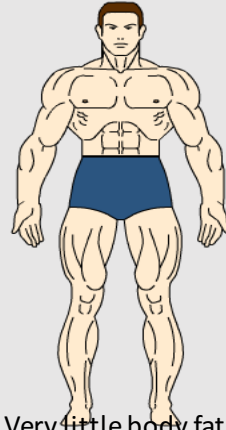
Bodies come in all shapes and sizes but can be grouped into 3 basic body types called **somatotypes**:

Endomorph



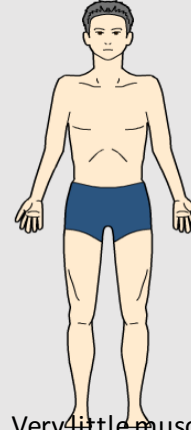
- A lot of body fat
- A lot of fat on the upper arms and thighs
- Wide hips and narrow shoulders
- Fairly slim wrists and ankles

Mesomorph



- Very little body fat
- A muscular body
- Broad shoulders and narrow hips
- A large head
- Strong forearms and thighs

Ectomorph



- Very little muscle or body fat
- Narrow hips and shoulders
- Thin legs and arms
- A narrow chest and abdomen
- Thin face and high forehead

Endomorphs are suited to sports such as the shot put, rugby and sumo wrestling.

Mesomorphs are suited to sports such as sprinting, weight lifting, hockey and football.

Ectomorphs are suited to sports such as the high jump and long distance running.

Sedentary lifestyles

A sedentary lifestyle is a person who does little physical activity and an excessive amount of daily sitting. This can lead to using less energy than someone would consume in their diet. A risk of this lifestyle is that they may become obese.

Obesity can cause a number of physical health issues and also social ill health such as the inability to leave home.

Obesity can limit performance in sport for example it can limit power, agility, speed, flexibility and endurance.

Type 2 diabetes

It can be controlled by diet and exercise. There is a link between rising levels of obesity (chronic overweight) and increasing levels of type 2 diabetes



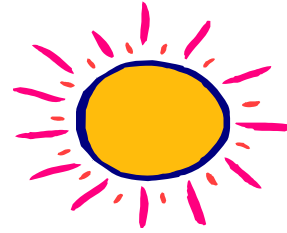
Homework 1. Copy out and translate the expressions. Learn how to spell them.



Hace buen tiempo



Hace mal tiempo



Hace sol



Hace viento



Hace frío



Hace calor



**Nieva
Está nevando**



**Llueve
Está lloviendo**



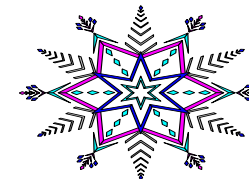
Está nublado



Hay niebla



Hay tormenta



**Hielo
Está helando**

Homework 2. Copy out and translate the words. Learn how to spell them.

a  una plaza de toros	b  una tienda	c  un cine	d  un parque
e  un mercado	f  un polideportivo	g  un museo	h  un castillo
i  un hospital	j  una estación de trenes	k  una estación de autobuses	l  una plaza
m  una playa	n  una piscina	o  un estadio	p  un centro comercial

Dobla a la derecha

Dobla a la izquierda

Sigue todo recto/derecho

Baja por la calle

Sube por la calle

Cruza la calle

Toma la primera a la derecha

Toma la segunda a la izquierda

Toma la tercera a la derecha

Turn right

Turn left

Go straight on

Go down the road

Go up the road

Cross the road

Take the first right

Take the second left

Take the third right

Homework 3.
Copy out and
learn the
directions. Make
sure you know
how to spell
them.