

YEAR 7 — APPLICATION OF NUMBER

Solving problems with multiplication and division

@whisto_maths

What do I need to be able to do?

- By the end of this unit you should be able to:
- Understand and use factors
 - Understand and use multiples
 - Multiply/ Divide integers and decimals by powers of 10
 - Use formal methods to multiply
 - Use formal methods to divide
 - Understand and use order of operations
 - Solve area problems
 - Solve problems using the mean

Keywords

- Array:** an arrangement of items to represent concepts in rows or columns
Multiples: found by multiplying any number by positive integers
Factor: integers that multiply together to get another number.
Mil: prefix meaning one thousandth
Centi: prefix meaning one hundredth
Kilo: prefix meaning multiply by 1000
Quotient: the result of a division
Dividend: the number being divided
Divisor: the number we divide by

Factors

Arrays can help represent factors

Factors of 10: 1, 2, 5, 10

10 x 1 or 1 x 10

5 x 2 or 2 x 5

The number itself is always a factor

Square numbers have an ODD number of factors

Factors of 4: 1, 2, 4

Factors of 36: 1, 2, 3, 4, 6, 9, 12, 18, 36

Be strategic - Lay factors out in pairs can help you not to miss any

Multiples

Bar models can represent by something is a multiple. Eg 20 is a multiple of 4

Lowest Common Multiples

LCM of 9 and 12

9: 9, 18, 27, 36, 45, 54

12: 12, 24, 36, 48, 60

The first time their multiples match

LCM = 36

Timeline showing multiples of 9 and 12 meeting at 36.

Multiply/ Divide by powers of 10

100s 10s 1s

3 x 100 = 300

0.03 x 100 = 3

Repeated multiplication and division by powers of 10 is commutative

÷ 10 then ÷ 10 → ÷ 100

Metric conversions

Useful Conversions

mm → cm (÷ 10) → m (÷ 100) → km (÷ 1000)

km → m (× 1000) → cm (× 100) → mm (× 10)

g → kg (÷ 1000)

kg → g (× 1000)

ml → L (÷ 1000)

L → ml (× 1000)

Multiplication methods

Long multiplication (column)

Grid method

Repeated addition

Less effective method especially for bigger multiplication

Multiplication with decimals

Perform multiplications as integers e.g. 0.2 x 0.3 → 2 x 3

Make adjustments to your answer to match the question: 0.2 x 10 = 2, 0.3 x 10 = 3

Therefore 6 ÷ 100 = 0.06

Division methods

Short division: 3584 ÷ 7 = 512

Complex division: 3584 ÷ 24 = 149.33

Division with decimals

The placeholder in division methods is essential - the decimal lines up on the dividend and the quotient

24 ÷ 0.02 → 24 ÷ 0.2 → 240 ÷ 2

All give the same solution as represent the same proportion

Multiply the values in proportion until the divisor becomes an integer

Order of operations

Brackets

Indices or roots

Multiplication or division

Addition or subtraction

If you have multiple operations from the same tier work from left to right

e.g. 10 - 3 + 5 → 10 - 3 → 7 + 5

6 x 4 + 8 x 2 = 24 + 16 = 40

Area problems

Rectangle: Base x Perpendicular height

Parallelogram/ Rhombus: Base x Perpendicular height

Triangle: 1/2 x Base x Perpendicular height

A triangle is half the size of the rectangle it would fit in

Mean problems

Mean - a measure of average. It gives an idea of the central value

Lilly, Annie and Ezra have the following cubes

24 in total

Finding the mean amount is the average amount each person would have if shared out equally

The mean number of blocks would be 8 each

YEAR 7 — APPLICATION OF NUMBER

Fractions and percentages of amounts

@whisto_maths

What do I need to be able to do?

- By the end of this unit you should be able to:
- Find a fraction of a given amount
 - Use a given fraction to find the whole or other fractions
 - Find the percentage of an amount using mental methods
 - Find the percentage of a given amount using a calculator

Keywords

- Fraction:** how many parts of a whole we have
Equivalent: of equal value
Whole: a number with no fractional or decimal part
Percentage: parts per 100 (uses the % symbol)
Place Value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right
Convert: change into an equivalent representation, often fraction to decimal to a percentage cycle.

Fraction of a given amount

Find $\frac{2}{5}$ of £205

The bar represents the whole amount

£205

£41

2 out of the 5 equal parts
 $2 \times £41 = \underline{£82}$

$£205 \div 5 = £41$

Each part of the bar model represents £41

90

30 30 30

15 15 15

Use bar models for comparisons

$\frac{1}{3}$ of 90 = 30

$\frac{2}{3}$ of 45 = 30

$\therefore \frac{1}{3}$ of 90 = $\frac{2}{3}$ of 45

Use a fraction of amount

$\frac{2}{3}$ of a value is 70. What is the whole number?

$70 \div 2 = 35$

Each part of the bar model represents 35

70

35 35 35

$35 \times 3 = 105$

The whole number is 105

The wording of the question is important to setting up the bar model

$\frac{3}{4}$ of a number is 63.

63

21 21 21 21

Find the whole

What is $\frac{1}{6}$ of the number?

84

14 14 14 14 14 14

Use the whole to find a given part

= 14

Find the percentage of an amount (Mental methods)

The whole represents 100%

10% = $\frac{1}{10}$ of the whole

$10\% = \frac{1}{10}$ of the whole $50\% = \frac{5}{10} = \frac{1}{2}$ of the whole

$20\% = \frac{2}{10} = \frac{1}{5}$ of the whole $5\% = \frac{1}{20}$ of the whole

Find 65% of 80

80

8 8 8 8 8 8 8 8 8 8

Method 1
 $65\% = 10\% \times 6 + 5\%$
 $= (8 \times 6) + 4$
 $= 52$

Method 2
 $65\% = 50\% + 10\% + 5\%$
 $= 40 + 8 + 4$
 $= 52$

For bigger percentages it is sometimes easier to take away from 100%

Find the percentage of an amount (Calculator methods)

Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

$65\% = \frac{65}{100} = 0.65$ ← The multiplier

$0.65 \times 80 = 52$

Using the percent button

Find 65% of 80

Type 65

Press **SHIFT** **C** **(%)**

Press **×** 80 and then press =

This brings up the % button on screen
 You will see 65%

You can also use the calculator to support non calculator methods and find 1% or 10% then add percentages together

"of" can represent 'x' in calculator methods

Year 7 Science Knowledge Organiser – Interdependence

Key Vocabulary:

1	Abiotic Factor	Something that is not to do with a living thing. <i>Light, temperature and water availability are all abiotic factors.</i>
2	Biotic Factor	Something to do with a living thing. <i>Food availability, disease and predators are all biotic factors.</i>
3	Community	Two or more populations of organisms in the same habitat. <i>A group of seals and sharks form community in the ocean.</i>
4	Competition	Where organisms need a resource that has a limited supply. In the desert habitat, there is competition between plants for water.
5	Interdependence	All the organisms in an ecosystem depend on each other. Interdependence involves <i>feeding relationships, pollination and decomposition.</i>
6	Quadrat	A piece of equipment used to count the number of organisms/individuals in a specific area. Quadrats are used during both <i>random and systematic sampling to count the individuals in an area.</i>
7	Secondary Consumer	An organism that feeds on a primary consumer. <i>A fox is a secondary consumer because it eats rabbits, who eat grass.</i>
8	Tertiary Consumer	An organism that feeds on a secondary consumer. <i>A hawk is a tertiary consumer because it eats sparrows, who eat caterpillars.</i>
9.	Trophic Level	An organism's position in a food chain. <i>A producer is always found at the first trophic level as they are at the beginning of a food chain.</i>
10.	Sample	A smaller part of something that gives an idea of the whole.

11 Ecosystems

community of organisms with the non-living parts (abiotic factors) of their habitat. *E.g. a rainforest ecosystem contains: gorillas, ants, nut trees, lots of water and lots of sunlight*
A population is a group of the same organism. *E.g. a group of gorillas*

A community is made of several different populations living in the same area that depend on each other for survival. *E.g. populations of: gorillas, ants and nut trees.*

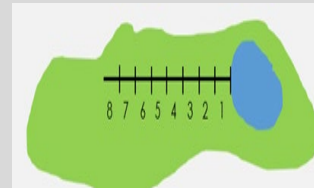
12 Sampling

Random sampling is used to estimate the size of a population in a habitat

Quadrats are placed randomly and used to count the number of individuals in a specific area
e.g. estimating the total number of daisies in a field

Systematic sampling is used to investigate the effect of a factor on the distribution of organisms

This involves using quadrats placed at regular intervals along a transect line
e.g. counting the number of daisies as you move further away from a pond



Predators are consumers that eat other animals, called prey

In a stable community the numbers of predators and prey increase and decrease in cycles

If there is a change in one population then this affects other populations in the community. You can use a food web to predict what changes could happen



cabbage → rabbit → fox

Producer Primary consumer Secondary consumer

14 Abiotic and Biotic factors

Biotic factors are living things that can affect a community

Examples of biotic factors are: food, disease and predators

Abiotic factors are non-living things that can affect a community

Examples of abiotic factors are: temperature, light, wind, amount of water

13 Food Chains and Webs

Feeding relationships within a community can be represented by food chains and food webs
The direction of the arrow in a food chain and food web shows the direction of energy transfer.

Producers are plants that can make their own food (glucose) using sunlight in the process of photosynthesis

Primary consumers eat producers, secondary consumers eat primary consumers and tertiary consumers eat secondary consumers

15. Competition

Animals often compete with each other for space, mates and food

Plants often compete with each other for space, water, minerals and light

The best competitors are most likely to survive

Year 7 ART Term 2 Knowledge Organiser

Keywords

Geometric - Geometric shapes are shapes made out of points and lines including the triangle, square, and circle.

Collage - Collage describes both the technique and the resulting work of art in which pieces of paper, photographs, fabric and other materials are arranged and stuck down onto a supporting surface, such as paper.

Vibrant – Bright and strong, often describes a colour.

Ensemble – A collection of parts or details.

Tribal - Tribal art is the visual arts and material culture of indigenous peoples. It is also known as non-Western art or ethnographic art.

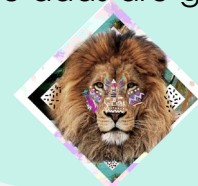
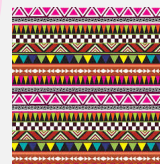
Structure - Structure relates to the arrangement and mutual relation of the objects within a piece of art. It is similar to the composition.



Kris Tate



- She was born in the city of Guatemala
- Animals and her native culture inspired her to start creating art.
- She studied Art and Graphic Design in Guatemala.
- She moved to the UK and is now working. Her works have become part of Urban Outfitters a clothes shop.
- She uses black outline to make her work look 3D.
- She adds intricate patterns onto her shapes to add detail.
- She uses bright, bold and vibrant colours.
- Her work is usually in structured columns.
- The shapes she adds are geometric.

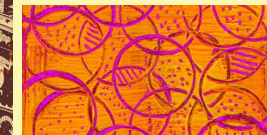


History of Sgraffito

Given that the word sgraffito is derived from the Italian word *graffiare* meaning 'to scratch,' the technique did indeed begin in Italy and dates back to around the 15th or 16th century.

Sgraffito played an important part in Rome during the Renaissance period and was frequently used by the famous artist Caravaggio and his partner Maturino da Firenze.

The artists first started using sgraffito on the exterior of buildings, using it to create incredibly detailed frescos on housing and palace facades.



Sgraffito Technique = To scratch

Step 1: Add different colours using oil pastel on to your paper.



Step 2: Then cover the page with a black oil pastel. Make sure that you add an even layer of black so that no colour is showing.

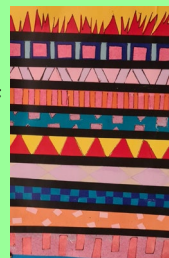
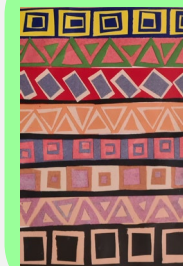


Step 3: Using a sharp pencil or pen 'SCRATCH' in Aztec patterns.



Collage

Collage describes both the technique and the resulting work of art in which pieces of paper, photographs, fabric and other ephemera are arranged and stuck down onto a supporting surface.



Year 7 Drama HT4 Knowledge Organiser

Summary of topic

Students are immersed into a range of historical periods of drama including Greek Theatre, Medieval drama, Melodrama, Naturalism and Physical Theatre.

Skills & Definitions

MIME – Movement without speech.

MASK – Worn covering the face for cultural reasons to represent a character.

NATURALISM – A style of drama to represent real life.

RITUAL – Sequence of movement to communicate meaning.

Aims of the topic

To be introduced and explore historical periods and cultural drama.

Cultural Drama Y7

Knowledge Organiser



DRAMA



Assessment & Performance Tips

The assessment is a group devised piece using physical theatre style of **Frantic Assembly**.

- Face the audience at all times
- Speak loud and clear so everyone can hear you
- Try not to laugh and stay focused.
- Use a real range of movement skills.
- Tell a story through movement.
- Add emotion to your performance.

Key Words

• Historical Drama	• Medieval drama
• Commedia	• Contemporary drama
• Naturalism	• Melodrama
• Physical Theatre	•
• Costume	•

Timeline

Greek 550 BC – 220 BC

Medieval Drama (mystery plays / morality (George Dragon) 401-1500


Commedia 1510 1650 (pantomime)

Naturalism 20th Century Drama 1880-1940.

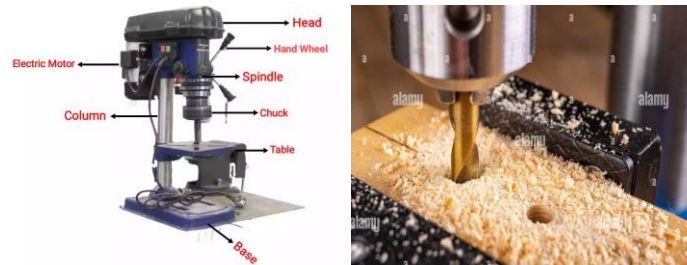
Physical Theatre 1980-modern day.

Year 7 Design Knowledge Organiser

Design Process

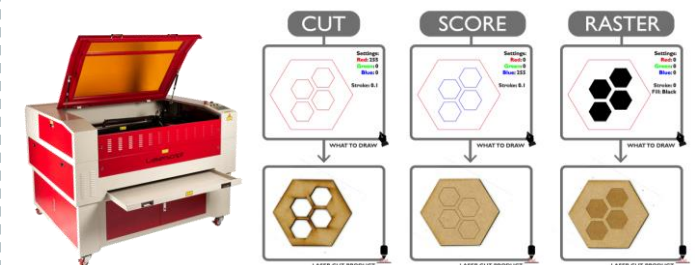
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-  **Specifications** A list of design criteria.
-  **Research** Sourcing information and inspiration to help with design work
-  **Ideas** A range of potential solutions to the Problem.
-  **Development** Further improving an idea.
-  **Final Design** A presentation drawing of chosen idea.
-  **Manufacture** Making the final outcome.
-  **Evaluation** Reviewing strengths and weaknesses of final product and design work.

Pillar Drill



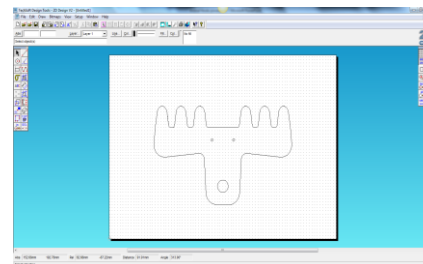
Pillar drills are free standing machine tools used by engineers that use high powered motors to rotate drill bits at varying speed.

Laser Cutter



Laser cutting is a method of cutting shapes or designs into sheet metal or other structural materials.

CAD / CAM



CAD stands for Computer aided design and refers to any design that is created through the use of computer software.

Plywood



Sheet materials manufactured from layers or particles of wood. Reddish brown or white in colour. Layered in odd numbered sheets. Strong. Susceptible to splintering Used in sheds and cladding, furniture, flooring, boats (marine ply).

Health and Safety



Long hair must be tied back

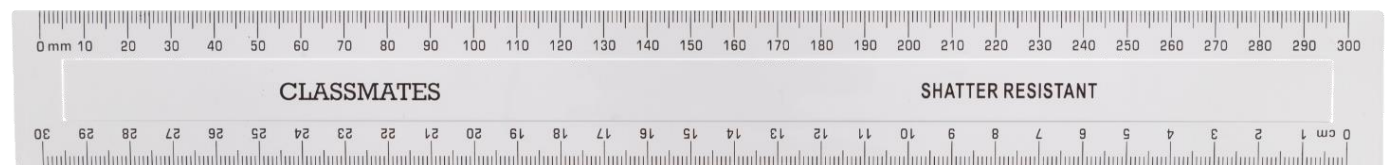


Wear goggles



Protective apron must be worn


Measure



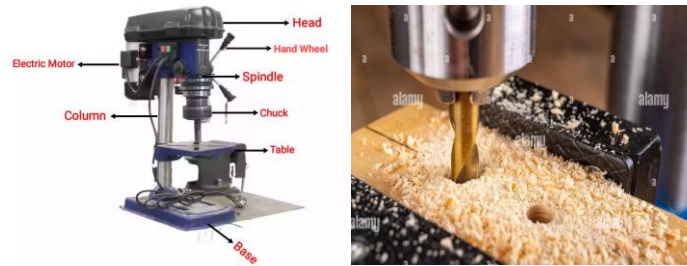
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Year 7 Design Knowledge Organiser

Design Process

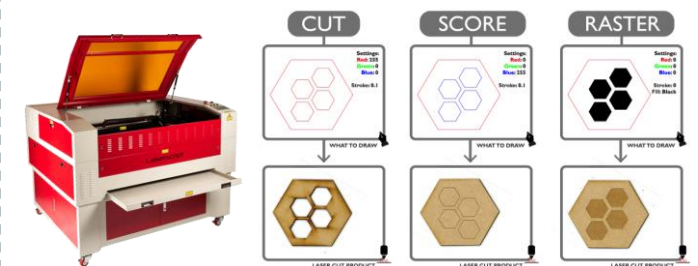
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Pillar Drill



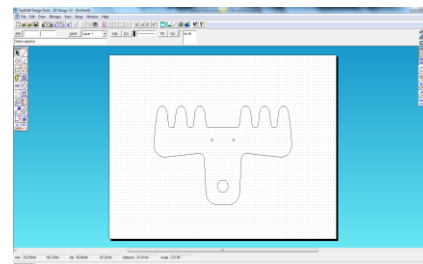
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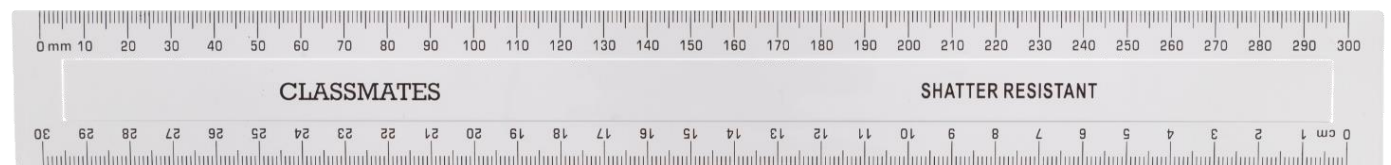


Wear goggles



Protective apron must be worn

Measure



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Year 7 Music Topic Overview

Topic – Filling it out	HT2
Topic intent - Students will learn how to play the 12 bar blues. They will compose blues music and write the lyrics for the piece. Students will also gain further keyboard knowledge, timing, and concept of the chords. There will be more listening exercises as part of the unit connected to the genre.	

Filling it Out




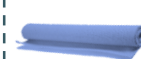




Students know	1. What blues sounds like
	2. How a chord is created
	3. How to describe blues music using musical terms like tempo, pitch and dynamics

Students can spell and define	1. Blues	2. Chord
	3. Rhythm	4. Bass
	5. Improvisation	6. Guitar
	7. Harmonica	8. Rehearsal
	9. Lyrics	10. Keyboard

Students can	1. Perform the chords of the 12-bar blues
	2. Articulate musical terms such as tempo, pitch and dynamics.

Year 7 Textiles Knowledge Organiser

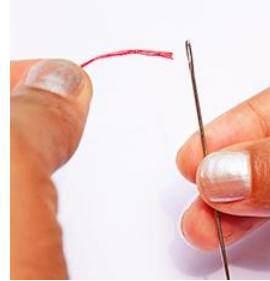
Equipment

-  **Needle** A piece of metal with a point at one end and a hole or eye for thread at the other, used in sewing.
-  **Pins** A piece of metal with a point at one end for holding fabric together.
-  **Sheers** Used for cutting fabric.
-  **Fabric** Cloth produced by weaving or knitting textile fibres.
-  **Unpicker** A small piece of equipment with a sharp pointy end used to unpick stitches.
-  **Tailors Chalk** Chalk used to mark fabric.
-  **Thread** A strand of cotton, used in sewing or weaving.
-  **Pattern** A template used to cut out the fabric.

Health & Safety

1. Work slowly to avoid sticking yourself with the needle.
2. Keep your eyes on your work.
3. Use the right tool for the job.
4. Store tools and equipment properly.
5. Cut with care.
6. Before you walk away, put things away!

How to Thread a Needle



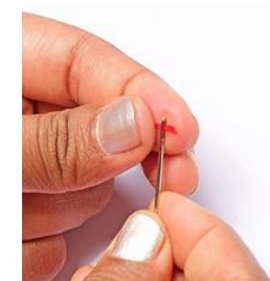
Step 1

Hold the needle in your non dominant hand and the thread in your dominant hand.



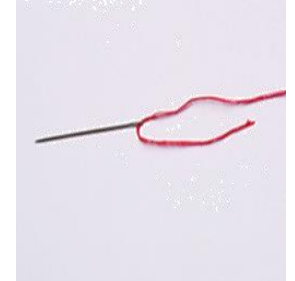
Step 2

Hold the needle in the one hand and take the eye of the needle closer to the tip of the thread in the other hand.



Step 3

Keep pushing the needle further until the end of the thread emerges well enough through the other side of the eye. Pull the end of the thread out.



Step 4

Pull the end of the thread through the eye of the needle and tie of the end of the thread in a knot.

Hand Sewing Stitches

Running Stitch



Back Stitch



Whip Stitch



Blanket Stitch



Chain Stitch



Sewing Techniques






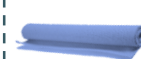




Embroidery



Appliqué

Year 7 Textiles Knowledge Organiser

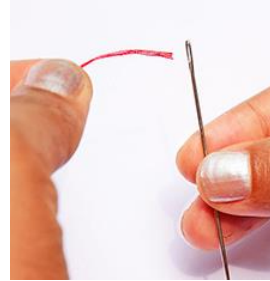
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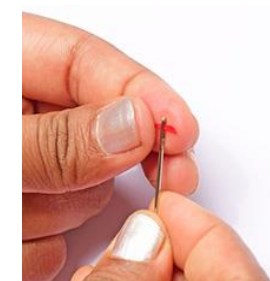
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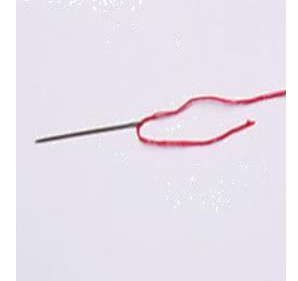
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Hand Sewing Stitches

Running Stitch



Back Stitch



Whip Stitch



Blanket Stitch



Chain Stitch



Sewing Techniques



Embroidery



Appliqué

Year 7 PE Knowledge Organiser- Orienteering

The main aim of orienteering is to complete the set course by finding control markers in the correct order in the shortest time.

Skills and Techniques

Orienteering is a sport that require **navigational skills** using a **map and compass** to **navigate** from point to point in **diverse** and often unfamiliar **terrain** whilst moving at **speed**. Participants are given a **topographical map**, usually a specially prepared orienteering map, which they use to find **control points**.

Running activities: All lessons start with running activities to encourage pace and speed. Cardiovascular fitness is required over different types of terrain.

Observing surroundings: Look at your surroundings (playground/ cage/ grass areas/ tree) and identify key features that help you find your precise location. You need to observe your surroundings before looking for markings on a map.





















Orientating a Map. You need to orientate your map (move it) to line up with the key features on the ground and check it is the correct way round to the direction you are facing.

Directions: - understand the Cardinal Markers – North, South, East and West and their relation to features on the ground and to places beyond the school site.

Map Reading – Recognise symbols on a map, be able to use a key to recognise symbols and colours on an orienteering map.

Human features: Know that a human feature is influenced by man (buildings, benches, fences, walls)

Physical Features: Know that a physical feature is natural (rivers, beaches, hills, forests)

tarmac	
soft surfaces	
mown grass	
rough grass	
new trees	
sand	
bushes	
pond	
garden	
out of bounds	
slope	
path	
ditch	
steps	
fence, gate	
high fence	
tree	
tree root stock	
building, canopy	
seat, post	

Key words

Orienteering, Location,
Speed,
Cardiovascular Fitness, Setting a
Map,
Navigation, Diverse
Direction,
Key,
Cardinal Markers, Terrain
Map
Compass,
Control point

Rules:

Although it is based on accurate map reading it is also a test of physical fitness.

You must find all the controls you are told to visit and record them on your score sheet.

You have to consider the terrain you are moving over ensuring your safety and the safety of any team members at all times, taking into account the varying fitness level of all your team members.

Year 7 Subject Term Knowledge Organiser- PE orienteering

Skills and Techniques

Orienteering is a sport that require **navigational skills** using a **map and compass** to **navigate** from point to point in **diverse** and often unfamiliar **terrain** whilst moving at **speed**. Participants are given a **topographical map**, usually a specially prepared orienteering map, which they use to find **control points**.

Running activities: All lessons start with running activities to encourage pace and speed. Cardiovascular fitness is required over different types of terrain.

Observing surroundings: Look at your surroundings (playground/ cage/ grass areas/ tree) and identify key features that help you find your precise location. You need to observe your surroundings before looking for markings on a map.

Orientating a Map. You need to orientate your map (move it) to line up with the key features on the ground and check it is the correct way round to the direction you are facing.

Directions: - understand the Cardinal Markers – North, South, East and West and their relation to features on the ground and to places beyond the school site.



















Map Reading – Recognise symbols on a map, be able to use a key to recognise symbols and colours on an orienteering map.

Human features: Know that a human feature is influenced by man (buildings, benches, fences, walls)

Physical Features: Know that a physical feature is natural (rivers, beaches, hills, forests)

.Skills and techniques

KEY: know the symbols used in the key for the school and fields Maps

tarmac	
soft surfaces	
mown grass	
rough grass	
new trees	
sand	
bushes	
pond	
garden	
out of bounds	
slope	
path	
ditch	
steps	
fence, gate	
high fence	
tree	
tree root stock	
building, canopy	
seat, post	

Glossary

Orienteering, **Location,** **Speed,**
Cardiovascular Fitness, **Setting a Map,**
Navigation, **Diverse,** **Direction,** **Key,**
Cardinal Markers, **Terrain,** **Map,**
Compass, **Control point,** **Thumbing**
Pictures

Orienteering flag



Working as a team

Rules:

Tactics

The main aim of orienteering is to complete the set course by finding control markers in the correct order in the shortest time.

Although it is based on accurate map reading it is also a test of physical fitness.

You must find all the controls you are told to visit and record them on your score sheet.

You have to consider the terrain you are moving over ensuring your safety and the safety of any team members at all times, taking into account the varying fitness level of all your team members.

If you are working in a team, you must share the responsibility of finding the controls and make sure that all members of your team have an opportunity to problem solve to find each of the controls.

Team work is necessary when you are completing an orienteering course with others. You must communicate and discuss each decision before navigating to the next control point. Mistakes can easily be made through poor communication.

All control markers are outside, you must not go inside the school building to cut through to find controls.

You and your team must find the controls yourself and not shout out control symbols to others.

In order to be given a finish time for finding controls the whole team has to finish together.

A key tactic to use is pace. You must make sure that you don't sprint off too quickly without orientating yourself and your map. You need to be able to keep a steady pace up all the way round the course.

You need to be able to orientate your map quickly by finding key features on the ground and then lining yourself and your map up to face the same direction.

Each time you change direction whilst you are running you should change your grip on the map so that the map is re-orientated and remains facing the same direction as the features on the ground.

Star exercises: In a star exercise you have to run out from a central start point to a control and remember the answer on the control marker, if you are in a team you should each remember a different answer if you have to run to more than one control marker.

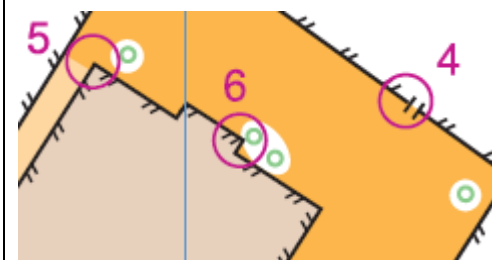
Courses, sometimes you will be given more than one control to find at a time which makes up a course. You may do a different course to another team and as it's a race you should not shout out your answers.

Thumbing- to help you know where you are on the map, you mark your position with your thumb. As you move along the ground, you should move your thumb to your new position on the map.

Line features – you can use features on the ground to help you run towards the control marker, (e.g. edge of the cage/ line of trees / fence) so that you can run in the general direction towards a control and then be more precise in your navigation as you get closer to the control.



Orienteering Control



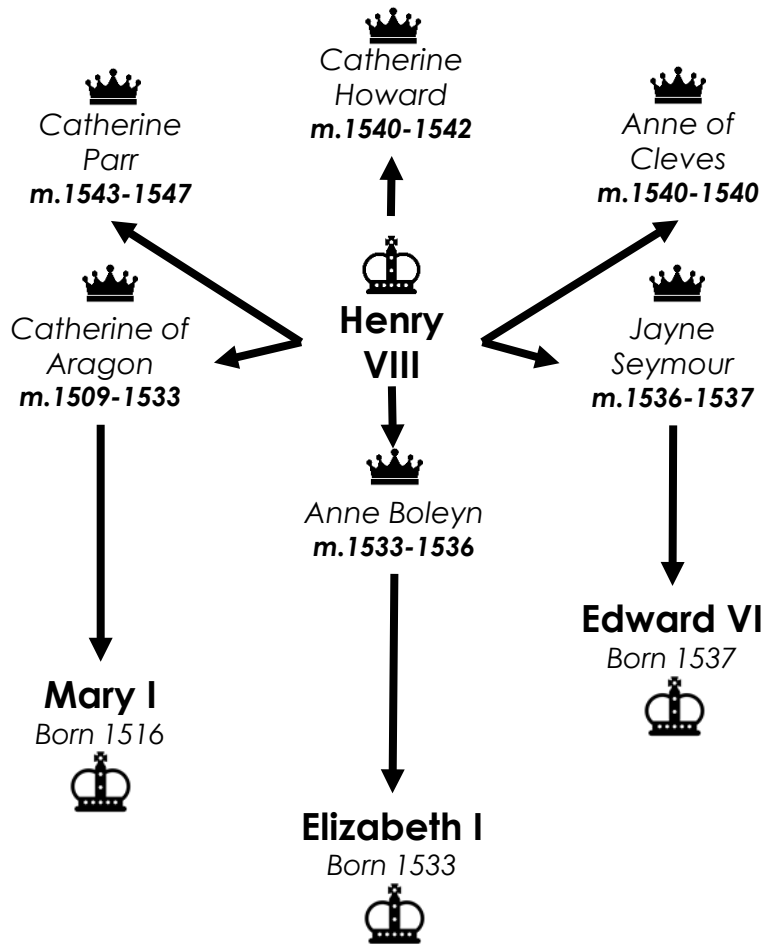
Orienteering Map



Racing to the finish

Year 7 History Term 2 Knowledge Organiser: Tudor Power

The Tudors 1509 - 1603



THE CHURCH	The whole organisation of priests and churches, ruled over by the Pope.
CATHOLIC	A type of Christianity, ruled by the Pope. Most Christians in the Medieval periods were Catholics.
PROTESTANT	A type of Christianity. Protestants were Christians who did not agree with the teachings of the Catholic Church and PROTESTED against it.
REFORMATION	the period of time when many people left the Catholic Church and became Protestant.
PRIEST	A person who works for the Church to lead prayers and religious services.
SIN	An action or behaviour that breaks the laws of a religion.
HEIR	A person who receives another person's property or title after that person's death.
SUCCESSION	Inheriting another person's title or property.
SYMBOLISM	When a word, image or object stands in the place of something else, such as an idea, another object, a person, or a place.
PROPAGANDA	One-sided information or advertising designed to put across a particular opinion. Sometimes use by governments or monarchs.
PARLIAMENT	A group of people who make the laws for a country.
TAX	Money that people have to pay to the government.
DIVINE RIGHT OF KINGS	The idea that a monarch's right to rule comes directly from God, not from the people.

TIMELINE OF TUDOR POWER

1509 Henry VIII became King.

1534 Henry VIII made himself head of the Church in England.

1547 Henry VIII died. Edward VI became King of England.

1553 Edward VI died. Mary I became Queen of England.

1558 Mary I died. Elizabeth I became Queen of England.

Year 7 Subject Term 2 Knowledge Organiser: Computing: Computational Thinking

Computational Thinking Keywords

Computational Thinking: The ability to solve problems logically

Decomposition: Breaking down a problem into smaller parts

Pattern recognition: Looking for similarities and trends within the problem. Using prior experience to create solutions.

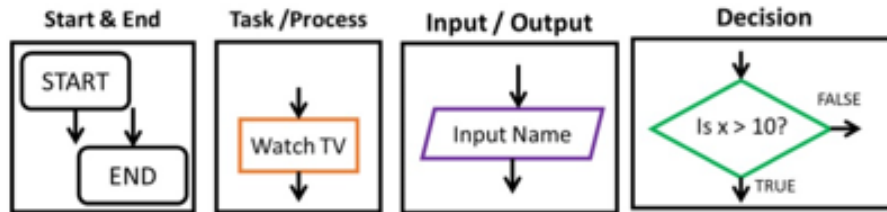
Abstraction: Filtering out the most important parts of a solution, ignoring unnecessary details.

Algorithm: A step-by-step set of instructions to complete a task.

Debugging: A skill whereby you identify and remove errors from your algorithm.

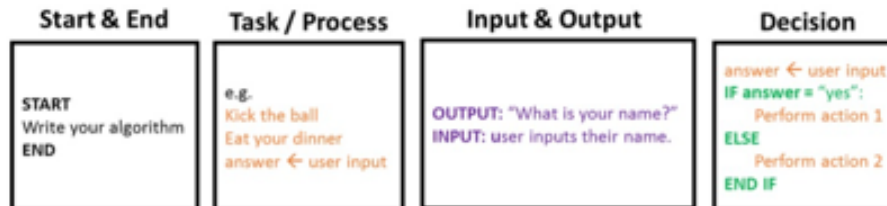
Presenting an Algorithm as a Flowchart

Flowchart is a visual representation of an algorithm.
These are the basic building blocks of a flowchart algorithm:



Presenting an algorithm as pseudocode

Pseudocode is a written representation of an algorithm which shows each step in a clearly ordered structure. The following are examples of how to write instructions in pseudocode:



Algorithm Design: Sequence

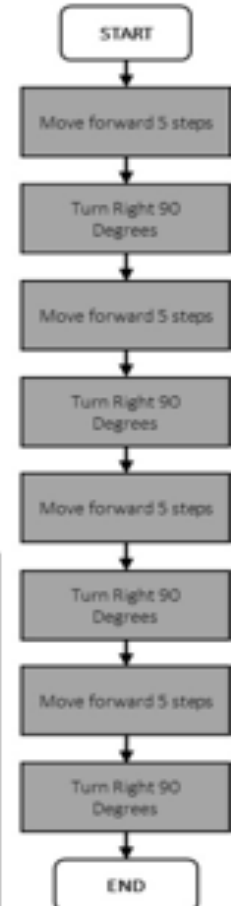
A sequence is a set of tasks performed one at a time.

Pseudocode

```

START
Move forward 5 steps
Turn right 90 degrees
Move forward 5 steps
Turn right 90 degrees
Move forward 5 steps
Turn right 90 degrees
Move forward 5 steps
Turn right 90 degrees
END
    
```

Flowchart



Mathematical Operators

Operator	What it does
+	Addition
-	Subtraction
/	Division
*	Multiplication

Algorithm Design: Selection / Decision

A selection or decision includes a question which includes two possible outputs: **TRUE** or **FALSE**.

Pseudocode

```
START
lives = 3
IF lives > 0
    Play game
ELSE
    Game over
END IF
END
```

Flowchart



Boolean Operators

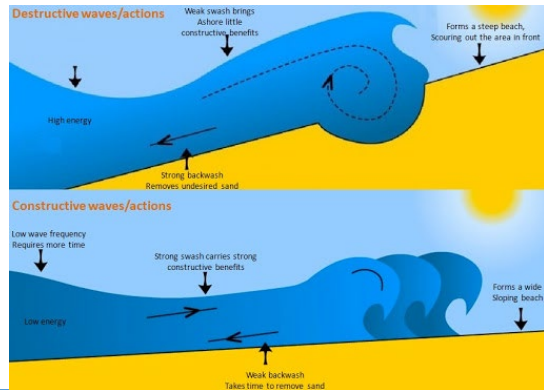
There are used to make comparisons within decisions

Operator	Meaning
>	Greater than
<	Less than
=	Equal to
≠	Not equal to
AND	Both conditions are TRUE
OR	At least one condition is TRUE

Coasts Knowledge Organiser

Waves

Waves come in two general types – **constructive** and **destructive**.



Destructive waves destroy (erode) beaches by picking up sand, rocks, etc. and carrying them away. This is because their **backwash** is stronger than their **swash**.

Constructive waves construct (build up) beaches by depositing sand, rocks, and other materials there. This is because constructive waves have a stronger **swash** than **backwash**.

Key terms

Swash – the water that washes up a beach when a wave breaks on the shore

Backwash – the water that runs back down the beach to the sea

Fetch – the distance that the wind has been blowing over the water to form a wave – the longer a wave's fetch, the more energy it will have

Coastal management – strategies used to defend coastal environments, divided into three different approaches: hard engineering, soft engineering, and managed retreat

Coastal Processes

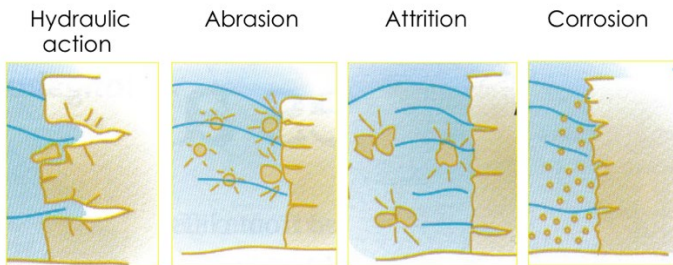
Erosion - the wearing away of rocks by the sea

Hydraulic action - as waves approach the coast they trap air and force it into gaps in the cliff. Eventually this weakens the rock.

Abrasion - waves fling sand, pebbles and large rocks against the rock, wearing it away like sandpaper

Attrition - Rocks and pebbles being carried by the sea knock together and are broken down; the pebbles become smaller, smoother and rounder

Corrosion - Weak acids in the water dissolve rock particles and minerals



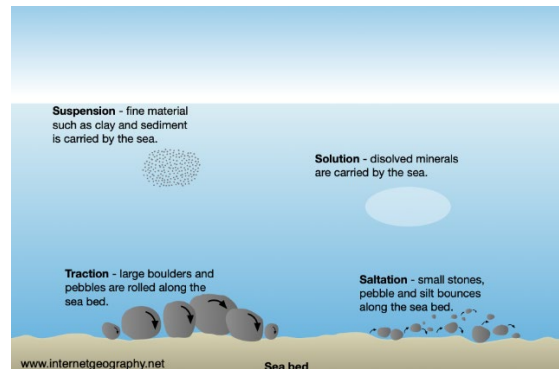
Transportation - the movement of material from one place to another

Traction - large stones are rolled along the seabed

Saltation - smaller stones bounce along the seabed over one another

Suspension - small particles of rock, dirt, and plants are carried along floating in the water

Solution - particles of rock and chemicals are dissolved and carried along in the water unseen



Deposition - when the material being carried by the sea becomes too heavy and the sea loses energy, it **deposits (drops) the material**.

This deposition can form landforms like sandbars, dunes, and spits.

Weathering - the wearing away of rocks by run, frost, rain, and plants

Mechanical (freeze-thaw) weathering is caused by changes in temperature

Chemical weathering is caused by chemicals in rainwater

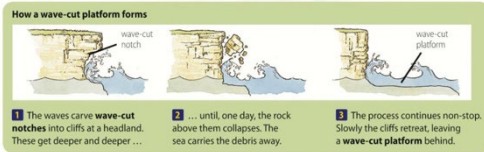
Biological weathering is caused by the action of plants on rocks

Coasts Knowledge Organiser

Coastal landforms – Erosion

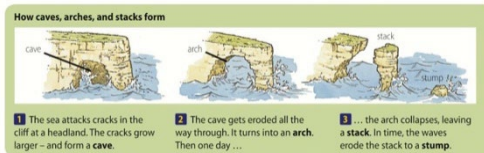
Wave-cut notches and platforms

When cliff faces get eroded, they end up forming a **wave-cut notch**, with an overhang of rock that has not been eroded. Eventually this overhang becomes too heavy for the rock below to support, and it falls into the sea creating a **wave-cut platform**.



Caves, arches, and stacks

Erosion often widens existing cracks in rock faces. When this happens enough, a **cave** forms. Erosion will continue to wear away the rock until the cave becomes eroded all the way through, forming an **arch**. The arch will continue to erode until the rock becomes too weak and collapses, leaving a **stack**.



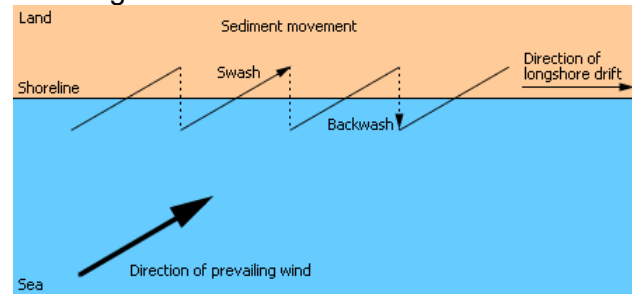
Coastal management – hard engineering

Hard engineering means using solid structures to resist forces of erosion. Some examples are:

- **Sea walls** - Concrete walls that are placed at the foot of a cliff to prevent erosion. They are curved to reflect the energy back into the sea.
- **Groynes** - Wooden or rock structures built out at right angles into the sea to collect material being moved along the shore
- **Gabions** - Rocks are held in mesh cages and placed in areas affected by erosion

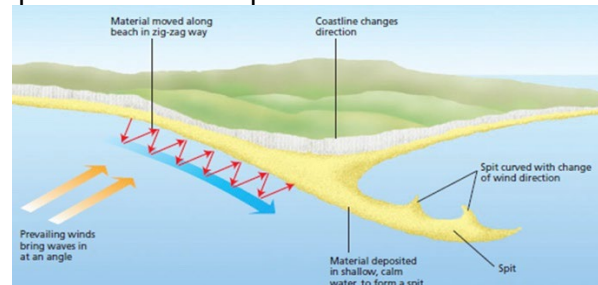
Coastal landforms – Transportation

Longshore drift is the transportation of material along the shore by waves coming into the beach at an angle.



Coastal landforms – Deposition

Spits are formed when longshore drift begins to deposit material out past a headland.



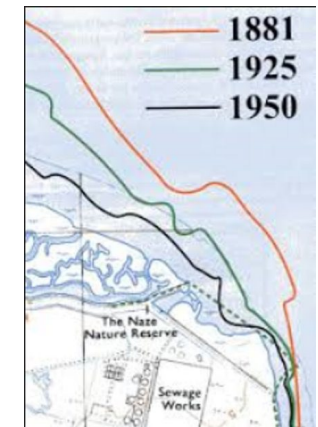
Coastal management – soft engineering

Soft engineering does not involve building artificial structures, but takes a **more sustainable and natural approach to managing the coast.** Some examples are:

- **Beach nourishment** - adding new material to a beach artificially, through the dumping of large amounts of sand or shingle
- **Dune regeneration** - Marram grass planted on sand dunes stabilises the dunes and helps to trap sand to build them up.

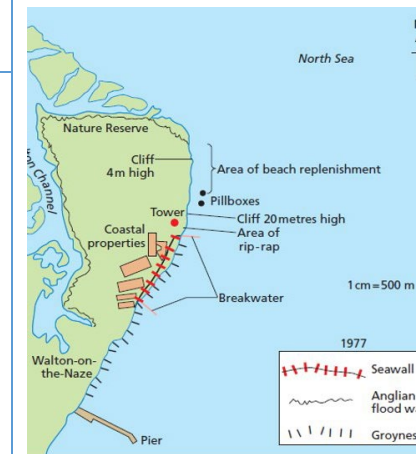
Case Study: Walton on the Naze

The town of Walton has been facing severe erosion for hundreds of years. Coastlines are always changing, but this one has changed so much that parts of the town have been lost to erosion. The tower at the Walton on the Naze heritage site is one important piece of history that is in danger of being lost to erosion.



Some management techniques being used are groynes, sea walls, rip rap, and a crag walk (boulders forming a low wall with a path on top).

Managed retreat is a coastal management strategy including the controlled flooding of low-lying coastal areas. If an area is at high risk of



Tower.

erosion, managed retreat could be an option. It usually occurs where the land is of low value, for example farmland. Managed retreat is one option being considered for how the town of Walton should protect Naze

RE 7.4 Should we sell religious buildings to feed the starving?

Key terms

1. **Sikh** – A student. Belonging to the Sikh religion.
2. **Gurdwara** – The Sikh religious Holy Building
3. **Sewa** – Selfless service.
4. **Khalsa** – Pure Sikhs.
5. **Langar** – A free kitchen.
6. **Golden Temple** – The most sacred Gurdwara in the world.
7. **Guru Nanak** – The founder of Sikhism.

Crucial Commands:

Describe: Say in detail what something or someone is like, and the impact it has. E.g. Describe rites of passage in Judaism.

Explain: Say why something or someone is important, and the impact it has. E.g. Explain why Moses is important.

DISCUSS: Write about at least two points of view and explain why these points of view are valuable or not. E.g. "Yom Kippur is the most valuable Jewish festival" Discuss.

The Five K's:



Khalsa

The Sikh community of men and women is known as the Khalsa which means the 'Community of the Pure'. In order to become a Sikh and join the Khalsa, people need to follow the Five Ks.



Sewa

Sewa means 'selfless service'. It involves acting selflessly and helping others in a variety of ways, without any reward or personal gain. It is a way of life for many Sikhs and is part of their daily routine.

Many Sikhs perform much of their sewa by helping at the gurdwara, including cleaning, washing dishes or serving in the langar.

Suffering

A charity called 'Save The Children' estimate is that around 6 million children die each year from preventable diseases caused by poverty and malnutrition.



- That's about 15,000 each day nearly 700 every hour, one every 9 seconds.

Guru Nanak

Guru Nanak, is the father of all Sikhs – the founder of Sikhism. Sikhism is still based on his teachings and those of the nine Sikh Gurus who followed him. He played a similar role to Jesus and Muhammad.



Golden Temple

It is the most famous Sikh temple in the world. It is also known as God's Temple or Harmandir Sahib. It symbolises the magnificence and strength of Sikhs all over the world. There are four entrances to the Golden Temple on the north, south, east and west of the building to symbolise all are welcome.



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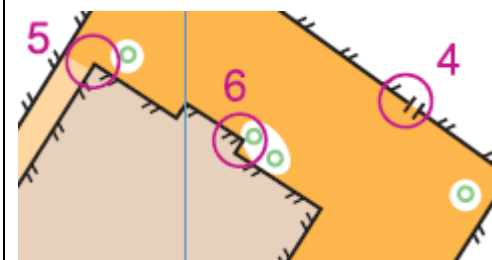
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Orienteering Control



Orienteering Map



Racing to the finish

Tenses-Present

TENER = to have

Tengo	I have
Tienes	You have
Tiene	He/She/It has
Tenemos	We have
Tenéis	You all have
Tienen	They have

LLEVAR = to wear

Llevo	I wear
Llevas	You wear
Lleva	He/She/It wears
Llevamos	We wear
Lleváis	You all wear
Llevan	They wear

Opinions & Pronouns

Me gusta

Me gusta much

No me gusta

No me gusta nada

Me encanta



Connectives



- También= also
- Y= and
- Pero= but
- Sin embargo = however
- Porque = because



Me gustaría tener = I would like to have

Adjectives

Azul(es)	Blue
Marrón(es)	Brown
Verde(s)	Green
Gris(es)	Grey
Negro	Black
Liso	Straight
Rizado	Curly
Ondulado	Wavy
Largo	Long
Corto	Short
Media talla	Mid length
Es calvo	He/she is bald

Me gustaría tener = I would like to have
 Tengo los ojos... = I have... eyes
 Tengo el pelo... = I have... hair
 Soy pelirojo = I am a red-head