

THE BOURNE ACADEMY KNOWLEDGE ORGANISER

everyone is a learner, everyone is a teacher



Year 8
Spring Term 2023-24

Ambitious

Self Confident

Physically Literate

Independent

Resilient

Eemotionally Literate

Name:

House:

Contents

Excellence at The Bourne Academy: Using your Knowledge Organisers	1
How do we revise with our Knowledge Organisers	2
Art & Design.....	3
Computing.....	7
Dance.....	9
Drama.....	14
English.....	17
Food.....	20
French.....	22
Geography.....	25
History.....	28
Mathematics.....	31
MiSST.....	35
Music.....	36
Physical Education.....	39
Religious Studies.....	42
Science.....	45
Spanish.....	55
TED.....	59

Excellence at The Bourne Academy: Using your Knowledge Organisers'

'Don't just practise until you get it right practise until you can't get it wrong.' - Daniel Willingham

Routines for Excellence

- You will get out your TBA Knowledge Organiser Booklet at the start of every lesson along with your Knowledge Organiser practise exercise book
- Your teacher will set you sections of the Knowledge Organiser to learn, off by heart, in every lesson.
- Your teacher will set you quizzes to test your knowledge every lesson.
- Your teacher will regularly set you questions that require you to APPLY your knowledge
- Your TBA Knowledge Organisers are saved on Show My Homework and on TBA website

How to revise with your Knowledge Organisers'

Self-quizzing

Look/read, cover, write and then **green pen check** your answers to show you where your 'knowledge gaps' are. Repeat until you have mastered the knowledge...until you can't get the knowledge wrong



Look/Read



Cover



Write



Check

Low-stakes testing

Your teachers will always have a '**Do now**' activity on the board at the start of lesson. Do as much as you can from memory. Use your Knowledge Organiser to **green-pen check** what you have accurately remembered. **Then green pen correct**. Repeat, each time **checking** and **correcting** until you have mastered your knowledge gaps.



HOW DO WE REVISE WITH OUR KNOWLEDGE ORGANISERS?

RECORD IT

Record yourself on your phone or tablet reading out the information. These can be listened to as many times as you want.



TEACH IT

Teach someone your key facts and then get them to test you, or even test them.



FLASH CARDS

Write the keyword/date on one side and the explanation on the other. Ask someone to quiz you on either side.



BACK 2 FRONT

Write down the answers and then write what the questions the teacher may ask to get those answers.



HIDE AND SEEK

Read through your Knowledge Organiser, put it down and try to write out as much as you can remember. Then keep adding to it until it is full.



SKETCH IT

Draw pictures to represent the facts or dates. It could be a simple drawing or something that reminds you of the answer,



POST ITS

Using a pack of post it notes, write out as many of the keywords or dates as you can remember in 1 minute.



PRACTICE

Some will remember knowledge by simply writing the facts, over and over again.






READ ALOUD

Simply speak the facts and dates out loud as you're reading the Knowledge Organiser. Even try to act out some of the facts - it really helps you remember.





A. The Pop Art Movement	B. Artists	C. Origins of Pop Art
 <p>Pop Art is an art movement that emerged in the United Kingdom and then the United States during the mid-to-late 1950s. Pop artists challenged traditions of fine art by including imagery from popular and mass culture, such as advertising, comic books and ordinary mass-produced objects.</p>		<p>The 'Pop' in Pop Art stands for popular.</p> <p>The Independent Group met in London in 1952 and included radical young artists who wanted to challenge attitudes and emphasise the impact of technology and mass culture on art.</p>
<p>D. Keywords</p>		<p>Early Pop Art included collages and photomontages intended to recreate the barrage of mass media images experienced in everyday life.</p>
<ol style="list-style-type: none"> 1) Popular culture: Music, TV and Cinema aimed at and enjoyed by ordinary young people. 2) Vibrant colours: radiant, bright and intense colours. 3) Mass Media: newspaper and magazine articles, published photographs, television and radio shows, music recorded for mass distribution, advertising, books, and magazines. 4) Mass Production: the manufacture of large quantities of a product by an automated mechanical process. 5) Irony and satire: Humour was one of the main features of Pop art. 		<ol style="list-style-type: none"> 1) Andy Warhol 2) Roy Lichtenstein 3) Keith Haring 4) Richard Hamilton 5) David Hockney 6) Claes Oldenburg 7) Yayoi Kusama 8) Tim Marris 9) Peter Max 10) Jasper Johns  <p>Pop artists wanted to represent the everyday elements of mass culture and the optimism of post-war society.</p>

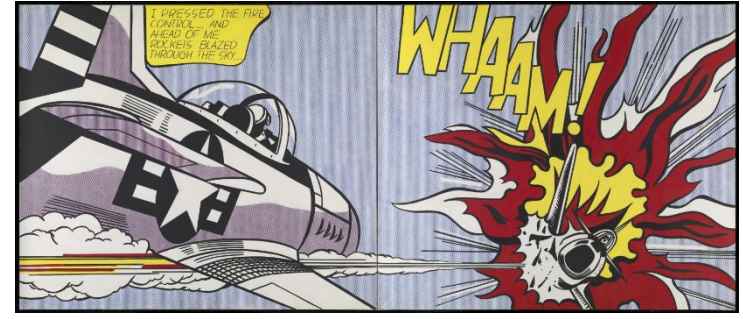
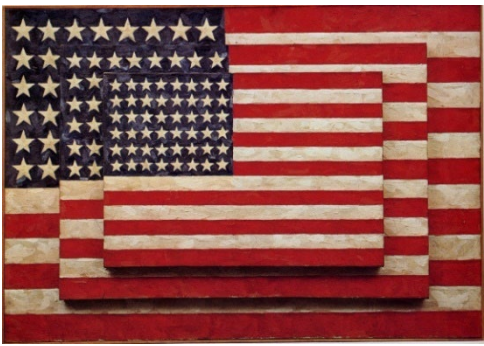


E. What were the aims of the Pop Artists?

By creating paintings or sculptures of mass culture objects and celebrities, the Pop Art movement aimed to blur the boundaries between 'high' art and 'low' culture. The idea that there is no ranking of culture, and that art may borrow from any source has been one of the most influential characteristics of Pop Art.

Pop Art aimed to employ images of popular culture in art, emphasizing the ordinary or tacky elements, most often using irony or sarcasm. Pop Art is colourful and is often associated with the artists' use of mechanical means of reproduction or rendering techniques, such as Silk-Screen printing.

These are some examples of famous Pop artworks:





1. Pop Art:

The booming post-war western economies of the mid-1950s meant prosperity for many, particularly in America. Ordinary people had more money to spend on luxuries and entertainment.

The media and big business promoted a glossy and colourful lifestyle through advertising in cinemas, magazines, TV and comics. New bold visual styles emerged in popular culture.

Andy Warhol (1928 – 1987) was an American artist, film director, and producer who was a leading figure in Pop Art. Warhol created art in many ways, including painting, silk-screen printing, photography, film and sculpture. Warhol's style has been imitated many times such as in this Google banner:



Roy Lichtenstein (1923 – 1997) was an American painter, musician and film producer who also served in the Army. His work was not well-received by critics initially. His work defined the premise of Pop Art through parody. He became famous for his distinctive comic book style incorporating benday dots.



Benday dots – the benday process named after illustrator and printer Benjamin Henry Day Jr. is a printing and photoengraving technique dating from 1879.



2. Why did the Pop Art movement emerge when it did?

Consider why Eduardo Paolozzi and others formed the Independent Group. What were their intentions? It is important to understand the context of what was happening in the U.K. and in the U.S.A. during that period in our history, and the developments that influenced Pop artists ideas and methods of working.

Consider what techniques and processes they were using.

3. Analysing Pop Artwork:

Describe the work of Roy Lichtenstein.

Why was Lichtenstein painting in that distinctive style?

What are Benday dots, and why was Lichtenstein using them in his artwork?

Can you name 3 more famous Pop artists that are not already listed in your Knowledge Organiser, and describe their work?

What aspects of their work do you like the most? Consider subject matter, colour, composition, mood, pattern etc.

What industry were most Pop artists working in before they became famous artists?

4. Formal Elements in Art:

These are the formal elements of Art:

Line, Tone, Shape, Form, Colour, Texture, Pattern, Space.

When analysing artwork, you should refer to these formal elements and explain how they help to convey meaning or create an impact.

5. Colours and their meanings:

We see colours in everything around us, every moment of the day, but do you ever stop to think about the impact each of those colours is having on you? Whether it's the calming effect of blue skies and fields of green, or the saliva-inducing red and yellow of your local fast-food chain, each colour has a meaning and taps into emotions.

There is a whole science (and art) in the meanings of colours. It is essential to be aware of these colour meanings to help you choose your colours wisely and tap into the magical power of colour symbolism.

Create lists of meanings and emotions for each of the following colours: Black, Yellow, Red, Grey, White, Blue, Purple, Pink, Green, Brown, Orange. e.g., Yellow = joy, White = purity.

6. Artists and their practice:

Look at the work of the following artists and then choose two... compare and contrast their work making reference to their themes, materials, techniques, and processes.

Andy Warhol, Michael Craig Martin, Claes Oldenburg, Richard Hamilton, Shepard Fairey, Tim Mars, Peter Blake.

Answer the following questions to help your analysis, ensuring that you make use of art specific terminology.

What do you see? What do you think is happening in the piece of art?

What materials do you think the artist used to make this piece of art?

Does this piece of art remind you of anything?

Pretend you could go inside this piece of art. What do you see? What do you hear? What do you smell?

What part of the piece is your favourite, and why?

If you could change one thing about this piece of art, what would you change?

How does this piece of art make you feel?

Can you say why?

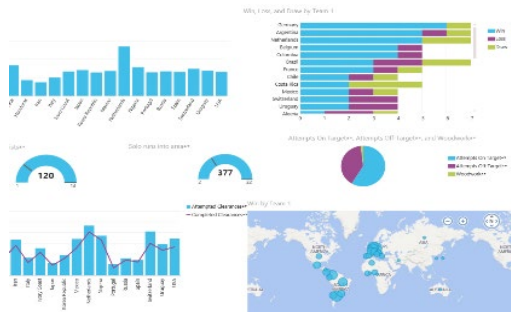
If you had to describe this piece of art to a friend, what kinds of words would you use?



1. Spreadsheets

Microsoft Excel 

- a) **Spreadsheet** software is used to organise and calculate data, such as tracking grades
- b) **Data modelling** is looking at data and using it to make future predictions/decisions, such as getting the weather forecast.
- c) **Data dashboard** is a visual display of data providing information at a glance to track, analyse, and gain a better understanding.



- d) **Formulas** used for spreadsheet calculations
- e) **Functions** are pre-set formulas that quickly perform a range of complex tasks, such as:
 - =SUM(A1:A10) adds up total value
 - =MAX(A1:A10) finds the highest value
 - =AVERAGE(A1:A10) finds the average
 - =COUNT(A1:A10) counts how many cells contain a value

2. Databases

Microsoft Access 

- a) **Database** is a structured set of data that is set up to easily access, manage and update
- b) **Record** is a collection of data held for each person. Records are stored in rows
- c) **Field** is the type of data collected, such as 'Name', 'Age' or 'Gender'. Stored in columns
- d) **Primary key** is the column that contain values that uniquely identify each row

c) Field d) Primary Key

↓ ↓ ↓ ↓

	Name	Age	Gender	Username
b) Record	Lisa Simpson	8	Female	@Saxophone#8
	Homer Simps	40	Male	@Doughnut_!
	Moe Szyslak	62	Male	@Barman.Moe

- e) **Entry** is adding data into a database
- f) **Filter** makes it easier to find specific data by only showing certain types of data
- g) **User Interface** is how the user interacts with the database system, such as clickable buttons

3. Data

a) **Data** is raw (unprocessed) numbers, text and symbols. For example:

Fred, Joan, 14, 12, Lucy, 13

b) **Information** is data that has been given meaning and structure. For example:

Fred is 12

Joan is 13

Lucy is 14

c) **CSV** is a plain text file that contains a list of data. Can be imported into a spreadsheet

d) **Data types** are the format of the values in the selected cells, such as: £5.99, 21/03/23, 46%

e) **Charts/Graphs** are used to visually represent data to easily compare data and spot patterns

f) **Data modelling** is looking at data and using it to make future predictions/decisions

g) **Data dashboard** is a visual display of data providing information at a glance to track, analyse and gain a deeper understanding

h) **Sort** organises data, such as numerically

1	2	3
Apple		
Banana		
Carrot		

i) **Test plan** is used to make sure your database works with real-life examples



1. Data Dashboard

a) Create an Interactive Dashboard

- i) See the Year 8 Spring Knowledge Organiser to see what a data dashboard is.
- ii) 2. Ask Mr Orme for the “Weather Dashboard” booklet.
- iii) 3. Open a new blank spreadsheet file
- iv) 4. Import the CSV file (location in booklet) into your spreadsheet.
- v) 5. Work through the booklet to create an interactive spreadsheet

Add formatting to make your table of data stand out so it is clear. Add a title bar at the top and insert some suitable graphics.

Save your spreadsheet as “**Weather Dashboard**” in your computing folder (in your OneDrive area)

b) Characteristics of Data & Information

In Student Resources → !IT → Scholar open “Characteristics of Data & Information”

Watch the video, read through all the information, then have a go at the quiz until you get at least 80%.

2. Databases

Microsoft Access

a) Creating a Database

In Student Resources → !IT → Scholar open “data for database extension”.

Now start a new database file (using Access) and create a database to record the information from the word document you just opened.

b) Using Code to Control a text data file

In Student Resources → !IT → Scholar open “Using code to control a database”.

In Student Resources → !IT → Scholar copy “datafile” into your computing folder (in your OneDrive area)

Also, open “Python” and start a “new file”. Save it in the same folder as where you saved the “datafile”.

In Python, create the code needed to control the data saved in the CSV text file by following the instructions in the word document. (Ask if you’d like a printed version instead).

Use F5 to run and test your program.

3. Spreadsheet Software

a) Recording data in a spreadsheet

In Student Resources → !IT → Scholar open “data for spreadsheet extension”.

Now start a new spreadsheet file and create a table to record the information from the word document you just opened. Then:

- i) Add formulas to add up each team’s scores
- ii) Add a function to find out the average score each team got over the season
- iii) Add a function to find out the maximum score each team got over the season

=SUM(A1:A10) adds up total value
 =MAX(A1:A10) finds the highest value
 =AVERAGE(A1:A10) finds the average

Create a line graph to compare the results of how each team performed over the season.

Add formatting to make your table of data stand out so it is clear. Add a title bar at the top and insert some suitable graphics.

Save your spreadsheet as “**Sport Results**” in your computing folder (in your OneDrive area)



Key Skills			
Physical Skills	Performance Skills	Technical Skills	Mental Skills
Posture Alignment Posture Balance Co-ordination Extension	Projection Focus Facial expressions Musicality Sensitivity Phrasing	Action Space Dynamics Relations Timing Rhythm	Repetition Mental rehearsal Feedback Movement memory

- Basic Dance Actions:**
- Gesture
 - Jump
 - Turn
 - Travel
 - Balance
 - Fall

- Choreographic Devices**
- Motif and development
 - Repetition
 - Contrast
 - Highlights
 - Climax
 - Manipulation of number
 - Unison and canon.

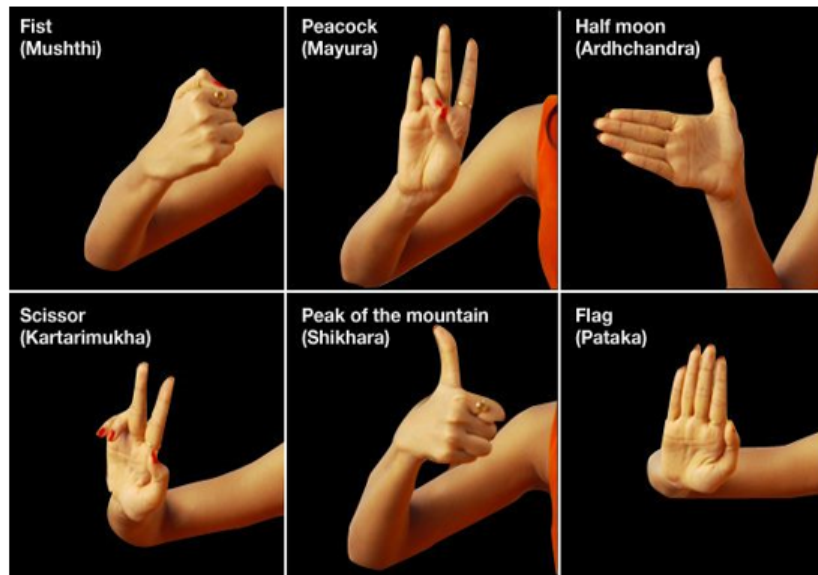
- Stimuli**
- Visual – pictures, objects, patterns.
 - Auditory - music or sound.
 - Tactile – fabrics and textures.
 - Ideational – an idea or story.
 - Kinaesthetic – movement.



Bollywood dance originates from India and became popular in the 1950s-1960s.



These are hand gestures that act as a form of sign language to help to tell a story or demonstrate themes such as weather, animals or places.

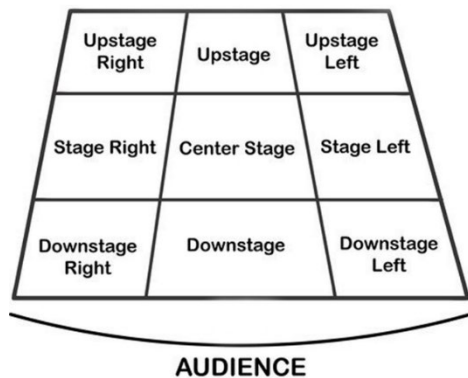


Classical dance forms such as Bharatanatyam and Kathak and folk dances such as Bhangra, each have their own unique styles, but they often share signs and meanings that are combined to create modern Bollywood dances.

Bollywood features various hand gestures, along with dramatic facial expressions.



A. Relationships	B. Action	C. Dynamics	D. Space
<p>WHO are we performing with?</p> <p>This is who you are performing with including how many people are in your group.</p>	<p>WHAT are we performing?</p> <p>This is the range of movement in your dance piece</p>	<p>HOW are we performing?</p> <p>This is how you perform each movement (i.e., the SPEED and ENERGY)</p>	<p>WHERE are we dancing?</p> <p>This focuses on how you use the space effectively</p>
<p>Solo-1 dancer Duet-2 dancers Trio- 3 dancers Quartet- 4 dancers Quintet- 5 dancers Unison- all together at the same time Canon-one after another Contact-making - connections with different parts of the body Mirroring-creating a true reflection of another person's actions Questioning and Answer-a conversation through movement Lead and Follow-one person performs a sequence and the rest of the group copies it afterwards Formations - shapes you create when standing in a space</p>	<p>All dance actions fit into one of the following categories: jumps, turns, travels, balances, stillness, and transfer of weight</p> <p>Examples of actions: kicks, rolls, spins, leans, falls, leaps, runs, swings, twist, crouch, etc</p>	<p>Slow, fast, smooth, sharp, jerky, effortless, hard, strong, weightless, aggressive, powerful, free-flowing, soft, graceful, quiet, calm, and sudden.</p> <p>Dynamics are like punctuation in a sentence and are used to create impact and interest in a dance piece</p>	<p>Directions-forwards, backwards, stage left, stage right, diagonal Levels-low, medium, high Pathways-zig zag, circle, linear, wavy</p>



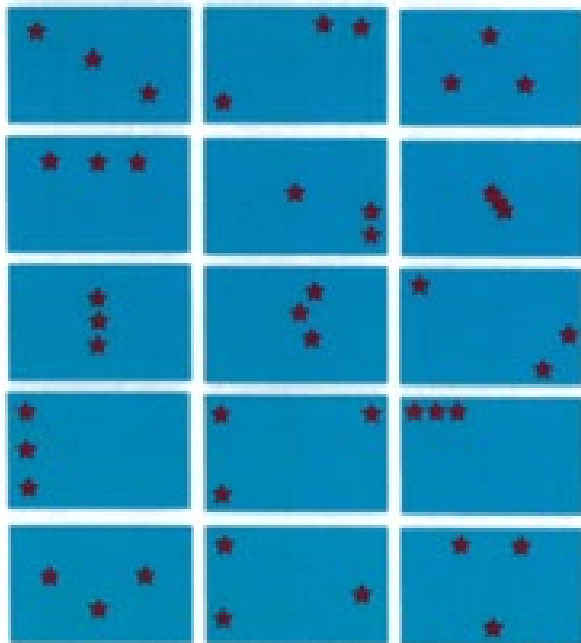
E – Stage Directions



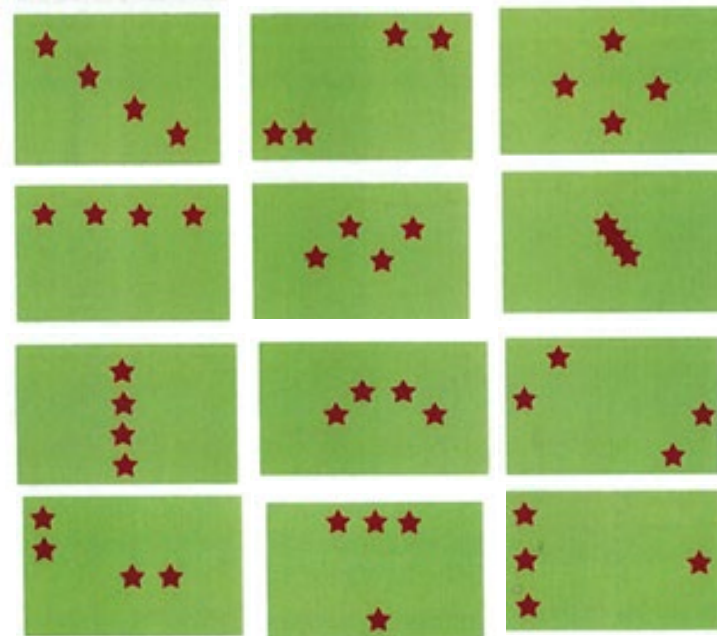


F. Dance Structures	G. Describe your Dance
Every dance we choreograph will be made up of different sections. The structure is the order we put the section of our dance in. There are four basic structures that we can use when choreographing dances:	Begin with Action content: Eg. Lift your right arm to the side and then above your head before rotating your left shoulder.
A B Binary The two sections are different from each other.	Then add the Space : E.g Face the audience, standing centre stage.
A B C Ternary The three sections are different from each other.	Move on to describe the Dynamics : E.g Lift your hand slowly, gently over 8 counts.
A B A C A D Rondo In this structure there is a section that is always repeated.	Finally, the Relationship : E.g Mirroring each other.

H. Examples of formations for a trio








I. Examples of formations for a quartet

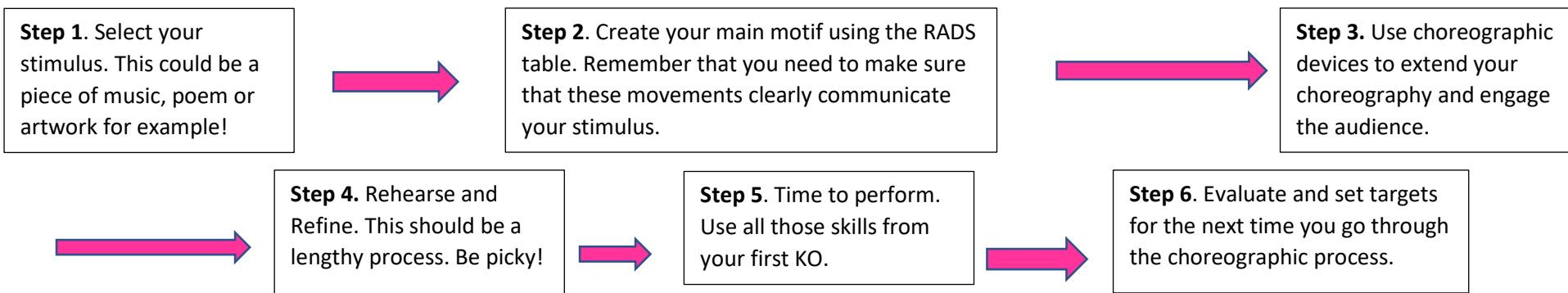




J. What are the Different Types of Stimulus?

				
Visual	Auditory	Tactile	Kinesthetic	Ideational
Things you can see.	Things you can hear.	Things you can touch.	Movement itself or movement ideas.	An idea, emotion, story or narrative.
E.g Paintings, Pictures, Sculptures, Objects, Patterns, Shapes.	E.g Music, Natural Sounds, Spoken Poems, Voices, Found/Created Sounds.	E.g. Props, Costumes, Clothing, Material, Objects.	E.g. Different Dance Styles, Phrases, Sequences, Movements, Dynamics.	E.g. Stories, Experiences, Plays, Films, Narrative, Books, Fairy Tales, Emotions.

K. How to create a choreography!





1. Key Words	Definition
A. Mime	Mime is the theatrical technique of suggesting action, character or emotion without using words, using only gesture, posture, facial expression and movement.
B. Commedia Dell’ Arte	A style of comedy theatre developed in Italy during the 16th to 18th centuries, with stock characters such as Punchinello, Harlequin, and a, in situations improvised from a plot outline. The characters wear half masks to allow them to use speech.
C. Trestle Masks	Trestle theatre masks are masks with clear emotions that cover the full face. This means actors do not talk when wearing the mask. Using physical performance skills to bring the character to life.
D. Rules of Mask Work	<ul style="list-style-type: none"> - Put the mask on in the wings - Do not talk in a full face mask - Face the audience as much as possible - Clock the audience – acknowledge the audience - Pass the focus to another actor on stage
F. Stock Character	Characters that are easily identified in a piece of theatre and are in more than one performance. For example. A hero, heroine and villain.
H. Slapstick Comedy	A style of performance using exaggerated physical activity that creates humour.
L. Lazzi	Lazzi are short comedy sketched that were created and performed as part of a Commedia Dell’ Arte performance.
J. Rule of Three	Performing a moment of comedy three times with increasing comedic impact each time.

2. Commedia Character	Character Description
A. Arlecchino	Also known as the Harlequin, he can be the nimble acrobatic tricky servant. Childlike, he can often be played as not too bright, but usually wins in the end.
B. Pantalone	A wealthy, miserable old man. A merchant.
C. Il Dottore	The Doctor is a smug, know it all professor, who really knows very little. He can be a doctor of anything, and he can dispense potions and pills, for example a love potion.
D. Il Capitano	The pretentious, self-promoting, extravagant and sonorous; ridiculous and cowardly; he boasts of his imaginary conquests at war. Fancies himself as a winner with the women.
E. Pulcinella	The argumentative, servant; a loner; he has a fatalistic philosophy and takes great pleasure in violence.
F. Columbina	The captivating lady’s maid; coquettish and clever; she manages the plot with wit and benevolence; adored by everyone.



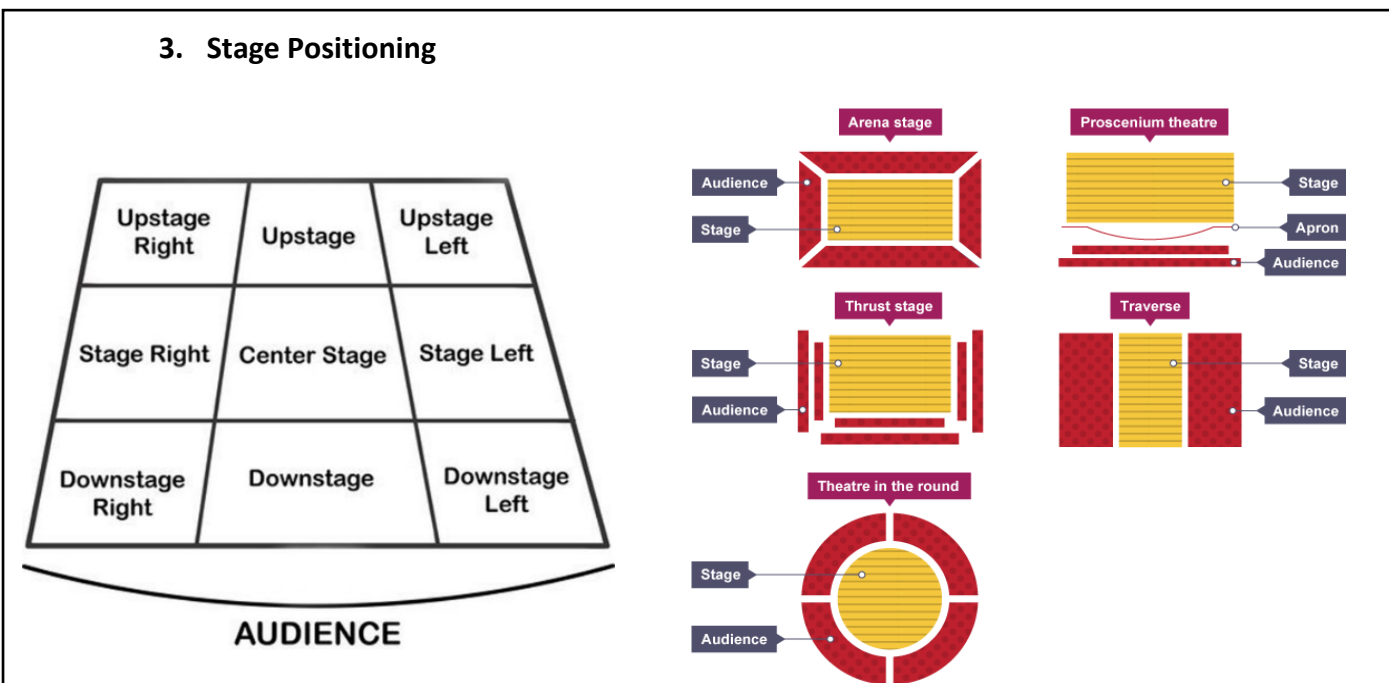
3. Physical Performance Skill	Definition
A. Gesture	a movement of part of the body to express a particular feeling, idea or intention, e.g. a nod of the head
B. Movement	when the actor uses their facial expressions, gestures, body language and levels to communicate their emotions to the audience
C. Facial Expression	a look on the face that shows how someone is feeling; using the way you look to get our points across
D. Posture	the way an actor positions and stands or walks to convey a character or emotion
E. Body Language	a way of an actor communicating the feelings of their character using the position of your body, or actions

4. Vocal Performance Skill	Definition
A. Tone	a quality in the voice that expresses the speaker's feelings or thoughts, often towards the person being spoken to
B. Volume	the level of sound produced by a an actor
C. Pace	The speed at which an actor speaks
D. Pause	a short period where an actor stops speaking before starting again. Used to create meaning or dramatic tension.
E. Diction	When an actors speaks clearly to deliver their lines.
F. Accent	the manner of speaking or pronunciation; which can communicate information about a character to an audience.

5. Evaluating Performance	Step One Before Performance	Step Two During Performance	Step Three After Performance Be ready to share your evaluation
A. What went well?	Select either a physical or vocal performance skill to evaluate	While you watch the performance look out for specific examples of how the skill is being used and the impact it has.	The way the group used _____ was very successful because it showed the audience that..... .
B. Even Better If...			The group could improve further by adding This would have shown the audience that..... .



1. Higher Thinking Questions	
What am I showing the audience?	
How am I communicating this?	
What else can I do to support my acting skills?	
How am I showing my character?	
What is my character feeling?	
How do I react to the other characters on stage?	
2. Mask Techniques	
Four Rules of Mask	<ol style="list-style-type: none"> 1. Never put the mask on or take it off in front of the audience 2. Never touch the mask 3. Do not talk whilst wearing the mask 4. Ensure that you face the front, as much as possible, whilst performing
Three Steps to Building a Character	<ol style="list-style-type: none"> 1. Copy exaggerated facial expression of the mask 2. Develop exaggerated body language to suit the character. 3. Develop an exaggerated walk to suit the character
Clocking	Ensuring that your face is always focused in the direction of the audience.
Passing the Focus	Moving the audience's attention from one character on the stage to another.
Major & Minor Characters	<p>Major Character: The character that the audience should focus on (of higher importance).</p> <p>Minor Character: The character that the audience should NOT focus on (of less importance).</p>



4. Developing your Evaluation

It created a...

This uncovered... due to...

This created impact by...

This enhanced the performance because...

This helped...

This was detrimental to the performance because...

This was effective because...

They could improve...

Consequently...

Subsequently...

This was evidenced through...

This portrayed...



1. Context	Description
a) Shakespeare	William Shakespeare was an English playwright and poet.
b) Elizabethan era	In 1558, Queen Elizabeth started her 44-year reign as Queen of England.
c) Religion	Society across Europe was deeply religious (predominantly catholic or protestant).
d) Patriarchal society	Government or society was controlled by men. Women were property of their fathers or husbands, and they were expected to have children.
2. Form and structure	Description
a) Play	A piece of writing that is performed.
b) Tragedy	A play involving a central character who has a fatal flaw that usually leads to their downfall.
c) Prologue	A section introducing the play.
d) Sonnet	One-stanza, 14-line poem, written in iambic pentameter.
e) Rhyming Couplet	A pair of lines in poetry that rhyme.
f) Iambic Pentameter	A line of verse with five metrical feet, each consisting of one short (or unstressed) syllable followed by one long (or stressed) syllable.

3. Plays	Summary
a) Titus Andronicus	A brave Roman general named Titus faces terrible betrayals and seeks justice for the wrongs done to his family, which sets off a chain of revenge and tragic consequences.
b) Othello	A tragedy where a respected soldier's life unravels when a manipulative villain schemes to convince him that his loyal wife has been unfaithful, leading to fatal consequences driven by jealousy and deception.
c) Much Ado about Nothing	A comedy as two couples experience misunderstandings and trickery as they fall in and out of love, ultimately finding happiness and resolving their differences.
d) Macbeth	A tragedy in which Macbeth and Lady Macbeth's greed and ambition lead to the ruthless murder of the king, which sets off a spiral of events leading to both their eventual deaths.
e) A Midsummer Night's Dream	A comedy involving a love story, wedding plans, the misuse of magic and a case of mistaken identity.
f) Richard III	A history play about the ruthless behaviour of one man determined to become the king of England.
g) Julius Caesar	A history play involving an assassination plot against Julius Caesar (emperor of Rome).



4. Genre	Description	6. Punctuation	Symbol	Definition
a) Comedy	A play that often includes humorous situations, mistaken identities, and happy endings, providing light-hearted entertainment and celebrating love, friendship, and the triumph of joy over adversity.	a) Dashes	-	Used as parenthesis to add more important information. <i>e.g. The case was worn – and very full – and its straps struggled to stay shut.</i>
b) Tragedy	A play that explores the downfall of a noble or powerful character due to their own flaws or external circumstances, resulting in a tragic and often heart-breaking ending that leaves audiences reflecting on themes of fate, ambition, and the human condition.	b) Colon	:	Used before a list of items, a quotation, an expansion or an explanation. <i>e.g. The key to success includes three things: hard work, determination and perseverance.</i>
c) History	A dramatic retelling of real events from England's past, featuring kings, queens, and political conflicts, providing insights into the country's history and the challenges of leadership.	7. Language terminology		Definition
5. Topic Words	Definition	a) Direct address	Speaking directly to your audience by using the personal pronouns 'you' and 'your'.	<u>You</u> can be the difference.
a) Persuade	When you attempt to convince others to take action or make a change through reasoning or argument.	b) Emotive Language	Words used to cause an emotional response.	The <u>victim</u> was left in a <u>horrific</u> state.
b) Letter	A form of written communication which is usually addressed to somebody and sent to them in an envelope.	c) Repetition	Where you repeat the same word or phrase to make an idea clearer.	This is <u>serious</u> , <u>incredibly serious</u> .
c) Sign off	Closing of a letter e.g. Yours sincerely, yours faithfully etc.	d) Modal verbs	Verbs that suggest the likelihood or probability of something.	It <u>may</u> rain today
d) Speech	A formal address delivered to an audience.	e) Hyperbole	Using exaggeration for effect.	The teacher gave us a <u>ton</u> of homework.
e) Salutation	A greeting used in both written and non-written communication.			



1. Extended vocabulary	Definition	2. Authors	Additional reading
a) Pugnacious	Eager or quick to argue or fight. Tybalt from "Romeo and Juliet," known for his hot-headedness and eagerness to engage in duels, is pugnacious.	a) Jennifer Niven	All the Bright Places (Romeo and Juliet) – A heart-wrenching story about a girl who learns to live from a boy who intends to die.
b) Unscrupulous	Having no moral principles; not honest or fair. Richard III is a cunning and ruthless character who stops at nothing to gain and maintain power, is unscrupulous.	b) Tracy Chevalier	New Boy (Othello)
c) Subservient	Prepared to obey others unquestioningly. Desdemona from "Othello," a character who is portrayed as submissive and obedient to her husband, Othello, throughout much of the play, is subservient.	c) Laura Wood	Under a Dancing Star (Much Ado about Nothing)
d) Infatuated	Intense or short-lived passion. Helena from "A Midsummer Night's Dream," who is infatuated with Demetrius and relentlessly pursues his love, despite his rejection.	d) Patricia Highsmith	The Talented Mr Ripley (Macbeth)
e) Patriarch	The male head of a family or society. Capulet from "Romeo and Juliet," Juliet's father and the patriarch of the Capulet family, whose decisions and expectations heavily influence the events of the play.	e) Iris Murdoch	The Black Prince (Hamlet)
f) Satirical	Criticising people or ideas in a humorous way. Benedick from "Much Ado About Nothing," who engages in humorous and satirical exchanges with Beatrice, employing clever wordplay and sarcastic commentary.	f) Joy McCullough	Enter the Body
g) Intrepid	Fearless and adventurous. Brutus from "Julius Caesar," who possesses a strong moral compass and demonstrates courage in his decision to join the conspiracy against Caesar, driven by his principles rather than personal gain.	3. Extended activities	Tasks
h) Presumptuous	Full of brazen confidence in decisions. Richard III from "Richard III," who exhibits presumptuous behaviour as he manipulates and deceives others to fulfil his ambitions and secure his position as king.	a) Watch / write	Watch a version of 'West Side Story' which is based on the story of 'Romeo and Juliet'. See how many similarities you can spot. Write a review of the film.
		b) Research / memorise	What is a soliloquy and why are they used in Shakespeare's plays? Research famous soliloquys and memorise one from a Shakespeare play.



1a. Customer Needs

Customers have different needs for food. This can be due to special diets, health, and even your age.

1b. Special diets

Vegetarian/vegan diets, religious diets, allergies, coeliacs disease, and food intolerances are some of the dietary needs that must be considered when cooking a preparing food to avoid the risk that someone could become ill.

1c. Life stages

Nutrition through life differs mainly due to the need for energy and protein for growth and development. Younger people are growing, so need more energy. Older adults only need to maintain their bodies, so less energy is needed.

1d. Organoleptic

This means the qualities of food that people experience with their senses. There are 5 senses: sight, smell, taste, sound, and touch. All these senses should be considered to make food as appetising as possible.



TASTE



HEARING



VISION



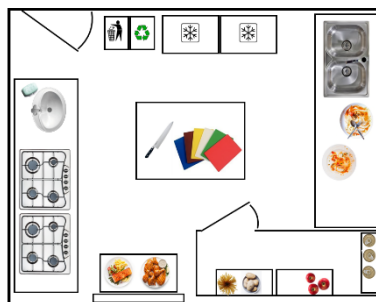
TOUCH



SMELL

3a. Kitchen Workflow

A kitchen workflow is the way food and staff move around the kitchen when preparing, cooking, and serving food. A good workflow ensures that a kitchen is efficient and hygienic.



3b. Kitchen operations

Receiving: Food needs to be checked before it is stored to make sure the food is in good condition and safe to eat.

- Storing: If foods are not stored correctly, it increases the risk of food poisoning.
- Preparation and cooking: Food preparation and cooking areas need to be suitable and hygienic to reduce the risk of cross-contamination.
- Holding and serving: Before serving food must be kept above 63 degrees which means the food is hot and safe to eat.
- Cleaning: Dedicated areas of the kitchen for washing up and waste disposal is important.

4a. Front of house

Front of house refers to any staff the customer may see, e.g. a receptionist, waiting staff.

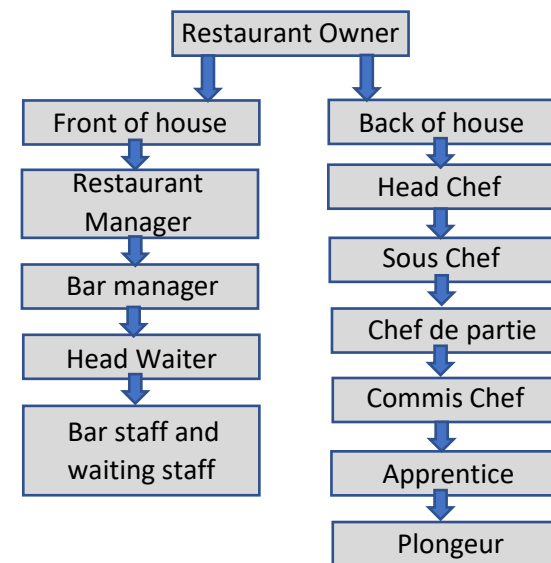
4b. Back of house

Back of house refers to staff the customer may not see, e.g. a chef, housekeeper.



4c. Staff hierarchy (employee structure)

The staff closest to the top have more responsibilities, training and experience than the ones near the bottom.





1a. Customer Needs

What reasons might customers require different types of food?

1b. Special diets

Create a table like the example below. Include vegetarian, vegan, Hindu, Jewish, coeliacs, dairy intolerance.

Diet	Reasons for following this diet	Foods to avoid and why

1c. Life stages

The amount of energy we use over our lifetimes changes with age. Explain how that would affect the amount of carbohydrates we should eat.

Vitamin D and calcium are also important at different stages of our lives. Explain why we need it and how it differs when we get older.

1d. Organoleptic

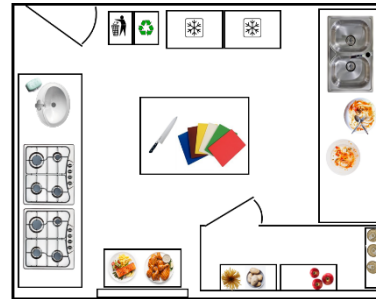
Describe how food can be produced and presented so that our 5 senses were being used when we were eating it.

Why is food more enjoyable if we can use all of our senses when eating it?



3a. Kitchen Workflow

Write a paragraph explaining what a good kitchen workflow should look like and how it helps keep a kitchen hygienic and safe.



3b. Kitchen operations

For each of the following kitchen operations, write 3 rules about hygiene and safety. The rules should be about how to avoid any accidents or food poisoning. For example, when receiving food check the sell by dates to make sure it is safe to eat.

- Receiving
- Storing
- Preparation and cooking
- Holding and serving.
- Cleaning

4a. Front of house

Describe the job roles of front of house staff. What are their main duties?

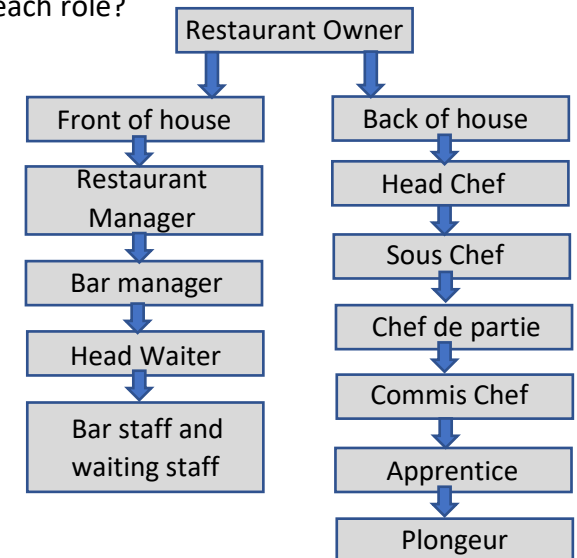
4b. Back of house

Describe the job roles of back of house staff. What are their main duties?



4c. Staff hierarchy (employee structure)

Choose 2 of the job roles below. Write a job advertisement for each of these roles. What characteristics and skills would be required for each role?





1. Picture Description	<table border="0"> <tr><td>1. Ici il y a ...</td><td><i>Here there is ...</i></td></tr> <tr><td>2. un cercle</td><td><i>a circle</i></td></tr> <tr><td>3. un demi-cercle</td><td><i>a semi-circle</i></td></tr> <tr><td>4. un triangle</td><td><i>a triangle</i></td></tr> <tr><td>5. blanc(he)</td><td><i>white</i></td></tr> <tr><td>6. bleu(e)</td><td><i>blue</i></td></tr> <tr><td>7. gris(e)</td><td><i>grey</i></td></tr> <tr><td>8. jaune</td><td><i>yellow</i></td></tr> <tr><td>9. marron</td><td><i>brown</i></td></tr> <tr><td>10. noir(e)</td><td><i>black</i></td></tr> <tr><td>11. orange</td><td><i>orange</i></td></tr> <tr><td>12. rose</td><td><i>pink</i></td></tr> <tr><td>13. rouge</td><td><i>red</i></td></tr> <tr><td>14. vert(e)</td><td><i>green</i></td></tr> <tr><td>15. violet(te)</td><td><i>purple</i></td></tr> <tr><td>16. en bas</td><td><i>at the bottom</i></td></tr> <tr><td>17. au centre</td><td><i>at the centre</i></td></tr> <tr><td>18. à droite</td><td><i>to the right</i></td></tr> <tr><td>19. à gauche</td><td><i>to the left</i></td></tr> </table>	1. Ici il y a ...	<i>Here there is ...</i>	2. un cercle	<i>a circle</i>	3. un demi-cercle	<i>a semi-circle</i>	4. un triangle	<i>a triangle</i>	5. blanc(he)	<i>white</i>	6. bleu(e)	<i>blue</i>	7. gris(e)	<i>grey</i>	8. jaune	<i>yellow</i>	9. marron	<i>brown</i>	10. noir(e)	<i>black</i>	11. orange	<i>orange</i>	12. rose	<i>pink</i>	13. rouge	<i>red</i>	14. vert(e)	<i>green</i>	15. violet(te)	<i>purple</i>	16. en bas	<i>at the bottom</i>	17. au centre	<i>at the centre</i>	18. à droite	<i>to the right</i>	19. à gauche	<i>to the left</i>	3. Unit 1: Describing and giving opinions about school subjects	<table border="0"> <tr><td>1. Qu'est-ce que tu penses de tes matières?</td><td><i>What do you think of your subjects?</i></td></tr> <tr><td>2. le français</td><td><i>French</i></td></tr> <tr><td>3. le théâtre</td><td><i>drama</i></td></tr> <tr><td>4. la géographie</td><td><i>geography</i></td></tr> <tr><td>5. la musique</td><td><i>music</i></td></tr> <tr><td>6. la technologie</td><td><i>technology</i></td></tr> <tr><td>7. l'anglais</td><td><i>English</i></td></tr> <tr><td>8. l'EPS</td><td><i>P.E.</i></td></tr> <tr><td>9. l'histoire</td><td><i>history</i></td></tr> <tr><td>10. l'informatique</td><td><i>I.C.T.</i></td></tr> <tr><td>11. les arts plastiques</td><td><i>art</i></td></tr> <tr><td>12. les maths</td><td><i>maths</i></td></tr> <tr><td>13. les sciences</td><td><i>science</i></td></tr> <tr><td>14. aimer</td><td><i>to like</i></td></tr> <tr><td>15. détester</td><td><i>to hate</i></td></tr> <tr><td>16. adorer</td><td><i>to love</i></td></tr> <tr><td>17. Tu aimes ... ?</td><td><i>Do you like ...?</i></td></tr> <tr><td>18. j'adore ...</td><td><i>I love ...</i></td></tr> <tr><td>19. j'aime ...</td><td><i>I like ...</i></td></tr> <tr><td>20. j'aime assez ...</td><td><i>I quite like ...</i></td></tr> <tr><td>21. je n'aime pas ...</td><td><i>I don't like ...</i></td></tr> <tr><td>22. je déteste ...</td><td><i>I hate ...</i></td></tr> <tr><td>23. C'est ...</td><td><i>It's ...</i></td></tr> <tr><td>24. facile.</td><td><i>easy.</i></td></tr> <tr><td>25. difficile.</td><td><i>difficult/hard.</i></td></tr> <tr><td>26. intéressant.</td><td><i>interesting.</i></td></tr> <tr><td>27. ennuyeux.</td><td><i>boring.</i></td></tr> <tr><td>28. amusant.</td><td><i>fun/funny.</i></td></tr> <tr><td>29. créatif.</td><td><i>creative.</i></td></tr> <tr><td>30. nul.</td><td><i>rubbish/awful.</i></td></tr> <tr><td>31. le/la prof est sympa</td><td><i>the teacher is kind</i></td></tr> <tr><td>32. le/la prof est trop sévère</td><td><i>the teacher is too strict</i></td></tr> <tr><td>33. j'ai trop de devoirs</td><td><i>I have too much homework</i></td></tr> </table>	1. Qu'est-ce que tu penses de tes matières?	<i>What do you think of your subjects?</i>	2. le français	<i>French</i>	3. le théâtre	<i>drama</i>	4. la géographie	<i>geography</i>	5. la musique	<i>music</i>	6. la technologie	<i>technology</i>	7. l'anglais	<i>English</i>	8. l'EPS	<i>P.E.</i>	9. l'histoire	<i>history</i>	10. l'informatique	<i>I.C.T.</i>	11. les arts plastiques	<i>art</i>	12. les maths	<i>maths</i>	13. les sciences	<i>science</i>	14. aimer	<i>to like</i>	15. détester	<i>to hate</i>	16. adorer	<i>to love</i>	17. Tu aimes ... ?	<i>Do you like ...?</i>	18. j'adore ...	<i>I love ...</i>	19. j'aime ...	<i>I like ...</i>	20. j'aime assez ...	<i>I quite like ...</i>	21. je n'aime pas ...	<i>I don't like ...</i>	22. je déteste ...	<i>I hate ...</i>	23. C'est ...	<i>It's ...</i>	24. facile.	<i>easy.</i>	25. difficile.	<i>difficult/hard.</i>	26. intéressant.	<i>interesting.</i>	27. ennuyeux.	<i>boring.</i>	28. amusant.	<i>fun/funny.</i>	29. créatif.	<i>creative.</i>	30. nul.	<i>rubbish/awful.</i>	31. le/la prof est sympa	<i>the teacher is kind</i>	32. le/la prof est trop sévère	<i>the teacher is too strict</i>	33. j'ai trop de devoirs	<i>I have too much homework</i>
1. Ici il y a ...	<i>Here there is ...</i>																																																																																																										
2. un cercle	<i>a circle</i>																																																																																																										
3. un demi-cercle	<i>a semi-circle</i>																																																																																																										
4. un triangle	<i>a triangle</i>																																																																																																										
5. blanc(he)	<i>white</i>																																																																																																										
6. bleu(e)	<i>blue</i>																																																																																																										
7. gris(e)	<i>grey</i>																																																																																																										
8. jaune	<i>yellow</i>																																																																																																										
9. marron	<i>brown</i>																																																																																																										
10. noir(e)	<i>black</i>																																																																																																										
11. orange	<i>orange</i>																																																																																																										
12. rose	<i>pink</i>																																																																																																										
13. rouge	<i>red</i>																																																																																																										
14. vert(e)	<i>green</i>																																																																																																										
15. violet(te)	<i>purple</i>																																																																																																										
16. en bas	<i>at the bottom</i>																																																																																																										
17. au centre	<i>at the centre</i>																																																																																																										
18. à droite	<i>to the right</i>																																																																																																										
19. à gauche	<i>to the left</i>																																																																																																										
1. Qu'est-ce que tu penses de tes matières?	<i>What do you think of your subjects?</i>																																																																																																										
2. le français	<i>French</i>																																																																																																										
3. le théâtre	<i>drama</i>																																																																																																										
4. la géographie	<i>geography</i>																																																																																																										
5. la musique	<i>music</i>																																																																																																										
6. la technologie	<i>technology</i>																																																																																																										
7. l'anglais	<i>English</i>																																																																																																										
8. l'EPS	<i>P.E.</i>																																																																																																										
9. l'histoire	<i>history</i>																																																																																																										
10. l'informatique	<i>I.C.T.</i>																																																																																																										
11. les arts plastiques	<i>art</i>																																																																																																										
12. les maths	<i>maths</i>																																																																																																										
13. les sciences	<i>science</i>																																																																																																										
14. aimer	<i>to like</i>																																																																																																										
15. détester	<i>to hate</i>																																																																																																										
16. adorer	<i>to love</i>																																																																																																										
17. Tu aimes ... ?	<i>Do you like ...?</i>																																																																																																										
18. j'adore ...	<i>I love ...</i>																																																																																																										
19. j'aime ...	<i>I like ...</i>																																																																																																										
20. j'aime assez ...	<i>I quite like ...</i>																																																																																																										
21. je n'aime pas ...	<i>I don't like ...</i>																																																																																																										
22. je déteste ...	<i>I hate ...</i>																																																																																																										
23. C'est ...	<i>It's ...</i>																																																																																																										
24. facile.	<i>easy.</i>																																																																																																										
25. difficile.	<i>difficult/hard.</i>																																																																																																										
26. intéressant.	<i>interesting.</i>																																																																																																										
27. ennuyeux.	<i>boring.</i>																																																																																																										
28. amusant.	<i>fun/funny.</i>																																																																																																										
29. créatif.	<i>creative.</i>																																																																																																										
30. nul.	<i>rubbish/awful.</i>																																																																																																										
31. le/la prof est sympa	<i>the teacher is kind</i>																																																																																																										
32. le/la prof est trop sévère	<i>the teacher is too strict</i>																																																																																																										
33. j'ai trop de devoirs	<i>I have too much homework</i>																																																																																																										
2. Time	<table border="0"> <tr><td>1. Quelle heure est-il?</td><td><i>What time is it?</i></td></tr> <tr><td>2. Il est ...</td><td><i>It is ...</i></td></tr> <tr><td>3. cinq heures</td><td><i>five o'clock</i></td></tr> <tr><td>4. cinq heures dix/vingt</td><td><i>ten/twenty past five</i></td></tr> <tr><td>5. cinq heures et quart</td><td><i>quarter past five</i></td></tr> <tr><td>6. cinq heures et demie</td><td><i>half past five</i></td></tr> <tr><td>7. cinq heures moins dix/vingt</td><td><i>ten/twenty to five</i></td></tr> <tr><td>8. cinq heures moins le quart</td><td><i>quarter to five</i></td></tr> <tr><td>9. midi/minuit</td><td><i>midday/midnight</i></td></tr> </table>	1. Quelle heure est-il?	<i>What time is it?</i>	2. Il est ...	<i>It is ...</i>	3. cinq heures	<i>five o'clock</i>	4. cinq heures dix/vingt	<i>ten/twenty past five</i>	5. cinq heures et quart	<i>quarter past five</i>	6. cinq heures et demie	<i>half past five</i>	7. cinq heures moins dix/vingt	<i>ten/twenty to five</i>	8. cinq heures moins le quart	<i>quarter to five</i>	9. midi/minuit	<i>midday/midnight</i>																																																																																								
1. Quelle heure est-il?	<i>What time is it?</i>																																																																																																										
2. Il est ...	<i>It is ...</i>																																																																																																										
3. cinq heures	<i>five o'clock</i>																																																																																																										
4. cinq heures dix/vingt	<i>ten/twenty past five</i>																																																																																																										
5. cinq heures et quart	<i>quarter past five</i>																																																																																																										
6. cinq heures et demie	<i>half past five</i>																																																																																																										
7. cinq heures moins dix/vingt	<i>ten/twenty to five</i>																																																																																																										
8. cinq heures moins le quart	<i>quarter to five</i>																																																																																																										
9. midi/minuit	<i>midday/midnight</i>																																																																																																										



<p>4. Unit 2: Describing school uniform</p>	<ol style="list-style-type: none"> 1. Qu'est-ce que tu portes? 2. je porte ... 3. on porte ... 4. l'uniforme scolaire 5. un pantalon 6. un polo 7. un pull 8. un sweat 9. un tee-shirt 10. une chemise 11. une cravate 12. une jupe 13. une veste 14. des chaussettes (f) 15. des chaussures (f) 16. des baskets (f) 17. chic 18. confortable 19. démodé(e) 20. pratique 	<p><i>What do you wear?</i></p> <p><i>I wear ...</i></p> <p><i>we wear ...</i></p> <p><i>school uniform</i></p> <p><i>trousers</i></p> <p><i>polo shirt</i></p> <p><i>jumper</i></p> <p><i>sweatshirt</i></p> <p><i>tee-shirt</i></p> <p><i>shirt</i></p> <p><i>tie</i></p> <p><i>skirt</i></p> <p><i>jacket/blazer</i></p> <p><i>socks</i></p> <p><i>shoes</i></p> <p><i>trainers</i></p> <p><i>smart/stylish</i></p> <p><i>comfy/comfortable</i></p> <p><i>old-fashioned</i></p> <p><i>practical</i></p>	<p>5. Unit 4: Describing a French School</p>	<ol style="list-style-type: none"> 1. Quel est ton jour préféré? 2. Mon jour préféré, c'est le ... 3. J'ai deux heures d'anglais. 4. C'est ma matière préférée. 5. Je suis fort(e) en maths. 6. l'emploi du temps 7. la rentrée 8. les vacances 	<p><i>What's your favourite day?</i></p> <p><i>My favourite day is ...</i></p> <p><i>I have two hours of English.</i></p> <p><i>It's my favourite subject.</i></p> <p><i>I am good at maths.</i></p> <p><i>timetable</i></p> <p><i>start of new school year</i></p> <p><i>holidays</i></p>
<p>5. Unit 3: Describing your school day</p>	<ol style="list-style-type: none"> 1. Ta journée scolaire est comment? 2. je quitte la maison 3. j'arrive au collège 4. je retrouve mes copains 5. on commence les cours 6. je mange à la cantine 7. je chante dans la chorale 8. je joue dehors 9. on recommence les cours 10. je rentre à la maison 11. à (quatre) heures 	<p><i>What is your school day like?</i></p> <p><i>I leave the house</i></p> <p><i>I arrive at school</i></p> <p><i>I meet (up with) my friends</i></p> <p><i>we start lessons</i></p> <p><i>I eat in the canteen</i></p> <p><i>I sing in the choir</i></p> <p><i>I play outside</i></p> <p><i>we start lessons again</i></p> <p><i>I go home</i></p> <p><i>at (four) o'clock</i></p>	<p>6. Unit 5: My ideal school</p>	<ol style="list-style-type: none"> 1. Le collège est ... 2. grand / petit. 3. de taille moyenne. 4. Il y a 500 élèves. 5. On étudie ... 6. le japonais. 7. la cuisine. 8. les arts martiaux. 9. Il y a ... 10. un cinéma en 3D. 11. une piscine. 12. des courts de tennis. 13. Il n'y a pas de ... 14. harcèlement. 15. toilettes sales. 16. profs trop sévères. 17. on porte ... 18. Tu es d'accord? 19. Je (ne) suis (pas) d'accord! 	<p><i>The school is ...</i></p> <p><i>big / small.</i></p> <p><i>medium-sized.</i></p> <p><i>There are 500 pupils.</i></p> <p><i>We study ...</i></p> <p><i>Japanese.</i></p> <p><i>cookery.</i></p> <p><i>martial arts.</i></p> <p><i>There is ... / There are ...</i></p> <p><i>a 3D cinema.</i></p> <p><i>a swimming pool.</i></p> <p><i>tennis courts.</i></p> <p><i>There isn't ... / aren't ...</i></p> <p><i>bullying.</i></p> <p><i>dirty toilets.</i></p> <p><i>too strict teachers.</i></p> <p><i>we wear ...</i></p> <p><i>Do you agree?</i></p> <p><i>I (dis)agree!</i></p>



A. Present Tense Verbs

aimer (to like), *adorer* (to love) and *detester* (to hate) are all –er verbs.

To conjugate these verbs, take off the –er and add the correct ending.

adorer -> adorez
 j'adore nous adorons
 tu adores vous adorez
 Il/elle/on adore ils/ells adorent

Task: Translate the following sentences into French.

- I love geography but I hate history

- I quite like English and I really like science

- I don't like PE and maths but I love French

B. Adjective agreement

Most adjectives, including colours come after the noun and they must agree with the noun they describe.

Task: Put the following phrases in the right order.

- | | | | |
|------------------------|----------|---------|--------|
| 1 a purple polo shirt | polo | un | violet |
| 2 green trainersvertes | des | baskets | _____ |
| 3 blue trousers bleu | pantalon | un | _____ |
| 4 a white skirt une | blanche | jupe | _____ |

Task: Can you look up 6 new and interesting adjectives to describe your school uniform?

- _____
- _____
- _____
- _____
- _____
- _____

C. Asking questions: Combien?

Combien means “how many?” or “how much?”. When followed by a noun de or d' is used
 Example: il y a combien de profs? – How many teachers are there?

Write five quiz questions, using the information given. They try to answer them.

- profs/ton college

- grammes/un kilogramme

- personnes/une équipe de foot

- éléments/le tableau
périodique _____
- sports/un decathlon

D. Mon college idéal

Using wordreference.com to look up vocabulary to help you, write about your ideal school. Include the following

- What is the name of the school?
- How many teachers/students does it have ?
- What do you study there
- What is there/not there?
- What do students wear?



1. Key Vocabulary	
a) Development	What happens to a country as it grows wealthier
b) Highlands	Areas that are high above sea level or mountainous
c) Dharavi	An informal settlement in Mumbai
d) Lowlands	A flat area which is close to sea level
e) Landlocked	When a country has no access to the sea
f) Longitude	Measured by imaginary lines around the Earth vertically (up and down) and meet at the North and South Poles
g) Latitude	The distance of a place north or south of the equator
h) HIC	High Income Country (rich nations)
i) NEE	Newly Emerging Economy (nations growing wealthier)
j) LIC	Low Income Country (nations struggling with poverty)

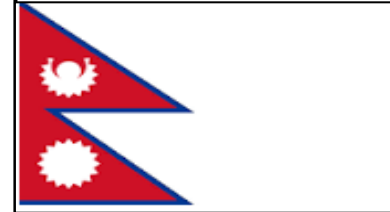
2. Nations



Bangladesh is a low income country (**LIC**) with a population of 165 million. 139th out of 188 countries on the Human Development Index.



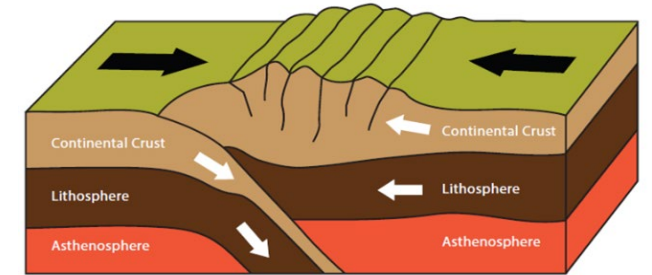
Nepal is a low income country with a population of 29 million (**LIC**). 144th out of 188 countries on the Human Development Index.



India is an newly emerging economy country (**NEE**) with a population of 1,380 million (1.38 billion). 131st out of 188 countries on the Human Development Index.



3. Plate Boundaries



This is called a **collision** plate boundary.



4. Key Vocabulary		5. Population pyramids			
a) Push factors	Reasons that people want leave places	India 2017 Population 1,380,000,000		UK 2017 Population 66,272,463	
b) Pull factors	Reasons that people are drawn (pulled) to cities				
c) Urban	To do with towns and cities				
d) Rural	To do with the countryside and farming				
e) Agriculture	Practice of farming, including cultivation of the soil for the growing of crops and the raising of animals				
f) Mumbai	The second-most populous city in India after Delhi and the seventh-most populous city in the world with a population of roughly 20 million.				
g) Overpopulation	When population becomes too large for the environment to support				
h) Mechanisation	Using machines to increase the productivity of farms				
i) Soil exhaustion	When farming happens too often soil reaches a point where it can no longer support life				
		6. Types of rainfall			
		<ul style="list-style-type: none"> ● Frontal rainfall occurs when a warm front meets a cold front. The heavier cold air sinks to the ground and the warm air rises above it. ● When the warm air rises, it cools. ● The cooler air condenses and form clouds. ● The clouds bring heavy rain 	<ul style="list-style-type: none"> ● Convective rainfall usually occurs during the summer in the UK, when the sun heats the land. This creates rising pockets of warm air ● Warm air rises rapidly, where it starts to cool and condenses to form clouds. These clouds can be large cumulonimbus clouds. 	<ul style="list-style-type: none"> ● Relief rainfall occurs when warm, moist air from the Atlantic Ocean rises up over mountains. ● When the warm air rises, it cools and condenses to form clouds, which brings rain. ● Once the air has passed over the mountains, it descends and warms. 	



1) Demonstrate knowledge of locations, places, processes, environments and different scales

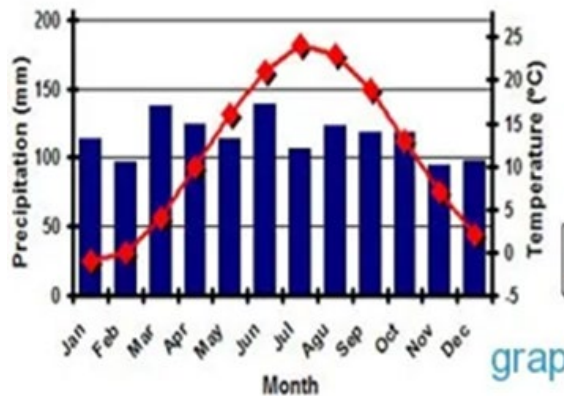
- a) **Name** 5 different effects of an earthquake. Order these effects from most significant to least significant. **Justify** your order.
- b) **Discuss** the different reasons why people around the world are moving to towns and cities.
- c) **Identify the** 5 steps involved in forming a cyclone.

2) Demonstrate geographical understanding of: concepts and how they are used in relation to places, environments and processes.

- a) **Identify** 3 ways that a country could better prepare for earthquakes,
- b) **Give** instructions to a community about how to prepare an earthquake survival kit. Justify your decision to include each item.
- c) 'Not all rain is formed the same way'. **To what extent** do you agree with this statement.

3) Interpret, analyse and evaluate geographical information to make judgements

- a) Using figure A, **explain** what the climate is like in that place?
- b) How does the temperature and rainfall change throughout the year?
- c) Is there a correlation between rising temperature and increased rainfall?

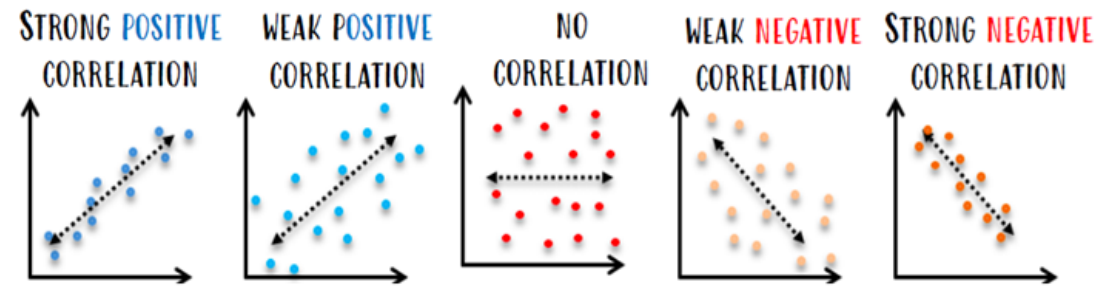


4) Vocabulary

Precipitation - rainfall/snow/sleet

Low pressure - when air is rising, which leads to evaporation, condensation and clouds

Correlation - relationship between two variables/ pieces of data





1. Summary

By 1901, Britain ruled the largest empire the world had ever known. This included over 450 million and covered ¼ (25%) of the surface of the world.

2. Key Words

a) empire	A group of countries, people or land ruled by one single country referred to as the “mother” country.
b) colony	A country that is part of an empire.
c) ‘Jewel in the crown’	A nickname for India. The largest and wealthiest part of Britain’s Empire.
d) Commonwealth	A group of countries that were once part of Britain’s Empire
e) Imperialism	The act of building an empire.
f) nationalism	Wanting your country to be the best or to be free from someone's empire
g) Britannia	A female figure used to symbolise the British Empire
h) East India Company	British trading company that gradually took control of India
i) famine	A shortage of food caused by pests or drought
j) The Raj	From the Hindi word for reign, the period of British rule in India after 1857 until 1947.
k) Mahatma Gandhi	A leader of the Indian independence movement.

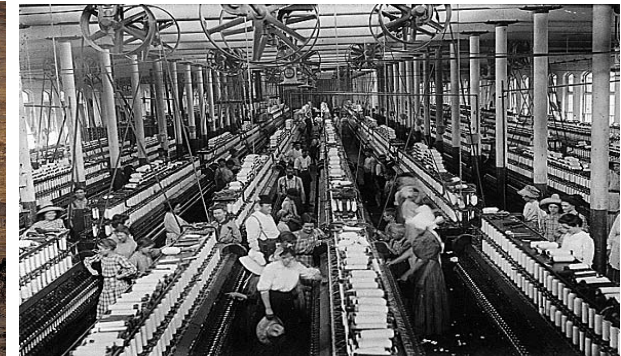
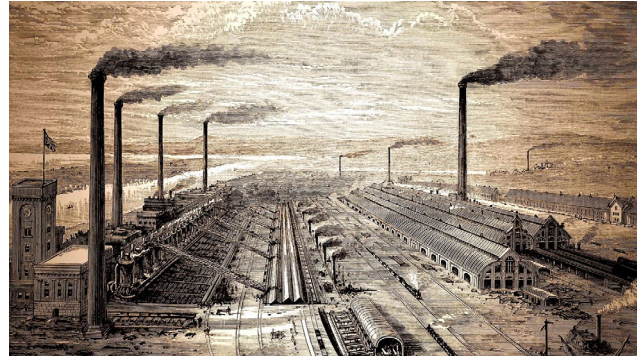


3. Key Places

a) Australia	Used as a location for criminals. Criminals would be shipped to Australia, where they would be used as a workforce
b) Caribbean	Sugar, cocoa and coffee were all grown as raw materials and taken to Britain to be processed and sold.
c) Africa	Britain used the people as slaves until and made a lot of money selling them at auctions until 1807. The Gold Coast was important because it held lots of gold, ivory and silver, which were traded for fortunes.
d) India	Provided spices, jewels and silks that were traded for money across the Empire. The Koh-i-Noor jewel – one of the biggest diamonds ever found- belonged to an Indian prince and is now amongst the crown jewels.



4. Key words	
a) Industrial Revolution	A time of great change in Britain between 1750 to 1900 where machines and factories changed the way people worked and travelled.
b) invention	Something new which is created, can be an object or an idea
c) economy	The system of how money is used within a particular country
d) agriculture	The process of producing food, and fibers by farming of certain plants or raising animals
e) poverty	The lack of basic human needs such as clean water, nutrition, healthcare, education and shelter
f) sanitation	Sanitation is the system that disposes of human waste
g) Industry	The process of making products by using machines and factories
h) mass production	The production of many products in one go e.g., textiles



5. Factory Working Conditions	
a) long working hours	Normal shifts were usually 12-14 hours a day, with extra time required during busy periods.
b) low wages	A typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, with children three shillings (15p).
c) cruel discipline	There was frequent "strapping" (hitting with a leather strap). Other punishments included nailing children's ears to the table and dowsing them in water to keep them awake.
d) poor health	The air was full of dust, which led to chest and lung diseases and loud noise made by machines damaged workers' hearing.

6. From 1750, Britain went through a process of change in several key areas	
a) agriculture	New tools, fertilizers and harvesting techniques were introduced, resulting in increased productivity and agricultural prosperity.
b) Industry	Factories sprung up all over the country creating more efficient ways to produce goods such as wool, cotton and coal.
c) transport and communications	Thomas Telford built roads and canals in the 1700s and George Stephenson and Isambard Kingdom Brunel oversaw the 'Railway Mania' of the 1800s.
d) technology	Society and industry. Changes to sanitation and medical treatment such as the work of John Snow and Edward Jenner improved people's quality of life.

7. Living Conditions	
a) overcrowding	Due to large numbers of people moving to the cities, there were not enough houses for all these people to live in.
b) disease	Typhus, typhoid, tuberculosis and cholera all existed in the cities of England. Overcrowding, low standard housing and poor-quality water supplies all caused disease.
c) waste disposal	Gutters were filled with litter. Human waste was discharged directly into the sewers, which flowed straight into rivers.
d) poor quality housing	Tenement houses were built very close together so there was little light or fresh air inside them.



1: Demonstrate knowledge and understanding of the key features of the periods studied.

1.1 Chronology

- Create an A3 timeline of the British Empire from its origin to its end.

1.2 Historical Terminology

- Define the following words: Federation, aborigines, dominion, chartered company, mandates, metropole, periphery, khedive, viceroy, Presbyterians, capitulations, Caisse De La Dette, Pax Britannica, bureaucracy, imperial duty

1.3 Key Features (Historical Knowledge)

- Explain THREE British actions in the Empire which influenced British attitudes towards the Empire.

2: Explain and analyse historical events and periods studied using historical concepts.

2.1 Change & Continuity

- Research how British attitudes towards their Empire changed in the 18th, 19th and 20th centuries. Explain why these changes happened.

2.2 Cause and Consequence

- Explain THREE causes of the Indian Mutiny of 1857 and THREE consequences of the mutiny for British rule in India.

2.3 Significance

- Research and evaluate the significance of the prospect of further trade as the main reason for Britain expanding their Empire into Africa. Is this more significant than personal, moral and strategic reasons?

3: Analyse, evaluate and use primary sources to make judgements.

3.1 Valid inferences

- What can you infer from the source about children's experience of mill work?

3.2 Nature, Origin, Audience, Purpose

- What is the nature, origin, Audience and purpose of the source?

3.3 Usefulness

- How useful is this source for an enquiry into children's work in factories during the Industrial Revolution? Why could it be limited?



A picture of working children from a novel published in 1840 called *Life and Adventures of Michael Armstrong: The Factory Boy* by Francis Trollope.

4: Analyse, evaluate and make judgements about interpretations.

4.1 Identifying views

- What is the view given by Toynbee about the Industrial Revolution?

4.2 Analysing interpretations



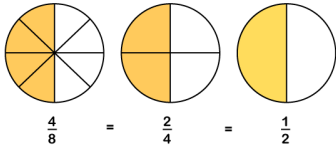
- What evidence can you find to support Toynbee's claim that the Industrial Revolution increased 'pauperism'?

4.3 Evaluating Interpretations

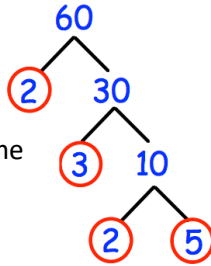
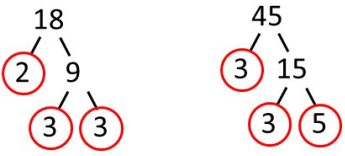
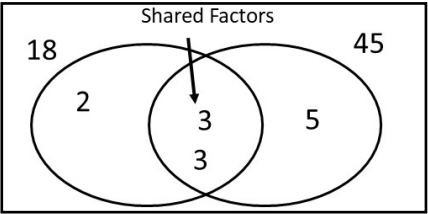
- Find TWO historians interpretations which support Toynbee's view on the Industrial Revolution and TWO historians who counter his view. Who do you agree with? Why?

A period as disastrous and as terrible as any through which a nation ever passed; disastrous and terrible, because, side by side with a great increase of wealth was seen an enormous increase in pauperism and production on a vast scale, the result of free competition, led to a rapid alienation of classes and to the degradation of a large body of producers.
Arnold Toynbee's Lectures on the Industrial Revolution in England



1. Keywords			2. Worked examples
Keyword	Definition	Example	
a. Convert	Change from one form to another	Convert 0.25 into a percentage and a fraction	<p>a) Convert $\frac{13}{20}$ into a percentage Find an equivalent fraction so the denominator is 100</p> $\frac{13 \times 5}{20 \times 5} = \frac{65}{100}$ <p>This means $\frac{13}{20} = 65\%$</p> <p>b) Convert 65% into a decimal Write as a fraction out of 100, then divide the numerator by the by 100</p> $\frac{65}{100} = 65 \div 100 = 0.65$ <p>65% = 0.65</p> <p>c) Convert 0.4 into a fraction Turn the decimal into a percentage by multiplying by 100</p> $0.4 \times 100 = 40$ <p>Turn the percentage into a fraction over 100, then simplify</p> $\frac{40 \div 20}{100 \div 20} = \frac{2}{5}$ <p>0.4 = $\frac{2}{5}$</p> <p>Sparx independent learning codes: M410, M671, M335, M601, M958, M264, M553, M701, M922</p>
b. Decimal	A non-integer (not a whole number), expressed using a decimal point		
c. Equivalent	Equal in value (the same amount)	$\frac{7}{10} = 0.7 = 70\%$	
d. Fraction	A number that represents an equal part of a whole. It contains a numerator (top) and a denominator (bottom). The numerator is <i>divided</i> by the denominator.	<p>$\frac{1}{4}$ means 1 out of 4 equal parts</p> 	
e. Equivalent Fractions	Fractions that have the same value but look different.		
f. Percentage	An amount expressed as a value out of 100	50% means 50 out of 100	



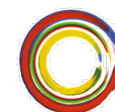
1. Keywords			2. Worked examples	
Keyword	Definition	Example		
a. Index	A number raised to a power to show how many times the number is multiplied by itself	$2^3 = 2 \times 2 \times 2$	a) Express 60 as a product of its prime factors  $60 = 2 \times 2 \times 3 \times 5$ $60 = 2^2 \times 3 \times 5$ In index form	
b. Prime number	A prime is a number that has only two factors which are 1 and itself	2 is a prime number because it can only be divided by 1 and itself	b) Find the HCF and LCM of 18 and 45 1. Complete Prime Factorisation for both numbers  $18 = 2 \times 3 \times 3$ $45 = 3 \times 3 \times 5$	
c. Product	Multiply	The product of 4 and 5 is 20 because $4 \times 5 = 20$	2. Input the Prime Factors into a Venn diagram 	
d. Factor	Factors are the positive integers (whole numbers) that can divide a number evenly.	$30 \div 5 = 6$ 5 and 6 are factors of 30	3. HCF = Product of shared factors $3 \times 3 = 9$ 4. LCM = Product of all factors in the diagram $2 \times 3 \times 3 \times 5 = 90$	
e. Multiple	The result of multiplying a number by an integer (whole number)	The first four multiples of 3 are: 3, 6, 9, 12		
f. Lowest Common Multiple (LCM)	The smallest number that is a multiple of each number	The LCM of 3 and 4 is 12		
g. Highest Common Factor (HCF)	The biggest number that divides exactly into two or more numbers	The HCF of 6 and 15 is 3	Sparx independent learning codes: M823, M322, M108, M365	



1. Keywords			2. Worked examples	
Keyword	Definition	Example		
a. Ratio	A way in which amounts can be divided or shared	Share £60 in the ratio 3 : 2	a) Will and Olly share £40 in the ratio 3 : 2 Work out how much money each of them gets	
b. Simplest form	Ratios can be simplified by finding common factors .	$\begin{array}{ccc} & 6:8 & \\ \div 2 \swarrow & & \searrow \div 2 \\ & 3:4 & \end{array}$	$3 + 2 = 5$ $40 \div 5 = 8$ $\begin{array}{ccc} & W : O & \\ \times 8 \swarrow & 3 : 2 & \searrow \times 8 \\ & 24 : 16 & \end{array}$	
c. Equivalent ratios	When both sides of a ratio can be multiplied or divided by the same number to give an equivalent ratio.	$\begin{array}{ccc} & 8:12 & \\ \div 2 \swarrow & & \searrow \div 2 \\ & 4:6 & \\ \div 2 \swarrow & & \searrow \div 2 \\ & 2:4 & \end{array}$	Will gets £24 and Olly gets £16	
d. Direct proportion	Ratios are in direct proportion when they increase or decrease in the same ratio .	500 sheets of paper = 2.5kg 50 sheets of paper = 0.25kg	b) Carly and James share some money in the ratio 5 : 3 Carly gets £70 more than James. Work out how much money James gets.	
e. Inverse proportion	Ratios are in inverse proportion when one increases as the other decreases.	It takes 5 builders 4 days to build a roof. It will take 10 builders 2 days to build a roof if they work at the same rate.	CARLY $\boxed{35}$ $\boxed{35}$ $\boxed{35}$ $\boxed{35}$ $\boxed{35}$ JAMES $\boxed{35}$ $\boxed{35}$ $\boxed{35}$ $\underbrace{\hspace{2cm}}_{70}$	
f. Conversion	To change a value from one form or unit to another.	There are 100 centimetres in 1 metre	$70 \div 2 = 35$ $3 \times 35 = 105$ James gets £105	
Sparx independent learning codes: M885, M801, M267, M525, M543, M478, M681, M472, M665, M448				



1. Mathematical Vocabulary		2. Mathematician Research	
Define each of the words given. Give an example for each.	a. Irrational numbers b. Surds c. Recurring fractions	Who are they? What are they famous for? What contributions have they made to maths?	Ada Lovelace
3. Watch	BBC Magic Numbers Mysterious World of Maths 2of3 720p HDTV x264 AAC MVGroup.org - YouTube (58 mins and 58 secs)		
4. Thinking Mathematically			
<p>a. Fractions Rectangle</p> <p>The large rectangle above is divided into a series of smaller quadrilaterals and triangles. Each of the shapes is a fractional part of the large rectangle. Can you untangle what fractional part is represented by each of the ten numbered shapes?</p>			
<p>b. Counting Factors</p> <ol style="list-style-type: none"> Charlie wants to work out the factors of 360. What is the most efficient way to do this? Charlie ended up using prime factors and looked at all the different ways that the number could be made up. Charlie realises that there are 24 factors. How many other numbers have exactly 24 factors? What is the smallest number with exactly 100 factors? Which number less than 1000 has the most factors? 		<p>c. Thousands and Millions</p> <ol style="list-style-type: none"> Do human beings live for as long as a million hours? If you have been alive for a million seconds, how many birthdays have you had? What year was it one billion minutes ago? How long would it take to count to a million? Suppose you were worth your weight in £1 coins. How much would you be worth? Could you fit the population of London into one hundred thousand double-decker buses? Could you run one thousand metres in one minute? Could you eat exactly one tonne of food in a year without altering your weight dramatically? Could you walk as much as one hundred thousand miles during your lifetime? Could one thousand drink cans fit into one cubic metre? 	
<p>5. Short Problems</p> <ol style="list-style-type: none"> The time shown on a digital clock is 5:55. How many minutes will pass before the clock next shows a time for which all the digits are the same? A boy has the same number of sisters as brothers. Each of his sisters has only half as many sisters as brothers. How many brothers and sisters are in the family altogether? An athletics club has two types of member: junior and adult. The junior members are either boys or girls. There are 16 more adult members than there are junior members. The ratio of girls to boys to adults is 3:4:9. In total, how many members does the club have? The Bean family are very particular about beans. At every meal all Beans eat some beans. Pa Bean always eats more beans than Ma Bean but never eats more than half the beans. Ma Bean always eats the same number of beans as both children together, and the two children always eat the same number of beans as each other. At their last meal they ate 23 beans altogether. How many beans did Pa Bean eat? 			



1. Improvisation

Improvisation means 'making music up on the spot'.

There are some rules in place to help you.

- Use 1-5 notes of the scale
- Avoid starting **and** ending on the tonic
 - End on the 3rd degree of the scale
 - End on the 4th degree of the scale
 - End on the 5th degree of the scale
- Use rests
- Repeat rhythms
- Create a short motif and repeat it

Tonic	First note (or degree) in the scale
3rd	Third note (or degree) in the scale
5th	Fifth note (or degree) in the scale
Octave	The 8th note (or degree) of the full scale (this will be the same name note as the tonic, just the higher version)

2. Major Scales

G Major Scale - Flutes

D Major Scale - Violins

3. Keywords

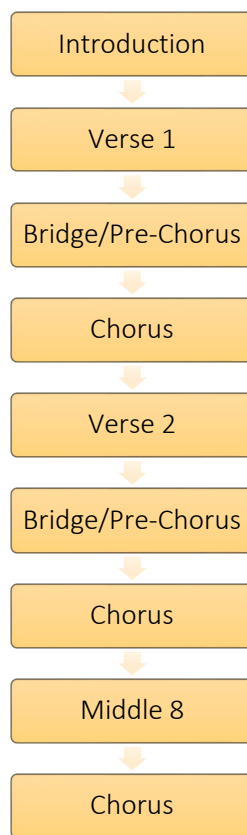
Keyword	Definition
Conjunct	Notes move in steps.
Disjunct	Notes move in leaps.
Ascending melody	Melody moves up in pitch.
Descending melody	Melody moves down in pitch.
Structure	The different sections of the music.
Improvisation	Making music up on the spot.
Composition	Creating your own music.



1. The 4 chord song keywords

Introduction	The first section of a song which sets the mood of the song and is sometimes, but not always, an instrumental section using the song's chord pattern.
Pre-Chorus	An optional section of music that occurs before the chorus which helps the music move forward and "prepare" for what is to come.
Middle 8	A section (often 8 bars in length) that provides contrasting musical material often featuring an instrumental.
Melody	The main tune of the song often sung by the Lead singer.
Structure	The different sections or parts of a piece of music and how they are ordered, the overall shape of the music.
Texture	The layers that make up a song e.G., Melody, hooks/riffs, chords, bass line, drums.
Lyrics	The words of the song.
Riff	The catchy part of a song usually played on guitar or keyboard.
Rhythm	The different lengths of notes e.g Chips, Burger.
Verse	A section of a song. The lyrics change for each verse but the melody stays the same.
Chorus	A section of a song. The lyrics and melody are repeated in each chorus.

2. Typical structure of a pop song

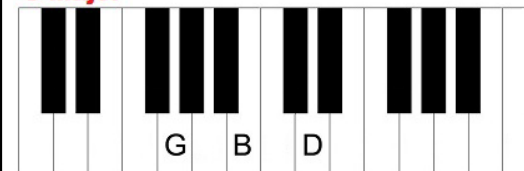


3. Chords

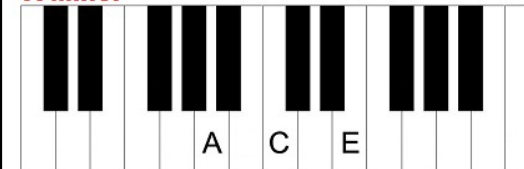
C Major



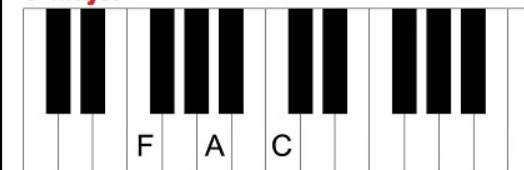
G Major



A Minor



F Major



4. Chord charts

A lot of pop songs only use 4 chords throughout. This makes them catchy and easy to learn.

Chord charts are an easy method of writing and reading music. They tell you how many beats each chord is played for by using a forward slash / to indicate the remaining beats.

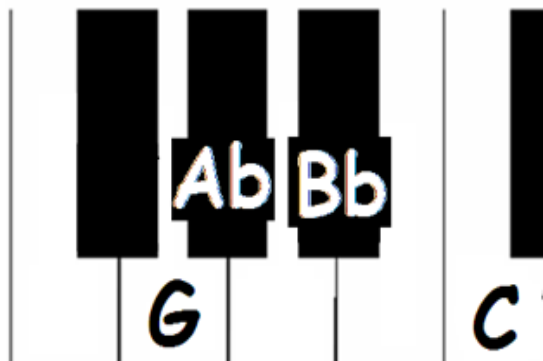
e.g:

C/// | G/// | Am/// | F///



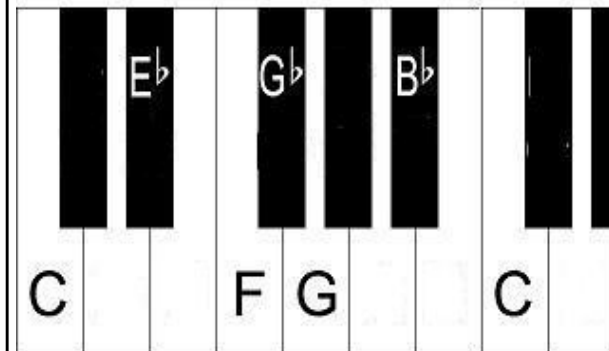
5. Blues keywords	
Improvisation	Music created 'on the spot' (previously unprepared performance)
Chord/triad	3 notes played at the same time (root, third and fifth)
Twelve Bar blues	A specific sequence of chords (1, 4 and 5). For example C – F – G
Seventh chord	A triad (root, third and fifth) with a fourth note added which is seven notes about the root/tonic. C7 = C , E, G (triad) + B flat.
Swing/swung rhythm	Performing a regular 'straight' rhythm with a 'lilt' in a "one and a, two and a" style (using triplets) common in swing music.
Scale	A series of notes which can be used when improvising.
Bass line	The lowest pitched part of the music often played on bass instruments such as the bass guitar or double bass. RIFFS are often used in BASS LINES.
Blues notes	Additional or extra sharpened or flattened notes in a melody.

6. The Bass Line



Played low pitch, on the left side of the keyboard with your left hand. It is a descending line starting on the note of C.

7. The Blues Scale



The notes of the Blues Scale are used to create melodies and improvisation, on right side of the keyboard with your right hand, in Blues music.

8. Notes on The Bass Guitar

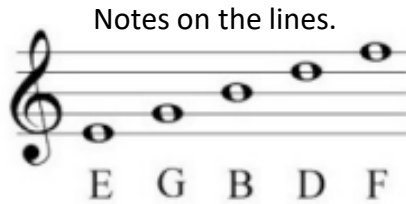


9. The structure of Blues Music

Twelve Bar Blues Chord Sequence							
CHORD I	1	CHORD I	2	CHORD I	3	CHORD I	4
CHORD IV	5	CHORD IV	6	CHORD I	7	CHORD I	8
CHORD V	9	CHORD IV	10	CHORD I	11	CHORD I	12

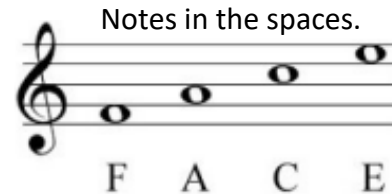


1) Notes on the Staff



I remember where the pitches are by the rhyme, from bottom to top:

Fit _____
 Don't _____
 Boots _____
 Green _____
 Eddie's _____

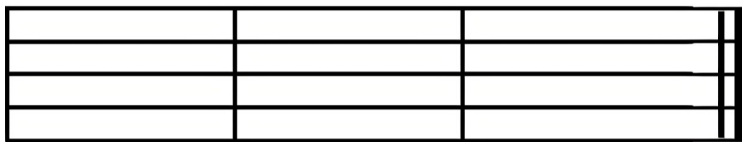


I remember where the pitches are by the rhyme, **FACE** in the spaces:

_____ E
 _____ C
 _____ A
 _____ F

2) Bar Lines

Music on the staff is divided into bar lines. If the time signature is 4/4, after the fourth beat there is a bar line. The lines divide the music into chunks of 4 beats.



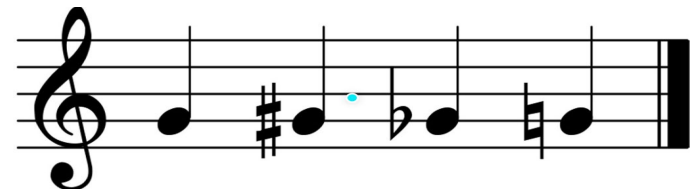
Bar Lines

A double bar line is placed at the end of the staff to signify the end of the music

3) Accidentals in music






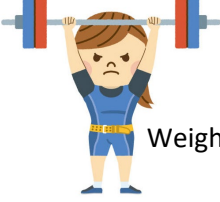
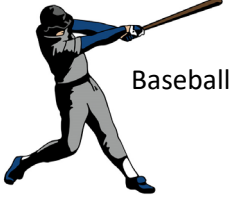


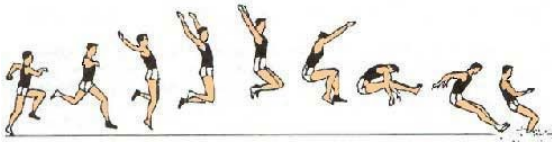
Sharps (#) and flats (b) are accidentals. They are written into the music. This is G#. You play the black note to the right of the G on the keyboard. This is Gb. You play the black note to the left of the G on the keyboard. A key signature at the beginning saves writing all the accidentals into the music.

If the key signature shows F#, then all the Fs in the music are played sharp.



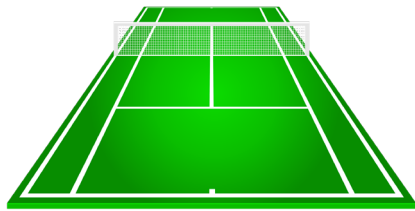


All movement requires energy. The body draws from different energy systems depending on the **intensity** and **duration** of the activity.

[1] Aerobic Energy System	[2] Anaerobic Energy System
<p>Glucose + oxygen → energy + carbon dioxide + water</p>	<p>Glucose → energy + lactic acid</p>
<p>Used for long duration activities of more than 1 minute.</p> <p>Used for low to moderate intensity activities.</p>	<p>Used for short duration activities of less than 1 minute.</p> <p>Used for high intensity activities.</p>
<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Hiking</p> </div> <div style="text-align: center;">  <p>Marathon</p> </div> <div style="text-align: center;">  <p>Cycling</p> </div> </div> <p style="text-align: center; color: red; font-weight: bold;">EXAMPLES</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Rowing</p> </div> <div style="text-align: center;">  <p>Swimming</p> </div> </div>	<div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Weightlifting</p> </div> <div style="text-align: center;">  <p>Baseball</p> </div> <div style="text-align: center;">  <p>Shot Putt</p> </div> </div> <p style="text-align: center; color: blue; font-weight: bold;">EXAMPLES</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>Sprinting</p> </div> <div style="text-align: center;">  <p>Long Jump</p> </div> </div>



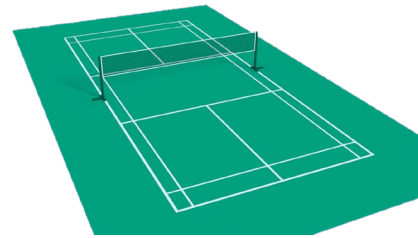
[3] Net Games are activities in which players send an object towards a court or target area that an opponent is defending. The aim is to cause the object to land in the target area while making it difficult for the opponent to return the object.



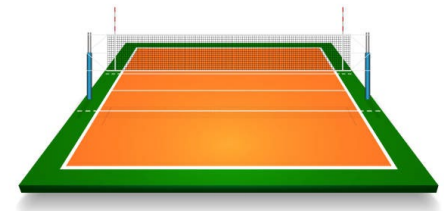
Tennis



Table Tennis



Badminton



Volleyball

[4] Key Vocabulary

Serve	The serve is used to start each point of the game. In tennis and table tennis, each player serves for a section of the match before switching. In badminton and volleyball, the player who won the previous point earns the right to serve next.
Volley	To strike the ball/shuttlecock before it touches the ground. Volleying the ball/shuttlecock is a requirement for both badminton and volleyball. In tennis, the player may choose whether or not to volley the ball. In table tennis, volleying the ball is strictly not allowed.
Forehand	A stroke played with the palm of the hand facing in the direction of the stroke.
Backhand	A stroke played with the back of the hand facing in the direction of the stroke, with the arm across the body
Let	This refers to when a point has to be replayed. This usually occurs when the server hits the net on a serve but the ball still lands on the opponents side. A let is also referred to as a do-over. Neither badminton or volleyball allow let serves.
Spin	Spin is created by applying a force that is off centre to the object being struck at the point of release. The effects of spin cause the ball to change direction at the point of its next impact. The Magnus effect explains why the paths of balls deviate from normal flight path.



1. Challenging Vocabulary - Describe and explain

What? How? When? Who? Example?

- a) Skills
- b) Attacking
- c) Defending
- d) Footwork
- e) Marking
- f) Dodging
- g) Scoring

2. Challenging Vocabulary - Describe and explain

What? How? When? Who? Example?

- a) Officiating
- b) Formations
- c) Tactics
- d) Teamwork
- e) Sportsmanship
- f) Feedback
- g) Outwitting an Opponent

3. Application of knowledge – Explain your answer

What does the respiratory system do?

Describe how we breathe.

What is 'Gaseous Exchange'?

What path does the air take when you breathe?

4. Apply and Analyse – Higher order thinking

Choose a position in any of the sports shown in the main knowledge organiser and describe the role of a player in that position.

Why is teamwork important to a successful team? Can you give an example from a sport you play or watch?

How are sportsmanship and officiating linked in team games?

5. Application of knowledge within specific sporting contexts

5A Mike is 46 year old man who takes part in lots of football. He is a midfield player. Explain how his respiratory system will be used when playing his sport.



5B Jamie is 31 year old lorry driver. He does not lead an active life and he smokes. Explain how smoking may effect his respiratory system.

5C Emma is a 30 year old women, she plays hockey on a Saturday. Emma is an attacking player. Explain what this means and what skills she will need to be good at.








5D Jack is a 32 year old man who loves cycling long distances. Explain how this type of activity can help to keep Jack healthy. (think about the heart and respiratory system).

5E Katy is a netball umpire for a local under-16 team. Explain her role and why she is important in the game.



<p style="text-align: center;">Key Words</p> <ol style="list-style-type: none"> Morality – Principles & standards determining right or wrong actions Absolute Morality: Absolute morality is when a person has a principle and never alters it. They apply this principle or moral standard to all situations, no matter what the context or circumstance. Relative Morality: When a person holds a moral principle but is prepared to adapt or adjust it in certain situations. Forgiveness – To grant a pardon for a wrongdoing; to give up resentment and the desire to seek revenge against a wrongdoer Sin – deliberate immoral action, breaking a religious or moral law Suffering - Pain or distress caused by injury, illness, loss, Emotional / psychological, physical, or spiritual Good – considered morally right, beneficial or to our advantage Evil – considered extremely immoral, wicked, or wrong Free Will – Ability to make choices voluntarily and independently. Nothing predetermined Justice – Fairness, equal provision, and opportunity 	<p>How do we make moral decisions?</p> <p>Conscience</p> <p>The Law</p> <p>Past Experiences</p> <p>Religious Leaders</p> <p>Religious Teachings</p> <p>Situation Ethics</p> <p>Utilitarianism</p> <p>Reason and Logic</p>	<p style="text-align: center;"> Religious Attitudes towards forgiveness: Christians</p> <p>Forgiveness is a prominent theme within Christianity and within the Bible as a whole.</p> <ul style="list-style-type: none"> Christianity is known as a religion of forgiveness, love and compassion, and these themes are evident in religious teachings and the example of Jesus and other leaders within the faith such as Martin Luther King. Jesus’ teachings The Bible clearly instructs Christians to forgive: ‘Do not judge, and you will not be judged. Do not condemn, and you will not be condemned. Forgive, and you will be forgiven.’ Luke 6:37 The importance of forgiveness is emphasised in the Lord’s Prayer. Christians ask God to ‘forgive their sins, as they forgive those who have sinned against them’
	<p>Gee Walker: practising Christian and mother of Anthony Walker, who was murdered in a racial attack in Liverpool in 2005</p> <p><i>‘Unforgiveness makes you a victim and why should I be a victim? Anthony spent his life forgiving. His life stood for peace, love and forgiveness and I brought them all up that way.’</i></p> <p>Mahatma Ghandi: Hindu leader of the Independence Movement in British-run India, 1869–1948</p> <p><i>‘The weak can never forgive. Forgiveness is the a tribute of the strong.’</i></p>	<p style="text-align: center;">Religious Attitudes towards forgiveness: Muslims </p> <ul style="list-style-type: none"> The Qur’an states that those who forgive others will be rewarded by God and that forgiveness is the path to peace. Islam accepts that human beings are not perfect and that everybody makes mistakes in life and unknowingly sins. Within Islam there are two kinds of forgiveness: God’s forgiveness and human forgiveness. Human beings need both as they make mistakes in their actions towards each other and their actions towards God. According to the Qur’an, there is no limit to God’s forgiveness. The words ‘God is Oft-forgiving, Most Merciful’ are repeated many times throughout the Qur’an. In the Qur’an it says: ‘God loves those who turn unto Him in repentance and He loves those who keep themselves pure



<p style="text-align: center;">Key Words </p> <ol style="list-style-type: none"> Good – considered morally right, beneficial or to our advantage Free Will – Ability to make choices voluntarily and independently. Nothing predetermined Justice – Fairness, equal provision, and opportunity Punishment – Penalty for a crime or wrongdoing Crime: An unlawful act breaking government laws which is punishable by the state, e.g., theft, speeding, assault Suffering - Pain or distress caused by injury, illness, loss, Emotional / psychological, physical, or spiritual 	<p style="text-align: center;">Aims of Punishment</p> <p>Protection – protecting society</p> <p>Vindication – upholding the law / punishment justified </p> <p>Deterrence – discouraging others</p> <p>Reform – making someone change</p> <p>Reparation – repairing damage</p> <p>Retribution – punishment inflicted as vengeance </p>	<p style="text-align: center;">Christian Attitudes towards the Death Penalty</p> <p>Liberal Christians Most Christians believe that only God has the right to take a life.</p> <p> Execution goes against the sanctity of life, as all life is precious and only God should end it.</p> <p>Christians believe that God commanded ‘Thou shalt not kill’ (Exodus 20:13), Christians should follow the teachings of Jesus to be compassionate and forgiving.</p> <p>Jesus was forgiving to the adulterous woman (John 8) and also pleaded with God for his executioners to be forgiven when he was on the cross: ‘Father <u>forgive</u> them, for they know not what they do’. Luke 23:33–34</p> <p>Conservative Christians Some Christians advocate the death penalty, seeing it as following the Old Testament law of ‘an eye for an eye’.</p> <p>In the Old Testament it states: ‘Whoever sheds the blood of man, by man shall his blood be shed’ Genesis 9:6 In total, the Old Testament specifies es 36 capital offences including crimes such as idolatry, magic and blasphemy, as well as murder.</p> <p>Some Christians would therefore argue that the death penalty was not only Some Christians also argue that capital punishment upholds the commandment ‘thou shalt not kill’ by showing the seriousness of the crime of murder.</p>
<p>For </p> <ul style="list-style-type: none"> Life terms in prison are very expensive – £40,000 per year. Some people – such as the criminally insane – cannot be reformed. It is the only way that victims can experience closure. There <u>has to be</u> an ultimate punishment for the very worst crimes. Execution is the only way to truly protect society from very dangerous murderers and terrorists 	<p>Against</p> <ul style="list-style-type: none"> The death penalty is just state- sanctioned murder There is evidence that innocent people have been executed. The death penalty does not deter murderers. Only God has the right to end a life.  Two wrongs do not make a right. The state should be a moral force for good. Forgiveness is important 	<p style="text-align: center;">Muslim Attitudes towards the Death Penalty</p> <p>Islam accepts capital punishment. Some Muslims believe that capital punishment is a severe sentence but one that can be issued for the most severe crimes</p> <p>Some Muslims agree that this ‘just cause’, for which the death penalty is permitted, is the crimes of murder</p> <p>There is a growing number of Muslims who disagree with the death penalty and call for it to be abolished </p>



Challenge Tasks

1. Create 10 true or false statements on today's topic
2. Transform your learning into a series of images using up to 5 words
3. Plan an alternative lesson about what we have learnt today
4. Construct a timeline showing your learning through today's lesson
5. Produce a summary of today's lesson – then reduce the number of words used to a single sentence or three bullet points
6. Turn today's learning outcomes into questions
7. Select 5 key terms that you have used today and create a summary using all of the terms
8. Create 5 questions your teacher might ask about today's learning
9. Use a thesaurus to add more ambitious vocabulary into your work
10. If today's lesson were an album or a newspaper heading, what would it be called? What songs would be on it?
11. Include three quotations / arguments to support your answer
12. Add a justified conclusion to your evaluative writing

Research Challenge

Good and Evil Individuals

- A. Research Elizabeth Fry on prison reform
- B. Research John Howard on prison reform
- C. Research Gee Walker on forgiveness
- D. Research Azim Khamisa – founder of the Tariq Khamisa Foundation (Islam) on forgiveness
- E. Research Mahatma Gandhi (Hinduism) on forgiveness

Human Right Groups

- F. Research the role of prison chaplains
- G. Research Amnesty International
- H. Research Humanists – who are they? What do they stand for?
- I. Research Christian attitudes towards crime
- J. Research Muslim attitudes towards crime
- K. Research your own role model / organisation that you think has helped support vulnerable members of society with avoiding crime.

Wider Links Challenge

- I. Use the internet to find any examples of restorative justice
- II. Evaluate are prisons effective? Do are they schools for criminals?
- III. Evaluate is the death penalty effective as a form of punishment?
- IV. Describe the impact of today's learning on your wider outlook
- V. Explain how you might use today's learning outside of school
- VI. Describe how today's learning relates to another of your subjects





(1) Key Terms	Definitions	
a) Chlorophyll	Green pigment in chloroplasts of plant cells. It enables (allows) photosynthesis to take place.	<p>(2) Respiration – the process of releasing energy from glucose. It is a chemical reaction that takes place within all cells.</p> <p>Aerobic respiration – respiration with oxygen glucose + oxygen → carbon dioxide + water (+ energy)</p> <p>Anaerobic respiration – respiration without oxygen glucose → lactic acid (+energy)</p> <p>Less energy is released during anaerobic respiration, and lactic acid builds up in the muscles, causing pain. Aerobic respiration is required for short, vigorous bursts of exercise.</p> <p>Respiration is an exothermic reaction. This means that it releases energy.</p> <p>Respiration is needed for life processes such as:</p> <ul style="list-style-type: none"> • growth and repair • movement • control of body temperature (in mammals)
b) Chloroplasts	Contain the green pigment (colour) chlorophyll, which absorbs the light energy plants need for photosynthesis.	
c) Fertilisers	Chemicals that contain minerals that plants need to build new tissue (grow).	
d) Lung	Soft organ that inflates to draw in oxygenated air and deflates to exhale (breathe out) air.	
e) Mitochondria	Organelles in the cytoplasm of cells. Respiration takes place in the mitochondria.	
f) Oxygen debt	The amount of extra oxygen required by the body for recovery after vigorous (hard) exercise.	
g) Photosynthesis	Process carried out where plants make their own food. carbon dioxide + water → glucose + oxygen	<p>(3) Photosynthesis</p> <p>Plants do not eat but use energy from light, with carbon dioxide to produce glucose (food) through photosynthesis. They use the glucose either as an energy source, or to store it for later use.</p> <p>water + carbon dioxide (+ energy) → glucose + oxygen</p> <p>Photosynthesis is an endothermic reaction. This means that it absorbs energy.</p> <p>Photosynthesis takes place in organelles called chloroplasts, which contain a green pigment (dye) that helps the plant to absorb light energy. Almost all life on the planet depends on photosynthesis.</p>
h) Respiration	A chemical reaction in living things which oxygen is used to release the energy from food. glucose + oxygen → carbon dioxide + water (+energy)	
i) Stomata	Pores in the bottom of a leaf which open and close to let gases in and out.	

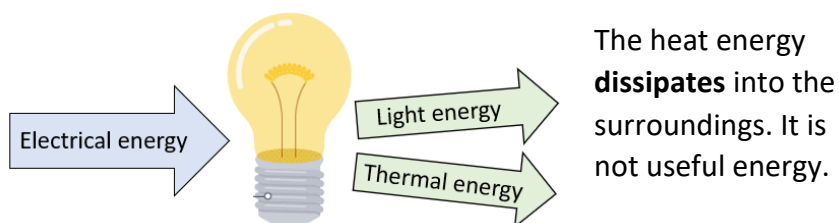


(1) Key Words	Definitions	<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;"> <p>K ↑</p> <p>Na</p> <p>Ca</p> <p>Mg</p> <p>Al</p> <p>Zn</p> <p>Fe</p> <p>Cu</p> <p>Au</p> <p>Pt</p> </div> <div> <p>(2) The Reactivity Series</p> <p>The reactivity series of metals tells us how reactive a metal is. The more reactive metals are at the top and unreactive metals are at the bottom.</p> <p>A more reactive metal can take the place of a less reactive metal in a reaction. We call this a displacement reaction.</p> <p style="text-align: center;">copper sulfate + iron → iron sulfate + copper</p> </div> </div>
a) Activation Energy	The minimum (smallest) amount of energy that colliding particles must have for them to react.	
b) Catalyst	A substance that increases the rate of a reaction but is not itself used up.	
c) Carbon particulates	This is another word for soot (the black stuff that forms on the bottom of barbeques or Bunsen burners).	
d) Combustion	Another word for burning in oxygen.	
e) Displacement	A more reactive metal will displace ('kick out') a less reactive metal in a reaction	
f) Endothermic	Reactions that take in heat energy – the temperature will decrease.	
g) Exothermic	Reactions that give out heat energy. The temperature will increase	
h) Fuel	Contain hydrocarbons – compounds containing hydrogen and carbon atoms only.	
i) Hydrocarbon	A molecule that is made of hydrogen and carbon only.	
j) Oxidation	Reaction of other elements with oxygen	
k) Reactivity series	List of metals in order of reactivity.	
l) Thermal Decomposition	When a substance is broken down into 2 or more products by heat.	
<p>(3) Exothermic and Endothermic Reactions</p> <p>An exothermic reaction releases energy to the surroundings and there is an increase in temperature.</p> <p>An endothermic reaction absorbs energy from the surroundings and there is a decrease in temperature.</p>		
<p>(4) Combustion Reactions</p> <p>Combustion means 'burning in oxygen'.</p> <p>Complete combustion happens when there is plenty of oxygen for all the fuel to burn.</p> <p style="text-align: center;">hydrocarbon + oxygen → carbon dioxide + water</p> <p>Incomplete combustion happens when there is insufficient oxygen for the fuel to burn completely.</p> <p style="text-align: center;">hydrocarbon + oxygen → carbon monoxide + water</p>		



(1) Key Word	Definition	(3) Energy Store	Description
a) Dissipate	Spreads out wastefully into the surroundings	a) Gravitational Potential (GPE)	Anything that can be lifted by against a gravitational field
b) Energy Transfer	Changes from one form of energy to another form of energy.	b) Chemical	Energy that can be released by a chemical reaction.
c) Force	A push, a pull or a twist that acts on an object.	c) Kinetic Energy	Anything that moves has a kinetic energy store.
d) Joule (J)	Joules are the units of energy.	d) Elastic Potential	Anything that is stretched, or compressed.
e) Power (P)	The rate of work done (how much work is done in a particular time), or the amount of energy transferred every second.	e) Thermal Energy	Everything has thermal energy. Hotter objects have more thermal energy.
f) Watt (W)	Watts are the unit of Power. A kW is 1000 W	f) Magnetic	Magnets that attract or repel each other.
g) Work Done (J)	When a force moves a particular object a certain distance, we say that is work done. Energy is transferred as the object is moved.	g) Electrostatic	Electric charges that attract or repel each other.
		h) Nuclear	Energy stored in the nucleus of atoms.

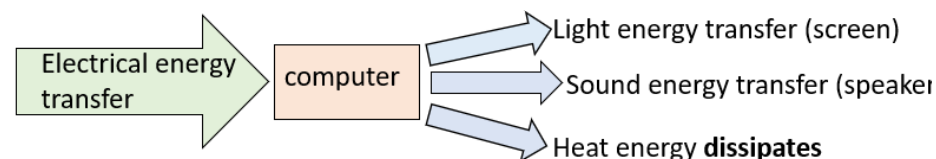
(2) Energy Transfers
 Energy cannot be destroyed, or created. It can only be **transferred** from one energy store to another.
 Some energy transfers are useful to us, for example energy is transferred electrically to a light bulb and then light energy is transferred so that we can see. Some energy is always transferred as heat energy. This is not useful to us. **It is wasted energy.**



(4) Energy Transfers

Energy Transfer	Description
a) Mechanically	When a force makes something move.
b) Heating	Hotter objects transfer energy to cooler objects
c) Electrically	When electric charges move around a circuit.
d) Light and Sound	Waves transfer energy between places.

Learn the energy transfers that take place when a computer is switched on.





(5) Energy and Work – moving objects

Energy is transferred when a force moves an object over a distance. Energy is transferred to the **kinetic energy store**. We call this **work done**.

Learn the equation to calculate work done

$$\begin{matrix} \text{Energy transferred /} \\ \text{Work done (J)} \end{matrix} \leftarrow \mathbf{E = F \times d} \leftarrow \begin{matrix} \text{Force (N)} \\ \text{distance (m)} \end{matrix}$$

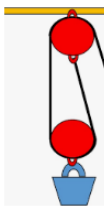
Work done = Force x distance

The bigger the force, the more work is done – the more energy has been transferred.

Remember – Energy transferred and work done are the same thing!

(6) Machines and Work done (energy transferred)

A simple machine is a device that can change the direction, or force of an object to make it easier to move. Machines transfer energy (do work).



The pulley reduces the distance the load is moved.

The trolley has wheels, which reduces friction.



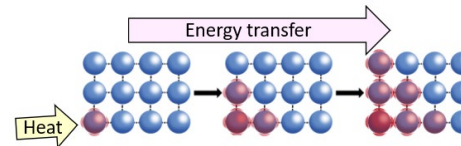
(7) Heating and Cooling

Hotter objects transfer energy to cooler objects by heating them. The hotter object cools down and the cooler object heats up.

Thermal energy is transferred in three ways:

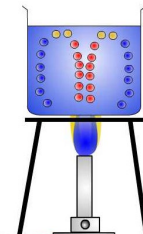
Conduction

Vibrating particles in a **solid** transfer energy to their neighbouring particles. The particles **MUST** be touching for heat transfer by conduction.



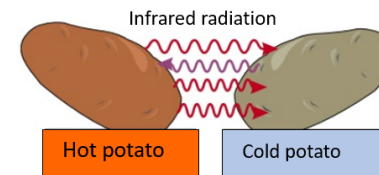
Convection

Particles in a **fluid** (liquid, or gas) can move. Convection happens when particles with more thermal energy rise in the liquid and take the place of particles with less thermal energy. This forms currents within the liquid.



Radiation

All objects transfer energy to the surroundings by infrared radiation (IR). The hotter an object is, the more IR it emits (gives off). Energy transfer by radiation happens even if the particles aren't touching (radiation can happen in a vacuum).



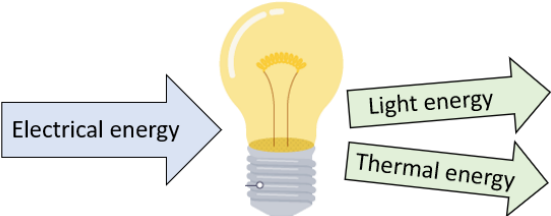
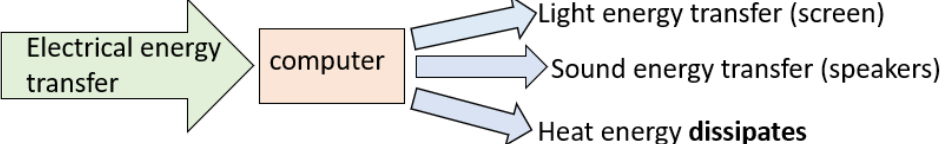


(8) Key Word	Definition		
a) Finite resource	A resource that will run out.	<p data-bbox="1003 248 1384 284">(10) Energy Use in the Home</p> <p data-bbox="1003 292 2024 403">In science, we use the unit joule (J) for energy but energy suppliers use a different unit to calculate the energy costs in our home. They use the kilowatt hour (kWh).</p> <p data-bbox="1178 411 1854 446">Cost = power (kW) x time (hours) x price (per kWh)</p> <p data-bbox="1003 454 1122 483">Example</p> <p data-bbox="1003 491 2002 563">A 3kW water heater is used for 1 hour. 1kWh costs 16p. Calculate the cost of using the water heater.</p> <p data-bbox="1413 571 1621 600" style="text-align: center;">Cost = 3 x 1 x 16</p> <p data-bbox="1447 608 1588 639" style="text-align: center;">Cost = 48p</p> <hr/> <p data-bbox="1003 663 1346 699">(11) Generating Electricity</p> <p data-bbox="1003 746 2024 906">Fossil fuels are a non-renewable energy source. They will eventually run out. It is important to find alternative, and renewable methods of generating electricity. Some alternative methods are listed below. Each method is renewable and has advantages and disadvantages:</p> <ul data-bbox="1016 962 2013 1313" style="list-style-type: none"> • Wind turbines – renewable and inexpensive to run but the wind does not always blow. • Solar cells – renewable and inexpensive to run but very expensive to set up and it is not always sunny. • Hydroelectric power stations – renewable and inexpensive to run but very expensive to set up. • Tidal generators - renewable and inexpensive to run but very expensive to set up and hazardous for wildlife. 	
b) Fossil fuel	A fuel formed from the remains of living organisms, for example coal and gas.		
c) Geothermal	Heat energy from under the ground		
d) Hydroelectric	Electricity generated by the movement of water		
e) Kilowatt hour (kWh)	Unit used by energy suppliers. The energy used by a 1kW appliance for 1 hour.		
f) Non-renewable	A resource that cannot be replaced when it is used up.		
g) Power (W)	How quickly energy is transferred by a device		
h) Renewable	An energy source that will not run out – it can be replaced.		
i) Watt (W)	Watts are the unit of Power. A kW is 1000 W		
<p data-bbox="230 1082 472 1114">(9) Energy in Food</p> <p data-bbox="230 1121 913 1233">Energy stored in food is released by respiration. The energy stored in food is shown on food packets. It is sometimes shown as calories, or kJ (kilojoules).</p> <p data-bbox="230 1241 387 1273">1 kJ = 1000J</p> <p data-bbox="230 1281 546 1313">Example 21kJ = 21 000 J</p>			



1) Key Terms	Match Definitions to Key Words	2) Respiration
a) Chlorophyll	The amount of extra oxygen required by the body for recovery after vigorous (hard) exercise.	<p>2) Respiration</p> <p>a) State the definition of respiration.</p> <p>b) Write the equation for aerobic respiration.</p> <p>c) Write the equation for anaerobic respiration.</p> <p>d) State the difference between aerobic and anaerobic respiration.</p> <p>5) Both types of respiration require glucose. Where does this glucose come from?</p> <p>f) What store of energy does glucose contain?</p> <p>g) What type of chemical reaction is respiration? Explain your answer.</p> <p>h) When will your body undergo anaerobic respiration?</p> <p>i) What is oxygen debt and how is this relevant to respiration?</p> <p>j) What life processes is respiration needed for?</p> <p>k) What happens to the rate of respiration when you go for a jog. Explain your answer.</p> <p>l) Someone who has emphysema may become quite lethargic after a short period of activity. Explain why.</p> <p>m) What organelle in your cells is the site of respiration?</p>
b) Chloroplasts	Process carried out where plants make their own food. carbon dioxide + water → glucose + oxygen	
c) Fertilisers	Pores in the bottom of a leaf which open and close to let gases in and out.	
d) Lung	Green pigment in chloroplasts of plant cells. It enables (allows) photosynthesis to take place.	
e) Mitochondria	A chemical reaction in living things which oxygen is used to release the energy from food. glucose + oxygen → carbon dioxide + water (+energy)	
f) Oxygen debt	Chemicals that contain minerals that plants need to build new tissue (grow).	
g) Photosynthesis	Soft organ that inflates to draw in oxygenated air and deflates to exhale (breathe out) air.	
h) Respiration	Organelles in the cytoplasm of cells. Respiration takes place in the mitochondria.	
i) Stomata	Contain the green pigment (colour) chlorophyll, which absorbs the light energy plants need for photosynthesis.	



(1) Key Word	Definition	(3) Energy Store	Give the description and an example:										
a) Dissipate	Watts are the unit of Power. A kW is 1000 W	a) Gravitational Potential (GPE)											
b) Energy Transfer	The rate of work done (how much work is done in a particular time), or the amount of energy transferred every second.	b) Chemical											
c) Force	A push, a pull or a twist that acts on an object.	c) Kinetic Energy											
d) Joule (J)	When a force moves a particular object a certain distance, we say that is work done. Energy is transferred as the object is moved.	d) Elastic Potential											
e) Power (P)	Changes from one form of energy to another form of energy.	e) Thermal Energy											
f) Watt (W)	Joules are the units of energy.	f) Magnetic											
g) Work Done (J)	Spreads out wastefully into the surroundings	g) Electrostatic											
<p>(2) Energy Transfers</p> <p>a) State the law of conservation of energy.</p> <p>b) In the below diagram, what is the wasted energy? Explain why.</p> <p>c) State the energy transfers in an electric kettle.</p> <p>d) Identify the energy transfers for someone riding a bike.</p> <p>e) Identify the energy transfers of someone firing a bow and arrow.</p> 		<p>(4) Energy Transfers</p> <table border="1" data-bbox="1081 938 2033 1185"> <thead> <tr> <th>Energy Transfer</th> <th>Give the description and an example:</th> </tr> </thead> <tbody> <tr> <td>a) Mechanically</td> <td></td> </tr> <tr> <td>b) Heating</td> <td></td> </tr> <tr> <td>c) Electrically</td> <td></td> </tr> <tr> <td>d) Light and Sound</td> <td></td> </tr> </tbody> </table> <p>Learn the energy transfers that take place when a computer is switched on.</p> 		Energy Transfer	Give the description and an example:	a) Mechanically		b) Heating		c) Electrically		d) Light and Sound	
Energy Transfer	Give the description and an example:												
a) Mechanically													
b) Heating													
c) Electrically													
d) Light and Sound													

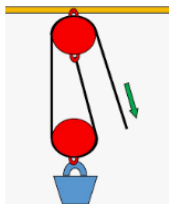


(5) Energy and Work – moving objects

- a) Give the equation of work done.
- b) State the definition of work done.
- c) A man pushes 2 boxes trough the same distance. One box with a mass of 20 kg and another with a mass of 80 kg. Which box caused the man to do more work? Explain your answer.
- d) Work out the work done for the following scenarios:
 - Force = 12 N Distance = 20 m
 - Force = 36 N Distance = 100 m
 - Force = 13 N Distance = 60 cm
- e) Work out the distance for the following scenarios:
 - Work = 16 J Distance = 20 m
 - Work = 12 J Distance = 100 m
 - Work = 26 J Distance = 60 cm

(6) Machines and Work done (energy transferred)

- a) Explain what a simple machine is and give some examples.
- b) How does a pully help reduce work?
- c) How does a pivot help reduce work?



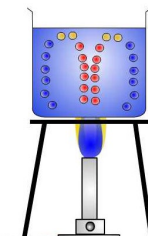
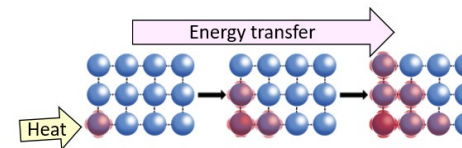
(7) Heating and Cooling

- a) What is the main energy store of a radiator?

Thermal energy is transferred in three ways:

Conduction

- b) Describe the process of conduction.
- c) State the types of materials that are good thermal conductors. What is the material used for?

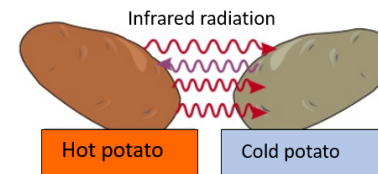


Convection

- d) Describe the process of convection.
- e) Describe how convection currents play a part in the movement of tectonic plates.

Radiation

- f) Describe the process of radiation.
- g) Describe how the thermal energy from the sun can reach us on earth.
- h) What 3 things can happen to thermal energy that has been radiated?





(8) Key Word	Match Definitions to Key Words	(10) Energy Use in the Home
a) Finite resource	Unit used by energy suppliers. The energy used by a 1kW appliance for 1 hour.	a) State the unit of energy. b) State the unit of power. c) Give the equation to work out the cost of energy. d) A 6kW water heater is used for 2.5 hour . 1kWh costs 46p . Calculate the cost of using the water heater. e) Explain how you can reduce the cost of energy usage in the home. f) Microwave 1 has a power rating of 700 W and microwave 2 has a power rating of 900 W, which microwave will heat up food faster?
b) Fossil fuel	How quickly energy is transferred by a device	
c) Geothermal	Watts are the unit of Power. A kW is 1000 W	
d) Hydroelectric	A fuel formed from the remains of living organisms, for example coal and gas.	
e) Kilowatt hour (kWh)	A resource that cannot be replaced when it is used up.	
f) Non-renewable	Electricity generated by the movement of water	
g) Power (W)	An energy source that will not run out – it can be replaced.	
h) Renewable	A resource that will run out.	
i) Watt (W)	Heat energy from under the ground	
(9) Energy in Food a) What is the main energy store in food? b) How does the energy stored in food get released? c) Devise an experiment of how you could compare the energy stored in different foods.		(11) Generating Electricity a) Give the definition of non-renewable energy source. Give an example. b) What is a fossil fuel and how are they produced? c) How are fossil fuels used to generate energy? d) What is the definition of renewable resources of energy. Give 4 examples. e) What is biofuel and why is it said to be carbon neutral? f) Explain why solar energy is not the best solution to replace fossil fuel. g) You have been tasked to find a site for building a wind farm. Describe the ideal place to build a wind farm. h) Some Scandinavian countries use geothermal to heat their homes. Explain how geothermal can heat entire homes. i) Describe the energy transfers in a hydroelectric dam.



1) Key Words	Match the definitions to Key Words	<p style="text-align: center;">↑</p> <p>K Na Ca Mg Al Zn Fe Cu Au Pt</p> <p>2) The Reactivity Series</p> <p>a) Complete the equations for the following reactions:</p> <ul style="list-style-type: none"> • Lithium + iron oxide → • Lead + copper chloride → • Calcium + magnesium Bromide → <p>b) Will the following reaction take place? Explain your answer.</p> <p>Magnesium + potassium fluoride →</p>
a) Activation Energy	When a substance is broken down into 2 or more products by heat.	
b) Catalyst	Contain hydrocarbons – compounds containing hydrogen and carbon atoms only.	
c) Carbon particulates	Reactions that give out heat energy. The temperature will increase	
d) Combustion	Reactions that take in heat energy – the temperature will decrease.	
e) Displacement	List of metals in order of reactivity.	
f) Endothermic	The minimum (smallest) amount of energy that colliding particles must have for them to react.	
g) Exothermic	Reaction of other elements with oxygen	
h) Fuel	A substance that increases the rate of a reaction but is not itself used up.	
i) Hydrocarbon	Another word for burning in oxygen.	
j) Oxidation	This is another word for soot (the black stuff that forms on the bottom of barbeques or Bunsen burners).	
k) Reactivity series	A molecule that is made of hydrogen and carbon only.	
l) Thermal Decomposition	A more reactive metal will displace ('kick out') a less reactive metal in a reaction	
		<p>3) Exothermic and Endothermic Reactions</p> <p>a) Describe what an exothermic reaction is.</p> <p>b) Describe what an endothermic reaction is.</p> <p>c) Describe what happens to the temperature of the surroundings in exothermic and endothermic reactions.</p>
		<p>4) Combustion Reactions</p> <p>a) What does combustion mean?</p> <p>b) Give an example of a combustion reaction</p> <p>c) What are the products of complete combustion?</p> <p>d) How are the products of incomplete combustion different to complete combustion?</p> <p>e) In terms of oxygen, what does oxidation and reduction mean?</p> <p>f) In a combustion reaction, is the carbon in the fuel oxidised or reduced? Explain your answer in terms of oxygen.</p>



1. ¿Qué hay en tu ciudad? What is there in your town?	1. Hay...	There is...	2. ¿Qué hora es? What time is it?	1. ¿Qué hora es?	What time is it?
	2. un castillo	a castle		2. Es la una.	It's one o'clock.
	3. un centro comercial	a shopping centre		3. Son las dos.	It's two o'clock.
	4. un estadio	a stadium		4. Es la una y cinco.	It's five past one.
	5. un mercado	a market		5. Son las dos y diez.	It's ten past two.
	6. un museo	a museum		6. Son las tres y cuarto.	It's quarter past three.
	7. un parque	a park		7. Son las cuatro y veinte.	It's twenty past four.
	8. una piscina	a swimming pool		8. Son las cinco y veinticinco.	It's twenty-five past five.
	9. una plaza	a square		9. Son las seis y media.	It's half past six.
	10. un polideportivo	a sports centre		10. Son las siete menos veinticinco.	It's twenty-five to seven.
	11. un restaurante	a restaurant		11. Son las ocho menos veinte.	It's twenty to eight.
	12. una tienda	a shop		12. Son las nueve menos cuarto.	It's quarter to nine.
	13. una universidad	a university		13. Son las diez menos diez.	It's ten to ten.
	14. En...	In...		14. Son las once menos cinco.	It's five to eleven.
	15. mi barrio	my neighbourhood		15. Son las doce.	It's twelve o'clock.
	16. mi ciudad	my town, my city		16. ¿A qué hora?	At what time?
	17. mi pueblo	my village, my town		17. a la una	at one o'clock
	18. No hay museo.	There isn't a museum.		18. a las dos	at two o'clock
	19. No hay nada.	There's nothing.	3. ¿Qué haces en la ciudad? What do you do in town?	1. ¿Qué haces en la ciudad?	What do you do in town?
	20. unos museos	some museums		2. Salgo con mis amigos.	I go out with my friends.
	21. unas tiendas	some shops		3. Voy...	I go...
	22. muchos museos	a lot of museums		4. al cine	to the cinema
	23. muchas tiendas	a lot of shops		5. al parque	to the park
	24. Te gusta vivir en...?	<i>Do you like living in...?</i>		6. a la bolero	to the bowling alley
	25. Me gusta mucho vivir en...	<i>I like living in... a lot.</i>		7. a la cafetería	to the café
	26. No me gusta nada vivir en...	<i>I don't like living in... at all.</i>		8. a la playa	to the beach
	27. porque hay/es...	<i>because there is/it is...</i>		9. de compras	shopping
		10. de paseo	for a walk		
		11. No hago nada.	I do nothing.		



4. En la cafetería – In the café	1. En la cafetería	In the café
	2. Yo quiero...	I want...
	3. Bebidas	drinks
	4. un batido de chocolate/de fresa	a chocolate/strawberry milkshake
	5. un café	a coffee
	6. una Coca-Cola	a Coca-Cola
	7. una Fanta limón	a lemon Fanta
	8. un granizado de limón	an iced lemon drink
	9. un té	a tea
	10. Raciones	snacks
	11. Calamares	squid
	12. Croquetas	croquettes
	13. Gambas	prawns
	14. Jamón	ham
	15. pan con tomate	tomato bread
	16. patatas bravas	spicy potatoes
	17. Tortilla	Spanish omlette
	18. ¿Algo más?	Anything else?
	19. No, nada más.	No, nothing else.
	20. ¿Y de beber?	And to drink?
	21. ¿Cuánto es, por favor?	How much is it, please?
	22. Son cinco euros setenta y cinco.	That's 5,75 €.

5. ¿Qué vas a hacer? What are you going to do?	1. ¿Qué vas a hacer?	What are you going to do?
	2. Voy a salir con mis amigos.	I am going to go out with my friends.
	3. Vas a ver la televisión.	You are going to watch TV.
	4. Va a ir de paseo.	He/She is going to go for a walk.
	5. Vamos a jugar al voleibol.	We are going to play volleyball.
	6. Vais a chatear.	You are going to chat.
	7. Van a hacer los deberes.	They are going to do their homework.

6. ¿Qué casa prefieres? Which house do you prefer?	1. ¿Qué casa prefieres?	Which house do you prefer?
	2. Esta casa es...	This house is...
	3. Este piso es...	This flat is...
	4. amplio/a	spacious
	5. antiguo/a	old
	6. bonito/a	nice, pretty
	7. cómodo/a	comfortable
	8. Enorme	enormous
	9. feo/a	ugly
	10. Grande	big
	11. maravilloso/a	marvellous
	12. moderno/a	modern
	13. pequeño/a	small
	14. La casa/El piso está	The house/The flat is...
	15. cerca de la playa	near the beach
	16. en el centro	in the centre
	17. en la montaña	in the mountains
	18. más... que...	more... than...
	19. menos... que...	less... than...
	20. Prefiero...	I prefer...
	21. Porque	because

7. High frequency phrases	1. Aquí	here
	2. a ver	let's see
	3. Con	with
	4. Hasta	until
	5. más	more



8. La casa – The house	1. La casa	The house
	2. Tiene...	It has...
	3. una cocina	a kitchen
	4. un comedor	a dining room
	5. un cuarto de baño	a bathroom
	6. un dormitorio	a bedroom
	7. un salón	a living room
	8. una chimenea	a fireplace
	9. un jacuzzi	a hot tub
	10. un jardín	a garden
	11. una piscina	a swimming pool
	12. una terraza	a balcony, a terrace
	13. vistas al mar	views of the sea

9. ¿Qué se puede hacer en...? What can you do in...?	1. ¿Qué se puede hacer en...?	What can you do in...?
	2. Se puede(n)...	You can...
	3. hacer actividades náuticas	do water sports
	4. hacer artes marciales	do martial arts
	5. hacer senderismo	go hiking
	6. ir a la bolera	go bowling
	7. ir al cine	go to the cinema
	8. ir de compras	go shopping
	9. ir de paseo en bicicleta	go on a bike ride
	10. ir a la playa	go to the beach
	11. ir al restaurant	go to the restaurant
	12. jugar al golf	play golf
	13. jugar al voleibol	play volleyball
	14. jugar al tenis	play tennis
	15. ver la cathedral	see the cathedral
	16. visitar un castillo	visit a castle

10. ¿Dónde está...? Where is...?	1. ¿Dónde está...?	Where is...?
	2. la catedral	the cathedral
	3. la estación de tren	the railway station
	4. el minigolf	the minigolf
	5. el parque de atracciones	the theme park
	6. el parque acuático	the water park
	7. la pista de karting	the go-kart track
	8. el zoo	the zoo
	9. Sigue todo recto.	Keep straight on.
	10. Dobla a la derecha.	Turn right.
	11. Dobla a la izquierda.	Turn left.
	12. Toma la primera a la derecha.	Take the first on the right.
	13. Toma la segunda a la izquierda.	Take the second on the left.
	14. Cruza la plaza	Cross the square.
	15. Está a la derecha.	It's on the right.
	16. Está a la izquierda.	It's on the left

11. Time Indicators	1. ¿Cuándo?	When?
	2. este fin de semana	this weekend
	3. el sábado por la mañana	on Saturday morning
	4. el domingo por la tarde	on Sunday afternoon/evening
	5. Primero	first
	6. Luego	then
	7. Finalmente	finally
	8. a las tres de la tarde	at three o'clock in the afternoon
	9. (un poco) más tarde	(a little) later
	10. Ayer	yesterday
	11. el fin de semana pasado	last weekend
	12. el verano pasado	last summer
	13. el verano que viene	next summer



1. Ergonomics and Anthropometrics

Ergonomics relates to how people comfortably and effectively use products, the 'fit' between the users and products they use.

An ergonomic phone would be easy to hold, have buttons shaped to be comfortable and easy to press, its edges will be rounded, and the ear and mouth pieces will be at suitable distances from your ear and mouths.

Anthropometrics are human body measurements. Anthropometric Data comes in the form of charts and tables, sizes such as height, finger lengths and hand spans and average group sizes for people of different age ranges.

2. Branding

A strong brand makes a product:

- Easy to recognise
- Easy to remember
- Appealing to its target market
- Sets itself apart from competitors
- Explains what the product is clearly.

3. Marketing and Market Research Methods

- Online Surveys:** email and social media
- Focus Groups:** discuss needs and wants with potential primary users.
- Product Analysis:** Review current products on the market to see how competitors can be beaten.

4. New Technologies

These technologies often disrupt current design and manufacturing techniques and force industry to change.

These include:

- Laser cutter
- 3D Printer
- CAD Software
- CNC Lathe
- Robotics
- Automated Manufacture

5. Life-cycle Assessment (LCA)

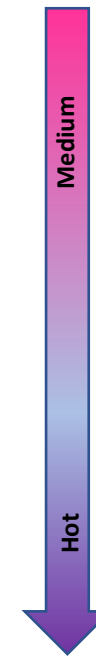
LCA evaluates the environmental impact of a product from 'cradle to grave': from the extraction of raw materials required to manufacture the product to end of use and disposal.

In the case of a plastic bottle the raw material is crude oil.

6. Product Analysis

A product analysis looks at current products and assesses whether they are successful or require improving. A good product analysis informs designers how products can be developed.

When carrying out a successful product analysis you always ask yourself the following questions in relation to the product you are looking at....



1. Who is the product designed for? How do you know this?
2. How has the designer made the product easy to use?
3. What features does the product have which makes it a good product?
4. What features does the product have which could make it hard to use?
5. What materials have been used and why? Why Are their properties suitable for the product?
6. How would you improve the product? What would you develop further? Why would you make that change?



7. Sustainability

Sustainability is the measure of how much manufacturing, materials and use of energy damages the environment.

Sustainable Materials can be recycled, reused and disposed of with minimal impact on the environment.

Sustainable Energy is energy that is created and used without a big negative impact on the environment.

Sustainable Design and Manufacturing is the planning for products to be manufactured to have a minimal negative effect on the environment.

Sustainability aims to reduce the impact products have on the environment. Designers and manufacturers can do this by following the rules of the **6 R's**:

Reduce, Reuse, Recycle, Repair, Rethink, Refuse.

8. Electronic Components

Different components have different functions:

Input Components: sets an electrical circuit in action. (Switch, Sensor)

Process Components: work together to ensure current and signals are sent between input components and output components. (Microchip, PIC Chip)

Output components: is what the circuit results in and ultimately does. (LED, Motor, Buzzer, Speaker)

9. Material Properties

Material properties are the characteristics of materials and the way they perform.

Durable: Withstands wear and tear over time.

Hard: Withstands scratching.

Tough: Withstands sudden impact.

Strength to Weight ratio: Strong and lightweight.

Ductile: Can be stretched.

Conductor: Conducts heat or electricity.

Insulator: Does not conduct heat or electricity.

Corrosion resistance: Resistance to rust and UV light.

Malleable: Can be shaped, pressed and moulded.

10. A risk assessment helps you work safely in the workshop. It evaluates how safe a task is.

Hazards are accidents that can occur.

Risk is how likely the hazard will happen.

Control measures are what you can do to avoid being injured.

11. Forces

Force is when pressure is applied to an object. A force can be a push or a pull.

We need to understand how forces work to design structures.

Shear A good example of shear force is seen with a simple scissors. The two handles put force in different directions.

Tension is a pulling force.

Compression is a force that presses against an object from opposite directions.

Torsion is a twisting force.

12. A prototype is an early sample, model, or release of a product built to test a concept or process or to act as a thing to be replicated or learned from. These can be 2D or 3D and use a range of materials from cardboard to styrofoam and foam board.

13. A technical specification is a set list of criteria and requirements that a material, design, product or service must achieve and satisfy.



14. PPE

PPE stands for Personal Protective Equipment. This equipment keeps you safe during practical work.

PPE includes:

- | | |
|----------------------------|---------------|
| Goggles | Aprons |
| Protective footwear | Visors |

15. CAD/CAM

CAD stands for **C**omputer **A**ided **D**esign, it is used in lots of different industries such as construction, engineering and product design.

It is used because it is accurate, quick, easy to use, easy to correct mistakes without having to draw a drawing all again, and CAD drawings can be sent all over the world.

CAM stands for **C**omputer **A**ided **M**anufacturing, it is when machines are controlled by computers to make/produce/manufacture products.

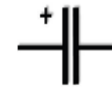
It is used because it is quicker, more accurate, reduces waste, never needs a break and can produce thousands of the same identical product per hour day in day out.

16. Electronic Circuit symbols

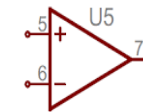
Resistors control the flow of current within a circuit. They stop high rates of current damaging electronic components.



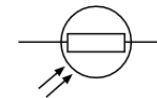
Capacitors Smooth the flow of current in an electrical circuit. They store and release energy.



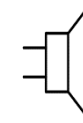
PIC Chips are programmed to send signals. Between inputs and outputs. They control circuits.



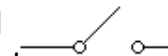
An **LDR** is a resistor which senses light. It allows current to run through it when it is dark.



Speakers turn electrical signals into sound waves.



Switches are used to turn circuits on and off. They control when power enters a circuit and either complete or break the flow of current.



An **LED** is a type of bulb and emits light when current runs through it. LED stand for Light



17. Biomimicry

This is where designs mimic naturally occurring designs found in nature.

Divers use flippers inspired by animals with webbed feet.

Kayak oars are designed to be aerodynamic like the fins on dolphins.

There are many ways products are inspired by nature.

18. Design Iteration

Iteration means to develop. When we iterate a design we develop it to become better.

Every time we iterate an idea we will improve it. Iteration creates products that are developed to be better for the primary user, easier to use and perform better.

To successfully iterate we need to evaluate and gather feedback on ideas. This feedback informs which parts of the ideas are strong and should be kept and which parts are weak and should be changed.



(1.) Higher Order Thinking: Putting knowledge into context

Pick an everyday object or product. Something you can see or something you use at school or at home. Now keeping that object or product in mind, pick one of the questions below to discuss it in more depth. Each question is worth 6 marks.

Usability (user friendly design):

Products need to be able to be easily and comfortably used by a range of people. How could you make this product easy to use or understand? How could you use colours or labelling to make the product accessible?

Material properties:

Discuss which materials and properties are required for this product to function at its best? Why are the materials suitable for the product and the way it is used?

Sustainability and Renewable energy:

Discuss whether you think the product is good for the environment. Describe how could it have been designed or manufactured to be more environmentally friendly?

Forces

How has the product's structure and shape been designed to withstand force and repeated wear and tear? What forces does it withstand?

(2.) Describe and Explain

Pick an area to discuss. How has this new technology had a positive impact on designing and manufacturing?

- | | |
|-----------------------|--------------------|
| Laser cutter | Cloud Computing |
| 3D Printer | Email |
| CAD Software | Virtual Reality |
| CNC Lathe | Internet of things |
| Robotics | |
| Automated Manufacture | |
| The internet | |

(3.) Careers

Using your own internet research explore the following design and engineering job sectors:

- Product Designer
- Mechanical Engineer
- Aeronautical Engineer
- Fashion Designer
- Graphic Designer
- Environmental Engineer
- Chemical Engineer

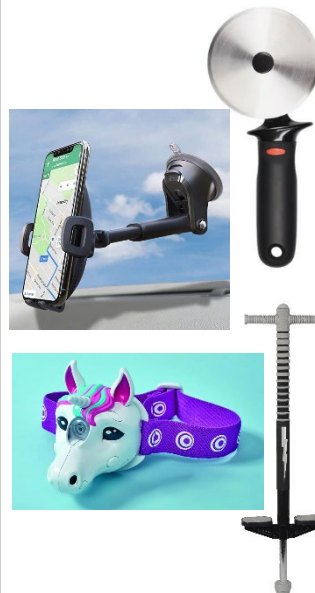
(4.) Visit, Watch, Do.

Visit this link to a sketch-a-day YouTube channel. Pick a video tutorial and develop your drawing skills by following the instructions and demos.

https://www.youtube.com/channel/UCBtSgEZk914z5InEs_U2J3w



(5.) Analyse and Develop



- a) Who is the product designed for? How do you know this?
- b) How has the designer made the product easy to use?
- c) What features does the product have which makes it a good product?
- d) What features does the product have which could make it hard to use?
- e) How would you improve the product? What would you develop further? Why would you make that change?