



KNOWLEDGE ORGANISERS

YR7

HONESTY | EXCELLENCE | ACCOUNTABILITY | RESPECT | TOLERANCE



CONTENTS

| | |
|--|----|
| A Guide to Using your Knowledge Organisers | 4 |
| Science | 6 |
| Maths | 8 |
| French | 9 |
| Computing | 10 |
| Geography | 11 |
| English | 12 |
| History | 13 |
| Design & Technology | 14 |
| Religious Education | 15 |
| Art & Design | 16 |
| Physical Education | 17 |
| Life skills | 18 |
| Arabic | 19 |

They are great for revision and testing your level of knowledge:

Test yourself: Because knowledge organisers include the key information and ideas for each topic, you can use them to help you revise for tests. You can self-quiz by covering sections of the knowledge organiser and testing yourself to see what you remember. Then uncover the information on your knowledge organiser and see if you were correct.

See how well you know the topic: Turn your knowledge organiser over and create a mind-map or write everything you know about the topic on a blank piece of paper. Then turn over the knowledge organiser and check to see if your information is correct or if there is anything that you missed. Revise it and make sure you will remember more the next time.

Create your own quizzes: Use the knowledge organiser to write your own set of questions based on the information included. Once you have a set of questions, turn the knowledge organiser over and see if you can remember the answers. Make sure you revise anything that you couldn't answer so that you will be able to next time. Try to answer the questions each week and see if you are able to remember more each time.

Create your own flashcards. For example, you could write the key terms from your knowledge organiser on one side of the card and the definition on the other. Then use the cards to quiz yourself.

Many of the key ideas you need to know for exams are on the mind-map. If it is included on the knowledge organiser your teacher thinks it is important for you to know it and you can expect it to be tested on an exam in some way.

It is important to remember that knowledge organisers don't include all the information that you need to know – only the main ideas. You can use them to help you remember the detail from your lessons.

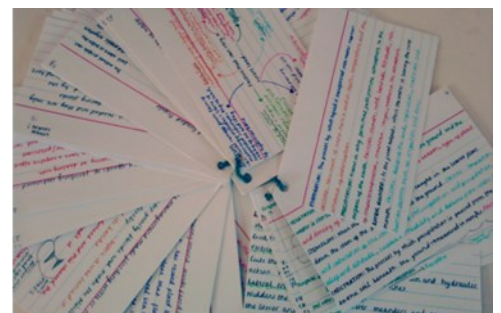
How can your parents/carers use knowledge organisers to help you learn?

Read through the organiser with someone in your family and explain the information included in the knowledge organiser to them. Make sure you use examples and provide as much detail as you can, and then answer any questions your family member might have. Teaching someone else what you know helps you to understand the key ideas more clearly and helps you remember them more easily next time.

Ask your family to test or quiz you on the information included in the knowledge organiser. You should try to do this regularly and keep track of what you remember to see if you improve each time.

Ask your family to read out sections of the knowledge organiser to you, but to miss out key words or pieces of information and see if you can fill in the key terms or knowledge.

Ask your family to test you regularly on the spellings of key words until they are perfect. Make a note of the ones that you spell incorrectly to make sure that you know them next time.



Key Terms

- Solid**—Particles vibrate close together.
- Liquid**—Particles move around but still close together.
- Gas**—Particles moving freely and spread out.
- Melt**—adding energy to a solid to turn it into a liquid.
- Freeze**—taking energy away from a liquid to turn it into a solid.
- Condense**—taking energy away from a gas to turn it into a liquid.
- Evaporate**—Adding energy to a liquid to turn it into a gas.

Change of State

| | Melting | Evaporating or boiling |
|--------------------------|---|---|
| Description | Solid to liquid | Liquid to gas |
| Closeness of particles | Stay close together | Become much further apart |
| Arrangement of particles | Regular to random | Stay random |
| Motion of particles | Start to move around each other | Are able to move quickly in all directions |
| Condensing | | Freezing |
| Description | Gas to liquid | Liquid to solid |
| Closeness of particles | Become much closer together | Stay close together |
| Arrangement of particles | Stay random | Random to regular |
| Motion of particles | Stop moving quickly in all directions, and can only move around | Stop moving around each other, and only vibrate on the spot |

Solids

- Steel, plastic and wood are solids at room temperature. Ice is solid water. The **particles** in a solid are:
 - Close together
 - Arranged in a regular way

Strong forces, called **bonds**, attract the particles towards each other. This means that the particles in a solid:

- can vibrate in a fixed position
- cannot move from place to place

Solids such as concrete are useful for buildings and their foundations because they cannot be **compressed**.



Properties of Gases

| Property | Reason |
|---|---|
| They flow and completely fill their container | The particles can move quickly in all directions |
| They can be compressed (squashed) | The particles are far apart and have space to move into |

Liquids

Mercury, petrol and water are liquids at room temperature. The **particles** in a liquid are:

- Close together
 - Arranged in a random way
- The particles in a liquid can:
- move around each other

The attractive forces (bonds) in a liquid are strong enough to keep the particles close together, but weak enough to let them move around each other.

Liquids are useful in car brake systems because they flow and cannot be compressed.



Gases

Air, helium and chlorine are gases at room temperature. Water vapour is water as a gas. The **particles** in a gas are:

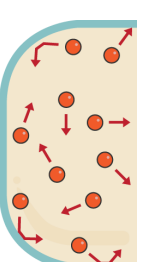
- far apart
- arranged in a random way

The particles in a gas can:

- Move quickly in all directions
- The attractive forces between the particles in a gas are very weak, so the particles are free to move in any direction.

Gas pressure

The particles in a gas move quickly in all directions, but they do not get far before they bump into each other or the walls of their container. When gas particles hit the walls of their container they cause pressure. If the temperature is increased, the particles in a gas move faster, so they hit the walls of the container more often. This causes the pressure to rise. This is also why the pressure of a gas also increases when the volume of its container is decreased.



Properties of Solids

| Property | Reason |
|---|---|
| They have a fixed shape and cannot flow | The particles cannot move from place to place |
| They cannot be compressed (squashed) | The particles are close together and have no space to move into |

Properties of Liquids

| Property | Reason |
|---|---|
| They flow and take the shape of the bottom of their container | The particles can move around each other |
| They cannot be compressed (squashed) | The particles are close together and have no space to move into |

Key Terms

Organisms—Living thing

Organ—collection of tissues which carry out specific functions in organisms

Cell—building block of all organisms

Tissue—collection of cells which make up a part of an organ

Microscope—instrument consisting of an optical part that magnifies the image of an object .

Transplant—an operation in which a bodily organ is transplanted.

Specialised Cell—a cell with a specific role and different features so it can carry out its function.

Functions Of Cells

| Part | Function | Found in |
|---------------|---|------------------------|
| Cell membrane | Controls the movement of substances into and out of the cell | Plant and animal cells |
| Cytoplasm | Jelly-like substance, where chemical reactions happen | Plant and animal cells |
| Nucleus | Carries genetic information and controls what happens inside the cell | Plant and animal cells |
| Mitochondria | Where most respiration reactions happen | Plant and animal cells |
| Vacuole | Contains a liquid called cell sap, which keeps the cell firm | Plant cells only |
| Cell wall | Made of a tough substance called cellulose, which supports the cell | Plant cells only |

Cells

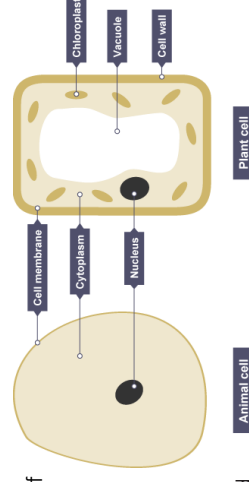
Animal cells usually have an irregular shape, and plant cells usually have a regular shape. Cells are made up of different parts.

Animal cells and plant cells both contain:

- cell membrane
- cytoplasm
- nucleus
- mitochondria

Plant cells also contain these parts, which are not found in animal cells:

- cell wall
- vacuole
- chloroplasts



Animal and Plant Cells

Humans are **multicellular**. That means we are made of lots of cells, not just one cell. The cells in many multicellular animals and plants are **specialised**, so that they can share out the processes of life. They work together like a team to support the different processes in an organism.

MRS GREN

Living organisms have certain life processes in common. There are seven things that they need to do to count as being alive. The phrase **MRS GREN** is one way to remember them:

- **M**ovement - all living things move, even plants
- **R**espiration - getting energy from food
- **S**ensitivity - detecting changes in the surroundings
- **G**rowth - all living things grow
- **R**eproduction - making more living things of the same type
- **E**xcretion - getting rid of waste
- **N**utrition - taking in and using food

Organ Systems

An **organ system** is made from a group of different organs, which all work together to do a particular job. Here are some examples of organ systems:

- circulatory system
- respiratory system
- digestive system
- nervous system
- reproductive system

Light Microscope

A light microscope uses a series of lenses to produce a magnified image of an object:

1. the object is placed on a rectangular glass slide
2. the slide is placed on a stage with a light source below
3. light shines through the object and into the objective lens
4. the light passes through the eyepiece lens and from there into your eye

Cells Under a Microscope

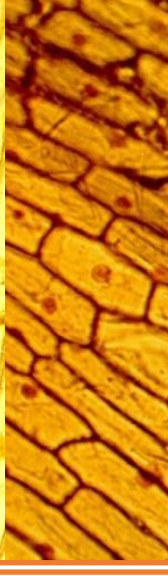


What can you see here?
Is this a plant cell or an animal cell?



Which features can you see?

Could you label the cell?



Signs

- Minus/Negative
- + Add/Positive
- x Multiply
- ÷ Divide
- ≠ Not Equal
- > Greater Than
- < Less Than
- ≤ Less Than or Equal to
- ≥ Greater Than or Equal to
- ≈ Approximately equal to

Calculating with Decimals

Adding and subtracting decimals works exactly the same way as adding and subtracting **whole numbers** or **integers**.

If the question includes one decimal place in total, 3.2×6 , then the answer must include one decimal place, 19.2. If the question has two decimal places in total, 4.2×2.8 , then the answer must have two decimal places, 11.76.

Dividing decimals by whole numbers works the same way as **dividing whole numbers** except, just like addition and subtraction of decimals, the decimal point must be kept **in line**.

Example

Work out $4.14 \div 3$.

$$\begin{array}{r} 1.38 \\ 3 \overline{)4.14} \\ \underline{3} \\ 11 \\ \underline{9} \\ 24 \\ \underline{24} \\ 0 \end{array}$$

Factors, Primes & Multiples

- A **factor** is a number that divides into another number exactly and without leaving a remainder.
- Most numbers have an even number of factors; however, a **square number** has an odd number of factors.
- A **prime number** has only two factors - the number itself and 1.

Factors

The factors of a number are the numbers that divide into it exactly. The number 12 has six factors:

1, 2, 3, 4, 6 and 12

If 12 is divided by any of the six factors then the answer will be a whole number.

Square numbers

Square numbers are formed by multiplying a number by itself. All square numbers have an odd number of factors. For example, the number 25 has three factors:

1, 5 and 25

Prime numbers

A prime number is a number which is only divisible by 1 and itself. Prime numbers cannot be divided by another number to leave a whole number.

Prime numbers include:

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

Order of Operations



Estimating

Estimating is when we take one or more numbers in a calculation and round them to a number that is **closest to the original number**. We can round down or up, depending on the situation. We usually round to the nearest 5 or 10.

0.9 kg of tomatoes are needed for 10 people. To estimate how much produce to buy for the full party of 70 people, we need to multiply 0.75 by 7:

$$0.8 \times 7 = 5.6 \text{ kg}$$

This tells us that we need at least 5.6 kg of tomatoes. The manager adds some extra on to the total in case some of the tomatoes are squashed or damaged, and rounds up to 6 kg.

Fractions

- If you get 7 out of 10 in a test, you can write your score as 7/10. This is a **fraction**.
- The number on the **top** of a fraction is the **numerator**.
- The number on the **bottom** of a fraction is the **denominator**.

If there are 20 socks in a drawer and 4 of them are blue, $\frac{4}{20}$ of the socks are blue. 4 expressed as a fraction of 20 is $\frac{4}{20}$.

Adding and Subtracting fractions

To **add or subtract** fractions, rewrite the fraction with a **common bottom number** (the denominator).

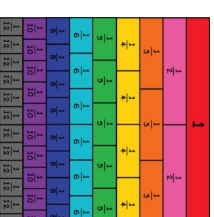
$$\text{For example: } \frac{1}{2} + \frac{1}{3} = \frac{3}{6} + \frac{2}{6} = \frac{5}{6}$$

Multiplying fractions

To **multiply** fractions, multiply the numerators to find the new numerator, multiply the denominators to find the new denominator.

$$\text{For example: } \frac{2}{3} \times \frac{3}{5} = \frac{6}{15}$$

$\frac{6}{15}$ can be simplified to $\frac{2}{5}$.



Positive and Negative Numbers

Any number above zero is a **positive** number. Positive numbers are written with no sign or a '+' sign in front of them and they are counted up from zero to the right on a number line.

Any number below zero is a **negative** number. Negative numbers are always written with a '-' sign in front of them and they are counted down from zero to the left on a number line.



Learning Objectives

By the end of the term and I can communicate (talk, ask and answer) about

- My name
- My age
- Where I live
- My positive and negative opinions **with reasons**

Grammar Objectives

I will be able to understand and apply rules about

- Infinitive instructions
- Present tense regular –er verbs

Grammar

The present tense
The present tense is used to describe things **you do or are doing**.
For verbs that end in -er you remove the -er and add the following endings:

| | | |
|-----------|------------|-----------------|
| I | je | je joue |
| you | tu | tu joues |
| he/she/we | il/elle/on | il/elle/on joue |

je regarde
I watch, I am watching
je joue
I play, I am playing
je bavarde
I chat, I am chatting

Some verbs are irregular, **vats** I go, I am going
faire to do
je fais I do, I am doing

Connectives

Et- And
Aussi- Also
Parce que –Because
Car- Because
Mais- But

Days of the Week

Lundi= Monday
Mardi= Tuesday
Mercredi= Wednesday
Jeudi= Thursday
Vendredi= Friday
Samedi= Saturday
Dimanche= Sunday

Numbers 1-10

- 1 un
- 2 deux
- 3 trois
- 4 quatre
- 5 cinq
- 6 six
- 7 sept
- 8 huit
- 9 neuf
- 10 dix
- 11 onze
- 12 douze
- 13 treize
- 14 quatorze
- 15 quinze
- 16 seize
- 17 dix-sept
- 18 dix-huit
- 19 dix-neuf
- 20 vingt

Present tense –er verbs

Subject pronoun= Person who does the action in the sentence
Verb= action word
Infinitive= Root form of the verb

Key Grammar - Opinions - Infinitive Structures

| | | | | | | |
|---------------|---------------|--------|----------------------|-----|-----------|-------------|
| A mon avis | J'aime | Jouer | au foot | car | c'est | super |
| Je pense que | Je n'aime pas | | au rugby | | parce que | fantastique |
| Selon ma mère | J'adore | Manger | des fruits | | | génial |
| Je dirais que | Je déteste | | des biscuits | | | horrible |
| | Je préfère | Faire | de la natation | | | Ennuyeux |
| | | | mes devoirs | | | |
| | | Lire | des livres/magazines | | | |

Model Text

| | | |
|--|---|--|
| Salut je m' appelle Jon | Hello I am called Jon | Comment t' appelles -tu? |
| J'ai douze ans | I have twelve years old | Quel âge as-tu |
| ei j' habite à Paris | And I live in Paris | Ou habites -tu? |
| avec mes parents et mon frère et ma sœur | with my parents and my brother and sister | Avec qui habites -tu? |
| J' adore jouer au foot et au tennis | I love playing football and tennis | Qu'est-ce que tu aimes ? |
| car c'est super | because it's super | Pourquoi ? |
| mais je déteste les jeux vidéos | but I hate video games | Qu'est-ce que tu n' aimes pas ? |
| Parce que je trouve ça ennuyeux. | because I find it boring | Pourquoi ? |
| Je préfère lire des livres. | I prefer reading books | Qu'est-ce que tu préfères ? |
| Mon livre préférée s'appelle Harry Potter | my favourite book is Harry potter | Quel est ton livre préféré? |
| Mon anniversaire est le dix mars | My birth day is on the 10 of March | Quelle est la date de ton anniversaire ? |

Months of the Year

| | |
|----------------------|--------------------|
| Janvier – January | Février- February |
| Mars –March | Avril- April |
| Mai –May | Juin- June |
| Juillet- July | AOÛT- August |
| Septembre- September | Octobre- October |
| Novembre -November | Décembre –December |

Key Words

- **Input**—Data which is inserted into a system for processing and/or storage
- **Output**—Data which is sent out of a system
- **Software**—the programs and other operating information used by a computer.
- **Hardware**—The physical parts of a computer system eg. Graphics card, monitor, hard disk.
- **Computer**—an electronic device for storing and processing data
- **Storage Devices**—a piece of computer equipment on which information can be stored.

Types of Software

Systems software helps run and maintain the computer. It includes the **operating system**, **drivers** and **utility software**.

Operating system
The biggest part of systems software is the operating system. It is an essential part that allows other systems software, and **application software**, to communicate with **hardware**.

Applications software is used to carry out tasks on a computer, such as writing an email, making a poster, doing homework and messaging friends. Some of the applications we might use to do this include a **word processor**, **web browser** and **graphics software**.

Some software, such as word processors, spreadsheets and desktop publishers are called general purpose software because it is possible to carry out lots of different tasks using that application.

Some software is called special purpose software because it performs one specific task. This might include a flight simulator, payroll software or an application for revising maths. Applications are also used on **smart phones** to do lots of things, such as social networking, listening to music and mes-

Software

Software makes hardware useful. It gives it the **instructions** it needs to operate. When hardware runs software, it loads the software into its **RAM**.

There are two main types of software:

- Systems software
- Applications software



Operating System

The operating system is needed to perform a number of tasks. It provides a **user interface**, manages the use of memory and the opening, closing, saving and deleting of files. Most operating systems have features that look after the security of the computer with usernames and passwords.

Examples of operating systems include Windows, Linux, Mac OSX, Android and iOS.



Computer Devices

It is easy to recognise that personal computers, laptops and mobile devices are computers, but computers are also hidden in many more devices. Computers are found in many of the devices we use on a daily basis. Because they are relied on so heavily, knowing what they are and how to use them is valuable.



Hardware

Hardware is the **physical parts** of the computer and **software** is the **programs** that run on a computer.

There is a close relationship between **hardware** and **software**. Without software, hardware is very limited and without hardware, software would not be able to run. They need each other.



Storage Devices

A **storage device** is a piece of computer equipment which can be used to store data. Examples include:

- Hard disk drive
- DVD drive
- USB memory stick



Input and Output Devices

An **input device** is any piece of computer hardware used to provide data to a computer system. Examples include:

- keyboard
- mouse
- scanner
- digital camera
- webcam

An **output device** is any piece of computer hardware used to communicate the results of data that has been processed. Examples include:

- monitor
- printer
- speaker
- headphones

Key Words

- Direction**—Shown by the points of the compass
- Distance**—How far it is from one place to another.
- Latitude**—How far north or south a place is from the equator.
- Longitude**—How far east or west a place is from the Greenwich Meridian.
- Ordinance Survey**—The official government organisation responsible for producing maps in the UK.
- Scale**—The ratio of the distance on the map to the real distance.
- Six figure grid reference**—a group of six figures used to give an exact position on a map.

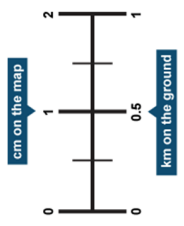
Mapping Skills

Geographers have traditionally used maps as a source of information about places. We can now use a range of technology to help us find places, eg satellite navigation, **GPS** and **GIS** on our computers or mobile phones.

| Image | Description |
|---|--|
|  | Ordinance Survey is an organisation that has mapped the UK. It produces paper maps and digital mapping products. |
|  | Satellite navigation uses satellites to identify and give directions to different locations. GPS helps users know exactly where they are, which direction they are travelling in and at what speed. |
|  | GIS describes a range of information that is gathered and applied to maps. There can be lots of layers of information applied to the same map. This helps people compare a variety of information for one area. |

Scale & Distance

- The scale on a map is the ratio of the distance on a map to the real distance on land
- Every map includes the scale so that people can tell the actual distance or size of objects in real life
- Scale can be shown in three ways
- in words: 1 cm to 30 cm
- as a ratio: 1:30
- as a line like the one shown below



Measuring Elevation - Contours

- These are lines drawn on maps that join places of the same height.
- They are usually an orange or brown colour.
- Some contour lines have their height above or below sea level written on them.
- It is possible to use them to see the shape of the land
- If contour lines are close together the slope is steep
- If they are far apart the slope is gentle.
- Contour lines are usually drawn at 10 metre intervals on a 1:50,000 scale map and at 5 metre intervals on a 1:25,000 scale map.

Symbols

Symbols help us to include lots of detail on maps that are drawn to **scale**. They include simple images, letters and abbreviations. Here are some examples

| Symbol | Meaning |
|--------|--------------------------------|
| | Campsite |
| | Motorway |
| | Railway |
| | Railway station |
| | River |
| | School |
| | Place of worship |
| | Post office (rural areas only) |
| | Woods |

Maps

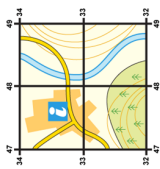
A map is a two-dimensional drawing of an area. Maps help us to understand what places are like and how to plot routes.
Maps should have a:

- Title
- Scale
- North arrow
- Key or legend

Grid References

A grid of squares helps the map-reader to locate a place. The vertical lines are called **easings**. They are numbered - the numbers increase to the east. The horizontal lines are called **northings** as the numbers increase in an northerly direction.

- Things to remember:**
- When you give a grid reference, always give the easting first: "**Along the corridor and up the stairs**".
- Four-figure grid references** can be used to pinpoint a location to within a square. To find the number of the square:



In this case, the tourist information office is in grid square 4733.

Key Terms: Measuring Elevation

- Height**—How high a place is above sea level.
- Relief**—The shape of the land
- Contour**—A line drawn on a map which joins places of the same height
- Contour Interval**—The difference in height between contours on a map.
- Spot Height**—A point on a map showing height above sea level in metres.
- Elevation**—Height above sea level.

Terminology

GENRE = A style or category of art, music, or literature.

MORAL = Concerned with the principles of right and wrong behaviour.

THEME = lessons or messages found in a story by reading between the lines

CONNOTATION = Connotation the suggested meaning we associate with words or images, often based on our culture and society

STEREOTYPE = A representation of people or groups of people by a few characteristics

SUBVERSION = To corrupt or change the normal ingredients of a fairy tale

INTERTEXTUALITY = To make reference to another popular film or programme within a film

Characters

MAIN CHARACTERS

Shrek = hero

Donkey = sidekick

Princess Fiona = Heroine

Puss in boots = Sidekick

MAIN VILLAINS:

- Lord Farquod

- Fairy godmother

- Prince charming

SECONDARY CHARACTERS:

Dragon
Pinocchio
Cinderella

The gingerbread man
Three blind mice
Sleeping beauty

Three little pigs
Snow white
Humpty Dumpty

Conventions of a fairy tale

- A land far, far away
- A beloved character
- A charming prince
- A beautiful princess
- A sarcastic sidekick for comic relief
- A frightful villain
- The villains sidekick/ henchmen
- A seemingly impossible set of circumstances to overcome
- A heroic moment
- A sneaky assist from a secondary character.
- A potentially fatal occurrence.
- Magic.
- Happily ever after.

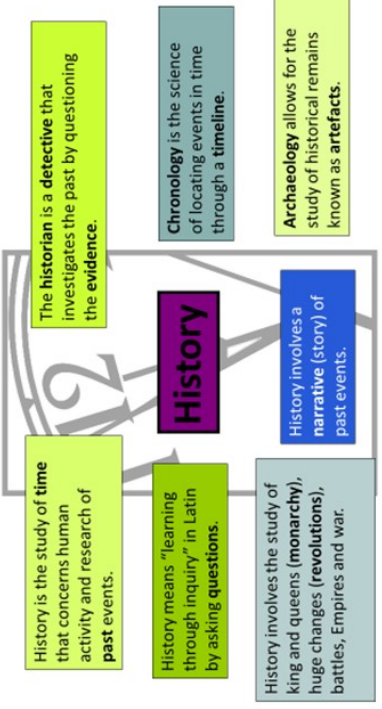
Themes

- Heroes and villains
- Good vs Evil
- Adventure
- Appearance v Reality
- Journeys
- Power
- True love
- Supernatural
- Don't judge a book by its cover
- Friendship
- Family
- Discover of self

What is History?

What is History?

"To understand the present, you need to understand the past."

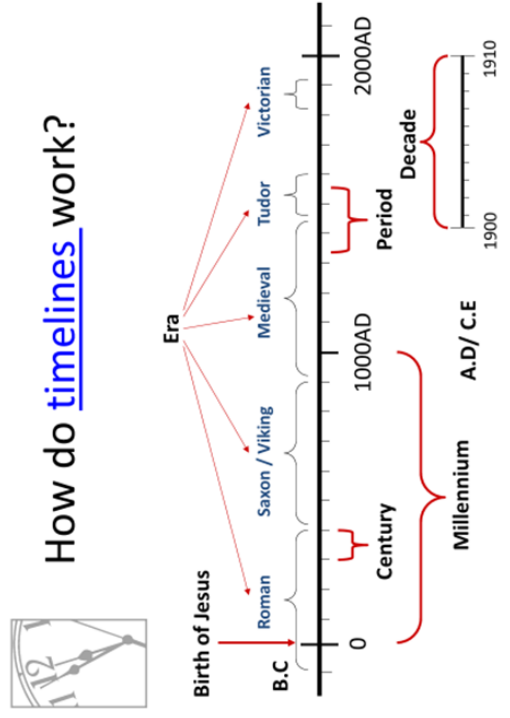


Key Terms

- Chronological order
- Timeline
- Artefact
- Anachronism
- Primary source
- Secondary source
- Bias
- Reliability

How do Timelines Work?

How do timelines work?



CE – Common Era – dates from the year 1 to the present
BCE: Before Common Era – dates from the before the year 1. These dates are counted backward.
 Eg: 400 BCE is further in the past than 40 BC
Decade: 10 years; Century: 100 years; Millennium: 1000 years
Era / Period: a period of time with a key feature in common eg: The Tudor era, the Medieval period

Types of Evidence

Physical Evidence

A building, monument, object, piece of clothing or pottery



Written Evidence

A diary, book, letter, plan or receipt



Visual Evidence

A painting, photograph or geographical feature



Oral Evidence

A memory, nursery rhyme, sound recording or song



Primary or Secondary Source?

Primary or Secondary Source?

Primary Sources

- A primary source is something that originates from the past.
- A primary source comes from or was made during the period one is studying.

Secondary Sources

- A secondary source is something that was written more recently about a period further in the past
- A secondary source was made or created after the period one is studying

Secondary Source



Poster created in 2014 for Remembrance Day

This is a secondary source if we are studying World War I because it is about the war but it was created 100 years after it finished.

Primary Source



World War I recruitment poster created in 1914

This is a primary source if we are studying World War I because it was created in 1914 when the war was going on.

Papers & Boards

- Papers and boards are made from natural fibres (cellulose), usually sourced from wood
- Paper is characterised by weight
- The weight is measured in grams per square metre (GSM)
- Understanding the different types of paper available will help you select the right material for the job
- A heavy duty paper available in a range of thicknesses and strengths
- Board is measured in microns – 1000 microns equal 1mm
- Corrugated board is made up of one or two outer flat layers and a corrugated layer
- Solid white board is a high quality board with a bright white finish
- Weights range from 200gsm – 500gsm
- Duplex board is made up of two layers
- The exterior will have a wax coating to provide a moisture barrier and give it a glossy sheen

Timbers

- Natural wood is categorised as either hardwood or softwood
- A useful and versatile material, wood is:
 - Aesthetically pleasing
 - A good insulator
 - Durable and tough
- Softwood comes from coniferous trees
- Hardwood is sourced from deciduous trees
- It has a closer grain, making it more dense and hardwearing
- Consider the different properties of timber when selecting your material
- Strength – the amount of load or compression it can withstand
- Toughness – absorption of energy through shock before splitting
- Elasticity - will it return to shape after being compressed?
- Hardness – how resistant is the surface? Will it survive scratches, knocks and abrasion?



Textile

- Textiles can be manufactured to exhibit a variety of properties depending on the blend of fibres
- Categories include:
 - Natural fibres
 - Synthetic fibres
 - Blended and mixed fibres
 - Woven and non-woven fabrics
 - Knitted textiles
- Fabrics are categorised into natural fabrics and synthetic fabrics based on their raw materials

| | | |
|------------|-----------|-------------------|
| Wool | Cotton | Silk |
| Felt | Polyester | Elastane (Lycra®) |
| Polycotton | Nylon | |

Polymers

- For more than 50 years, the global production and consumption of plastic has continued to rise
- Polymers are mostly synthetic materials
- They are usually derived from finite resources such as coal, natural gas or crude oil

Thermofforming

Also known as thermoplastics, when heated the plastic becomes soft and flexible

Thermosetting

Also known as thermosets, this plastic cannot be reformed once set in to shape

Thermoplastics can be remoulded without affecting the material's physical properties

Thermosets have strong chemical bonds between the molecules, which do not separate on heating

- Plastics can be formed using a variety of processes
- Blow moulding – forming hollow plastic items
- Extrusion – creating objects with a cross section profile
- Injection moulding – injecting softened plastic into a mould
- Vacuum forming - sheet of softened plastic forced onto a mould

Metals and Alloys

- Metals have been essential in the development of civilisation
- The word 'metal' comes from the ancient Greek word 'metallon' which means to mine, excavate or extract from the ground
- The Earth's crust contains many types of rock
- Metallic minerals are found naturally in rock or ore
- Ore is obtained by mining and the metals within it are extracted
- Some metals exist as oxides
- Metals such as copper, iron and zinc are oxides. These are heated with carbon to extract the metal
- Electrolysis is used to extract metals such as aluminium
- Ferrous metals contain iron and may rust
- Iron and steel can corrode – this is known as rust
- Rust is a compound called iron oxide and is formed when iron and oxygen react in the presence of moisture or water
- Metals are rarely used in their pure form. Alloys are made by combining two or more elements

World Religions

| | Islam | Christianity | Judaism | Hinduism | Sikhism | Buddhism |
|-------------------------|---|--|--|--|---|--|
| Deity | God (Allah) | God | God (Yahweh) | Three main gods: Brahma, Vishnu, Shiva | God | The Buddha did not teach of a personal Deity. |
| Founder/ Prophet | Muhammad (SAW) | Jesus | Abraham | More than one founder | Guru Nanak | The Buddha |
| Holy Book | Qur'an | Bible | Torah/ Hebrew Bible | More than one religious texts | Guru Granth Sahib | Sacred Text, Tripitaka |
| Leadership | No clergy but have scholars and Imams | Priests, Ministers, Monks and Nuns | Rabbis | Guru, Holy man, Brahmin Priest | No Leadership | Buddhist Monks and Nuns |
| Basic Beliefs | Persons achieve salvation by following the Five Pillars of Islam and living a just life. These pillars are, Faith; prayer; almsgiving or charity to the poor; fasting which Muslims perform during Ramadhan; pilgrimage—Hajj. | There is only one God who watches over, and cares for, his people. Jesus Christ was the son of God. He died to save humanity from sins, His death and resurrection made eternal life possible for others. | There is only one God, who watches over and cares for his people. God loves and protects his people, but also holds people accountable for their sins and shortcomings. Persons serve God by studying the Torah and living by its teachings. | The soul never dies, but is continually reborn Persons achieve happiness and enlightenment after they free themselves from their earthly desires. Freedom from earthly desires comes from a life time of worship, knowledge and virtuous acts. | There is only one God. A good life is lived as part of a community, by living honestly and caring for others | Persons achieve complete peace and happiness (nirvana) by eliminating their attachment to worldly things. Nirvana is reached by following the Noble Eightfold path. |

Faith

The Shahadah is the first pillar of Islam. It is a declaration of faith spoken by all Muslims. The Shahadah must be spoken publicly before a person can be considered a Muslim. To have faith, it is not simply enough to speak these words; you must also believe them.

Prayer

Salat is the second pillar of Islam. 'Salat' means 'prayer'. It is every Muslim's duty to pray to Allah five times a day. Muslims believe that, through prayer, they become closer to Allah. Muslims often stand shoulder to shoulder when praying as a sign of the equality of humans before Allah.

Charity

Zakat is the third pillar of Islam. It is the amount of money that every Muslim who is financially able must pay to support people who are poor and needy. Zakat should be given once a year; however, a Muslim can choose when in this year they wish to pay it. Zakat can be paid Zakat organisations such as Islamic Relief or Muslim Hands. Everyone must give 2.5% of their surplus money.

Fasting

Sawm is the fourth pillar of Islam. It means fasting. When fasting, Muslims do not eat or drink. Muslims practise Sawm by fasting every year in the month of Ramadan. During Ramadan, Muslims fast from dawn until sunset. By practising Sawm, a Muslim develops sympathy for suffering. It also demonstrates discipline and obedience to Allah. Muslims do not have to fast if they are small (not baligh), too old, pregnant, travelling or sick.

Pilgrimage

The Hajj is the fifth and final pillar of Islam. It is the journey to Makkah that every adult Muslim should undertake at least once in their life if they have the means to do so. The Hajj promotes the bonds of Islamic brotherhood and sisterhood by showing that everyone is equal in the eyes of Allah

Some Key Words

Conversion - When your life is changed by giving yourself to God
Free will - The idea that human beings are free to make their own choices
Miracle - Something that happens that breaks the law of science and makes you think that only God could have done it
Akirah - Belief in life after death
Agnosticism - Not being sure whether God exists
Atheism - Believing that God does not exist

Key Words

- **Media/Medium** - The materials and tools used by an artist to create a piece of art.
- **Technique** - The skill in which an artist uses tools and materials to create a piece of art.
- **Abstract** - A piece of art which is not realistic. It uses shapes colours and textures.
- **Style** - The technique an artist uses to expressive their individual character of their work.
- **Composition** - The arrangement and layout of artwork/objects.
- **Highlight** - The bright or reflective area within a drawing/painting where direct light meets the surface of the object or person.
- **Shadow, shade, shading** - The tonal and darker areas within a drawing/painting where there is less light on the object or person.
- **Texture** - The feel, appearance or the tactile quality of the work of art
- **Mark making** - Mark making is used to create texture within a piece of art by drawing lines and patterns.
- **Collage** - A piece of art made by using a variety of materials such as paper/newspaper/photographs which are cut out, rearranged and glued on a surface.

The Colour Wheel



There are different categories of colours based on the **colour wheel**: primary, secondary, tertiary, warm, cool and complementary

Primary Colours: Red, yellow and blue
In traditional colour theory (used in paint and pigments), primary colours are the 3 pigment colours that cannot be mixed or formed by any combination of other colours. All other colours are derived from these 3 hues.

Secondary Colours: Green, orange and purple
These are the colours formed by mixing the primary colours.

Tertiary Colours: Yellow-orange, red-orange, red-purple, blue-purple, blue-green & yellow-green
These are the colours formed by mixing a primary and a secondary colour. That's why the hue is a two word name, such as blue-green, red-violet, and yellow-orange.

Colour & Value

Colour is light reflected from a surface. There are 3 qualities hue, value and intensity.

Value is one of the seven elements of art. Value deals with the lightness or darkness of a colour. Since we see objects and understand objects because of how dark or light they are, value is incredible important to art.

Elements of Art

| | |
|---|---|
| <p>SHAPE: Shape encloses a two dimensional area. Geometric or organic</p> | <p>FORM: Form encloses a three-dimensional area. It's the three-dimensional analogue of shape.</p> |
| <p>LINE: The edge of a shape or form or the direction followed by anything in motion.</p> | <p>VALUE: Light reflected from a surface. Three distinct qualities: Hue, Value, Intensity.</p> |
| <p>SPACE: The area between and around objects. Positive, negative, or three-dimensional.</p> | <p>TEXTURE: The surface quality of an object that we sense through touch.</p> |

Tints and Shades

When dealing with pure colour (hue), value can be affected by adding white or black to a colour. Adding white to a colour produces a tint...



Adding black to a colour produces a shade...



Shading Techniques

| | |
|---|--|
| <p>Hatching with parallel lines is the same as cross hatching, except you are making all the lines go in the same direction.</p> | <p>Hatching with parallel lines is the same as cross hatching, except you are making all the lines go in the same direction.</p> |
| <p>Creating shades by "smudging" the applied shade. This is done by pressing and smearing the applied graphite with your finger, a soft cloth or a "stump".</p> | <p>Creating shades through a series of dots. Building up more dots closer together results in darker shading.</p> |

Football Rules

- Game is started by a kick off in the centre of the pitch.
- In a full sided game each team consists of 11 players.
- If the ball goes off the side of the pitch it is a throw in to the team that didn't touch the ball last.
- If the ball goes off the end of the pitch it is a corner or a goal kick depending on who the ball touched last.
- Depending on where the incident takes place, a free kick or a penalty is awarded if the player in possession of the ball is illegally infringed.
- The goalkeeper is the only player allowed to touch the ball with their hands and can only do this inside their 18 yard box.
- To score a goal, the ball must cross the opposition's goal line.
- If a player is past the opponent's last defender and in the opposition half when the ball is passed they are offside and a free kick is awarded to the opposition team.
- The team with the most goals at the end of the game will win the game.

Rules

Rugby Tactics

- Handling**
A vital skill involved in passing and running with the ball. Two hands in contact with the ball will help with passing the ball and making sure it is secure.
- Tackling**
Trying to stop an opponent who has the ball by bringing them to the ground. A variety of tackles can be used, for example a side-on tackle, front on tackle, smother tackle or tap tackle.
- Carrying**
The act of carrying the ball around the pitch. Players can use a variety of techniques to avoid being tackled, for example a side step, swerve or spin.
- Rucking**
A ruck is a phase of play where one or more players from each team, who are on their feet, close around the ball on the ground to prevent the opposition from gaining possession after a tackle has been made.
- Mauling**
A maul forms when several players from the same team come together to help move the ball towards the try line. Several players from the opposing team may then come together to prevent this. A maul is different to a ruck, as the ball is not on the ground but in hand.

Skills & Tactics

| | |
|------------|---|
| Short Pass | Non-kicking foot next to the ball/ use the side of the kicking foot to contact the ball following a short back swing/ keep head over the ball to improve accuracy and ensure ball stays on the ground/ follow foot through to generate more power. |
| Long Pass | Non-kicking foot next to the ball/ use the front (laces) of the kicking foot to contact the ball following a bigger back swing (flexion of the knee)/ keep head over the ball to improve accuracy of the pass/ lean back slightly to help generate height if required on the pass/ follow foot/leg through to generate more power. |
| Heading | Keep eyes focused on the ball when preparing to header/ use the forehead to contact the ball/ move feet to ensure body is slightly behind the ball before heading/ use neck to generate more power on the header/ defensive headers are normally headed high with increased distance whereas attacking headers on goal are normally headed down to make it more difficult for the goal keeper to save/perform a jump before the header to increase power and give yourself more chance of beating the opponent to the header. |
| Shooting | Non kicking foot next to the ball/ keep body balanced/ head slightly over the top of the ball/ use side foot for placement or top of the foot for increased power/ flex leg back further when preparing to strike to the football for increased power/ aim for the area of the goal that the goalkeeper is least likely to save the ball. |
| Attacking | Attack defender with pace/ keep ball in close control away from the defender/ move the ball to make it more difficult for the defender to tackle you/ use tricks to outwit the opponent. |
| Defending | Man to man marking – sideways on/ close to player/ try to slow attacking player down/ on toes/ show attacker to their weaker foot/ time tackle effectively to increase chances of winning the ball back. |
| Crossing | Non kicking foot placed next to the ball/ contact ball with the instep of the foot/ lean body slightly back to add height on to the cross to avoid the first defender/ follow leg through to increase the power on the cross/ the body needs to remain balanced to increase accuracy and success of the cross. |

Core Learning Themes:

Health and Wellbeing:

- The core theme focuses on:
- What is meant by a healthy lifestyle
 - How to maintain physical, mental and emotional health and wellbeing
 - How to make informed choices about health and wellbeing
 - To identify different influences on health and well being

Relationships:

- The core theme focuses on:
- How to develop and maintain a range of healthy relationships
 - How to recognise and identify risky relationships including bullying
 - How to respect equality and diversity in relationships

Living in the Wider World:

- The core theme focuses on:
- Respect for self and others
 - Importance of responsible behaviours and actions
 - Rights and responsibilities
 - To respect diversity and equality and how to be a productive member of a diverse community
 - The importance of managing money and understanding enterprise.

Essential Attributes developed in Life Skills

- Self -Improvement
- Resilience
- Self-organisation
- Clarifying own values
- Developing and maintaining a healthy self concept
- Empathy and compassion
- Respect for others
- Skills for employability
- Enterprise skills



Responsibility

being accountable for your own actions and decisions.

Identity

what makes you, you.

Collaboration

the action of working with others to produce something.

Learning Skills

tasks involved in learning.

Mindfulness

focussing on the present moment, while acknowledging and accepting your feelings and thoughts.

Self Confidence

a feeling of trust in your own abilities, qualities and judgements.

Self Esteem

confidence in your own worth or abilities.

Values

personal judgement of what is important in life.

Learning Styles

the preferred way in which a student absorbs, processes, comprehends and retains information.

Independent Thinking

using personal observations and experiences rather than going along with the thoughts of others.

Mind-set

the established set of attitudes held by someone.

Overview

In this unit you will think about the transition from Primary school to Secondary school. We will consider the changes between primary and secondary school and how you can overcome personal challenges or obstacles to succeed both in and outside of the classroom. You will discover your preferred learning styles, how to effectively time manage your school and home work, how to have a growth mind set in all of your subjects and how to work independently and as part of a team. You will also consider how your core values and identity match the ethos and philosophy of the MSF.

What skills will I develop in Life Skills?

Each lesson will have opportunities to develop your skills through a variety of learning activities, ranging from:

- Thinking skills
- Enquiry and evaluation skills
- Research skills
- Debate and communication skills
- Active learning.
- Reflective learning skills.
- Personalised learning skills.
- Revision and recall.



Greetings

What you should say if you meet a friend and what he should reply?

Your friend

أهلاً وسهلاً (Welcome)

وعليكم السلام (Peace be upon you)

صباح الخير (Good morning)

You

مرحباً (Hello)

السلام عليكم (Peace be upon you)

صباح الخير (Good morning)

Arabic Alphabet

Questions:

-How many letters are in the Arabic alphabet?

-How many sound for each letter? And why?

-Write any letter with the different marks?

-Most of the Arabic letters are consonants, only three are vowels? List them.



Introduce Yourself

My name is

اسمي ...

And you, what is your name?

وأنت، ما اسمك؟

I am from... What about you?

أنا من ... ماذا عنك أنت؟

I am a student in year 7.

أنا طالب / طالبة في الصف السابع.

Writing Rules

Writing rules: Moon letters (الخروف القمرية) Sun letters (الخروف الشمسية).

In Arabic, the definite article ال can be pronounced and written in words start with the Moon letters but it can be written only with those start with the Sun letters. What is the key? الشمس

Questions:

-Which mark must be written on the article

Al ل when it is added to a word starts with a moon letter? - What is the name of letters that can be القمر

written only when they come after the article Al ل

Writing Rules

Writing rules:

Most of the Arabic letters join from two sides but some do not. The letter ق in قفزة joins from two sides but the letter ن joins from the right side only.

بقرة بقرة



Questions:

Do all letters join from both sides? These letters (ن ذ ز و) are naughty. Why? Does the position of the letter in the word affect its shape?

Days Of The Week

| | |
|-----------|--------------|
| Saturday | السبت يوم |
| Sunday | يوم الأحد |
| Monday | يوم الإثنين |
| Tuesday | يوم الثلاثاء |
| Wednesday | يوم الأربعاء |
| Thursday | يوم الخميس |
| Friday | يوم الجمعة |

Questions:

- Which day is always

a holiday in Arabic countries?

- Do Arabs start their week

with Monday? If not, which one?

- What Muslims do in Friday?

Key Verbs and Their Form

Grammar: Numbers (1-10): shapes and gender

Shapes: Hindu Arabic numerals (٤, ٣, ٢, ١, ٠)

Arabic numerals (0 1 2 3 4). Of Al- Khwarizmi

Gender: Numbers 1-10 can be used as a masculine مُذكر or feminine مُؤنث depending on the noun's gender. 1 & 2 follow the noun's gender but 3-10 do not.

Questions:(2) قلمان اثنان (1) قلم واحد

- Count from 0- 10 in Arabic.

- Could you say these in

ثلاث (3) موزات

Arabic:

ثلاثة (3) كُتُب

a boy - a girl- 4 cows - books

-7

Key Words

•The short vowels (الحركات)

•The long vowels (الممدّ) حُرُوفُ

•The nunation (التنوين)

•The Lyaar/Moon letters (الخروف القمرية)

•the Solar/Sun letters (الخروف الشمسية)

•Fatha(), Damma (), Kasra ()). Sokoon(), Shadda ()



MADANI SCHOOLS FEDERATION