The Royal Sutton School

Year 7 Knowledge Organiser

SUMMER TERM

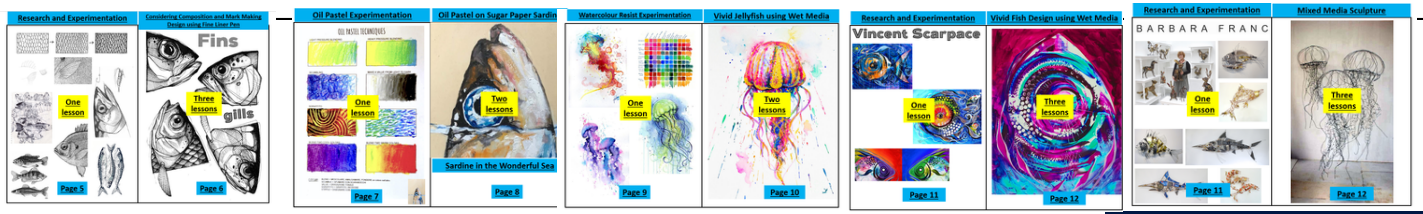
‘Potential into Reality’

TRSS
Year 7
Knowledge Organisers
Contents

Year 7 Subjects

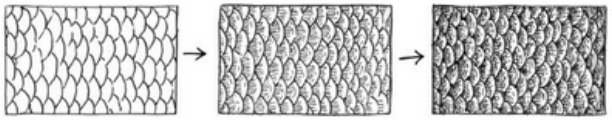
Art & Design: Sea Creatures Underwater World

Project Visuals



1. Mark - Making

Mark-making is used to create surface texture.



Types of mark-making
- Stippling
- Hatching
- Cross – Hatching
- Scumbling

You can create interesting marks by drawing in different directions, overlapping and experimenting with the weight and pressure used to create the line.

2. J Vincent Scarpace. Research.

Four facts about the Artist Vincent Scarpace.
- Scarpace mainly creates colourful paintings of fish
- This artist creates 2D whimsical and abstract paintings
- Scarpace's paintings are created using line, shape and colour
- J Vincent Scarpace is a passionate artist who is fascinated by the creative process


3. WOW WORDS

Aquatic Studies: Art work relating to our underwater topic e.g. drawing a fish.
Blending: Mixing colours
Gradient: A smooth transition from one colour to the next.
Wet- into-Wet: Painting wet paint onto a wet surface.
Resist: A technique used to stop colour being applied to a certain area.

4. KEY CONTENT/DRAWING

Drawing is a way of recording our ideas. Consider the below key elements when creating art work.

Line Mark making Outlines
Tone Hue Observation
Texture Composition Proportion
Colour Pressure Detail



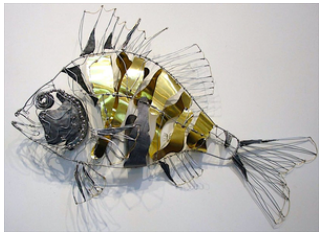
5. KEY ARTISTS

Key Artists
Zaira Dzhaubaeva – Jellyfish
Vincent Scarpace – Fish
Barbara Franc- Wire Sculpture

Accent Artists
Emma Dibben – watercolour fish
Lexi Sundell – fish

6. WIRE TECHNIQUES

Wire sculptors often create a loose outline of the shape they envision, followed by **looping, coiling, braiding, weaving, crocheting,** and other various techniques to give the sculpture volume and strength.



The Formal Elements are the parts used to make a piece of artwork. They are often used together, and how they are organised in a piece of art determines what the finished piece will look like.

Line: is a mark made on a surface that joins different points. Lines can vary in length, width, direction and shape.

Shape: Shape is a two-dimensional area. Shapes have height and width but not depth.

Space: Space can refer to objects and to the area around them.

Form: Forms have three dimensions, height, width and depth.

Tone: Tone is the lightness or darkness of a colour. This can be used to show shadows or highlights.

Texture: Texture means how something feels. There are two types of texture: actual texture and visual texture.

Pattern: Pattern is a design in which lines, shapes, forms or colours are repeated.

Colour: There are three primary colours. Red, Yellow and Blue. Secondary Colours are made by mixing two primary colours together. Complementary colours are colour opposite each other on the colour wheel.

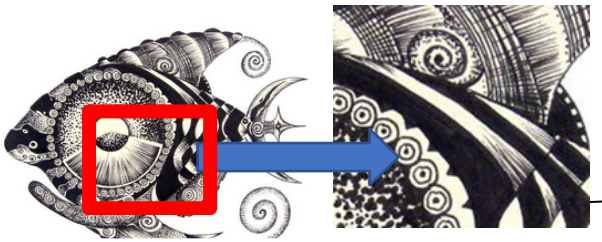
Composition: Composition is the way in which different elements of an artwork are combined or arranged.

- What is 2D artwork?
- What is Primary Observation?
- What is Secondary Observation?
- How has annotation been considered in the drawing of the fish below? Do you think research has played a large part in the success of this design? Explain your answer.
- What does the style of fish printing in Japanese Culture represent?
- What imagery is used within Gyotaku, List three.
- What does the word "Gyotaku" mean?
- What inspires J. Vincent Scarpace in his work?
- How can exploring ideas and collecting information inspire your own work?
- Name the type of paper used in Gyotaku (Japanese printmaking from fish)
- Think of the colour wheel. Write down the three complimentary pairs

De
J V

- If you have watercolours or acrylic paints at home and using your knowledge of the formal elements listed on the left, complete a copy of the work of J Vincent Scarpace from the image below or another similar one.

- If you do not have watercolours or acrylic paints at home produce a copy of a section of one of Vincent Scarpace's fish drawings using fine liner on paper from the image below or another similar one.



Underwater World

Drama: Script performance skills

1. Audience Etiquette

This term we will be rehearsing a short scripted scene, then performing it in front of our peers. When watching a performance, it is very important that we follow some key rules:

1. We are silent, still and respectful
2. We are supportive and friendly
3. We do not discuss or comment on the performances without being asked

4. Performance

What we are looking for in your performance

Tried my hardest to perform well with my group
Stayed in character
Faced the audience
Learned a role for performance
Showed an understanding for the style or genre
Kept my feet planted and didn't sway
Reacted to others in character
Changed my position on stage during a performance
Changed my levels during the performance
Used distance on stage to show relationships

2. Rehearsal Time

Rehearsal time: You will be given rehearsal time to learn, develop and ready your performance for an audience. During rehearsal you will need to:

Stay with and helped my group
Work well with my group
Stay on task and followed instructions
Use simple rehearsal techniques with my group
Select appropriate rehearsal technique
Use rehearsal techniques to develop others
Use feedback from my teacher to improve
Use feedback from others in my group to improve
Learn from successes & challenges of other groups
Demonstrate how to effectively use rehearsals

3. Rehearsal Strategies

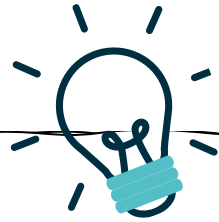
Rehearsal strategies
There are many rehearsal strategies you can use to improve your drama performance. It depends on what performance element you feel needs the most focus.

- Still images, sculpting and mime can help Posture, gesture & facial expression
- Thought tracks, diary entries and role on the wall can help understanding of character
- Role swap, action narration or ranking can help an actor choose specific performance elements.

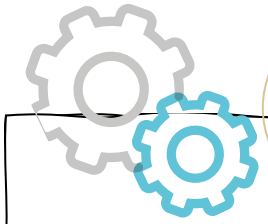
5. Discussing Performance and Evaluation

<u>Discussing performances & Evaluation</u>

- We follow a really important structure when analysing a performance.
- What went well, give an example, explain what impact it had.
- Even better if, give an example, explain what impact it had

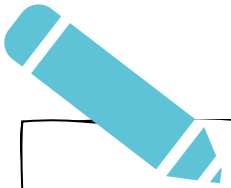


- We start and finish each performance with a Still Image
- We stay in character throughout a performance, acting and reacting in character
- Posture shows our characters status and power
- Gesture shows our character's actions
- Facial expression can show emotion
- Movement and voice can show status, power, situation, relationship and emotions.
- Naturalism is where a performance, character and relationships look to be as close to reality as possible on stage



Key questions to ask yourself when preparing a performance:

- Where is my audience?
- Will they be able to see the key moments?
- What impact do we want to have on our audience?
- How will I change my posture to create my character?
- How will I change my gestures to show what I am doing?
- What type of facial expressions and voice might my character use?
- How might my character move?
- What is my characters objective? What do they want to achieve in this scene?
- What relationships should be shown on stage? Are there particular characters who I would have strong feelings about?
- What key moment in the performance could I look to make an impact on the audience?



You will need to rehearse to get this performance ready. This can take a number of different forms.

- You could run the lines together, in person or over the phone
- You could block the scene, working out who moves where, when and how
- You could mime the scene, focusing on your physical performance elements
- You can run the scene's moments of transition, focusing on creating slick, silent movements between them
- You can speed run through, making a game of getting as much correct as you can
- You can replace the language with nonsense words, which helps you focus on the tone, pitch, pace, rhythm and pace of the speech used
- You can swap roles with a partner, watching how they would perform differently and steal their good bits!

Performance skills

English: Metaphor Poetry

1. Defining Metaphor

Literal language: if something is **literal** it is accurate or precise.
·A **literal** description tells what actually happens.
·Something that is literal reports on events.
·An example would be 'he is lazy'
Metaphor: if something is a **metaphor** it is **not literal**.
·A **metaphor** does **not report on what actually happens.**
·A **metaphor compares** one thing to another.
·A **metaphor** tells us more about something by bringing ideas together.
·An example would be 'he is a couch potato'.

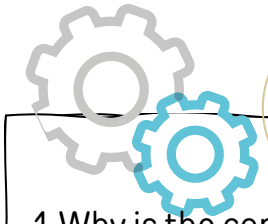
2. Explaining Metaphor

A **metaphor** has three parts:
The tenor: The thing you want to try and describe.
The vehicle: The imaginative idea you compare it with to help your audience understand it. This is the 'made up' bit.
The ground: The thing the tenor and the vehicle have in common.
Here is an example:
'Achilles fought like a lion' (both Achilles and the lion are strong)
Achilles is the tenor because he is the thing being described. The lion is the vehicle because it is the imaginative idea Achilles is compared to. The ground is that they are both strong. This is what they have in common.

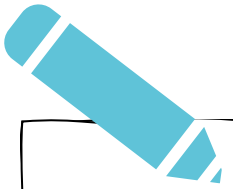
3. Key Metaphors in the Poems

'Fog' – Carl Sandburg, 1878 – 1967 'The fog comes on little cat feet'	Both 'the fog' and the 'little cat feet' are grey, delicate and move gently.
'November Night' – Adelaide Crapsey, 1878 – 1914 'like steps of passing ghosts,/ The leaves, frost –crisp'd, break from the trees and fall'	Both 'the leaves' and 'the steps of passing ghosts' rustle softly.
'Dreams' – Langston Hughes, 1902 – 1967 '… if dreams die/ Life is a broken-winged bird/ That cannot fly'	Both a life without dreams and 'a broken-winged bird/ That cannot fly' are sad and wasteful.
'Sally' – Phoebe Hesketh, 1909 – 2005 'She was a dog-rose kind of girl:/ Elusive, scattery as petals'	Both Sally and 'a dog-rose' are wild and not traditionally beautiful.
'Frogs' – Norman MacCaig, 1910 – 1996 'In mid-leap they are/ parachutists falling/ in a free fall' '… their ballet dancer's/ legs'	Both frogs and 'parachutists' leap into the air and spread out when they fall. Both frogs and ballet dancers have powerful and elegant legs.
'Pigeons' – Richard Kell, 1927 – 'small blue busybodies/ Strutting like fat gentlemen' 'their heads like tiny hammers'	Both pigeons and 'busybodies' walk around looking like they think they're important. Both pigeons and fat gentlemen have big bellies but look quite dignified.
'The Eagle' – Alfred, Lord Tennyson, 1809 – 1892 'And like a thunderbolt he falls'	Both the eagle falling and 'a thunderbolt' are fast and dangerous.
'The Tyger' – William Blake, 1757 – 1827 'Tyger, tyger burning bright'	Both the tiger and fire are beautiful and powerful, but also difficult to control.
'A Case of Murder' – Vernon Scannell, 1922 – 2007 'The cat, half-through, was cracked like a nut' '… the wound of fear gaped wide and raw' '… the huge black cat pads out' (the cat turns from tenor into vehicle for the boy's fear)	Both the cat being slammed in a door frame and a nut being broken make a cracking sound. Both 'fear' and a 'wound' can be painful and can get worse. Both fear and a 'huge black cat' are haunting and can sneak up on you.

1. Explain the difference between literal and metaphorical.
2. Give a definition of the tenor, vehicle and ground. Include an example.
3. What is the key metaphor in each poem?
4. Who is the narrator of each poem?
5. What is the tone of each poem?
6. Can you summarise each poem in 20 words?
7. Can you list the most important points in the narration of each poem?
8. Which 5 words would you use to describe the meaning of each poem?
9. What are the main themes in each poem?



1. Why is the context of a text important?
2. How do the main themes link to each text?
3. Is the author challenging, endorsing, or simply reflecting the dominant ideas and assumptions of the time and place in which they are writing?
4. Write a paragraph on this question:
   What is Sally like at school?
   Here is how you can structure your answer:
   State what Sally is like at school.
   Give a quotation that shows what she must be like.
   Explain how this quotation shows what Sally is like at school. It might be how she feels or how she behaves.



1. What is the impact of the opening of the text?
2. What is the impact of figurative language use within each text?
3. Why are the key themes important for the reader/audience to understand?
4. Research: Find out about idioms that are metaphors and their origin. Find idioms from other languages and explain where they came from.
5. **Sally:** What if Sally was a boy? How would he differ?
6. 'The boy is entirely to blame for the death of the cat'. Explain whether you agree or disagree with this statement. Use evidence from the poem.

Metaphor Poetry

English: Ancient Tales

1. *The Cheetah's Whisker*

Author – KP Kojo
Origin – Ethiopia and Eritrea
Morals –
a. There is no shortcut to building relationships. You have to work hard at them.
b. Relationships are important. Some you will never forget.
Key Words – quest, love potion, enunciation
Key Connection – There is a love potion in this story, just like in A Midsummer Night's Dream. This love potion doesn't cause chaos.

2. *Hansel and Gretel*

Author – Adapted by Carol Ann Duffy
Origin – Germany
Morals –
a. Growing up is difficult but rewarding.
b. Good will overcome evil.
c. A little bit of cunning can save your life.
Key Words – vulnerable, ingenious, ingenuity, outwit, dialogue
Key Connection – The children are vulnerable in this story, just like Oliver Twist. Like Oliver, they are rewarded at the end.

3. *Two Dinners*

Author – Trish Cooke
Origin – West Africa and the Caribbean
Morals –
a. Don't be greedy. If you are greedy, you will end up with nothing.
Key Words – lovable rogue, comeuppance, universal
Key Connection – Brer Anansi is a lovable rogue, just like the Artful Dodger. Both receive a comeuppance.

4. *The Giant's Causeway*

Author – Una Leavy
Origin – Ireland
Morals –
a. Trust your wife to save the day.
b. Don't be arrogant.
c. A little but of cunning can save your life.
d. A big and scary problem can be overcome.
Key Words – lovable rogue, ingenious, ingenuity, hand gestures
Key Connection – Bláithín's plan is ingenious, just like Hansel and Gretel's. Bláithín's ingenuity saves her husband's life.

5. *The Wicked King and his Good Son*

Author – Madhur Jaffrey
Origin – India
Morals –
a. No mortal can escape death. Trying to do so ends in disaster.
b. Don't be arrogant.
c. Good will triumph over evil.
d. It is never too late to make up for the bad things you have done.
Key Words – tyrant, tyrannical, Holi, hand gestures, relate, universal
Key Connection – King Hiranya Kashyap and Theseus are both rulers. However, they use their power in different ways.

6. Extracts from *Tales from the Thousand and One Nights*

Author – Translated by NJ Dawood
Origin – The Middle East
Morals –
a. Good will triumph over evil.
b. No one is beyond repentance.
c. A little bit of cunning can save your life.
Key Words – tyrant, ingenious, repentant, emphasis
Key Connection – King Shahriyar repents, unlike Bill Sikes in Oliver Twist. Bill Sikes kills Nancy, King Shahriyar pardons Shahrazad.

7. *Ancient Tales Origins*

Ancient Tales are stories which have been passed down from generation to generation in cultures across the world.
They cover a range of attributes and failings that come into play in all animal (for animals are vital in storytelling) and human life: jealousy, greed, love, forgiveness, ambition, **humility**, anger, selflessness and grief.
What all the stories had in common was a clear **moral** tone.

1. Give a definition of each key word.
2. List all the characters in each text.
3. List all the figurative language techniques that you can recall.
4. How are the characters related to each other in each story?
5. Can you summarise each plot in 50 words?
6. Can you list the 10 most important plot points in each story?
7. Can you put the main plot points into chronological order?
8. Which 5 words best describe each protagonist/ other key characters?
9. What are the main themes in each text?
10. What are the moral links to each text?
11. Carol Ann Duffy **adapted** the story of Hansel and Gretel. What does it mean **to adapt** a story?

1. How do you use the PETAL paragraph structure to write a character analysis?
2. Why is the context of a play/novel important?
3. How do the main themes link to each protagonist?
4. How do the main themes link to other characters in each text?
5. Is the author challenging, endorsing, or simply reflecting the dominant ideas and assumptions of the time and place in which they are writing?
6. In an essay format, answer the question, 'What type of character is Fionn Mac Cumhail'. You should:

- Include a clear topic sentence/point.
- Use a quotation to support the point.
- Explain what the quotation tells us about Fionn.
- Aim to write at least two paragraphs.

1. What is the impact of the opening of each text?
2. What is the impact of figurative language use within each text?
3. Why are the key themes important for the reader to understand?
4. Why might a modern-day audience or contemporary reader criticise the author's intended message?
5. <u>Research:</u> Find out more about one of the stories or authors of the Ancient Tales.
6. The Cheetah's Whisker has **universal** qualities. What about this story can readers relate to? What about it has made it stand the test of time? What about it is relevant no matter who you are?
7. Of these three rulers, who do you think is the most tyrannical and why? Hiranya Kashyap, Mr Bumble or Theseus.

Ancient Tales

Food: Healthy Eating

1. The Eatwell Guide

The Eatwell Guide is a visual representation of how different foods and drinks can contribute towards a healthy balanced diet.

The Eatwell Guide applies to most people regardless of weight, dietary restrictions/preferences or ethnic origin. However, it doesn't apply to children under 2.

2. The Eatwell guide explained

Section	Sources	Benefits
Vitamins and minerals	Fruit & Vegetables	Builds your immune system, keeps your blood healthy and helps with your digestive system.
Carbohydrates	Pasta, Potatoes, Rice, bread	Provides you with energy Keeps you fuller for longer
Protein	Fish, Meat, bean, lentils, nuts, eggs	Needed for growth and repair
Dairy & alternatives	Milk, yogurt, soya dairy	Provides calcium, needed for strong teeth and bones Helps the body to heal
Fats	Olive oil, Margarine	Helps to protect vital organs, keep us insulated, builds healthy cells and membranes, move vitamins around the body.

1. Wash your hands regularly.
2. Tie long hair back.
3. Wear a clean apron.
4. Cover cuts with a blue plaster.
5. Clean all equipment and surfaces properly.

1. Always store raw meat at the bottom of a fridge.
2. You can die from food poisoning-always follow the 4C's.
3. Food can only be hot held for 2 hours.

Food safety and hygiene are important when preparing food-you need to follow the following rules. You could cause someone to be ill this is known as food poisoning.

1. Cook foods properly to prevent food poisoning.
2. Chilled foods-some foods need to be chilled example milk, cheese, cheesecake.
3. Clean-wash your hands, clean work surfaces, equipment.
4. Cross-contamination-keep raw meat and cooked meat separate, use a red chopping board.

1. You can follow basic food hygiene practices.
2. Define what the Eatwell Guide is.
3. You can name the 5 segments of the Eatwell Guide.
4. You can select basic equipment for a practical lesson.
5. What are the 5 nutrients linked to the Eatwell Guide?
6. What does the 4 C's mean?
7. What causes food poisoning?

1. Why do you think the Eatwell Guide was introduced by the government?

2. Explain the importance of following the Eatwell Guide?

3. Why do you think preparing food safely is important?

4. What are the health implications if you are obese

1. Draw your favourite meal, label the nutrients to see if it is a balanced meal?

2. How can you improve your meal, think about the Eatwell Guide and what you can add to your drawing?

3. Key spellings associated with the colours to the colours on the Eatwell Guide. Can you use these words in your own explanations?

Carbohydrates
Protein
Fats
Vitamins
Minerals

Healthy Eating

Geography: Concrete World

1. Urbanisation

WHAT? Urbanisation is an increase in the amount of people living in urban areas such as towns or cities. In 2007, the UN announced that for the first time, more than 50 % of the world's population live in urban areas.

WHERE? Urbanisation is happening all over the word but in LICs and NEEs rates are much faster than HICs. This is mostly because of the rapid economic growth they are experiencing.

3. Type of Cities

Mega city	An urban area with over 10 million people living there.

The amount of megacities are predicted to increase from 28 to 41 by 2030.

2. Causes of Urbanisation

Rural – urban migration (1) — **The movement of people from rural to urban areas.**

Push	Pull
• Natural disasters • War and Conflict • Mechanisation • Drought • Lack of employment	• More Jobs • Better education & healthcare • Increased quality of life. • Following family members.

Natural Increase (2) — **When the birth rate exceeds the death rate.**

Increase in birth rate (BR)	Lower death rate (DR)
• High percentage of population are child-bearing age which leads to high fertility rate. • Lack of contraception or education about family planning.	• Higher life expectancy due to better living conditions and diet. • Improved medical facilities helps lower infant mortality rate.

4. DHARAVI, INDIA CASE STUDY

Location	Background
• Dharavi is a slum located in the centre of Mumbai, India • The squatter settlement of Dharavi is now home to over 1 million people. 	• Dharavi lies between two railway lines on low-lying land, previously used as a rubbish tip • It is one of the biggest squatter settlements in the world. • The squatter settlement is unplanned and people don't own the land they live on

NEGATIVES (-)	POSITIVES (+)
• It is overcrowded, noisy and smelly • Many houses are made from poor material • A lack of sanitation (sewers) and clean drinking water Pollution and disease are common from the open sewers	• 1000s of small factories • 75% of people have a job and most work locally, with an annual turnover of £350 million • A strong sense of community spirit and pride • 80% of waste is recycled

SOLUTIONS TO SLUM ISSUES

Site and service schemes	These give people the chance to rent or buy a piece of land. People build their own homes using money from a loan (borrowing money) from the government.
Self-help schemes	These give people the tools and training to improve their homes. People may be given legal ownership of the land.

Q1) What causes urbanisation?

Q2) What is rural to urban migration?

Q3) What are push and pull factors?

Q4) Where is rapid urbanisation occurring in the world?

Q5) What is a mega city?

Q6) Where are slums located?

Q7) What are the challenges (problems) faced by people living in slum areas?

Q8) Why do people continue to move into slum areas?

Q9) How can the challenges faced in slums be solved?

Q10) Why do cities in LICs have a high natural increase?

Stretch it! List the differences between Birmingham and Mumbai on a table.

1) Use the photograph to describe the challenges of living in Dharavi.

2) Using the photograph, describe the location of the shanty town.

3) Explain how you would go about helping the people living in Dharavi?

Design a booklet for Key Stage 2 (Year 6) pupils that explains:

- Why people in LICs move to live in cities. Use push and pull factors
- What the challenges ae for the people. living in shanty towns
- How the problems in shanty towns can be tackled.

Concrete World

History: The Tudors

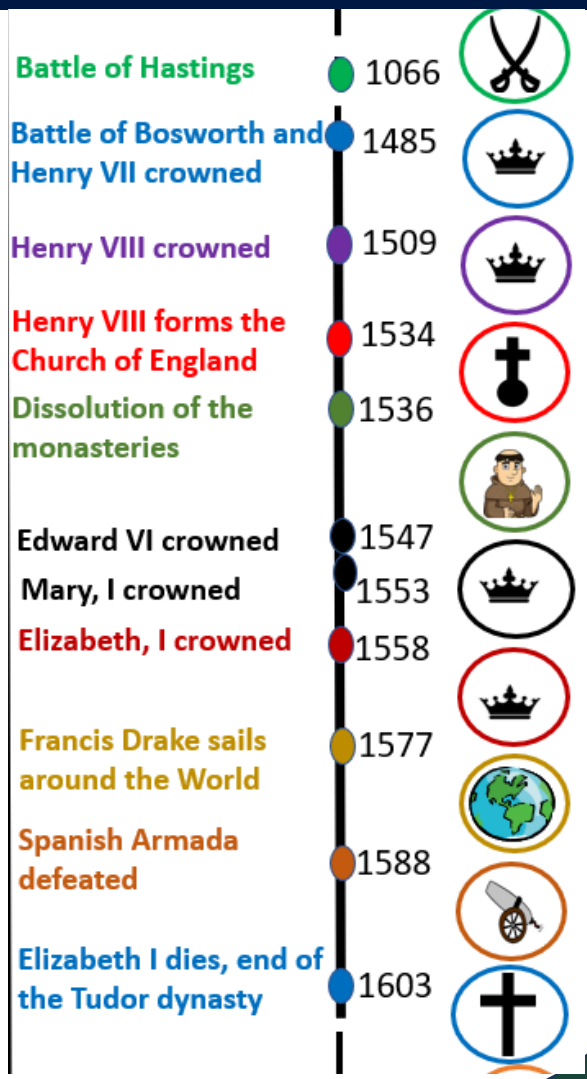
1. Life in Tudor England

Tudors believed in a **Great chain of Being**, that everything was linked to God. Religion was incredibly important. During the Tudor Period people were riding a religious rollercoaster. Each monarch brought **religious change**. This could sometimes lead to rebellions.

2. Importance of Religion

Henry wanted to **divorce his first wife Catherine** of Aragon. She was 40 Years old. This was considered too old to safely have a **child.**
Henry had also fallen in love with the younger Anne Boleyn who was a better bet to provide him with a **son**.
Henry asked the Pope to grant him a divorce. The Pope could not so Henry made himself **Head of the Church in England** to give himself the annulment.

3. Key Events



4. Life as a Female Ruler

Women were not deemed capable of ruling and many felt a female ruler went **against God's Law**. As a Queen you were also expected to marry and have an heir.
Mary I faced problems when she married Phillip II of Spain as people felt that because she was a woman Phillip would dominate her and England would have to do what Spain wanted. Elizabeth was constantly put under **pressure to marry** and have an heir but would not bow to this pressure.

5. Elizabethan Golden Age

Poverty was a major Problem in Elizabethan England.
Theatres were built to entertain people. Elizabeth did not visit the theatre but had her own theatre company.
The Elizabethan era was a time of **exploration.**
Francis Drake became the first man to circumnavigate (sail around) the World between 1577–1580.

1. What hierarchy did the Tudors believe in?
2. What kind of change did each monarch bring?
3. Who was Henry VIII's first wife?
4. What was the name of the new religion in England?
5. Who were the female monarchs in the Tudor times?
6. What were three changes in the Elizabethan Golden Age?
7. When was Elizabeth I crowned Queen?

Do you agree that Elizabeth I's reign was a 'Golden Age'?
Give examples to support both views.

AGREE	DISAGREE

Identify three major events during the Tudor dynasty, e.g., the Spanish Armada.

When did these events happened and research what happened during these events?

Identify two famous people of this time.

What are they famous for?

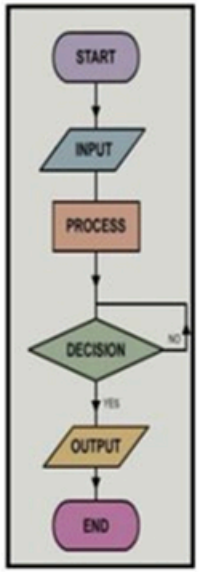
The Tudors

IT- Programming

1. Flowcharts

Rules for creating flowcharts:

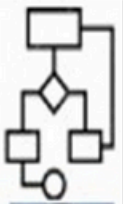
1. ARROWS must be used to show the flow.
2. Each stage MUST lead to another.
3. ONLY decision symbols can have more than one arrow leading from them.



2. Python

print('hello')	Print values on the screen(in this case 'hello)
Input('')	Inputs a value into the computer
x=input(''))	Inputs a value and stores it into the variable x
x=int(input(''))	Inputs a value into x, but converts it into a string first
print(str(x))	Prints the variable x but converts it to a string first
if name= "Fred"	Decides whether the variable 'name' has a value which is equal to 'Fred'
else	The other option in the conditions for an if statement are not met (e.g. name='Bob' when it should be Fred

3. Keywords



Algorithm: A step by step of instructions to carry out a task.

Flowchart: A visual representation of an algorithm, using key symbols.

Terminator: The start and end point of a flowchart.

Process: An action, calculation or data that is saved.

Input: data that is put into a computer.

Output: Data that is produced by a computer.

that can be re-used.

Variable: Allows us to save data that changes.

Selection: Decisions; the process of taking different paths within an algorithm.

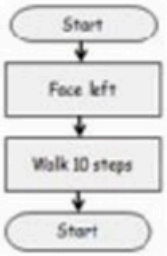
Sequence: A set of instructions in order.

4. Arithmetic operators

+	Addition
-	Subtraction
/	Division
*	Multiplication
#	Add comments to your code, they will not be part of the program run

Sequence

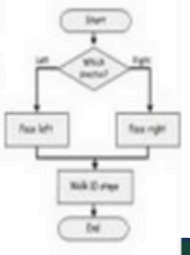
Instructions placed one after another.

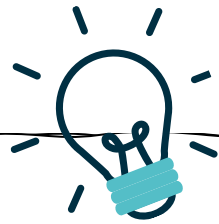


Selection

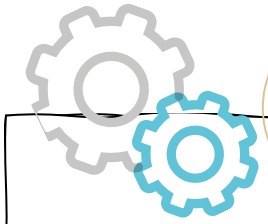
A choice or decision in an algorithm.

Gives different paths that could be followed.

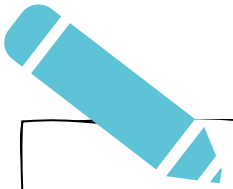




- What a flowchart looks like
- What Python is used for
- What selection and sequence means within computer programming
- What Arithmetic Operators are



- Explain what a flowchart shows
- Explain a basic Pythion command
- Explain the meaning of Selection and Sequencing with Python
- Identify all of the different Arithmetic operators used within Python



- Explain the different processes involved in a flowchart
- Construct a sequence of commands within Python
- Evaluate the difference between sequences and selection
- Apply different Arithmetic operators in Python

Programming

Mathematics

YEAR 7 – LINES AND ANGLES

Constructing, measuring and using geometric notation

@whisto_maths

What do I need to be able to do?

By the end of this unit you should be able to:

- Use letter and labelling conventions
- Draw and measure line segments and angles
- Identify parallel and perpendicular lines
- Recognise types of triangle
- Recognise types of quadrilateral
- Identify polygons
- Construct triangles (SAS, SSS, ASA)
- Draw Pie charts

Keywords

Polygon: A 2D shape made with straight lines
Scalene triangle: a triangle with all different sides and angles
Isosceles triangle: a triangle with two angles the same size and two angles the same size
Right-angled triangle: a triangle with a right angle
Frequency: the number of times a data value occurs
Sector: part of a circle made by two radii touching the centre
Rotation: turn in a given direction
Protractor: equipment used to measure angles
Compass: equipment used to draw arcs and circles

Letter and labelling convention

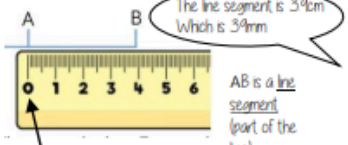
The letter in the middle is the angle
The arc represents the angle

Angle Notation: three letters **ABC**
This is the angle at B = 113°

Line Notation: two letters **EC**
The line that joins E to C

Draw and measure line segments

Conversions: 1cm = 10mm, 1m = 100cm

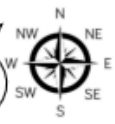


AB is a line segment (part of the line)

Make sure the start of the line is at 0

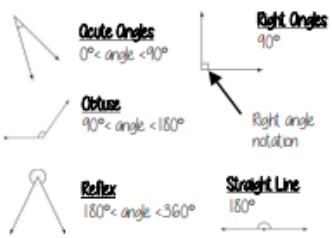
Angles as measures of turn

East to South is a quarter turn clockwise



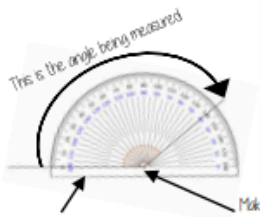
Quarter Turn 90° Clockwise
Half Turn 180°
Three-quarter Turn 270° Anti-Clockwise
Full Turn 360°

Classify angles



Acute Angles 0° < angle < 90°
Right Angles 90°
Right angle notation
Obtuse 90° < angle < 180°
Reflex 180° < angle < 360°
Straight Line 180°

Measure angles to 180°

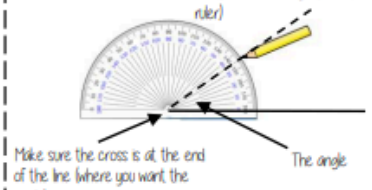


Read from 0° on the base line
Remember to use estimation
This is an obtuse angle so between 90° and 180°

Draw angles up to 180°

Draw a 35° angle

Make a mark at 35° with a pencil and join to the angle point (use a ruler)



Parallel and Perpendicular lines

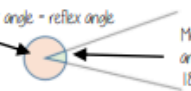
Parallel lines
Straight lines that never meet
(Have the same gradient)

Perpendicular lines
Straight lines that meet at 90°

Angles over 180°

Use your knowledge of straight lines 180° and angles around a point 360°

360° - smaller angle = reflex angle



Measure the smaller angle first (less than 180°

Properties of Quadrilaterals

Square
All sides equal size
All angles 90°
Opposite sides are parallel

Rectangle
All angles 90°
Opposite sides are parallel

Rhombus
All sides equal size
Opposite angles are equal

Parallelogram
Opposite sides are parallel
Opposite angles are equal
Co-interior angles

Trapezium
One pair of parallel lines

Kite
No parallel lines
Equal lengths on top sides
Equal lengths on bottom sides
One pair of equal angles

Draw Pie Charts

Type of pet	Dog	Cat	Hamster
Frequency	32	25	3

3.2
60

"3.2 out of 60 people had a dog"

This fraction of the 360 degrees represents dogs

3.2/60 X 360 = 19.2°

Use a protractor to draw
This is 19.2°

SAS, SSS, ASA constructions

Side, Angle, Angle

Side, Angle, Side

Side, Side, Side

Polygons

3	- Triangle	5	- Pentagon	8	- Octagon
4	- Quadrilateral	6	- Hexagon	9	- Nonagon
		7	- Heptagon	10	- Decagon

If all the sides and angles are the same, it is a **regular** polygon

YEAR 7 – LINES AND ANGLES

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Geometric reasoning

What do I need to be able to do?

By the end of this unit you should be able to:

- Understand/use the sum of angles at a point
- Understand/use the sum of angles on a straight line
- Understand/use equality of vertically opposite angles
- Know and apply the sum of angles in a triangle
- Know and apply the sum of angles in a quadrilateral

Keywords

Vertically Opposite: angles formed when two or more straight lines cross at a point
Interior Angles: angles inside the shape
Sum: total, add all the interior angles together
Convex Quadrilateral: a four-sided polygon where every interior angle is less than 180°
Concave Quadrilateral: a four-sided polygon where one interior angle exceeds 180°
Polygon: a 2D shape made with straight lines
Scalene triangle: a triangle with all different sides and angles
Isosceles triangle: a triangle with two angles the same size and two angles the same size
Right-angled triangle: a triangle with a right angle

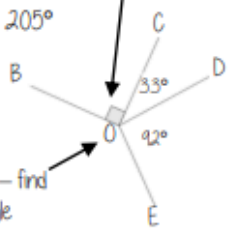
Sum of angles at a point

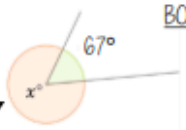
The sum of angles around a point is 360°

Find angle BOE

90° + 33° + 42° = 205°
360° − 205°
BOE = **155°**

Angle notation – 90°



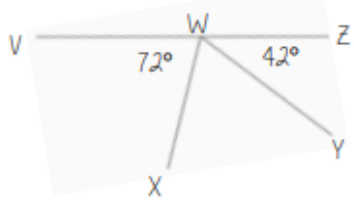


360° − 67°
= 293 °

Angle notation – find this missing angle

Sum of angles on a straight line

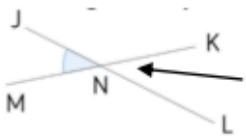
Adjacent angles that share a common point on a line add up to 180°



Find angle XWY

72° + 42° = 114°
180° − 114° = **66°**

Vertically opposite angles

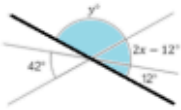


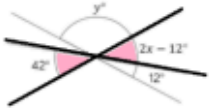
Angle JNM is vertically opposite to angle KNL

JNM = KNL

Vertically opposite angles are the same

Other angle rules still apply
Look for straight line sums and angles around a point

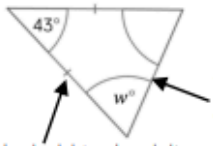




Form equations with information from diagrams:
2x − 12 = 42
2x = 54
x = 27°

Sum of angles in triangles

Sum of interior angles in a triangle = 180°



The two base angles will be the same size

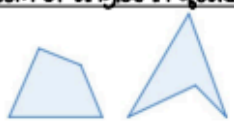
Look at triangle notation
This indicates an isosceles triangle
∴ 180 − 43 = 137
137 ÷ 2 = 68.5°

A triangle can only have ONE right angle

Have a go!
Tearing the corners from triangles forms a straight line which is therefore 180°

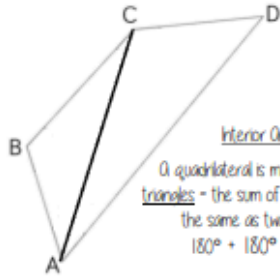
Sum of angles in quadrilaterals

Sum of interior angles in a quadrilateral = 360°



Convex Quadrilateral | Concave Quadrilateral

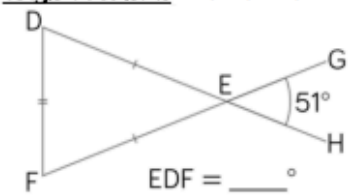
Interior angles are those that make up the perimeter (outline) of the shape



Interior Angles
A quadrilateral is made up of two triangles – the sum of interior angles is the same as two triangles:
180° + 180° = 360°

Angle Problems

Split up the problem into chunks and explain your reasoning at each point using angle notation



EDF = ____°

Keep working out clear and notes together

1. Angle DEF = 51° because it is a vertically opposite angle DEF = GEH
2. Triangle DEF is isosceles (triangle notation) ∴ EDF = EFD and the sum of interior angles is 180°
   180° − 51° = 129° 129° ÷ 2 = 64.5°
3. Angle EDF = 64.5°

YEAR 7 — REASONING WITH NUMBER

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Developing number sense

What do I need to be able to do?

By the end of this unit you should be able to:

- Know and use mental addition/ subtraction
- Know and use mental multiplication/ division
- Know and use mental arithmetic for decimals
- Know and use mental arithmetic for fractions
- Use factors to simplify calculations
- Use estimation to check mental calculations
- Use number facts
- Use algebraic facts

Keywords

Commutative: changing the order of the operations does not change the result
Associative: when you add or multiply you can do so regardless of how the numbers are grouped
Dividend: the number being divided
Divisor: the number we divide by
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign
Equation: a mathematical statement that two things are equal
Quotient: the result of a division

Mental methods for addition/ subtraction

Addition is commutative

6 + 3 = 3 + 6

The order of addition does not change the result

Subtraction the order has to stay the same

360 − 147 = 360 − 100 − 40 − 7

- Number lines help for addition and subtraction
- Working in 10's first aids mental addition/ subtraction

Mental methods for multiplication/ division

Multiplication is commutative

2 × 4 = 4 × 2

The order of multiplication does not change the result

Partitioning can help multiplication

24 x 6 = 20 x 6 + 4 x 6
= 120 + 24
= 144

Division is not associative

Chunking the division can help 4000 ÷ 25
"How many 25's in 100" then how many chunks of that in 4000

Mental methods for decimals

Multiplying by a decimal < 1 will make the original value smaller e.g. x 0.1 = ÷ 10

Methods for multiplication 1.2 x 0.03

12 × 3 = 36
1.2 × 3 = 3.6
1.2 × 0.3 = 0.36
1.2 × 0.03 = 0.036

12 × 3 = 36
÷ 10 ÷ 100 ÷ 1000
1.2 × 0.03 = 0.036

Methods for addition 2.3+2.4

2 + 2 = 4
0.3 + 0.4 = 0.7
4 + 0.7 = 4.7

Methods for division 1.5 ÷ 0.05

Multiply by powers of 10 until the divisor becomes an integer

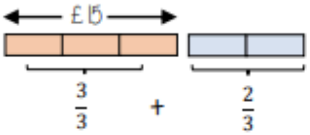
1.5 ÷ 0.05
x100 x100
150 ÷ 5 = 30

Mental methods for fractions

Use bar models where possible

I've spent $\frac{2}{5}$ of my money I have £21 left

How much did they have to begin with?



What is $\frac{5}{3}$ of £15?

Using factors to simplify calculations

30 x 16

10 x 3 x 4 x 4
2 x 5 x 3 x 2 x 2 x 2 x 2
10 x 3 x 2 x 8
16 x 10 x 3

Multiplication is commutative
Factors can be multiplied in any order

Estimation

Estimations are useful — especially when using fractions and decimals to check if your solution is possible.

Most estimations round to 1 significant figure

Estimations are useful — especially when using fractions and decimals to check if your solution is possible.

210 + 899 < 1200

This is true because even if both numbers were rounded up, they would reach 300 + 900

The correct estimation would be 200 + 900 = 1100.

Number facts

Use 124 x 5 = 620

For multiplication, each value that is multiplied or divided by powers of 10 needs to happen to the result

620÷ 124 = 50

For division you must consider the impact of the divisor becoming smaller or bigger.
Smaller — the answer will be bigger (It is being shared into less parts)
Bigger — the answer will be smaller (It is being shared into more parts)

Algebraic facts

2a + 2b = 10 Everything x 2

0.1a + 0.1b = 0.5 Everything ÷ 10

a + b = 5

Add 2 to the total

a + b + 2 = 7

The unknown quantity isn't changing but the variables change what is done to give the result

YEAR 7 – REASONING WITH NUMBER

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Sets and probability

What do I need to be able to do?

By the end of this unit you should be able to:

- Identify and represent sets
- Interpret and create Venn diagrams
- Understand and use the intersection of sets
- Understand and use the union of sets
- Generate sample spaces for single events
- Calculate the probability of a single event
- Understand and use the probability scale

Keywords

Set: collection of things
Element: each item in a set is called an element
Intersection: the overlapping part of a Venn diagram **(AND ∩)**
Union: two ellipses that join **(OR ∪)**
Mutually Exclusive: events that do not occur at the same time
Probability: likelihood of an event happening
Bias: a built-in error that makes all values wrong (unequal) by a certain amount, e.g. a weighted dice
Fair: there is zero bias, and all outcomes have an equal likelihood
Random: something happens by chance and is unable to be predicted

Identify and represent sets

The **universal set** has this symbol ξ – this means EVERYTHING in the Venn diagram is in this set

A set is a collection of things – you write sets inside curly brackets { }

ξ = {the numbers between 1 and 50 inclusive}

My sets can include every number between 1 and 50 including those numbers

A = {Square numbers}

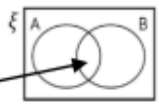
A = {1, 4, 9, 16, 25, 36, 49}

All the numbers in set A are square number and between 1 and 50

Interpret and create Venn diagrams

Mutually exclusive sets
The two sets have nothing in common
No overlap

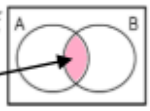
Union of sets
The two sets have some elements in common – they are placed in the intersection



Subset
All of set B is also in Set A so the ellipse fits inside the set

The box
Around the outside of every Venn diagram will be a box. If an element is not part of any set it is placed outside an ellipse but inside the box

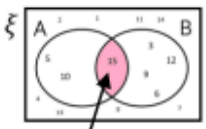
Intersection of sets



Elements in the intersection are in set A AND set B

The notation for this is $A \cap B$

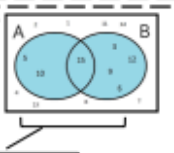
ξ = {the numbers between 1 and 15 inclusive}
A = {Multiples of 5} B = {Multiples of 3}



The element in $A \cap B$ is 15

In this example there is only one number that is both a multiple of 3 and a multiple of 5 between 1 and 15

Union of sets



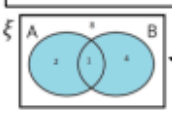
ξ = {the numbers between 1 and 15 inclusive}
A = {Multiples of 5} B = {Multiples of 3}

Elements in the union could be in set A OR set B

The elements in $A \cup B$ are 5, 10, 15, 3, 9, 6, 12

The notation for this is $A \cup B$

There are 7 elements that are either a multiple of 5 OR a multiple of 3 between 1 and 15



This Venn shows the **number of elements** in each set

Sample space – for single events

A sample space for rolling a six-sided dice is **S = {1, 2, 3, 4, 5, 6}**

A sample space for this spinner is **S = {Pink, Blue, Yellow}**

You only need to write each element once in a sample space diagram

- A Sample space represents a possible outcome from an event
- They can be interpreted in a variety of ways because they do not tell you the probability

Probability of a single event

Probability = number of times event happens / total number of possible outcomes

P(Blue) = 4/10 ← There are 4 blue sectors; There are 10 sectors overall

= 2/5

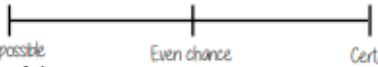
Probability notation P (event)

Probability can be a fraction, decimal or percentage value

4/10 = 40/100 = 0.40 = 40%

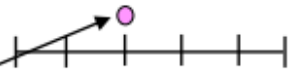
Probability is always a value between 0 and 1

The probability scale



Impossible	Even chance	Certain
0 or 0%	0.5, 1/2 or 50%	1 or 100%

The more likely an event the further up the probability it will be in comparison to another event (It will have a probability closer to 1)



There are 2 pink and 2 yellow balls, so they have the same probability

There are 5 possible outcomes So 5 intervals on this scale, each interval value is 1/5

Sum of probabilities

Probability is always a value between 0 and 1

The probability of getting a blue ball is 1/5
∴The probability of **NOT** getting a blue ball is 4/5

The sum of the probabilities is 1

The table shows the probability of selecting a type of chocolate

Dark	Milk	White
0.15	0.35	

P(White chocolate) = 1 – 0.15 – 0.35
= 0.5

YEAR 7 – REASONING WITH NUMBER

@whisto_maths

Prime numbers and Proof

What do I need to be able to do?

By the end of this unit you should be able to:

- Find and use multiples
- Identify factors of numbers and expressions
- Recognise and identify prime numbers
- Recognise square and triangular numbers
- Find common factors including HCF
- Find common multiples including LCM

Keywords

Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number
Prime: an integer with only 2 factors
Conjecture: a statement that might be true (based on reasoning) but is not proven
Counterexample: a special type of example that disproves a statement
Expression: a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)
HCF: highest common factor (biggest factor two or more numbers share)
LCM: lowest common multiple (the first time the times table of two or more numbers match)

Multiples

The "times table" of a given number

All the numbers in this lists below are multiples of 3

3, 6, 9, 12, 15...

This list continues and doesn't end

3x, 6x, 9x ...

x could take any value and as the variable is a multiple of 3 the answer will also be a multiple of 3

Non example of a multiple

4.5 is not a multiple of 3 because it is 3 x 1.5

Not an integer

Factors

Arrays can help represent factors

5 x 2 or 2 x 5

Factors of 10
1, 2, 5, 10

10 x 1 or 1 x 10

The number itself is always a factor

Factors and expressions

6x × 1 OR 6 × x

Factors of 6x
6, x, 1, 6x, 2x, 3, 3x, 2

2x × 3

3x × 2

Prime numbers

2

- Integer
- Only has 2 factors
- and itself

The first prime number
The only even prime number

Learn or how-to quick recall...

2, 3, 5, 7, 11, 13, 17, 19, 23, 29...

Square and triangular numbers

Square numbers

odd even odd

Representations are useful to understand a square number n^2

1, 4, 9, 16, 25, 36, 49, 64 ...

Triangular numbers

Representations are useful – an extra counter is added to each new row

Add two consecutive triangular numbers and get a square number

1, 3, 6, 10, 15, 21, 28, 36, 45...

Common factors and HCF

1 is a common factor of all numbers

Common factors are factors two or more numbers share

HCF – Highest common factor

HCF of 18 and 30

18: 1, 2, 3, 6, 9, 18
30: 1, 2, 3, 5, 6, 10, 15, 30

Common factors (factors of both numbers)
1, 2, 3, 6

HCF = 6

6 is the biggest factor they share

Common multiples and LCM

Common multiples are multiples two or more numbers share

LCM – Lowest common multiple

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54
12: 12, 24, 36, 48, 60

LCM = 36

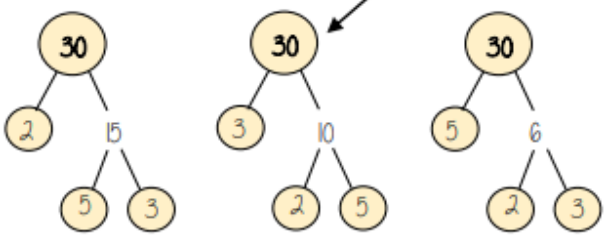
The first time their multiples match

Comparing fractions

$\frac{3}{5}$ and $\frac{7}{10}$ ← Compare fractions using a LCM denominator → $\frac{6}{10}$ and $\frac{7}{10}$

Product of prime factors

Multiplication part-whole models



All three prime factor trees represent the same decomposition

Multiplication is commutative

30 = 2 x 3 x 5 ← Multiplication of prime factors

Using prime factors for predictions

e.g. **60** 30 x 2 2 x 3 x 5 **x 2**
150 30 x 5 2 x 3 x 5 **x 5**

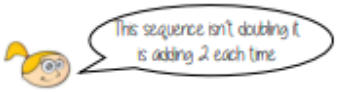
Conjectures and counterexamples

Conjecture

1, 2, 4,...
The numbers in the sequence are doubling each time.

A pattern that is noticed for many cases

Counterexamples



Only **one** counterexample is needed to disprove a conjecture

Modern Foreign Languages: On va visiter Paris!

1. Telling the time

une heure (one o'clock)
deux heures (two o'clock)
trois heures (three o'clock)
quatre heures (four o'clock)
cinq heures (five o'clock)
six heures (six o'clock)
sept heures (seven o'clock)
huit heures (eight o'clock)
neuf heures (nine o'clock)
dix heures (ten o'clock)
onze heures (eleven o'clock)
midi (midday)

2. Key Phonics

3. At the hotel

Je voudrais réserver une chambre

avec un grand lit
(with a double bed)
avec deux lits
(with twin beds)
avec salle de bains
(with a bathroom)
avec douche
(with shower)
avec vue sur la mer
(with sea views)
avec balcon
(with balcony)

4. Verb + infinitive

On peut **faire**
On peut **visiter**
1 **2**

Also you can use
Il faut **visiter** – you have to visit
On doit **voir** – you must visit
Je vais **apprécier** – I am going to appreciate
e.g. je vais visiter les monuments historiques

5. You can ....

On peut
You can

visiter l'Arc de Triomphe.
(visit the Arc de Triomphe.)
monter à la tour Eiffel.
(climb the Eiffel Tower.)
faire une promenade en bateau-mouche.
(do a river boat cruise.)
voir la Joconde au musée du Louvre.
(see The Mona Lisa in the Louvre.)
marcher sur les Champs-Elysées.
(walk along the Champs-Elysées.)

6. Giving directions

Où est la gare?
Where is the station?

tournez à gauche
(turn left)
tournez à droite
(turn right)
allez tout droit
(go straight on)
traversez la place
(go across the square)
traversez le pont
(go over the bridge)

1. Translate:
Quelle heure est-il?
Il est deux heures de l'après-midi.
2. Translate:
Vous désirez?
Je voudrais réserver une table pour cinq personnes.
3. Translate:
Qu'est-ce qu'on peut faire à Paris?
On peut visiter l'Arc de Triomphe et voir la 4. Tour Eiffel.
4. Translate:
Où est la pharmacie?
Tournez à droite et puis continuez tout droit.
5. Translate:
Qu'est-ce qu'on peut faire au musée du Louvre?
On peut voir et apprecier les peintures.
6. Translate:
Qu'est-ce que tu as fait à Paris?
J'ai pris le métro et j'ai fait les magasins.
7. Translate:
Qu'est-ce qu'on va faire pout la fête nationale?
On va regarder le feu d'artifice. Ce sera formidable!

1. Adapt the answer in sentence 1 to write:
It is 8:30.
2. Adapt the answer in sentence 2 to write:
I would like to reserve a double room for two nights.
3. Adapt the answer in sentence 3 to write:
In Paris there is lots to do; you can go sightseeing.
4. Adapt the question and answer in sentence 4 to write:
Where is the cathedral?
Turn left and cross the bridge.
5. Adapt the answer in sentence 5 to write:
You must explore the city centre.
6. Adapt the answer in sentence 6 to write:
I ate snails and I visited monuments.
7. Adapt the answer in sentence 7 to write:
We are going to have a party, it is going to be fun.

1.Use the structures in sentence 1 to write a sentence about what time the train is going arrive.
2.Use the structures in sentence 2 to write a sentence making a reservation of your choice.
3.Use the structures in sentence 3 to write an alternative answer about what you can do in Paris.
4.Use the structures in sentence 4 to create your own dialogue asking and giving directions.
5.Use the structures in sentence 5 to give an alternative answer about what you must do in Paris.
6.Use the structures in sentence 6 to create your own sentence about what you did in Paris. Include an opinion.
7.Use the structures in sentence 7 to create your own sentence about what you are going to do for Bastille Day.

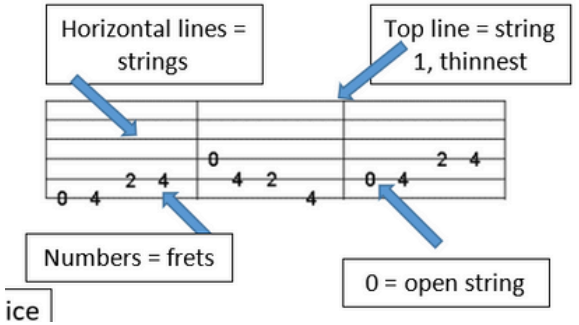
On va visiter Paris!

Music: Guitar

1. Guitar Keywords

HEAD
TUNING PEGS
NECK
FINGERBOARD
FRET
BODY
SOUNDHOLE
STRING

2. TAB Notation



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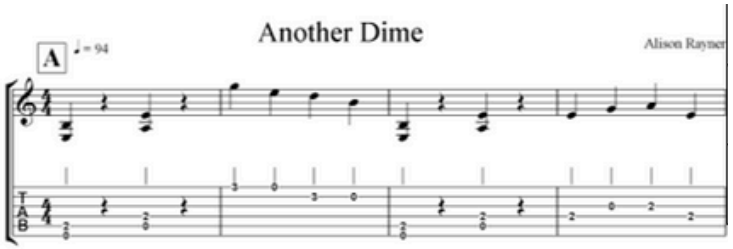
3. Elements of Music

KEYWORDS	DEFINITIONS
PITCH	How high or low the note is
TEMPO	Speed
DYNAMICS	Volume
RHYTHM	Different length notes in a pattern
MELODY	Different pitches in a pattern
INSTRUMENTS	Brass, woodwind, strings, percussion

4. How to carry the guitar

- Carry the guitar by the neck and vertically/pointing down.
- To play, hold it sideways with the head pointing to the left.
- Support the neck with your left hand and play the strings with your right hand.

5. TAB and Traditional notation example



6. How to play the guitar

- If it's not an open fret, place your finger just before the metal line of the fret.
- Push down firmly on the string.
- Play the string/s firmly with your right thumb/finger.
- Play the string/s over the soundhole for a fuller sound.

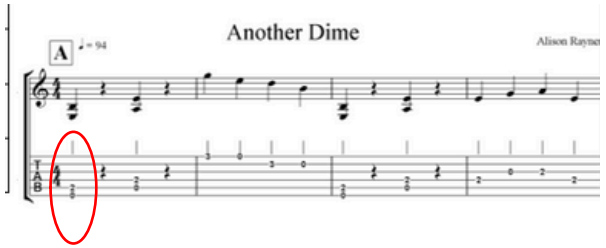
1. What does TAB mean?
2. What do the **numbers** man on TAB?
3. What do the **lines** mean in TAB?
4. What is the correct way to **hold** your guitar?
5. Does it matter if you are left or right handed?

- Can you accurately identify and explain the role of the following on a guitar:

- HEAD
- TUNING PEGS
- NECK
- FINGERBOARD
- FRET
- BODY
- SOUNDHOLE
- STRING

Below is an example of guitar TAB. Can you identify the following:

- What strings (there are more than one) would you need to play the first notes?
- What **frets** would you need to play these first notes?

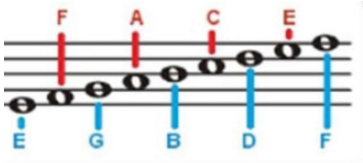


Guitar

Music: Theory

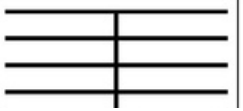
Note Symbol	Rest Symbol	Note Value	Note Name
		1/2	Quaver
		1	Crotchet
		2	Minim
		4	Semibreve

2. PITCHES

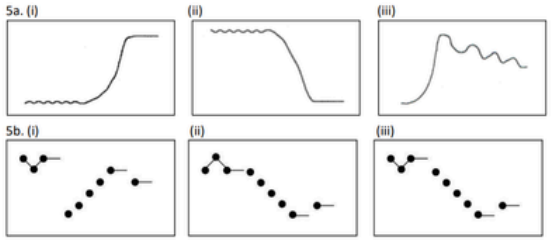


very Green Bus Drives Fast

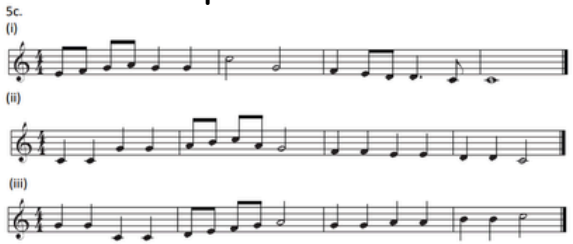
3. NOTATION SYMBOLS

Notation Symbol	Definition
	Treble clef
	Bar line

4. NOTATION EXAMPLES



Graphic scores show the length of the notes and the pitch direction



Staff notation shows precise note lengths and pitches on a stave

5. KEYWORDS

PITCH	How high or low the note is
TEMPO	Speed (how fast or slow)
DYNAMICS	Volume (how loud or soft)
RHYTHM	Different length notes in a pattern
MELODY	Different pitches in a pattern
TEXTURE	How much sound/many layers we hear (thick or thin)
TIMBRE/ SONORITY	Tone quality of the instrument e.g. mellow or shrill
ARTICULATION	How notes are played (smooth or detached)
DURATION	How long or short the note or music is
SILENCE	No sound at all

6. INSTRUMENTAL FAMILIES

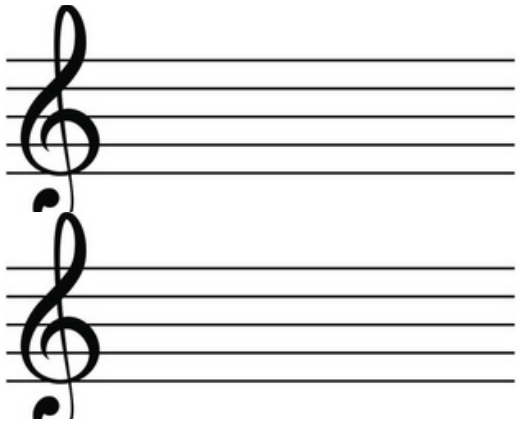
1. Define pitch.
2. Define tempo.
3. Define dynamics.
4. What is the note value of a crochet?
5. What is the note value of a quaver?
6. What is the note value of a minim?
7. State the four instrumental families.
8. What is a rhythm?
9. What is a melody?
10. Can you explain the term texture?
11. Can you explain the term timbre?
12. What is articulation?
13. What is a duration?

1. Can you explain the difference between a graphic score and staff notation?

2. Can you identify an instrument from each instrumental family and describe its timbre?

WOODWIND
BRASS
STRINGS
PERCUSSION

2. On the stave, draw and label the line and space pitches.



1. Complete the table below with the note values and note names.

Note Symbol	Rest Symbol	Note Value	Note Name

2. Listen to a piece of music of your choice and describe the pitch, tempo and dynamics. What instruments can you identify and can you describe their timbres?

Music Theory

PE: Rounders

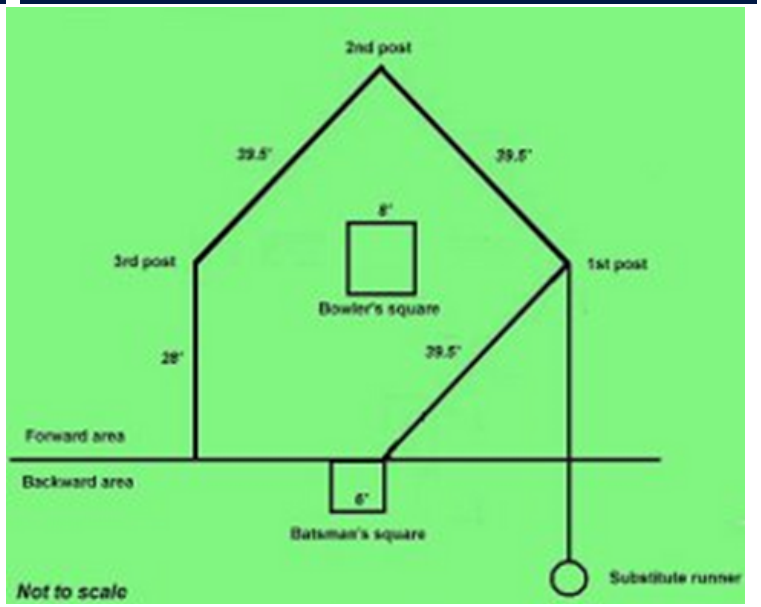
Key Rules

•A rounders game consists of 2 innings; whilst one team bats, the other one bowls.
•A team consists of a maximum of 15 players and a minimum of 6 players
•Players must run on a good ball

<u>When running</u>
•Batters must always keep in contact with the post, either with their hand of bat.
•Two batters cannot be at the same post
•You cannot run back to a post once you have committed to run to the next post
•If you hit the ball backwards, the batter must stay at 1st post until it reaches the outward area.

<u>No balls</u>
•It is a no ball when:
•The ball is above the head/below the knee
•The ball bounces
•The ball is wide
•The bowlers foot is outside of the square when they release the ball
•The bowler does not use an underarm action
•You can not be caught out on a no ball

Rounders Pitch



Scoring

<u>Hitting a good ball:</u>
Run to 2nd or 3rd base = 1/2 rounder
Run to 4th base = 1 rounder

<u>Missing a good ball:</u>
Run to 4th base = 1/2 rounder

<u>Running on a no ball</u>
Run to 2nd or 3rd base = 1/2 rounder
Run to 4th base = 1 rounder

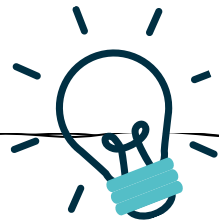
Key Terms

Throwing Batting
Bowling Coordination
Fielding Speed

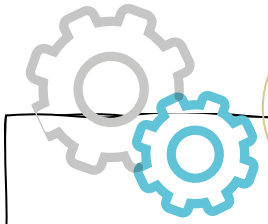
Key Skills

Underarm bowling – Hold ball in dominant hand. Step forward with non throwing foot. Release ball between knee and shoulder
Batting – Stand sideways on with bat up. Swing through with hips and follow through with bat.
Catching – Get in position under the ball. Cup hands. Bring ball into body.
Throwing – high elbow, aim with none throwing arm. Follow through in direction of where you want the ball to go.
Fielding – Using different techniques to get the ball back to the bowler or to a post

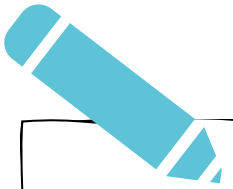
ROUNDERS ENGLAND



- 1.Identify the stages of a warm up before playing a game of Rounders
- 2.How many people on a Rounders team?
- 3.How many points do you score if you hit the ball and get to second post?
- 4.How many innings are there in a game of Rounders?
- 5.Identify 2 fielding techniques which can be used in rounders
- 6.Identify the most important components of fitness you need in a rounders game.



- 1.Describe one stage of a warm up
- 2.Describe 2 roles on a rounders team
- 3.Describe how scoring works if you miss the ball as a batter
- 4.Describe what happens if you drop the bat when you are running in rounders
- 5.Describe one fielding technique and when you would use it
- 6.Describe one component of fitness and how it is needed in rounder



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- 6.Describe one component of fitness and how it is needed in rounder

PE: Cricket

Key Rules

- The winning team in cricket is the side that scores the most runs.
- A cricket team consists of 11 players and they take it in turns to bat and bowl.
- The bowler must bowl the ball overarm at the stumps.
- A wide ball will be called if the batsman, playing a normal stroke, is unable to reach the ball.
- A no ball will be called if the heel of the bowler's front foot lands in front of the popping crease or a full toss is bowled – waist height for a seam bowler and shoulder height for a spin bowler.
- A batter is declared out if the bowler knocks off the bails of the stumps with a delivery.
- A batter is declared out if a fielder or wicketkeeper catches the ball directly off the bat and before it hits the ground.
- A batter is declared out if the umpire believes that the bowler's ball would have hit the stumps if the batter had not obstructed the ball with their pads. This is known as leg before wicket (LBW).
- A batter is declared run-out when they are going for a run but do not make the batting crease before fielding team knocks off the cricket stumps.
- A batter is declared out if the wicketkeeper stumps them.

Fielding Positions

Key Equipment

Key Terms

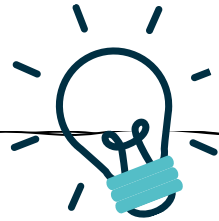
Batting	Forward Defence
Bowling	Wide Ball
Fielding	Long Barrier
Coordination	Speed

Youtube Links

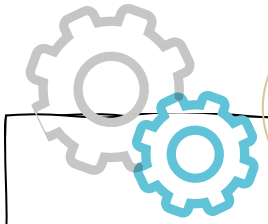
Batting:
https://www.youtube.com/watch?v=CdlYCoqUVEQ
Bowling:
https://www.youtube.com/watch?v=VHTzqkFuljs
Rules:
https://www.youtube.com/watch?v=AqtpNkMvj5Y
Fielding:
https://www.youtube.com/watch?v=xRf3_UFtAaE

Local Clubs:

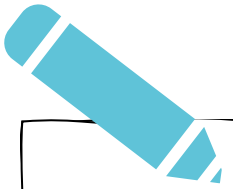
Walmley Cricket Club, Sutton Coldfield Cricket Club, Aston Unity Cricket Club



1. Identify 2 types of batting shot
2. Identify 2 types of bowling
3. Identify 2 fielding techniques
4. Give 2 rules in cricket
5. Give 3 fielding positions
6. What are the 3 calls when batting in cricket?
7. What is the name of the line which runs round the outside of a cricket pitch?
8. State 3 pieces of equipment you need in cricket
9. State 3 important components of fitness for cricket
10. State 3 stages of a warm up



1. Can you pick a shot and describe where you would be aiming to hit the ball?
2. Can you describe the difference between the two main types of bowling in cricket?
3. Can you perform the hand signals for the following calls: Wide ball, No ball, 4 runs and 6 runs?
4. Can you describe one thing you might do to put more pressure on the batter as the fielding side?
5. Can you describe 3 rules in cricket?
6. When may you use the call 'waiting' in cricket?
7. Can you describe how you score a boundary when batting in cricket?
8. Can you pick 2 pieces of batting equipment and explain the role of them?
9. Can you define the most important components of fitness needed for cricket?
10. Can you describe 3 stages of a warm up?



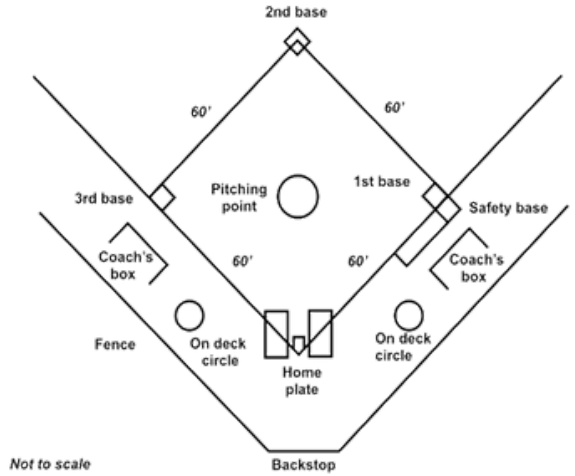
1. Can you explain the difference between an attacking shot and a defensive shot in cricket?
2. Can you explain 2 teaching points when bowling in cricket?
3. Can you explain 2 teaching points for a fielding technique?
4. Can you explain when you may use 2 different types of fielding techniques in a game?
5. Can you explain why it is important not to give away extras in cricket?
6. Can you discuss why you use 'yes' and not 'go' when calling for a run in cricket?
7. Can you explain the role of the wicket keeper?
8. Can you explain the difference between the different lines on the wicket?
9. Can you pick 3 important components of fitness and explain why they are important in cricket?
10. Can you design a warm up relevant for a cricket match?

PE: Softball

Key Rules

Softball is played by two teams of 9 players each who try to score more runs than their opponent by rounding the bases and crossing home plate as many times as possible.
A softball field consists of a pitching rubber, 4 bases (3 bases plus home plate), an infield, and an outfield
There is a batter's box on both sides of home plate. The batter may choose which side of the plate to hit from, but both of their feet must be inside the box.
The team that scores the most runs is the winner. A run is scored when a base runner rounds all of the bases by stepping on each one in order from 1st, 2nd, 3rd, and crosses home plate.

Pitch Dimensions



Positions

·Pitcher – on the pitching rubber Catcher – behind home plate
·1st Baseman
·2nd Baseman
·3rd Baseman
·Shortstop – between 2nd and 3rd base
·Leftfielder – outfield between 2nd and 3rd base
·Centerfielder – outfield behind 2nd base
·Right fielder – outfield between 1st and 2nd base

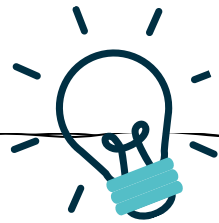
Key words

Ball – as called by the umpire, a pitch that does not enter the strike zone in flight and is not struck at by the batter
Pitcher – the player who throws the ball to the batter
Strike – as called by the umpire, a pitch that enters the strike zone in flight and is not struck at by the batter; a pitch that a batter swings at and misses; a foul ball

Key Equipment

Youtube Links

Batting:
www.youtube.com/watch?v=jyK9ukm-23E
Bowling:
www.youtube.com/watch?v=RIpCI6FZmjI
Rules:
www.youtube.com/watch?v=YLU6W6AYQto
Long barrier when fielding:
www.youtube.com/watch?v=1hxVw1YCJn0



1.Identify the stages of a warm up before playing a game of softball

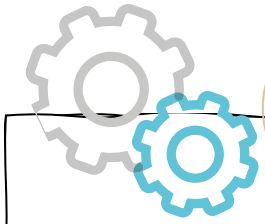
2.How many people on a softball team?

3.How many points do you score if you hit the ball and get to second base?

4.How many innings are there in a game of softball?

5.Identify 2 fielding techniques which can be used in softball

6.Identify the most important components of fitness you need in a softball game.



1.Describe one stage of a warm up

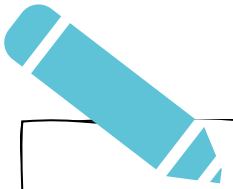
2.Describe 2 roles on a softball team

3.Describe how scoring works if you miss the ball as a batter

4.Describe what happens if you drop the bat when you are running in softball

5.Describe one fielding technique and when you would use it

6.Describe one component of fitness and how it is needed in softball



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6.Describe one component of fitness and how it is needed in softball

Softball

PE: Athletics

Sprinting

Start

During
Hold your torso straight and vertical
Hold head still, facing forward
Bend elbows at 90 degrees
Pump your arms so hands travel from hips to lips, keep shoulders steady
Opposite arm to leg
With each stride lift front knee high

Rules
A false start is called when the feet of a runner leave the starting blocks before the starter's gun

Wider reading

Tokyo 2021 Olympics: https://tokyo2020.org/en/ https://www.olympic.org/tokyo-2020
Components of fitness: https://www.bbc.co.uk/bitesize/guides/zxd4wxs/revision/2
Methods of training: https://www.bbc.co.uk/bitesize/guides/z2b9q6f/revision/2

Long Distance

Start:
Standing

During
Hold your torso straight and vertical
Bend elbows at 90 degrees
Pump your arms so hands travel from hips to lips, keep shoulders steady
Opposite arm to leg

Pace is very important during a long-distance race

Rules
During an 800m race, athletes run the first curve in separate lanes, then break after 100m.

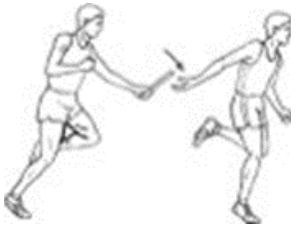
Components of fitness

Speed Cardiovascular endurance Power Reaction time Coordination

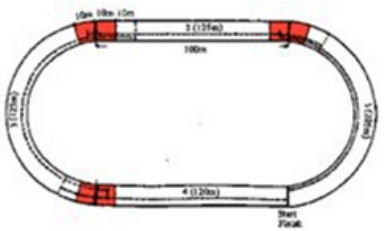
Relay 4x100m

!! Same technique as sprinting !!

Baton change over:
UP sweep exchange



DOWN sweep exchange



The exchange must happen in the red areas marked below

PE: Athletics-Throws

Year 7 KO

1.

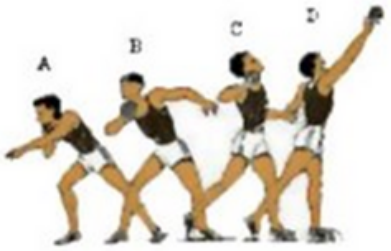
·Rest the shot on your **palm** and push into your neck
·Ensure your chin, knee and toe are in line
·Push shot away from the neck
·Keep elbow high

Rules:

·The shot must be released above the height of the shoulder with one hand

2.

·Your throwing hand (including the thumb) is on top of the discus with your fingers evenly spread.
·The top knuckle of your four fingers (not the thumb) should touch the rim, with your fingertips over the sides
·Ensure your chin, knee and toe are in line
·Shift your weight forward as you pivot your hips.
·The discus should leave your hand smoothly off the index finger with your hand at about shoulder height.
·Follow through, rotating to your left to remain in the ring and avoid fouling. (if right-handed)



3.

·Straighten your arm keeping javelin close to your head and parallel to your arm
·Ensure your chin, knee and toe are in line
·Transfer your weight from front to back leg when releasing the javelin

·Place javelin in the crease of your hand

Wider reading/ videos:

Tokyo 2021 Olympics: https://tokyo2020.org/en/ https://www.olympic.org/tokyo-2020

Components of fitness: https://www.bbc.co.uk/bitesize/guides/zxd4wxs/revision/2

Methods of training: https://www.bbc.co.uk/bitesize/guides/z2b9q6f/revision/2

Components of fitness

Muscular Strength Flexibility Power Balance

Exit Routes:

Tamworth Athletics Club, Marlborough Way, Tamworth, B77 2HA. **Royal Sutton Coldfield Athletics Club,** Wyndley Lane, B73 6ES

PE: Athletics-Jumps

Long jump

Run up

·athlete accelerates onto the take off board, aiming to be close to maximum speed at take off

Take off

·Take off on one leg as close to the line as possible

·Maintain this take off position for as long as possible

·As the athlete comes into land, bring both legs in front of body.

Rules

·No part of the athletes foot should cross the front edge of the foul line

Triple Jump

Run up

·Same as long jump run up

·

Phase 1: HOP

·Take off and land on the same foot

Phase 2: STEP

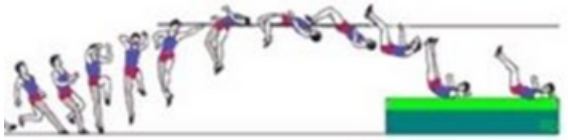
·Take a LARGE step onto the other foot

Phase 3: JUMP

·Same as long jump 'take off'

Rules

No part of the athletes foot should cross the front edge of the foul line



High Jump

Run up

·Run on a curve leaning away from the bar

·Use approximately 6–12 steps on approach

Take off (Fosbury flop)

·On take off, point foot towards the far corner of the landing area

·Drive knees upwards on the leg closest to the bar

·Rotate hips so you are facing away from the bar

·Reach arm up and over

·Arch back and bring legs together

·Lift feet over and land on back, tucking chin to chest.

Rules

·Take off on one foot only

·Do not touch the bar

Wider reading/ videos:

Tokyo 2021 Olympics: https://tokyo2020.org/en/ https://www.olympic.org/tokyo-2020

Components of fitness: https://www.bbc.co.uk/bitesize/guides/zxd4wxs/revision/2

Methods of training: https://www.bbc.co.uk/bitesize/guides/z2b9q6f/revision/2

Components of fitness

Muscular Strength Flexibility Power Balance

Exit Routes:

Tamworth Athletics Club, Marlborough Way, Tamworth, B77 2HA. **Royal Sutton Coldfield Athletics Club,** Wyndley Lane, B73 6ES

1.How many people are in a relay team?

2.Which throwing event is a “sling”, which is “push and which is “pull” throw?

3.What are the safety points in throwing events?

4.What happens if you step over the board in the long jump?

5.How far is 100m, 200m, 800m and 1500m on an athletics track?

6.What are the four health related components of fitness?

1. How do you perform a sprint start?

2. How do you measure in throwing events?

3. How is a track race started? Talk through the process of sprint and longer distance races.

4. How will you help a partner who struggles to get the javelin point first?

5. What makes a shot-put throw a “no throw”?

6. How can you improve your own personal fitness level?

1. Which part of your long jump gets measured?

2. What are the changeover zones in relay?

3. What 3 key teaching points would you tell someone about sprinting?

4. How would you describe the scissor kick technique in the high jump?

5. Choose a throw; how do you perform it?

6. Choose 2 health related components and say which athletics events they are shown in most. .

Athletics

Religious Education: Rites of Passage

1. Christian Baptism

Baptism is a rite of passage which marks an important event in a Christian's life. It is a ceremony which welcomes people into the Church. It is often referred to as a Christening. Parents have their children baptised because they want them to grow up as a Christian. Christians also think it's important because Jesus himself was baptised.

2. Sikh Amrit

In 1699 Guru Gobind Singh he chose the festival day of Vaisakhi as the occasion to transform the Sikhs into the Khalsa, a family of soldier saints. Guru Gobind Singh introduced many of the customs that Sikhs practice today. Today, Sikhs who wish to become members of the Khalsa show their commitment and dedication by taking part in the Amrit Sanskar ceremony. This ceremony initiates them into the Khalsa.

3. Aqeeqa

- Is the Islamic naming ceremony.
- This focuses on welcoming of a baby into the Islamic faith.
- When a baby is born to Muslim parents, the baby is welcomed into the Ummah (community) of Muslims.
- The father whispers the Adhan (call to prayer) in the baby's ear.
- This is the most important rite of passage for Muslims, as it is the start of the Muslim faith for babies.

4. Bat and Bar Mitzvah

Historically, bar mitzvah and later bat mitzvah represented a ceremonial recognition that a young person had reached the age when he or she was no longer a minor (child) according to Jewish law and thereby took on new religious privileges and responsibilities of an adult. For boys, this age is 13, for girls, 12.

5. Hindu Marriage

Hindus believe it is their duty to marry.
Then their children will be able to carry on their family name and religious traditions. However, they also believe that that young people may easily choose the wrong person. So Hindu marriages are often arranged by their parents.

6.Wow Words

- **Amrit**, A person that represents God in the flesh.
- **Age of maturity** When a child is regarded to be an adult, at least for ritual purposes.
- **Age of responsibility** The age at which a person is legally responsible for him/herself, his/her actions and decisions.
- **Bar Mitzvah** A religious initiation ceremony for a Jewish boy, who is considered to be the age of religious maturity.

1. Why is baptism important to Christians?
2. What is the Jewish Bar mitzvah ceremony?
3. Why is Guru Gobind Singh important to Sikhs?
4. What do Muslim parents do during the Aqeeqa ceremony ?
5. What is an arranged marriage ?
6. Why do Hindus believe that marriage is so important ?

1. How does faith give people a sense of identity and belonging ?
2. Why are ceremonies so important to different religions ?
3. When does someone become an adult in Judaism ?
4. How hard is it to belong to a faith and to live by rules and beliefs ?

1. What happens during a Christian baptism?
2. What are the advantages and disadvantages of arranged marriages?
3. Explain why the Aqeeqa ceremony is so important to Muslims.
4. What is the story of Guru Gobind Singh ?ou are going to do in Boulogne.

Rites of Passage

Science: BIOLOGY INTERDEPENDENCE

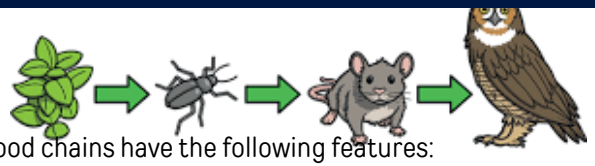
1. Food Chains and Webs

A **food chain** is a diagram that shows what an organism eats. The arrows in a food chain shows the transfer of energy from one organism to the next.

An example of a food chain is shown in box 2. **Prey** organisms are organisms that are eaten by other animals. **Predator** organisms eat other animals.

A **food web** is a set of linked food chains. The organisms in a food web depend on each other. They are **interdependent.**

2. Food Chains



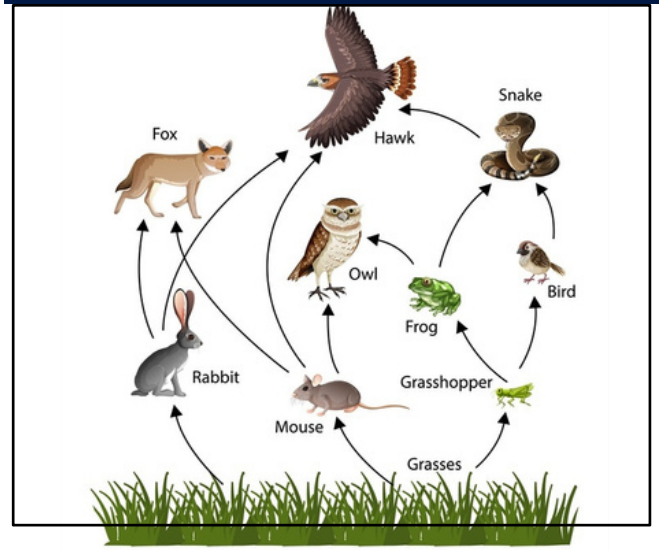
Food chains have the following features:

-the first organism is a **producer**. Energy is transferred from the sun to the organism and is changed into glucose by photosynthesis

-the second organism is a **herbivore**. This is an animal that only eats plants

-the third organism is a **carnivore**. This is an animal that eats other animals

3. Food Webs



4. Bioaccumulation

It is not only energy that transfers along a food chain. Some chemicals can also be passed on. Examples are fertilisers and insecticides. These are chemicals that some farmers use to grow crops and kill insects that eat their crops.

Fish absorb small amounts of these chemicals when they get washed into rivers and seas and store them in their body. Seals eat the fish, and the insecticide passes into their body. The levels accumulate in the seals because one seal eats lots of fish. This process is called **bioaccumulation**

5. Ecosystems and Biodiversity

An **ecosystem** is the name given to the plants and animals that are found in a particular location, and the area in which they live. These plants and animals depend on each other to survive.

Biodiversity refers to the variety of species found in an ecosystem. Threats to biodiversity such as overfishing and overharvesting have adverse effects on the ecosystem because it can result in fewer animals and plants.

6. Pollination and Food Security

Lots of plants rely on **insects** like bees to **reproduce**. To make a seed, a flower needs to be **pollinated**. This means that pollen from one flower needs to travel to another. Bees are very important for carrying the pollen between flowers.
Bees help plants to reproduce and this is important for all living things on our planet. To encourage bees to visit them, flowers have colourful petals and an attractive scent. Some flowers give the bees a sugary reward called nectar too.

1. What is a food chain?
2. What is food web?
3. Define what the prey is in a food chain
4. Define what the predator is in a food chain
5. What is meant by bioaccumulation?
6. What is an ecosystem
7. What is meant by biodiversity
8. What is pollination?

1. Draw a food chain
2. Draw a food web
3. Describe what would happen if a prey organism was removed from a food web
4. Describe what would happen if a predator organism was removed from a food web
5. Describe an example of a situation where bioaccumulation could happen
6. Describe an example of an ecosystem using examples of organisms
7. Describe the factors that can affect biodiversity
8. Describe the process of pollination

1. Describe the different features of a food chain
2. Explain the difference between a food web and a food chain
3. Explain what would happen if the producer in a food web was removed
4. Explain how bioaccumulation occurs and the consequences of it
5. Explain the concept of interdependence in an ecosystem
6. Explain how different factors can affect biodiversity
7. Explain how pollination can affect food security

Biology Interdependence

Science: electricity and magnetism

1. Circuit components

Name of component	Symbol	Function
Cell		Provides stored energy to the circuit in the form of chemical energy (more than 1 cell = battery)
Wire		Allows the electrical energy to flow through to the next component
Switch		Can allow the electrical energy to flow (closed) or break to circuit (open)
Bulb		Gives out light energy. This converts the electrician energy to light energy
Ammeter	A	Measure the flow of electrons (small charged particles) in the circuit. Also known as the current.
Voltmeter	V	Measuring the voltage (energy give to components)- you will do this in more detail in year 8.
Resister		Measures how easy/ hard it is for the electrons to flow (the current to flow)- you will do this more in year 8.

4. Drawing circuits rules

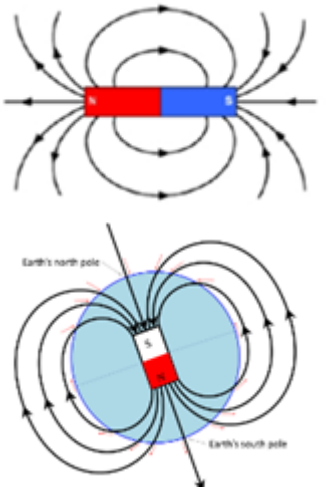
1. Pencil and ruler
2. A rectangle shape
3. All components connected
4. 2D and using the circuit symbols

2. Magnetic fields and drawing them

A magnet's magnetic field is the around in which the force can act. These are drawn using clear 'field lines' with arrows pointing from north to south

The geographic North = magnetic south

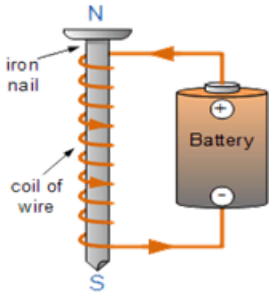
The geographic South = magnetic north



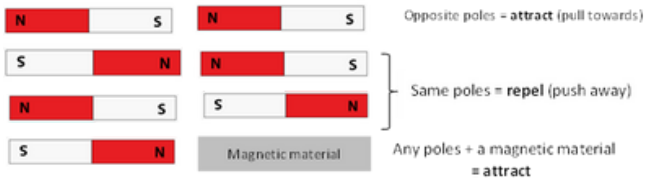
3. Electromagnets

This electromagnet can be switched on/ off.

Increasing the number of coils in the wire of increasing the voltage (energy) of the battery can increase the strength of the electromagnet

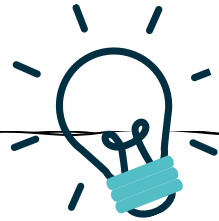


5. Magnets

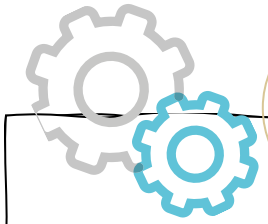


6. Wow Words

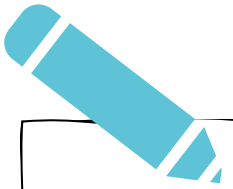
Current: The flow of electric charge around a circuit.
Series circuit: A circuit in which the current only has 1 route to flow
Parallel circuit: A circuit in which the current has 2 routes to flow
Conductor: A material that allows electricity to pass through easily
Insulator: Materials that do not conduct electricity well.
Electromagnet: Magnets that are created by wrapping a coil of wire wrapped around a magnetic core
Magnetic material: Will always be attracted to a magnet, will not repel. Iron, nickel and cobalt are the only magnetic elements



1. What is current a measure of and what are the units of current?
2. What meter do you use to measure current?
3. State the two poles of a magnet and describe which poles attract and which repel.
4. What do we call more than one cell used together in a circuit?
5. What happens in the wires when you close the switch in a circuit?
6. What is potential difference a measure of and what unit is potential difference measured in?
7. What meter do you use to measure potential difference?
8. What type of material can you use for the core of an electromagnet?
9. How are components joined together in a series circuit?
10. How are components joined together in a parallel circuit?



State two differences between series and parallel circuits.
What happens to the current if you add more bulbs to a series circuit?
What happens to the current in other branches if you add another branch to a parallel circuit?
What happens to the total current if you add more branches to a parallel circuit?
How is the potential difference split across each component in a series circuit?
Describe the potential difference across each component in a series circuit
Describe the potential difference across each component in a parallel circuit
State the equation for calculating current, including units.
Define a conductor and an insulator
State 3 things that affect the strength of an electromagnet.



- Describe an experiment to show how you can find out the shape of a magnetic field.
- Describe how you can use a nail, a piece of wire, crocodile clips, leads and a battery to make an electromagnet.
- In a circuit with a single bulb, the current is 0.2A. Calculate the current if you add another bulb in series with the first bulb.
- A bulb in a circuit has a current of 0.6A through it and a potential difference of 12V across it. Calculate the resistance of the bulb
- Compare the resistance of conductors and insulators.
- Explain why the needle of a compass always points in the same direction wherever you point
- Compare the readings on ammeters and voltmeters when you connect them in series and parallel circuits.
- State the parts of an electric motor and describe how a motor works
- Only one of Mr Jones' headlights is working on his car. Are the series connected in series or parallel? Explain your answer
- A cell connected to two bulbs in a series circuit will last longer than if it is connected to the same two bulbs in a parallel circuit. Explain why.

Electricity and Magnetism

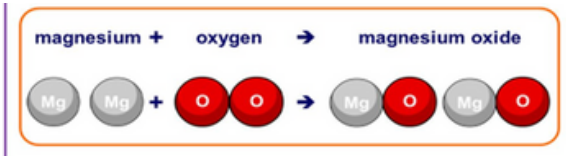
Science: Chemical Reactions

1. Chemical Reactions

During a chemical reaction, the atoms rearrange to form a new substance. The new substance is called a compound. The signs of a chemical reaction are: temperature change, colour change, fizzing, light and sound.
Combustion is a Chemical reaction. A fuel reacts with oxygen to release energy. The 3 things needed for a fire to burn are a fuel, heat and oxygen.
Oxidation is another chemical reaction when oxygen is added to a substance during the reaction.
Thermal decomposition is a chemical reaction that breaks down a substance using heat.
Displacement is when a more reactive element pushes out a less reactive element from its compound.
All chemical reactions require energy to start them. A catalyst lowers the amount of energy needed.

2.Conservation of Mass

There is no mass lost or gained during a chemical reaction. The number of atoms in the reactants must equal the number of atoms in the products. Count the atoms in the equation below. What do you notice?
REACTANTS → PRODUCTS



Eg magnesium + oxygen → magnesium oxide
Reactants are on the left of the arrow and the products are on the right. This is why we write balanced symbol equations to represent chemical reactions.

3. Wow Words

Atom– The smallest part of an element that can exist.
Conservation of mass– In a chemical reaction, the total mass of reactants is equal to the total mass of products.
Element– A substance that cannot be broken down into other substances.
Reactants= react during a chemical reaction.
Products = what is made during a chemical reaction.
Compound= made from two or more different types of atom chemically bonded
Endothermic reaction – a chemical reaction that absorbs energy from the surroundings.
Exothermic reaction – a chemical reaction that releases energy to its surroundings.
Catalyst – speeds up a reaction by lowering the amount of energy needed for the reaction to start.
Oxidation – a chemical reaction when oxygen is added to another substance.
Thermal decomposition – is a chemical reaction that breaks down a substance using heat.

4.Exmaples of Chemical Reactions

Endothermic reactions absorb energy from the surroundings and feel cold. Sports injury packs are examples of a use for endothermic reaction. An example of an endothermic reaction is thermal decomposition.
Exothermic reactions release energy to the surroundings and the temperature feels hot. Examples of exothermic reactions are combustion. Handwarmers are an everyday use for exothermic reactions Handwarmers. Combustion is an example of a Chemical reaction.

5. Forming Word Equations

Chemical equations show what happens in a reaction and can include a word equation and a balanced symbol equation. Chemical equations should be balanced on each side.
Step 1 Write out the word equation
magnesium + oxygen → magnesium oxide
Step 2 Write out the symbol equation:
$Mg + O_2 \rightarrow MgO$
Step 3 Check the atoms are balanced by counting the number of atoms on each side.
Step 4 keep adding numbers until you have an equal number of atoms on either side.
$2Mg + O_2 \rightarrow 2MgO$

1.Write the definition for an atom.
2. Write the definition for an element.
3. Write a definition of a compound.
4. Give 2 examples of physical changes.
5.Givefour examples of chemical changes.
6. Write the definition for a chemical change.
7. Describe what a word equation is.
8. Describe what happens to atoms in a chemical reaction.
9.Where you can find the chemical symbol of an element.
10. Name the various ways to identify that a chemical reaction has taken place.

1.Describe the temperature change during an exothermic reaction.
2. Describe what happens to the energy during an exothermic reaction.
3. Describe the temperature change during an endothermic reaction.
4. Describe what happens to the energy during an endothermic reaction.
5. Write a word equation for the reaction between iron and oxygen.
6. Describe the law of conservation of mass.
7. Describe what happens to bonds during chemical reactions.
8. Write a word equation for a combustion reaction with methane.
9. Write a word equation for a reaction between hydrogen and oxygen.
10. Describe the changes you would see during the oxidation of iron.

1. Explain the difference between chemical and physical reactions.
2. Explain the term activation energy.
3. Explain how a catalyst speeds up a reaction.
4. Write a guide on how to balance equations.
5. Explain the differences between iron oxide and aluminium oxide.
6. Write a balance symbol equation for the combustion of methane and oxygen.
7. An explosion is a chemical reaction. What signs of a chemical reaction might you see, hear or feel during this reaction?
8.Explain how a self-heating can works.
9. Explain how an ice pack gives of an endothermic reaction.

Chemical Reactions

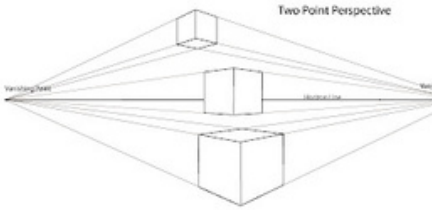
D & T: Technical Drawing

Technical drawing is a style of drawing used by **designers** and **engineers** to **communicate** design ideas to a **client** or **manufacturer**.

It is used to produce **3D** and **realistic** drawings. You will learn 2-point perspective, 1-point perspective and Isometric style. To draw complex **3D** shapes you must be able to draw simple **2D** shapes accurately.
We **measure** using **millimeters** in design and technology for accuracy.

Specialist tools and equipment: **ruler**, **protractor**, **set square** and **isosketch**.

2-Point perspective drawing rules: draw the **horizon line**, plot the **vanishing points**, draw the **front edge** of the shape, draw lines from the top and bottom of the front edge to **recede** back to **both VP's**, add **depth** to the object – make it **3D**.



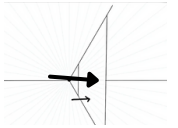
Objects appear **3D** and **realistic**.

They can be drawn at **different levels: above**, **on** or **below** the horizon line to show different **views** of the product.

These **rules/guidelines** can be followed for drawing both **shapes** and more **complicated products**.

3.WOW WORDS

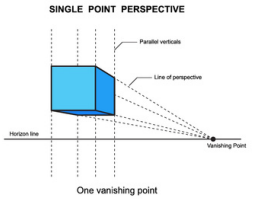
Horizon Line = A temporary horizontal line drawn across the page to set the height the viewer will see your drawing.
Vanishing Points = The point where all lines converge and disappear.
Parallel = Two lines that will never meet.
Construction lines = Lines which are drawn to help build the shape, these should be drawn lightly so that they can be remove.
Isometric = equal measurements or dimensions.
Millimeters = 10mm = 1cm
Plane = A face of a shape/ an axis to draw on



4. 1-Point Perspective

1-Point perspective drawing rules: draw the **horizon line**, plot the **vanishing point,** draw the **frontal plane**, draw lines from **corners/edges** of the front plane to **recede** back to the VP, add **depth** to the object – Make it **3D**.

Objects appear **3D** and **realistic** from the **viewpoint** of **one person**.



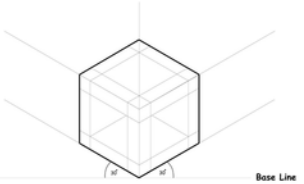
One vanishing point

5. Isometric Drawing

Isometric drawing rules: draw a reference line **horizontally**, draw the front edge **vertically**, mark out **30 degrees** and draw a line through, draw a "Y" shape, by marking out **30 degrees** in the other direction, draw **two straight lines** the **same length** as the **front edge**, join the lines.

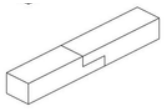
All lines will be **parallel** on the same drawing **planes**.

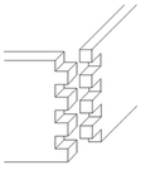
Objects will look **3D** but not **rea**



6. Wood Joints

Wood joints are a traditional method of **joining timber**. There are a range of different joints that can be used for different situations that provide a variety of levels of **strength**. Joints are often **glued** to make them **secure** and **permanent**.


Half-lap joint


Finger/comb joint

1. Explain what technical drawing is.
2. Explain what industries use technical drawing and why.
3. Measure and draw out 2D shapes accurately.
4. State the rules of 2-point perspective drawing.
5. State the rules of 1-point perspective drawing.
6. State the rules to draw in isometric.
7. State the angles associated with isometric drawing.
8. State the names of specialist tools and equipment needed to complete these drawings.
9. State how to measure using a ruler and in what measurements we use in design and technology.
10. How to work out the area of a shape.
11. How to convert centimetres into millimetres.
12. How to use angles on a protractor.

1. Can you draw out basic shapes in 2D accurately?
2. Can you follow the rules of 2-point perspective drawing to draw basic shapes in different dimensions: 40mm cube, 20 x 60mm cuboid?
3. Can you follow the rules of 1-point perspective drawing to draw basic shapes in different dimensions: 10mm cube, 15 x 35mm cuboid, 50mm triangular prism?
4. Can you follow the rules of isometric drawing to draw basic shapes in different dimensions? Cube: 50, 65, 90mm.
5. Can you render (colour using shade and tone) basic shapes in 3D to show light, dark and shade on a 3D object?
6. Consider the purpose of 2-point perspective drawing?
7. Consider the purpose of 1-point perspective drawing?
8. Consider the purpose of isometric drawing?

1. Draw out a 2D square in 20mm, 40mm 65mm.
2. Break down complex shapes into simple shapes and follow the rules of 2-point perspective to draw products, draw a table.
3. Break down complex shapes into simple shapes and follow the rules of 1-point perspective to draw to products, draw a chair.
4. Break down complex shapes into simple shapes and follow the rules of isometric to draw products, draw a mobile phone.
5. Add detail, material finish(timber, plastic, metal), patterns and logos to products in the correct drawing style following the relevant rules.

Technical Drawing