

Knowledge Organisers are designed to help and support you to learn the key knowledge within the subjects you study.

In addition to your Knowledge Organisers Learning Consultants may still provide Independent Learning to further develop your skills, knowledge and understanding within the subject.

'The best advice I ever got was that knowledge is power and to keep reading'.

David Bailey.

Using your Knowledge Organisers

Expectations:

- Study at least one section of a Knowledge Organiser for independent learning (homework) each evening. Aim to spend at least 30 minutes on this.
- You will also be tested in your lessons on the information on your Knowledge Organiser.

How to get the most out of your Knowledge Organisers:

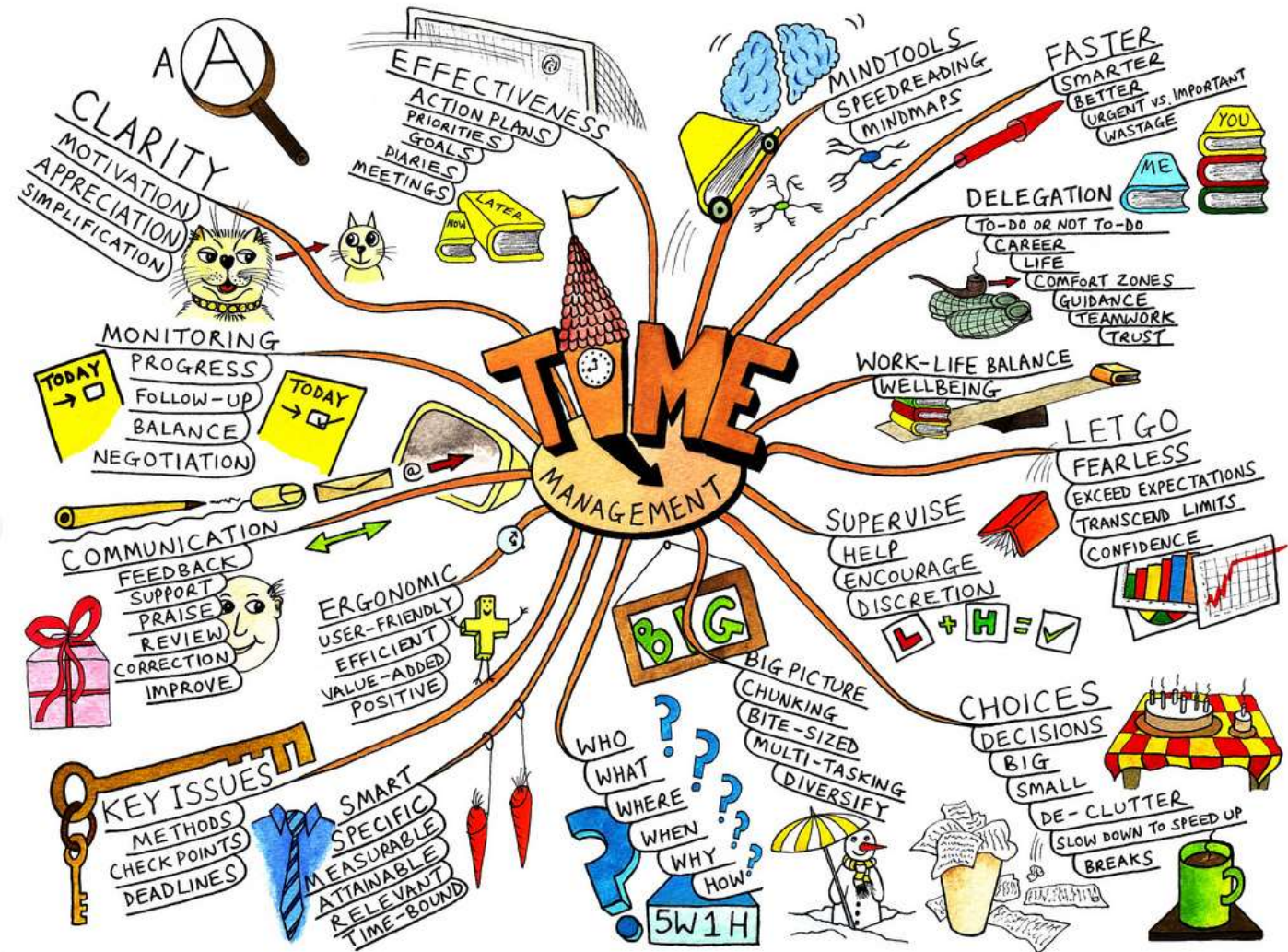
- Sometimes your Learning Consultant may tell you how to use certain sections of your Knowledge Organisers. In addition, they are a very useful tool for independent study and will help ensure that you know many of the facts and key areas of information in each of your subject areas. You can use your Knowledge Organisers in a number of different ways, including:
- Use the 'Thinking Hard' strategies to refine your notes from the Knowledge Organiser
- Write your own challenging questions on a section. Leave these until the next day to answer
- Ask someone to write or ask you questions based on a section.
- Put keywords into complete sentences
- Look, Cover, Write and Check key words and terminology to help with spelling
- Carry out further research on a topic
- Create mind maps, flash cards, timelines, diagrams to aid with revision
- Self test

Mind Mapping

Mind Mapping is a process that involves a distinct combination of imagery, colour and visual-spatial arrangement. The technique maps out your thoughts using keywords that trigger associations in the brain to spark further ideas.

How to mind map:

<https://www.youtube.com/watch?v=u5Y4pIsXTV0>

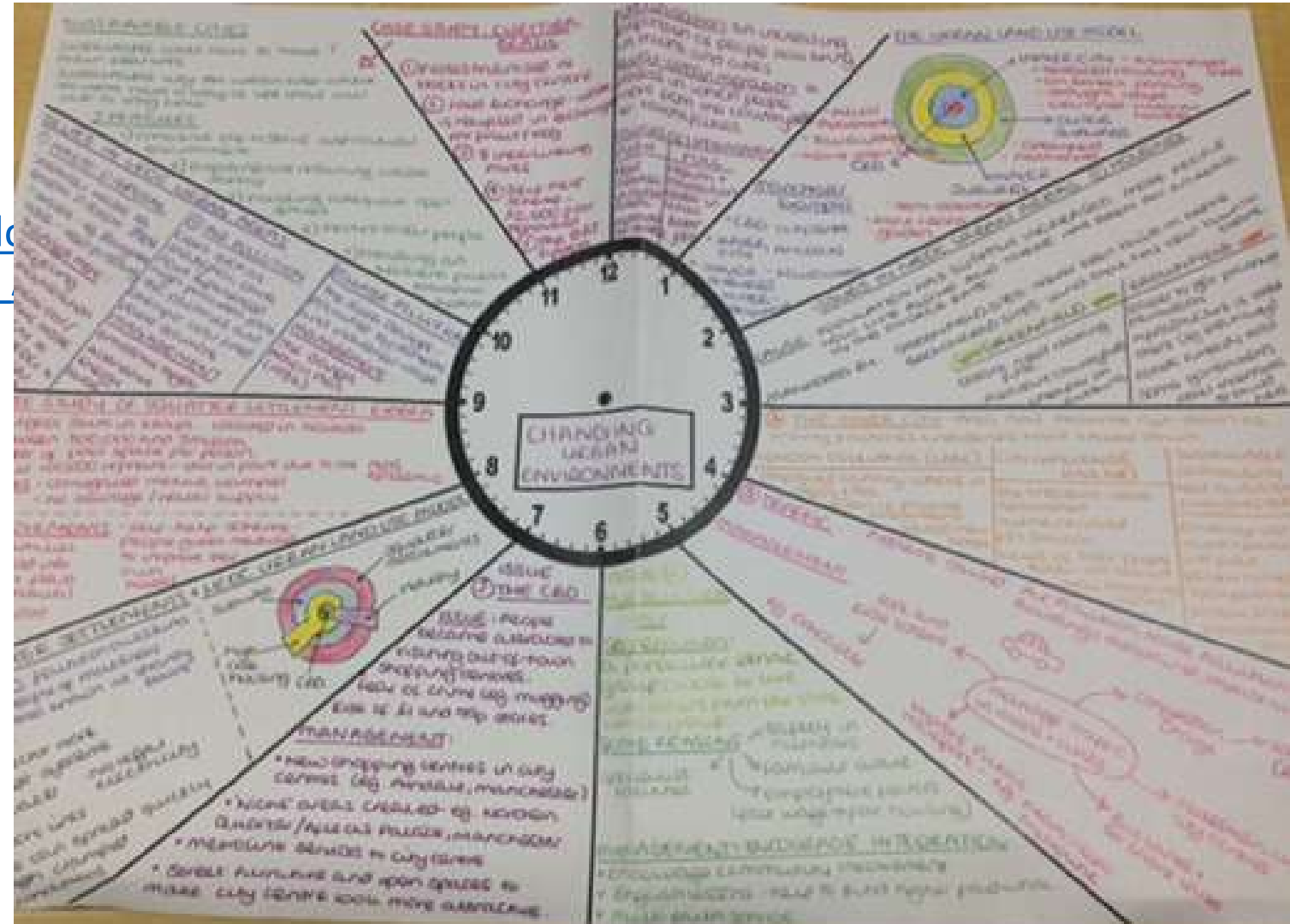


Revision Clock

Make notes in each chunk of the clock. Revise each slot for 5 minutes, turn the clock over and then try to write out as much information as you can from one of the segments. Eg. all the information in the 2-3pm segment.

Revision clock template:

<https://www.google.co.uk/search?q=revision+clock&rlz=3C1GCEw1gMD6wflEahWNzqQKHsHSChkQcM:&spf=1543251070019>



Flash Cards



- To make your own, take some card and
- cut into rectangles roughly 10cm x 6cm
- You could write down the key content of the topic and then try to reduce this to keywords to summarise the topic
- You could then write the keyword on one side and the definition on the other.
- Then go through your cards looking at one side and seeing if you can remember the keyword/definition on the other side.
- Prioritise cards you have previously got wrong.

The Thinking Hard Process

Knowledge and understanding

Reduce
Transform
Deconstruct
Derive



Reduce it



Transform it



Deconstruct
it



Derive it

Analysis and application

- Prioritise
- Categorise
- Criticise
- Trends and patterns
- Practise



Prioritise
it



Categorise
it



Criticise it



Find
Trends/
patterns

Flexibility of thinking

- Make connections
- Compare
- Extend
- Create



Connect it



Compare it



Extend it



Create it



Reduce it

Reduce the key information into 20 words.

Reduce it

Key information:



Reduce it

Sum up the key information into 5 bullet points.

1.

2.

3.

4.

5.



Reduce it

Write 3 questions that the knowledge organiser has answered so far.

Reduce it

1.

2.

3.



Reduce it

Sum up the content of the knowledge organiser into three key words and justify why you have chosen them.

1.

2.

3.

Reduce it



Transform it

Transform the knowledge organiser into a series of pictures.



Transform it

Transform the knowledge organiser into a piece of poetry.



Transform it

Transform the knowledge organiser into a mnemonic.



Transform it

Transform the knowledge organiser into a series of flash cards



Deconstruct it

Now that you have some new information, write the title in the box and deconstruct it. From the title and new information, tell us what the knowledge organiser is all about.

Deconstruct it

Title:



Deconstruct it

Take part of the Knowledge organiser and deconstruct it into a flow chart or a process diagram. What are the links?

Deconstruct it

Title:



Prioritise it

Prioritise the knowledge you have learnt from sections of your organiser.
From most important to least important.

Prioritise it

1. _____

2. _____

3. _____



Categorise it

Order the information from you Knowledge Organiser into different categories or groups.

Categorise it



Criticise it

Can you criticise parts of your knowledge organiser? Is all the information factually true? How do we know?

Criticise it

Topic or title:



Practice it

Write your own exam question based on your knowledge organiser.

Answer it.

Practice it

Exam Question:



Connect it

Connect it

Write down 4 key words from your knowledge organiser.

Connect them to each other using lines and say why they connect along the line.



Connect it

Connect it

How the information on the knowledge organiser link to another topic we have studied?



Connect it

Connect it

You're the information on the knowledge organiser to answer your 'Big picture' questions.



Connect it

Connect it

Draw a mind map showing how aspects of your knowledge organiser are linked together



Compare it

Compare two aspects of your knowledge organiser. How are they different? How are they the same?

Compare it



Extend it

Write down 5 key words from the knowledge organiser.
Define those key words and use them in a sentence.

Extend it

Key words:



Extend it

Collect or draw ten pictures to represent the information on the knowledge organiser.

Extend it



Extend it

Write 50 words to explain the content on your knowledge organiser.

Extend it



Create it

Create it

Create a
'foldable'
To show what
you have
learnt from the
knowledge
organiser.



Create it

Create a short
test about what
we have been
learning about
so far.

Write the model
answers in your
book.

Create it

Question 1:

Answer:

Question 2:

Answer:

Question 3:

Answer:



Create it

Create it

Create a series
of flashcards
with the key
information on
from your
knowledge
organiser



Create it

Create a set of
Cornell notes
detailing key
ideas from the
knowledge
organiser.

Create it

Learning Question:

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Year 7 Knowledge Organisers

Science



KS3 Science Department Cycle 2

This Knowledge Organiser contains information to help you succeed in Cycle 2! Learning consultants will set some of the tasks to complete as independent learning. You should also attempt some as part of your revision. The more tasks you complete, the more progress you will make this Cycle.



Reduce it

- Reduce the key information for this topic into 20 words or less!
- Sum up each page in 5 bullet points.
- Answer each learning question in 10 words.



Transform it

- Transform the key word definitions into a set of pictures.
- Transform each learning question into a picture.
- Transform each learning question into a poem.



Prioritise it

- Prioritise 5 points from the topic. Arrange them from most to least important. Can you explain your choice?
- Which learning question is most important? Why?



Practice it

- Write your own exam questions (with answers) on the topic.
- Make flashcards for the keywords. Test yourself on the definitions!

Tricky Test Terminology

Identify, state or name—this is a simple instruction to just write the correct term or name.

Define—what does the word mean?

Describe—give some extra detail. Let the number of marks guide you on how much to write.

Outline—describe the theory or process.



Connect it

- Choose 4 keywords from the topic. How do they link? Connect them with lines to explain the links.
- How does the topic link to other areas of science?



Extend it

- Write down 3 key words for this learning question. Why are they important?
- Answer the learning question as fully as you can.



Create it

- Create a mind-map about the topic or learning question.
- Create a short test for this topic. Produce an answer booklet to match.

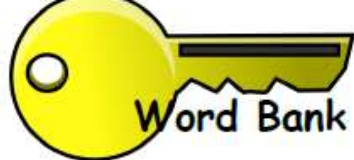
Useful websites;

Kerboodle.com (username: school username, password: school username, institution code: gra9)

<https://www.bbc.com/bitesize/guides/zpkq7ty/revision/1>
(BBC Bitesize Biology)

<https://www.bbc.com/bitesize/guides/z2wmxnb/revision/1>
(BBC Bitesize Chemistry)

<https://www.bbc.com/bitesize/topics/z4brd2p>
(BBC Bitesize Physics)



How is a multicellular organism organised?

cell → tissue → organ → organ system → organism

Cycle 2 Biology

Cell	The smallest part of a living organism.
Tissue	A group of cells working together.
Organ	Group of tissues working together to carry out a function.
Organ System	Group of organ systems working together to carry out a function.
Organism	Living thing.
Breathing	Inhaling and exhaling gases from the air.
Respiration	A chemical reaction to produce energy.
Contract	Get smaller.
Antagonistic Pair	A pair of muscles working together.

How do our bodies change when we breathe?

Inhale: ribs up and out, diaphragm contracts, chest volume increases, pressure decreases and air enters.

Exhale: ribs down and in, diaphragm relaxes, chest volume decreases, pressure increases and air leaves.

How does the gas exchange system work?



Air enters your body through your mouth and nose.

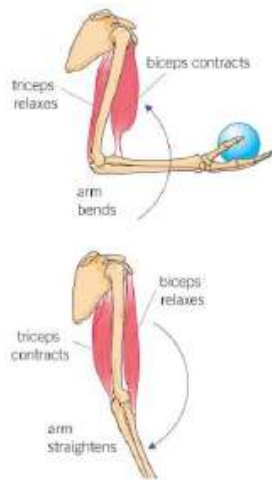
Air moves down the **trachea** (windpipe) – a large tube.

Air moves down a **bronchus** – a smaller tube.

Air moves through a **bronchiole** – a tiny tube.

Air moves into an **alveolus** – an air sac.

Oxygen then diffuses into the blood.



How do muscles work?

To make you move, muscles contract. Muscles are attached to bones by tendons, when a muscle contracts the bone moves.

Muscles can only pull, not push. Muscles work in pairs on joints. When one muscle contracts, the other relaxes.

This is an antagonistic pair.

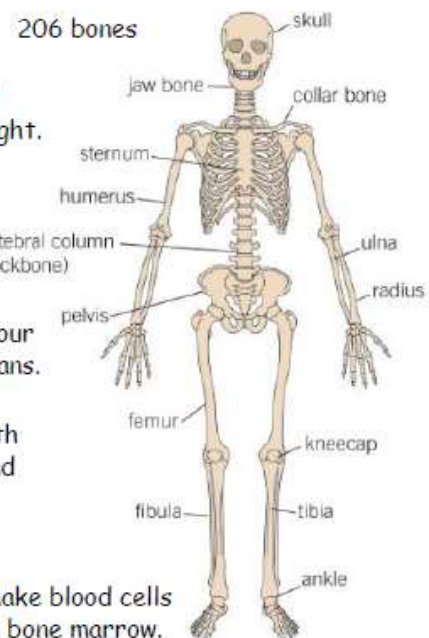
What is the function of the skeleton?

Support and keep us upright.

Protect our vital organs.

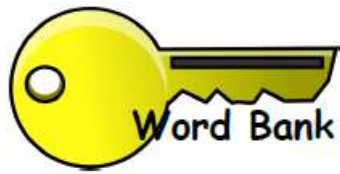
Move with joints and muscles.

Make blood cells in bone marrow.



How do joints help the skeleton move?

- ⇒ Hinge joints such as the knee and elbow let our bones move backwards and forwards.
- ⇒ Ball and socket joints such as the hip and shoulder allow movement in all directions.
- ⇒ Fixed joints like the skull don't allow any movement!
- ⇒ Joints are covered in cartilage to stop bones rubbing.
- ⇒ Bones are connected with ligament.



Substance	Made of one material only.
Mixture	Contains more than one substance.
Element	A substance made from one type of atom.
Compound	2 or more elements that are chemically combined.
Particles	Make up everything.
State	Solid, liquid or gas.
Gas pressure	Force per unit area from a gas.

How can we explain the properties of a solid, liquid and gas using the particle model?

 Solid	 Liquid	 Gas
<ul style="list-style-type: none"> Cannot compress because particles touch. Arranged in a pattern. Vibrate but don't 	<ul style="list-style-type: none"> Cannot compress because particles touch. Not as closely packed together so they are less dense. Move randomly—flow. 	<ul style="list-style-type: none"> Can compress because particles do not touch. Spaced out so density is low. Move randomly and with lots of energy—flow.

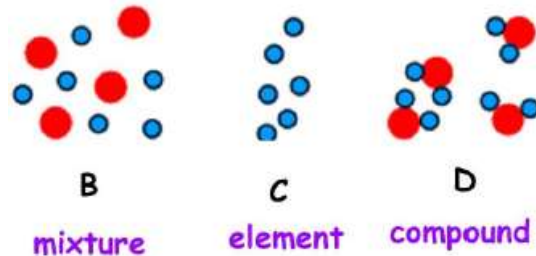
What factors affect gas pressure?

- Number of particles in the space (more particles = higher pressure)
- Temperature. Heating particles makes them move more and take up more space.

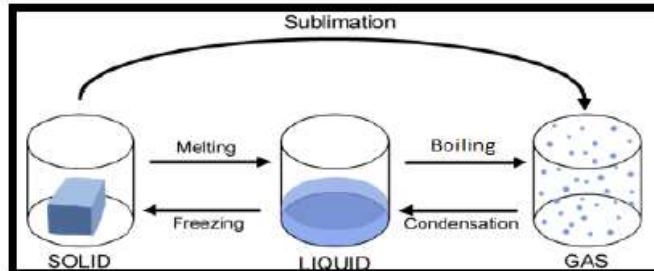
What factors affect diffusion?

- Temperature.
- Particle size.
- State of matter.

What are the differences in the particle model of an element and a compound?



What is the difference between evaporation, condensation and sublimation?



Cycle 2 Chemistry

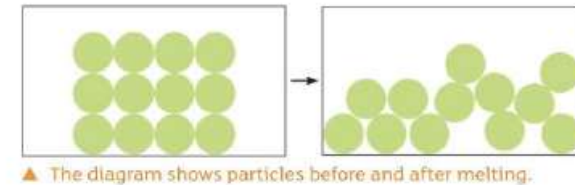
What energy changes occur when a substance boils?



Liquid takes in energy. Some of the liquid turns into gas.

In water, steam bubbles form throughout the liquid. The steam bubbles rise and escape as gas in the air. Different substances need different amounts of energy to boil. This means they have different boiling points.

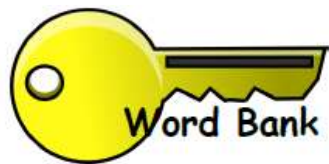
What is the difference between melting and freezing?



▲ The diagram shows particles before and after melting.

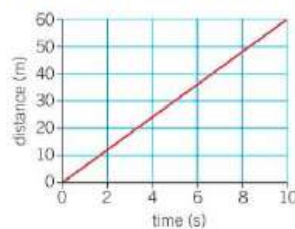
During melting a solid turns into a liquid. The solid gains energy and so the particles vibrate faster. Particles move out of their pattern. As more particles leave the pattern, the solid melts.

When a substance freezes, it loses energy. The particles vibrate slower. Particles begin to form a pattern. As more particles lose energy and join the pattern, the liquid freezes.

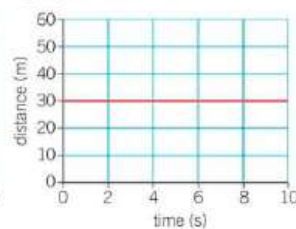


Force	A push or pull. Measured in New-tons.
Equilibrium	When two forces are balanced and resultant force is 0.
Resistive force	A force that slows down a moving ob-ject.
Interaction pair	When two objects interact there are equal forces in opposite direc-tions.
Relative motion	An objects speed is relative to the observers speed.
Gravity	A non-contact force that acts between 2 masses.

What can you infer from a distance-time graph?



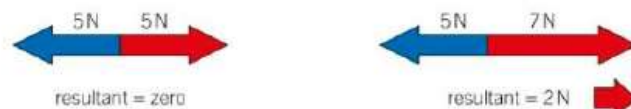
▲ A distance-time graph for a constant speed.



▲ A distance-time graph for a stationary object.

What are balanced and unbalanced forces?

When more than one force is acting the total force is called the resultant force. Balanced forces are the same size but opposite directions. When a force is balanced, the resultant force is 0. We can say that the forces are in equilibrium.



When forces are unbalanced they do not cancel out. The resultant force is not 0. In this case, the driving force will be bigger than the resistive force. When a force is unbalanced, the speed or direction of an object will change.

What factors affect speed?

$$\text{speed (m/s)} = \frac{\text{distance travelled (m)}}{\text{time taken (s)}}$$

Speed is a measure of how far somethings travels in a given time.

Average speed is the overall distance divided by the over-all time of a journey.

The speed of the object can be affected by the speed of the observer. This is relative motion. If 2 cars move in the same direction and speed, their relative speed is 0.

What is the difference between mass and weight?

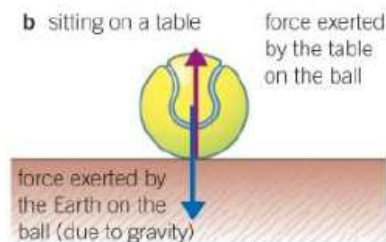
Weight is a force so it is measured in N. Mass is the amount of 'stuff' something has so is measured in kg. Weight can change but mass is always the same.

$$\text{weight (N)} = \text{mass (kg)} \times \text{gravitational field strength, } g \text{ (N/kg)}$$

Cycle 2 Physics

What is a force?

- ⇒ A force can be a push or a pull.
- ⇒ Forces explain why objects move, or why they don't move at all! Forces can change the direction or shape of an object too.
- ⇒ You can't see forces but you can see their effects.
- ⇒ You can draw diagrams to show the forces acting on an object. The arrows have Both size and direction.
- ⇒ Forces are measured in Newtons (N) using a Newtonmeter.
- ⇒ Friction, air resistance and upthrust are contact forces.
- ⇒ Gravity and the force from magnets are non-contact forces. You don't need to touch them to feel the force!
- ⇒ Forces act in pairs called interaction pairs.



What is gravity? Gravity is a non-contact force that pulls us back down. Gravity keeps the moon in orbit. The gravitational force from the Earth pulls the moon.

Year 7 Knowledge Organisers

French

Year 7, Assessment Cycle 2

Friends

J'ai un/une meilleur(e) ami(e).	I have a best friend.
Je n'en ai pas.	I don't have one/any.
J'ai une grande bande de copains.	I have a big group of friends.
Je le/la/les connais depuis ...	I have known him/her/them ...
... un an/deux ans.	... for one/two years.
... que je suis petit/bébé.	... since I was small/a baby
... toujours.	... always
... l'école primaire.	... since primary school

Opinions and connectives

À mon avis,...	In my opinion, ...
Je pense que ...	I think that ...
On dit que ...	People say that ...
parce que/car	because
et	and
mais/par contre	but/on the contrary

Possessions and activities

une console de jeux	Video console
des DVD	DVDs
un lecteur MP4	MP4 player
un ordi(nateur)	computer
un roman	novel
une télé	TV
un (téléphone) portable	mobile (phone)

Pets

un chat	cat
un cheval	horse
un chien	dog
un cochon d'Inde	guinea pig
un lapin	rabbit
un lézard	lizard
un oiseau	bird
un phasme	stick insect
une tortue	tortoise

Opinions

j'adore (ça)	I love (it/that)
j'aime (ça)	I like (it/that)
ça va	it's OK
je n'aime pas (ça)	I don't like (it/that)
je déteste (ça)	I hate (it/that)

Where you live

j'habite	I live
dans	in
un appartement	flat
une chambre	bedroom
une maison individuelle	detached house
une maison jumelée	semi-detached house
un pavillon	bungalow
en banlieue	in the suburbs
à la campagne	in the countryside
à la montagne	in the mountains
dans un village	in a village
en ville	in town

SMSC/PLTS
Independent
Learning

Remember as many of the key words as you can (-)

Use these words to build sentences in French (=)

Look at AC1 assessments to develop it using these words (+)

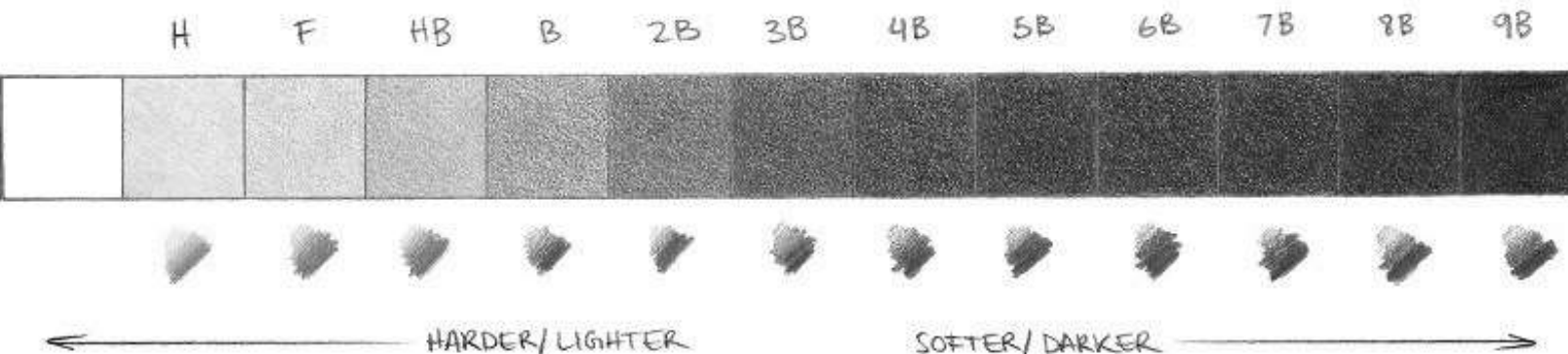
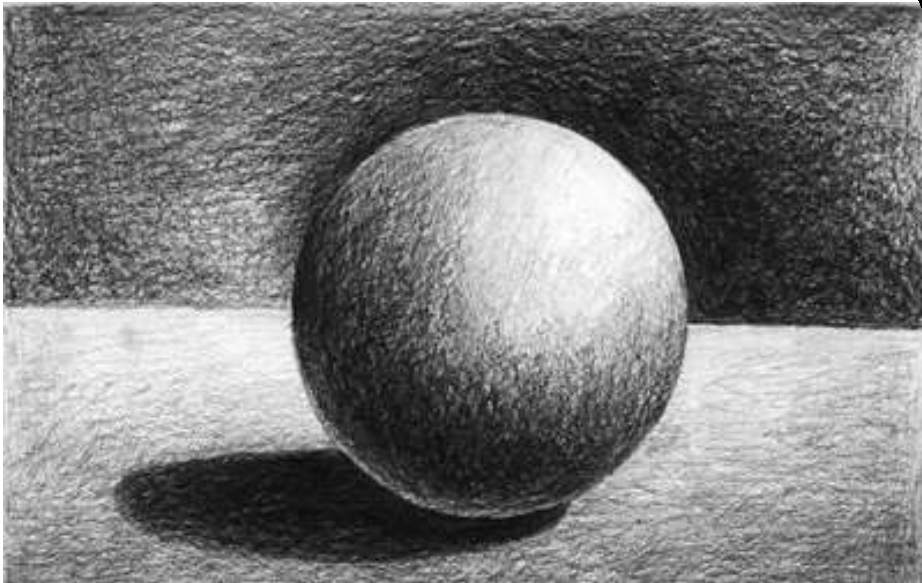
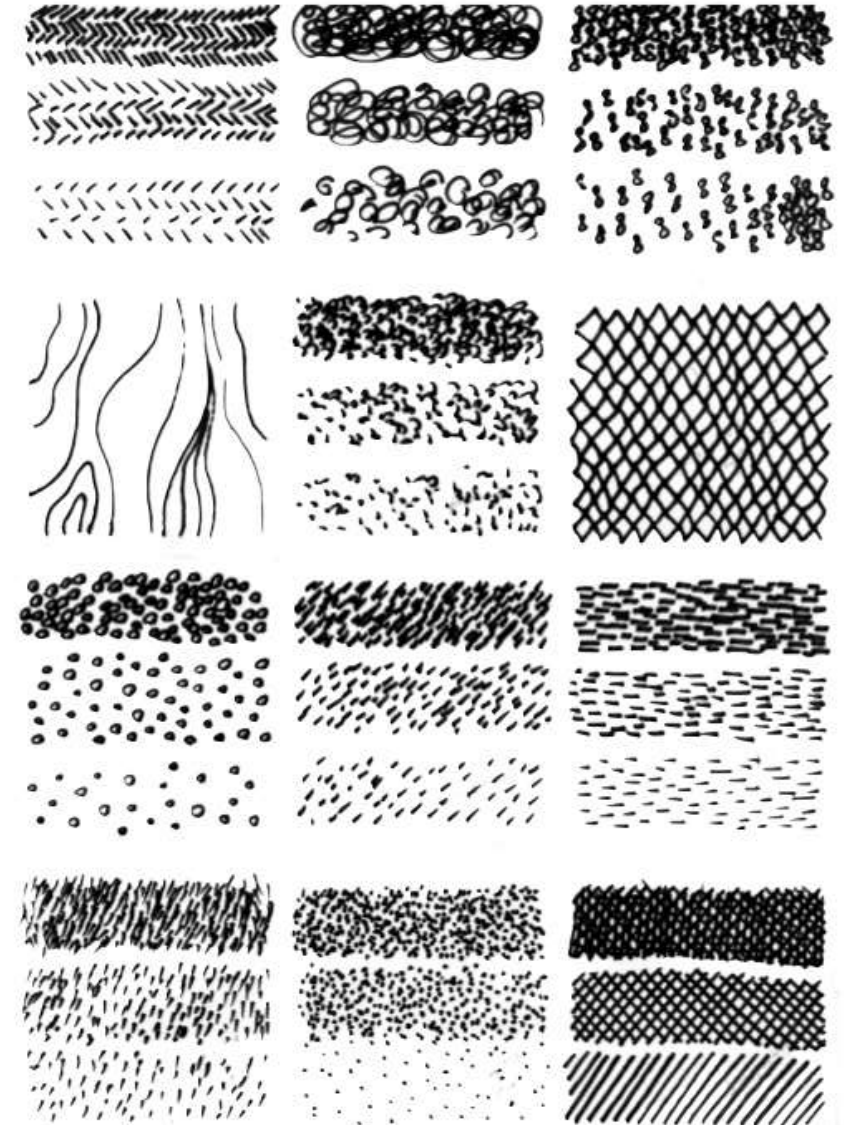
Year 7 Knowledge Organisers

Art

Line, Tone and Mark Making

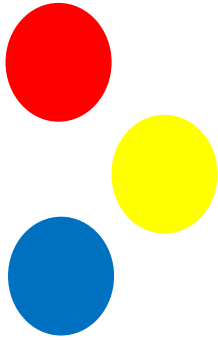
In Art, **tone** refers to using light and dark areas of shading or colour. This gives your artwork a 3D effect and so helps it look more realistic.

Mark making is a term used to describe the different lines, patterns, and textures we create in a piece of art. It applies to any art material on any surface, not only paint on canvas or pencil on paper.



Colour Theory

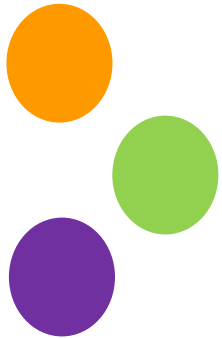
Primary Colours (P) cannot be made by mixing other colours together



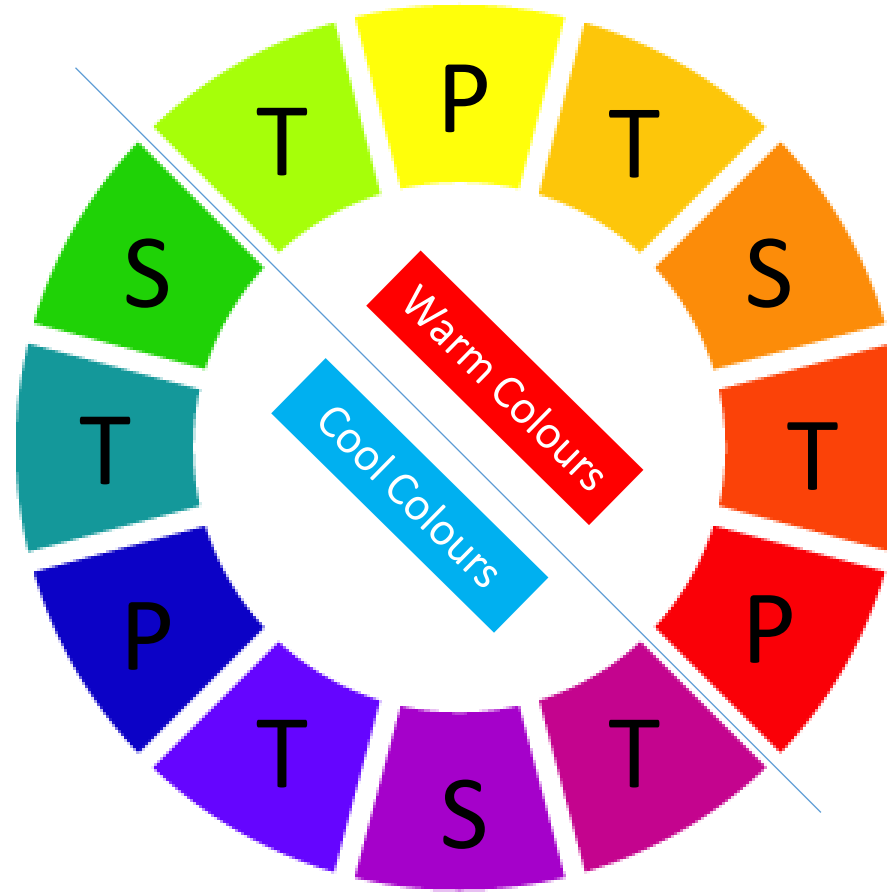
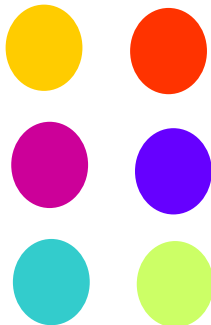
The Colour Wheel helps us to understand the relationship between colours

Complementary Colours appear opposite each other on the colour wheel and, when placed next to each other, create a really strong contrast e.g. **Red** and **Green**

Secondary Colours (C) are made by mixing equal amounts of 2 primary colours together e.g. **Red** + **Yellow** = **Orange**

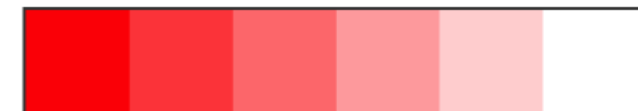


Tertiary Colours are made by mixing equal amounts of a primary and secondary colour



Harmonious Colours sit next to each other on the colour wheel. These colours work well together and create an image that is pleasing to the eye e.g. **Blue** and **Blue-Green**

Tints are created by adding white to a colour
Shades are created by adding black



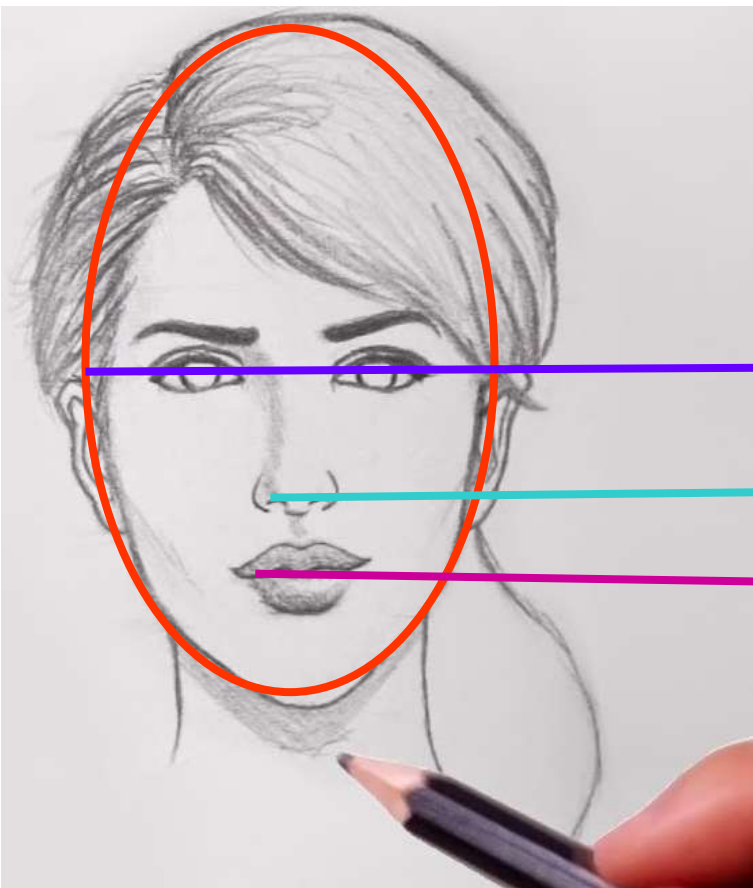
Tint



Shade

Portraiture is the art of representing a person. It can take the form of a drawing, painting, photograph or sculpture.

It is really important to LOOK closely at the person you are drawing. Use a photograph or mirror if it is a self portrait



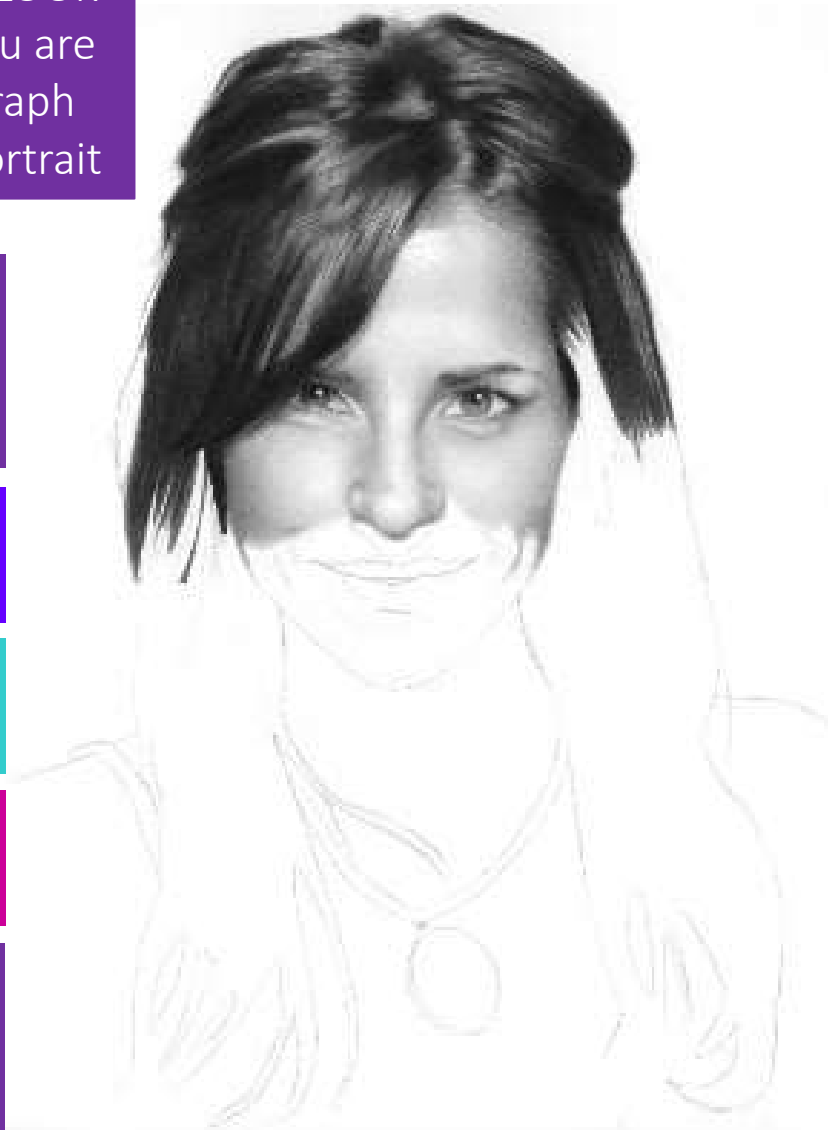
Facial Proportion is the relationship in size and placement between the features of the face:

The **Eyes** are positioned half way between the top of the head and the chin

The bottom of the **Nose** is positioned half way between the eyes and the chin

The **Mouth** is positioned half way between the bottom of the nose and the chin

When drawing a portrait, draw guidelines lightly to ensure that proportions are accurate, these can then be removed later



Year 7 Knowledge Organisers

Music

Storyboard for your Film
Music Composition:

1	2
3	4
5	6

Listen to ‘Danse Macabre’ by Saint-Saens, draw either;

- How the music makes you feel
or
- What you think the story could be.

Key word Definitions:

Dynamics	
Fortissimo	
Forte	
Piano	
Pianissimo	
Tempo	
Presto	
Moderato	
Grave	

Name on instrument from each of the
four families

Strings	
Woodwind	
Brass	
Percussion	

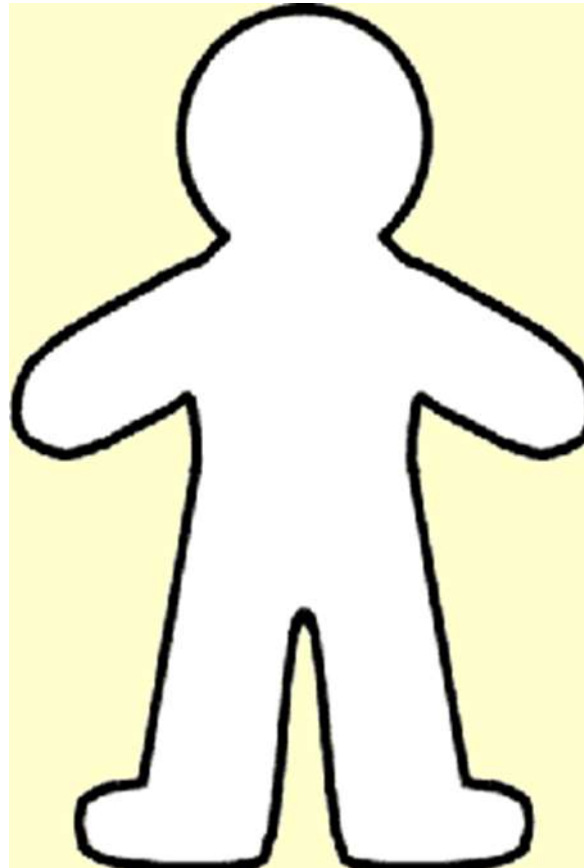
Year 7 Knowledge Organisers

Drama

Mr Fox- Creating a devised performance from a stimulus

Storyboard for your
devised drama plot:

Role on the wall for your devised
character:



Key word Definitions:

Characterisation	
Atmosphere	
Tension	
Devising	
Audience	
Role on the wall	
Proxemics	
Stimulus	
Climax	
Evaluation	
Still images	
Rolling Tableau	
Narration	
Role Play	
Improvisation – spontaneous and polished	
Hot seating	
Tunnel of Thoughts	
Thought Tracking	
Vocal Collage	
Soundscape	

Year 7 Knowledge Organisers

DT - Food



The Eatwell Guide

The Eatwell Guide is a guide that shows you the different types of food and nutrients we need in our diets to stay healthy.

Why is the Eatwell Guide important?

The Eatwell Guide shows you how much (proportions) of food you need for a healthy balanced diet.

What are the consequences of a poor diet?

A poor diet can lead to diseases and can't stop us from fighting off infections.

What are the sections on the Eatwell Guide?

1. Fruit and vegetables
2. Potatoes, bread, rice, pasta and other starchy food
3. Dairy and alternatives
4. Beans, pulses, fish, egg, meat and other proteins
5. Oils and spreads

How many portions of fruit and vegetables should we eat, daily?

As a minimum, we should eat at least 5 portions each day.

How many glasses of water should we drink daily?

As a minimum, we should drink 6-8 Glasses of water each day.

8 Tips for Healthy Eating!

1. Eat more fibre
2. Eat more fruits and Vegetables
3. Eat more oily fish
4. Eat less salt
5. Eat less fat
6. Eat less sugar
7. Choose wholegrains
8. Drink 6-8 glasses of water per day

MACRONUTRIENTS

Nutrient	Sources	Functions
Protein	Meat, Fish, Eggs, Beans, Peas	Growth and repair of body cells, Energy
Fat	Two types: Saturated: Butter, Cheese, Chips, Crisps Unsaturated: Olive Oil, Salmon, Avocado, Mackerel	Energy, Heat and insulation (Bad type of fat) Energy, lubrication of joints, insulation (Good type of fat)
Carbohydrate	Two types: Starch: Bread, pasta, Rice, Potato. Sugar: Fruit, Sweets, Chocolate, Honey	Slow Release of energy: lasts throughout the day Fast release of energy – does not last long
Fibre (Cannot be digested)	Wholemeal Bread, Wholemeal Pasta, Wholemeal Rice, Skin of fruit and Vegetables	Maintain a Healthy Digestive System.

MACRONUTRIENTS

Nutrient	Sources	Functions
Vitamins	Water Soluble:	
	Vitamin A: Carrots, eggs, meat	Healthy eyes, skin, hair
	Vitamin D: Oily fish, sunlight	Strong bones and teeth
	Vitamin E: Nuts, olives, green veg	Helps form red blood cells
	Vitamin K: Cabbage, Spinach	Helps blood clotting
Minerals	Fat Soluble:	
	Vitamin B: Eggs, Meat, Poultry	Healthy nervous system
	Vitamin C: oranges, Kiwi	Helps absorb iron, prevent flu
	Calcium: Milk, Butter, Dairy	Strong bones and teeth
	Iron: Red Meat, Dark Green Vegetables, Nuts	Helps formation of red blood cells to carry oxygen around the body.

Year 7 Food Knowledge organiser



What is cross contamination?

Cross contamination is spreading bacteria from one place to another.

What are the four C's to help prevent spreading bacteria?

- > Clean
- > Cook
- > Chilling
- > Cross contamination

Why do we use different coloured chopping boards when preparing food?

To prevent the spreading of bacteria (to avoid cross contamination).

COLOUR CODED CUTTING BOARDS



Cutting Techniques

To demonstrate safety skills when using knives, there are two cutting techniques we should use:



Bridge hold



Claw grip



Health & Safety when using the cooker:

- Turn pan handles in away from edge of cooker.
- Always turn hob off when not in use.
- Never leave food cooking on the hob unattended.
- Be careful not to let food boil dry.
- Never touch an electric hob when turned off, it may still be hot.
- Don't leave metal spoons in pans when cooking as they can become very hot.
- Always use oven gloves when removing food from the oven.

Health & Safety in the Food Room: Personal Hygiene

Wash hands in soapy water.
Tie long hair back.
Wear an apron and tuck tie in.
Roll back sleeves.



Key Words

	1. Teaspoon (tsp): is used as a measure for small quantities such as spices or salt.		8. Dishcloth is used to wash the dirty equipment.
	2. Grams (g): is used as form of measuring solids.		9. Tea towel is used to dry the washed equipment.
	3. Tablespoon (tbsp.): is used as a measure for larger quantities such as flour		10. Oven gloves are used to protect your hands from being burnt.
	4. Millilitres (ml): is used as a form of measuring liquids.		11. Coagulation the thickening of an egg mixture.
	5. Grate – using a grater to prepare cheese, vegetables or fruit		12. Seasoning adding different herbs and spices to improve the flavour of a dish.
	6. Bridge hold is used to protect your fingers when cutting. Pass the knife through the bridge made by your fingers and thumb		13. Creaming method the method usually used to make cakes, where the butter and sugar is creamed together.
	7. Enzymic browning: the process where fruit and vegetables turn brown due to them being exposed to oxygen (oxidisation).		14. Rubbing in method is a method whereby you rub using your fingers together usually butter and flour to create a breadcrumb like mixture, usually the base for scones.

- How do we keep safe in the food room?
- What hygienic practices must we follow?
- Knife safety
- Uses of the cooker (hob + oven)
- Weighing and measuring
- How to store food correctly in the fridge

A food diary is a way to track your eating and develop a healthy eating plan. You log all of the food and drink you consume, each day.

Tips for reducing food waste

- Check and make a list before food shopping.
- Plan meals for the week in advance.
- Don't impulse buy foods
- Check use by dates to ensure plenty of time.
- Freeze foods if not being used by use by date.
- Use up foods which are about to go out of date e.g. make over ripe fruit into smoothies or cakes.



Uses of eggs in recipes

Use	Definition and Recipe
Coat	To cover foods with egg and then breadcrumbs. The egg helps the breadcrumbs stick. Scotch eggs, fishcakes.
Glaze	Protein in egg browns when heated leaving a glossy finish. Pies, biscuits, breads.
Aeration	Eggs add air to mixtures due to their liquid and protein content. Cakes, mousses.
Thicken	Protein in eggs coagulates upon heating making mixtures thicken. Bread and butter pudding, custard.

Why is it important to weigh and measure ingredients accurately?

What can happen if we don't?

The 4 C's = Four simple rules that will help you to stay safe and hygienic in the kitchen:

- Cleaning.
- Cooking.
- Cross contamination.
- Chilling.

NUTRIENTS

Carbohydrates:

Sources?

Types – what are they made up of?

How are they used in the body?

Fat + sugar:

Saturated and unsaturated fat

Sources?

What are they required for in the body?

Amounts required?

Effect on the body if too much consumed?

Protein:

Sources?

What are they required for in the body?

Vitamins:

Sources?

What are they required for in the body?

Minerals:

What are minerals?

What are they required for in the body?

How the body uses nutrients:

Protein – growth and repair – found in meats/fish/eggs/pulses

Carbohydrates = energy – found in bread/pasta/rice/potatoes

Calcium – strong bones and teeth – milk/cheese/yoghurt

Vitamins and minerals – boost immune system – found in fruit/vegetables

Fats – protects vital organs, keeps you warm – found in oil, butter, dairy products, sweets and chocolates.

Staple foods of a diet are **pasta, rice and potatoes.**

The main dairy products are: **milk, cheese and butter.**

Eggs are a good source of protein.

Nuts and seeds are also sources of protein.



What 6 nutritional facts can be found on food labels?

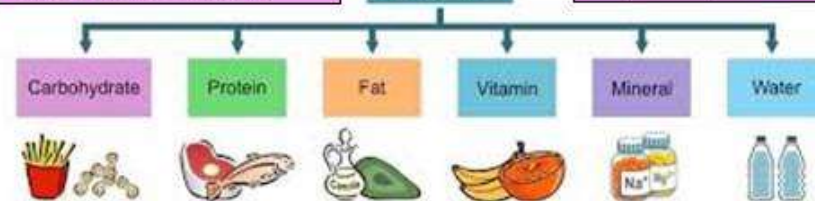
What are the recommended calories for male and female?

What is a balanced diet?

What is a composite dish?

NUTRIENTS

What is dietary fibre?
Why is it important?



Key words:

Peeling = remove the outer covering or skin from (a fruit, vegetable, or prawn)

Slicing = using a knife to cut into slices

Weighing = using measuring scales to accurately measure an amount of food

Measuring = using a jug for example to measure an amount of liquid or food

Boiling = cooking in water at or near boiling point.

Simmering = cooking in water just below boiling point, while bubbling gently.

Coring = remove the tough central part and seeds from (a fruit).

Bridge = a safe method to use a knife

Claw = a safe method to use a knife

Year 7 Knowledge Organisers

English

10 Influential Poets

William Wordsworth	An English Romantic poet. His most famous poem is 'Daffodils'.
William Shakespeare	In his lifetime he wrote over 150 poems. Shakespearean sonnets are still widely studied today.
Emily Dickinson	An American poet who lived most of her life in isolation.
Maya Angelou	A civil rights activist and poet whose most famous poem is 'Still I Rise'.
Rudyard Kipling	Author of 'The Jungle Book'. His most famous poem is 'If'.
Tupac Shakur	An American rapper, poet and actor. He was famously assassinated in his youth.
Carol Ann Duffy	She is the current poet laureate in the UK. One of her most famous poems is 'Valentine'.
Ted Hughes	Considered one of the greatest writers and poets of the 20 th century. He was married to Sylvia Plath.
Sylvia Plath	American poet. She was married to Ted Hughes.
Wilfred Owen	One of the most famous poets from WW1. He wrote poetry about the horrors of war.

The Poet Laureate

The poet laureate is an honoured poet chosen by the government or monarchy who is expected to compose poems for special occasions. The poet laureate of Britain is usually appointed for life. Carol Ann Duffy became the first woman to hold the role of Britain's poet laureate. She was appointed in 2009.

**Introduction to Poetry****Poetic Structures**

Term	Definition
Ballad	Story poems— often 4 lines stanzas
Blank verse	Verse with no rhyme – usually 10 syllables
Epic	Tragic/heroric story poems
Free verse	No regular rhyme/rhythm
Haiku	3 lines, syllables 5/7/5. Often about nature
Ode	Lyrical poem often addressed to one person
Sonnet	14 lined love poem
Shape poem	Poem is in shape of the main subject
Rhyme scheme	The pattern of the lines that rhyme in a poem.
Rhyming couplet	Two lines next to each other that rhyme.

**Poetic Techniques**

Term	Definition
Alliteration	When words placed together start with the same sound. "She sells sea shells on the sea shore".
Metaphor	When you say something is something else but you know it can't be. "She is a star!"
Simile	When you compare two things using 'as' or 'like'. "As brave as a lion".
Oxymoron	When two words are placed together with opposite meanings. "Cruel kindness" or "silent scream".
Onomatopoeia	Words that sound like what they are. "Meow" or "crash".
Assonance	The repetition of a vowel sound "Go slow over the road".
Emotive language	Language used to create a particular emotion in the reader.
Figurative language	When writers use similes, metaphors or personification to describe something in a non-literal way.
Imagery	When something is described in way that appeals to our senses.
Structure	The way that the poem is arranged/organised.
Sibilance	A repeated 's', 'sh' or 'z' sound.
Semantic field	A group of words in the poem that are all about the same thing/idea.
Caesura	A pause in the middle of the line.
Enjambment	When one line runs into another without a pause.



**Prioritise
it**

Prioritise the
knowledge you
have learnt
today.
From most
important to
least important.

Prioritise it

1.

2.

3.



How does the learning in this knowledge organiser link to what you learnt in the last lesson?

Connect it

The Early Purges Seamus Heaney

*I was six when I first saw kittens drown.
Dan Taggart pitched them, 'the scraggy wee shits',
Into a bucket; a frail metal sound,*

*Soft paws scraping like mad. But their tiny din
Was soon soused. They were slung on the snout
Of the pump and the water pumped in.*

*'Sure, isn't it better for them now?' Dan said.
Like wet gloves they bobbed and shone till he sluiced
Them out on the dunghill, glossy and dead.*

*Suddenly frightened, for days I sadly hung
Round the yard, watching the three sogged remains
Turn mealy and crisp as old summer dung*

*Until I forgot them. But the fear came back
When Dan trapped big rats, snared rabbits, shot crows
Or, with a sickening tug, pulled old hens' necks.*

*Still, living displaces false sentiments
And now, when shrill pups are prodded to drown
I just shrug, 'Bloody pups'. It makes sense:*

*'Prevention of cruelty' talk cuts ice in town
Where they consider death unnatural
But on well-run farms pests have to be kept down.*

****A PURGE is when you get rid of something unwanted**

Word	Meaning
Scraggy	
Frail	
Scraping	
Din	
Soused	
Slung	
Sluiced	
Glossy	
Sogged	
Snared	
Sentiment	
Pest	



1. What does Dan Taggart call the kittens?

2. What age is the boy at the start of the poem?

3. How did the kittens die?

4. Find three adjectives used to describe the kittens.

(i) _____ (ii) _____ (iii) _____

5. Name two other animals/birds that Dan Taggart killed.

(i) _____ (ii) _____

6. What did Dan Taggart do with the kittens once they were dead?

7. Search through the poem to find something you could:

see	hear	smell	touch	taste

1. How does the small boy feel about the kittens dying?

2. How does the man feel about kittens/pups now?

Section 5: Reading Comprehension

Fil in the gaps with the following words:

shocked, six, Purges, accepts, Heaney, cruel, child, scraggy

The Early _____ is a poem written by Seamus Heaney. This poem is mainly told from the point of view of _____. It shows what life was like for Heaney as a _____. Heaney remembers an incident when he was _____ and he watched "kittens drown". After his first encounter with death, Heaney is _____ by the cruelty shown to them by Dan Taggart. He refers to them as "_____ wee shifts". He cannot understand how Taggart can be so _____. However, as the poem progresses, Heaney is older and _____ this as part of life on a farm.

Learning questions

How do poets use a range of linguistic methods for effect?

How do poets use structure for effect?

Can I find supporting textual evidence from a text?

Can I comment on how forms of poetry change over time (sonnets)?

Can I evaluate a poem providing a personal response?

Can I compare and contrast the ideas presented within a poem?

Year 7 Knowledge Organisers

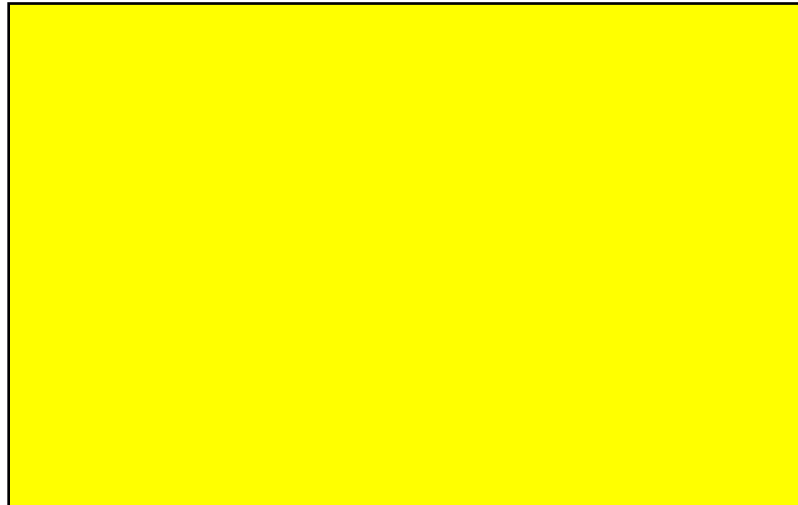
Geography

Learning Consultant note

For each box on the next slide, amend as you see fit (just to help give you ideas but you could use others).

Highlight the task each lesson you want them to do.

C and P the box below to highlight.



Independent Learning

Fantastic Places and How to Find Them

Summarise part of the article in no more than 5 bullet points.	Get creative – turn a certain section of your knowledge organiser/ reading into a picture/ poem etc.
Identify any Tier 2/Tier 3 words on your Knowledge Organiser/ Reading.	Create a short quiz to test someone else in the class on a certain section of your reading/ knowledge organiser.
Prepare for a short quiz on a certain section of the reading/ knowledge organiser.	Make a list of definitions for words you don't understand from part of the reading.

Fantastic Places and How to Find Them

Svalbard



Location	Arctic Circle, Norway, Europe.
Population Size	2,667
Physical Features	Mountains, Northern Lights, Tundra, U Shaped Valleys, Fjords, Glaciers, Archipelago, Polar Bears and Protected Nature Reserves.
Human Features	Isolated, sparsely populated, 5 settlements. Capital is Longbearyen and Scientific investigation.

Las Vegas



Location	North America, United States, Nevada
Population Size	632,912
Physical Features	Mojave Desert, Lake Mead, Water Scarcity, Surrounded by Dry Mountain Ranges, 620m above sea level, Temperature Ranges from 18-40°C
Human Features	Architecture (replicas (Sphinx, Eiffel Tower, Statue of Liberty, Empire State Building)), Economy (Hotels (MGM Grand, Bellagio), Sports Events (Prize Fighting), Gambling (\$814m 2017), Shows (Cirque Du Soleil), Tourism (39 million visitors 2017)

Songdo



Location	Asia, South Korea, Incheon.
Population Size	100,000
Physical Features	Next to the Yellow Sea, Partially Built on Dredged Land.
Human Features	Sustainable and Green City, Incheon Airport, 30 mins to Seoul (capital) by Bullet Train, Innovative Waste Disposal, Home Connections for Education and Health Services, Renewable Energy, Only 20% Occupied (Businesses). Everything you need is within a 15 minute walk, Smart Keys for Doors, Wifi Connections for Everything You Can Think Of,

Machu Picchu



Location	South America, Peru
Population Size	0 (2018). It is estimated around 750-1000 people would have lived here.
Physical Features	Andes Mountains, On a Plateau Above The Urubamba River Valley, Pastoral Farming Land, Annual Average Temperature is 16°C. Located Between 1800m-3800m Above Sea Level (Altitude.), UNESCO World Heritage Site.
Human Features	180 000 Visitors in 1980's and Now Capped At 500 000, Museum and Lift At The Ruins, Inca Trail. Nearby City of Cusco (105 000 inhabitants), Created by The Incan Empire, Lost Before Being Rediscovered in 1911.

KS3 Geography Y8 Map Skills



Topic Scoreboard

Spelling Test 1

Spelling Test 2

Knowledge Test 1

Knowledge Test 2



Learning Log

1. Geography in Year 8
2. Four Figure Grid References
3. Six Figure Grid References
4. Direction and Distance
5. Height and Relief
6. Map Skills assessment
7. Reflect, Review and Refocus

Crucial Command Word

Outline

Set out main characteristics.

Using **figure 1** outline the opportunities and issues for human activity in this area.



Ordnance Survey have over **460 million geographic features** in their database and make around **10,000 changes a day** to their master map of Great Britain.

16 Subject Specific Key Terms

Compass Directions	Can be 4, 8 or 16-point. The most basic form being North, East, South and West.	Map Key	This tells the reader what the map symbols mean.
Contour Line	A line on a map joining points of equal height above or below sea level.	Map Symbol	Used to represent real objects. Without symbols, maps would not be possible. Both shapes and colours can be used for symbols on maps.
Distance	The length of the space between two points, usually measured in metres, kilometres or miles.	Opportunity	A set of circumstances that makes it possible to do something positively.
Four Figure Grid References	A four figure grid reference points you towards a particular square on a map. On all OS maps these squares represent one square kilometre.	Ordnance Survey	Ordnance Survey is a mapping agency in the United Kingdom which covers the island of Great Britain. It is one of the world's largest producers of maps.
Human Uses	How people use an area or landscape.	Relief	The difference between the highest and lowest elevations in an area. A relief map shows the topography of the area.
Issue	An important topic or problem for debate or discussion.	Scale	The scale of a map is the ratio of a distance on the map to the corresponding distance on the ground.
Location	A particular place or position.	Six Figure Grid References	The grid numbers on the east-west (horizontal) axis are called Eastings, and the grid numbers on the north-south (vertical) axis are called Northings. Eastings are written before Northings. Thus in a 6 digit grid reference 123456, the Easting component is 123 and the Northing component is 456.
Map	A diagrammatic representation of an area of land or sea showing physical features, cities, roads, etc.	Triangulation Point	A reference point on high ground used in surveying, typically marked by a small pillar.

Common Map Symbols

Example of an OS Map

ROADS AND PATHS

Non-surfaced rights of way

Motorway (dark green/blue line)
Dual carriageway (blue line)
Single carriageway (red line)
A road (red line)
B road (red line)
C road (red line)
Footpath (brown line)
Cycle path (blue line)
Railway (black line with cross-ticks)
Canal (blue line)

LAND FEATURES

Building (black outline)
Park (green area)
Wood (green area with wavy lines)
Water (blue area)
Marsh (light green area)
Moor (light green area)
Hill (brown area with contour lines)
Mountain (brown area with contour lines)

TOURIST INFORMATION

- Camp site
- Caravan site
- Garden
- Golf course or links
- Information centre, all year / seasonal
- Nature reserve
- Parking, Park and ride, all year / seasonal
- Picnic site
- Selected places of tourist interest
- Telephone, public / motoring organisation
- Viewpoint
- Visitor centre
- Walks / Trails
- Youth hostel

BOUNDARIES

National
County, Unitary Authority, Metropolitan District or London Borough
National Park

ABBREVIATIONS

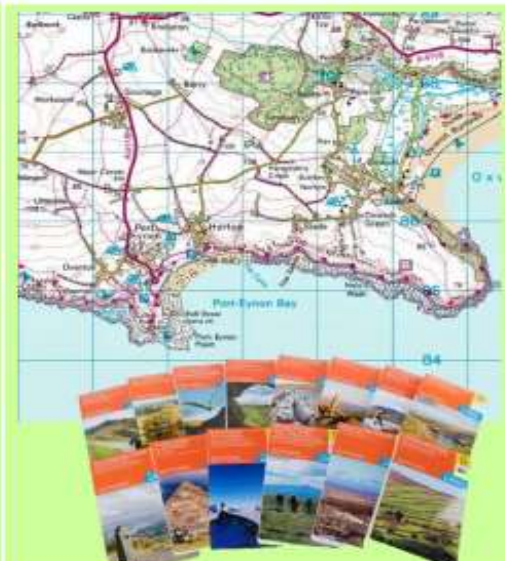
CG Coastguard
CH Church
MH Mill
W Watermill
P Post office
PC Public convenience (in rural areas)
PH Public house
SH Town Hall, Guildhall or equivalent

WATER FEATURES

Marsh or reed bed
Swamp
Loch
Flood
River
Canal (dry)
Canal (wet)
Lough
Flood
River
Canal (dry)
Canal (wet)
Lough
Flood
River
Canal (dry)
Canal (wet)

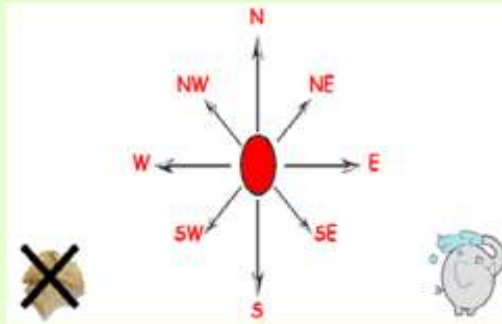
RAILWAYS

Track multiple or single
Track under construction
Single
Tunnel
Light rapid transit system, narrow gauge or tramway



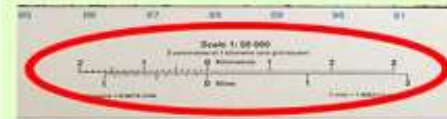
The Eight Point Compass

- A good way of remembering the compass directions is
 - Never - North
 - Eat - East
 - Shredded - South
 - Wheat - West
- When describing locations from a map you should use compass directions in order to improve your accuracy.
- Remember that if the location you are describing is between north and west then the compass direction is north west **NOT** west north.
- You should use compass directions when describing features in relation to each other.



Using Scale

- To measure distance on a map you need to use the **scale**. Use a **ruler** to measure the distance on the map and then compare it to the scale. You could also measure the distance by marking it on the edge of a piece of paper and then compare this to the scale.
- If the line you are measuring is **curved** then use the technique shown in the image to the right. The **more often you turn the paper you are marking, the more accurate your result will be.**



Crazy Curves!



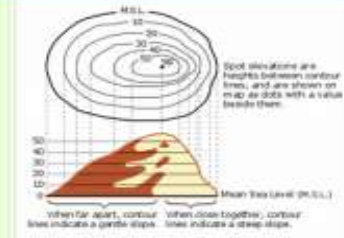
Place the edge of a piece of paper next to the line you are measuring so that your paper and the line are pointing in the same direction.

Turn your paper every time there is a bend in the line, so that your paper and the line always follow the same path.

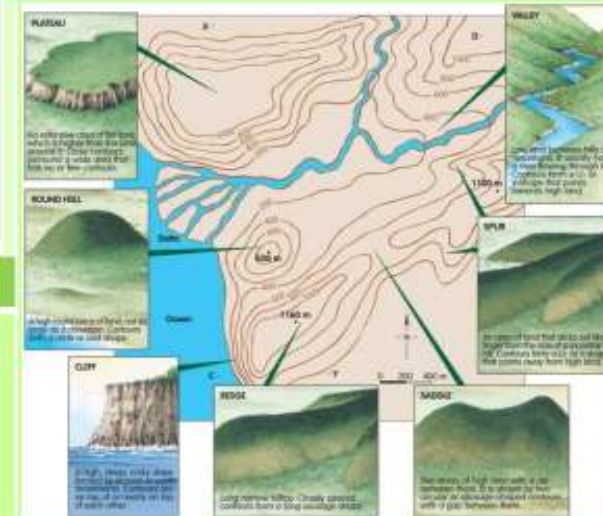
Contour Lines and Triangulation Points (Trig points)



- Contour lines join points of **equal height**.
- The **closer** the lines are, the **steeper** the land, the further apart they are, the more **gentle** the slope.
- Contour lines are always **brown** on a map.
- If there are lots of contour lines and the numbers go up in one direction then you are looking at a **hill** on the map, however if you can see very **few contour lines** then the land is **flat** or **gently sloping**.
- **Trig points** are shown as a **black dot** on a map and they show the height of a specific place.



Skills: Recognising Features from Contour Lines

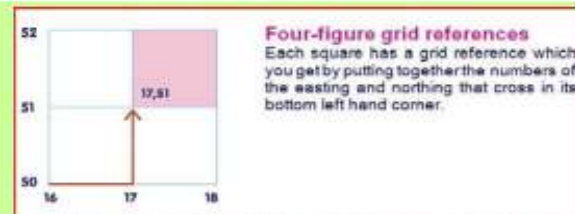


Human Uses of an Area

Use the map below to think about how people could use an area. Use the previous page to find out what map symbols are there & what could people do in these places? Also think about what problems this could cause. For example - lots of people travelling to these places could cause traffic on the roads and cause additional air pollution.



Four and Six Figure Grid References



Four-figure grid references

Each square has a grid reference which you get by putting together the numbers of the easting and northing that cross in its bottom left hand corner.

The golden rule for reading grid references is always go along the X axis (the bottom) first and record those numbers first, then go up the side and record those numbers second. 'Along the corridor & up the stairs'.

Six-figure grid references

In your head, you should be able to divide all sides of the square into ten equal sections. By doing this, you can pinpoint locations within the square - these are called six-figure grid references.

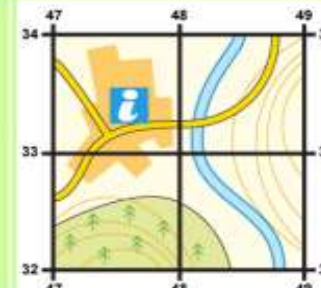


Six Figure GR's will allow you to locate a specific place on a map within a square. Think of it like working out decimal points in maths.

Practice Makes Perfect!

Now you know all your OS map skills, have a go at practicing with this simplified extract.

- 4 fig GR for an area of forest
- 6 fig GR for the tourist info
- Where are the 2 hills?
- What direction is the river flowing?
- Describe the area shown on map.



Read the following information about a fantastic place.

Website -

<https://www.britannica.com/place/Barcelona>

Barcelona, city, seaport, and capital of [Barcelona](#) (province) autonomous community), northeastern [Spain](#), located 90 miles (150 km) south of the French border. It is Spain's major Mediterranean port and commercial centre and is famed for its individuality, cultural interest, and physical beauty.

On his visit to the city in 1862, Hans Christian Andersen remarked that Barcelona was the "Paris of Spain." The city is indeed a major cultural centre with a remarkable history. It abounds with archives, libraries, museums, and buildings of interest, featuring superb examples of Modernist and Art Nouveau decor and architecture. Since the late 1970s, with the official recognition of the Catalan language and the granting of significant levels of regional self-government, cultural life has been revitalized, bringing with it a new awareness of the depth and variety of Catalan [culture](#). This vitality combines with the striking physical setting of Barcelona—between scenic mountains and the Mediterranean Sea, with a [benign](#) climate that fosters street life—and its significance as an economic power and a major port to create a city of [infinite](#) variety. Area city, 38 square miles (98 square km); metropolitan area, 1,249 square miles (3,235 square km). Pop. (2011) 1,611,013.



Physical And Human Geography

The landscape

The city site

Barcelona, facing the Mediterranean to the southeast, is located on a [plain](#) generally confined by the Besós River (north), the [Llobregat River](#) (south), the rocky outcrop of Montjuich (567 feet [173 metres] high), and the semicircle of mountains of which Tibidabo (1,680 feet [512 metres]) is the highest point. Throughout its past Barcelona has had to contend with the consequences of its strategic location and political significance. The city was heavily fortified and did not spread much beyond its [medieval](#) confines until the 19th century, a factor that contributed to the emergence of industrial satellite suburbs and towns around the city proper. This combination of a concentrated core with a highly developed industrial belt has made Barcelona one of the most congested cities in the world.

Climate

Although Barcelona is sometimes windy, its protective semicircle of mountains shields it from the harsh, cold winds that blow out of the north and west. The average annual temperature is 61 °F (16 °C); January is the coldest month, averaging 49 °F (9 °C), and [August](#) is the hottest, at 76 °F (24 °C). Precipitation amounts to about 23 inches (600 mm) per year.

The city layout

At the core of the city lies the Gothic Quarter. Located between the Ramblas, a series of connected boulevards, going southeastward to the sea, and the Via Laietana, it is a close-packed maze of narrow streets punctuated by magnificent medieval buildings. The cathedral, episcopal palace, and churches bear witness to Barcelona's importance as a religious centre. The government buildings—such as the Palace of the Generalitat (the seat of the autonomous community of Catalonia), a 14th–15th-century building with Baroque and Neoclassical facades, and the Royal Palace—attest to the city's importance as an administrative capital. The Roman walls survive in places largely because stretches of them were incorporated into the medieval city, and the wall built in the 13th century along the Ramblas effectively hemmed it in. The defenses that played such a large part in the battle for Barcelona during the War of the Spanish Succession (1701–14) were augmented by the construction of a citadel after the city was taken.

By the mid-19th century the need for elaborate defenses had passed, and the city was bursting at the seams. Accordingly, plans were devised to extend the city. The final plans were based on geometric blocks, allowing for open spaces, greenery, and social areas. The area into which the town expanded, now called L'Eixample ("the Extension"), was open land left originally to give a clear field of fire from the city walls. Unfortunately, the plans were not carried out completely, and within 30 years the open areas were exploited, causing the density of buildings to triple. The city expanded following the annexing of the old municipalities surrounding Barcelona. Urban sprawl and uncontrolled development during the Francisco Franco era added to the congestion. The 1992 Olympic Games allowed for some renovation of deteriorated and poorly planned areas.

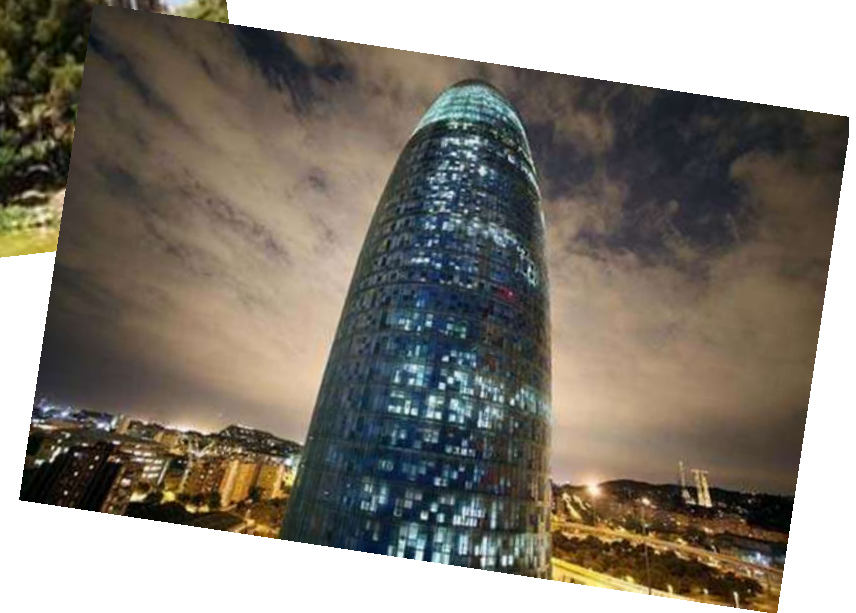
For the visitor, the main attraction still tends to be in the city centre, particularly around the [Ramblas](#). The famous promenade is separated from L'Eixample by the monumental Catalunya Square, and it leads down to the port and the Portal de la Pau Square, where the Christopher Columbus monument stands in commemoration of the discovery of America and the explorer's announcement of it in Barcelona. The Ramblas form one of the most delightful aspects of the city, their broad, tree-lined centre strips given over to a series of stalls and kiosks selling items such as flowers, pets, and books and newspapers.

The Ramblas, Barcelona. *Jupiterimages*

The skyline of the modern city inevitably reflects the style of the present age, but Barcelona has always attracted distinguished and original architects. Some people find the more modern buildings along the Diagonal quite striking, but little of it can compare to the work of the Catalan sculptor and architect [Antoni Gaudí](#), whose huge and elaborate Expiatory Temple of the [Holy Family](#) (Sagrada Família) has become a symbol of the city itself. He made a number of other notable contributions, including the multistory apartment buildings Casa Batlló, Casa Milá (La Pedrera), and Güell Park. Other architects, such as Luis Doménech Montaner, produced remarkable structures in the modernist style, such as the Music Palace, which was designated a [UNESCO World Heritage site](#) in 1997.

Gaudí, Antoni Antoni Gaudí's Expiatory Temple of the Holy Family (Sagrada Família), Barcelona, Spain. © iStockphoto/Thinkstock

Barcelona: Torre Agbar Torre Agbar skyscraper at night in Barcelona. Geoff Tompkinson/GTImage.com



Year 7 Knowledge Organisers

History

Big Question 1: To what extent did the Normans change England?

Knowledge Organiser

Key Dates

1.	871	Alfred the Great became the Anglo-Saxon king, uniting several smaller kingdoms
2.	1053	Harold Godwinson becomes Earl of Wessex.
3.	1064	Harold Godwinson leads an embassy to William of Normandy
4.	1065	Tostig banished. Morcar became new Earl of Northumbria.
5.	Jan 1066	Death of Edward the Confessor and coronation of Harold Godwinson as King
6.	Sep 1066	Harald Hardrada of Norway invades the north of England
7.	20 Sep 1066	Battle of Fulford Gate (Victory for Hardrada)
8.	25 Sep 1066	Battle of Stamford Bridge (Victory for Harold Godwinson - Hardrada dies)
9.	28 Sep 1066	William of Normandy lands at Pevensey
10.	1 Oct 1066	Harold Godwinson marches south to face William
11.	14 Oct 1066	Battle of Hastings (Victory for William – Godwinson dies)
12.	25 Dec 1066	William the Conqueror is crowned king of England at Westminster Abbey
13.	1069	William marched North to deal with Edgar Aetheling. Having re-established York as a Norman stronghold he set about defeating pockets of resistance to his rule – an event that is known as The Harrying of the North
14.	1077	Work began in Canterbury on a huge embroidery to commemorate the Norman Conquest. It is known as the Bayeux Tapestry
15.	1086	William tried to complete a survey of his kingdom that became known as the Domesday Book

Key Individuals

1.	Edward the Confessor	Anglo-Saxon king of England at the start of 1066. His death without an heir sparks the succession crisis.
2.	Harold Godwinson	Powerful Earl of Wessex who claimed to have appointed Edward's heir on his deathbed.
3.	Harald Hardrada	The feared king of Norway. His claim to the throne was based on an agreement made with a previous king in 1042.
4.	William of Normandy	Duke of Normandy and cousin of Edward. He said that Edward had promised him the throne in 1051 and that Godwinson had confirmed this in 1064.
5.	Tostig Godwinson	Brother of Harold Godwinson and Earl of Northumbria. He lost his Earldom because of his tyrannical rule and left to join Hardrada.


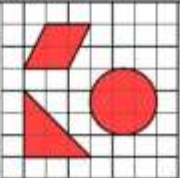


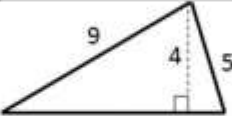
Key Concepts

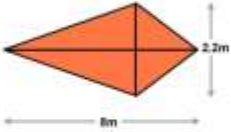
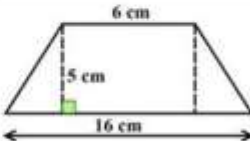
1.	Anglo-Saxon England	Period of the history of England between c500-1066
2.	Aristocracy	Individuals with inherited noble titles. Often powerful and wealthy
3.	Fyrd	The army of the Anglo-Saxons drawn from regions all over England
4.	Housecarl	Highly-trained, professional troops serving as a bodyguard for the Lord.
5.	Feudal System	A term used to define the hierarchical structure of
6.	Ceorl	Anglo-Saxon free peasant farmers not tied to the land
7.	Thegn	An Anglo-Saxon aristocrat below an Earl
8.	Earl	Highest members of Anglo-Saxon society. Rules an Earldom
9.	Lord/Baron	An important aristocrat in Norman England
10.	Peasant	A farmer tied to land of their Lord
11.	Knight	A member of the Norman aristocracy below a baron
12.	Monarchy	A system of government where a country is ruled by a king or queen
13.	Danelaw	Part of England where the Danish (Viking) power had been the strongest and kept Danish laws
14.	Domesday Book	A survey undertaken by William the Conqueror
15.	Harrying of the North	An event where William crushed rebels in the north of England to reassert his control
16.	Motte and bailey	The style of castle built by William the Conqueror
17.	Norman	A person from Normandy. An area in northern France that was a country in its own right.
18.	Coronation	The ceremony of crowning someone as a king or queen

Year 7 Knowledge Organisers

Maths

Equable Shapes

Topic/Skill	Definition/Tips	Example
1. Perimeter	<p>The total distance around the outside of a shape.</p> <p>Units include: <i>mm</i>, <i>cm</i>, <i>m</i> etc.</p>	<p>8 cm</p>  <p>5 cm</p> <p>$P = 8 + 5 + 8 + 5 = 26cm$</p>
2. Area	<p>The amount of space inside a shape.</p> <p>Units include: mm^2, cm^2, m^2</p>	
3. Area of a Rectangle	Base x Height	 <p>9 cm</p> <p>4 cm</p> <p>$A = 36cm^2$</p>
4. Area of a parallelogram	Base x Perpendicular Height Not the slanted height.	 <p>4 cm</p> <p>7 cm</p> <p>3 cm</p> <p>$A = 21cm^2$</p>
5. Area of a Triangle	(Base x Height) ÷ 2	 <p>9</p> <p>4</p> <p>5</p> <p>12</p> <p>$A = 24cm^2$</p>

6. Area of a Kite	Split in to two triangles and use the method above.	 $A = 8.8m^2$
7. Area of a Trapezium	$\frac{(a + b)}{2} \times h$ <p>"Half the sum of the parallel side, times the height between them. That is how you calculate the area of a trapezium"</p>	 $A = 55cm^2$
8. Area of a Circle	$A = \pi r^2$ which means 'pi x radius squared'.	<p>If the radius was 5cm, then:</p> $A = \pi \times 5^2 = 78.5cm^2$
9. Circumference of a Circle	$C = \pi d$ which means 'pi x diameter'	<p>If the radius was 5cm, then:</p> $C = \pi \times 10 = 31.4cm$
10. Simplifying Expressions	<p>Collect 'like terms'.</p> <p>Be careful with negatives. x^2 and x are not like terms.</p>	$2x + 3y + 4x - 5y + 3 = 6x - 2y + 3$ $3x + 4 - x^2 + 2x - 1 = 5x - x^2 + 3$
11. x times x	The answer is x^2 not $2x$.	Squaring is multiplying by itself, not by 2.
12. $p \times p \times p$	The answer is p^3 not $3p$	If $p=2$, then $p^3=2 \times 2 \times 2=8$, not $2 \times 3=6$
13. $p + p + p$	The answer is $3p$ not p^3	If $p=2$, then $2+2+2=6$, not $2^3 = 8$
14. Expand	To expand a bracket, multiply each term in the bracket by the expression outside the bracket.	$3(m + 7) = 3m + 21$
15. Factorise	<p>The reverse of expanding.</p> <p>Factorising is writing an expression as a product of terms by 'taking out' a common factor.</p>	$6x - 15 = 3(2x - 5)$, where 3 is the common factor.

MathsWatch References and Worksheet Links:

33 – Simplifying (Addition and Subtraction)

34 – Simplifying (Multiplication)

35 – Simplifying (Division)

52 – Perimeters

53 – Area of a Rectangle

54 – Area of a Triangle

55 – Area of a Parallelogram

56 – Area of a Trapezium


93 – Expanding Brackets

94 – Simple Factorisation

117 – Area of a Circle

118 – Circumference of a Circle

Litov's Mean Value Theorem

Topic/Skill	Definition/Tips	Example
1. Place Value	The value of where a digit is within a number.	In 726, the value of the 2 is 20, as it is in the 'tens' column.
2. Place Value Columns	<p>The names of the columns that determine the value of each digit.</p> <p>The 'ones' column is also known as the 'units' column.</p>	
3. Rounding	<p>To make a number simpler but keep its value close to what it was.</p> <p>If the digit to the right of the rounding digit is less than 5, round down.</p> <p>If the digit to the right of the rounding digit is 5 or more, round up.</p>	<p>74 rounded to the nearest ten is 70, because 74 is closer to 70 than 80.</p> <p>152,879 rounded to the nearest thousand is 153,000.</p>
4. Decimal Place	The position of a digit to the right of a decimal point .	<p>In the number 0.372, the 7 is in the second decimal place.</p> <p>0.372 rounded to two decimal places is 0.37, because the 2 tells us to round down.</p> <p>Careful with money - don't write £27.4, instead write £27.40</p>
5. Significant Figure	<p>The significant figures of a number are the digits which carry meaning (ie. are significant) to the size of the number.</p> <p>The first significant figure of a number cannot be zero.</p> <p>In a number with a decimal, trailing zeros are not significant.</p>	<p>In the number 0.00821, the first significant figure is the 8.</p> <p>In the number 2.740, the 0 is not a significant figure.</p> <p>0.00821 rounded to 2 significant figures is 0.0082.</p> <p>19357 rounded to 3 significant figures is 19400. We need to include the two zeros at the end to keep the digits in the same place value columns.</p>

6. Estimate	To find something close to the correct answer .	An estimate for the height of a man is 1.8 metres.
7. Approximation	When using approximations to estimate the solution to a calculation, round each number in the calculation to 1 significant figure . ≈ means 'approximately equal to'	$\frac{348 + 692}{0.526} \approx \frac{300 + 700}{0.5} = 2000$ 'Note that dividing by 0.5 is the same as multiplying by 2'
8. Mean	Add up the values and divide by how many values there are.	The mean of 3, 4, 7, 6, 0, 4, 6 is $\frac{3 + 4 + 7 + 6 + 0 + 4 + 6}{7} = 5$
9. Median Value	The middle value. Put the data in order and find the middle one. If there are two middle values , find the number half way between them by adding them together and dividing by 2 .	Find the median of: 4, 5, 2, 3, 6, 7, 6 Ordered: 2, 3, 4, 5 , 6, 6, 7 Median = 5
10. Mode /Modal Value	Most frequent/common. Can have more than one mode (called bi-modal or multi-modal) or no mode (if all values appear once)	Find the mode: 4, 5, 2, 3, 6, 4, 7, 8, 4 Mode = 4
11. Range	Highest value subtract the Smallest value Range is a 'measure of spread'. The smaller the range the more <u>consistent</u> the data.	Find the range: 3, 31, 26, 102, 37, 97. Range = 102-3 = 99

MathsWatch References and Worksheet Links:

1 – Place Value

17 – Adding Integers and Decimals

18 – Subtracting Integers and Decimals

31 – Rounding to the Nearest 10, 100, 1000

32 – Rounding to Decimal Places

62 – Averages and the Range

66 – Multiplying Decimals

67 – Dividing Decimals

81 – Squares, Cubes and Roots













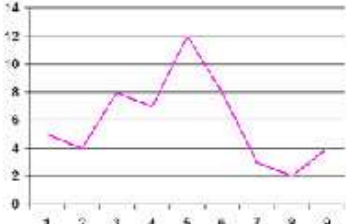
90 – Rounding to Significant Figures

91 – Estimating Answers

The Average Student

Topic/Skill	Definition/Tips	Example
1. Types of Data	<p>Qualitative Data – non-numerical data</p> <p>Quantitative Data – numerical data</p> <p>Continuous Data – data that can take any numerical value within a given range.</p> <p>Discrete Data – data that can take only specific values within a given range.</p>	<p>Qualitative Data – eye colour, gender etc.</p> <p>Continuous Data – weight, voltage etc.</p> <p>Discrete Data – number of children, shoe size etc.</p>
2. Mean	Add up the values and divide by how many values there are.	<p>The mean of 3, 4, 7, 6, 0, 4, 6 is</p> $\frac{3 + 4 + 7 + 6 + 0 + 4 + 6}{7} = 5$
3. Median Value	<p>The middle value.</p> <p>Put the data in order and find the middle one.</p> <p>If there are two middle values, find the number half way between them by adding them together and dividing by 2.</p>	<p>Find the median of: 4, 5, 2, 3, 6, 7, 6</p> <p>Ordered: 2, 3, 4, 5, 6, 6, 7</p> <p>Median = 5</p>
4. Mode /Modal Value	<p>Most frequent/common.</p> <p>Can have more than one mode (called bi-modal or multi-modal) or no mode (if all values appear once)</p>	<p>Find the mode: 4, 5, 2, 3, 6, 4, 7, 8, 4</p> <p>Mode = 4</p>
5. Range	<p>Highest value subtract the Smallest value</p> <p>Range is a 'measure of spread'. The smaller the range the more <u>consistent</u> the data.</p>	<p>Find the range: 3, 31, 26, 102, 37, 97.</p> <p>Range = 102-3 = 99</p>

6. Frequency Table	A record of how often each value in a set of data occurs .	<table><tr><th>Number of marks</th><th>Tally marks</th><th>Frequency</th></tr><tr><td>1</td><td> </td><td>7</td></tr><tr><td>2</td><td> </td><td>5</td></tr><tr><td>3</td><td> I</td><td>6</td></tr><tr><td>4</td><td> </td><td>5</td></tr><tr><td>5</td><td> </td><td>3</td></tr><tr><td>Total</td><td></td><td>26</td></tr></table>	Number of marks	Tally marks	Frequency	1		7	2		5	3	I	6	4		5	5		3	Total		26
Number of marks	Tally marks	Frequency																					
1		7																					
2		5																					
3	I	6																					
4		5																					
5		3																					
Total		26																					
7. Bar Chart	<p>Represents data as vertical blocks.</p> <p>x – axis shows the type of data</p> <p>y – axis shows the frequency for each type of data</p> <p>Each bar should be the same width</p> <p>There should be gaps between each bar</p> <p>Remember to label each axis.</p>	<table><caption>Data for Bar Chart</caption><thead><tr><th>Number of pets owned</th><th>Frequency</th></tr></thead><tbody><tr><td>0</td><td>3</td></tr><tr><td>1</td><td>8</td></tr><tr><td>2</td><td>12</td></tr><tr><td>3</td><td>1</td></tr><tr><td>4</td><td>2</td></tr></tbody></table>	Number of pets owned	Frequency	0	3	1	8	2	12	3	1	4	2									
Number of pets owned	Frequency																						
0	3																						
1	8																						
2	12																						
3	1																						
4	2																						
8. Pie Chart	<p>Used for showing how data breaks down into its constituent parts.</p> <p>When drawing a pie chart, divide 360° by the total frequency. This will tell you how many degrees to use for the frequency of each category.</p> <p>Remember to label the category that each sector in the pie chart represents.</p>	<table><caption>Data for Pie Chart</caption><thead><tr><th>Sport</th><th>Frequency</th><th>Angle (°)</th></tr></thead><tbody><tr><td>Football</td><td>16</td><td>144</td></tr><tr><td>Netball</td><td>9</td><td>80</td></tr><tr><td>Hockey</td><td>9</td><td>80</td></tr><tr><td>Tennis</td><td>4</td><td>40</td></tr><tr><td>Squash</td><td>4</td><td>36</td></tr></tbody></table> <p>If there are 40 people in a survey, then each person will be worth $360 \div 40 = 9^\circ$ of the pie chart.</p>	Sport	Frequency	Angle (°)	Football	16	144	Netball	9	80	Hockey	9	80	Tennis	4	40	Squash	4	36			
Sport	Frequency	Angle (°)																					
Football	16	144																					
Netball	9	80																					
Hockey	9	80																					
Tennis	4	40																					
Squash	4	36																					

9. Pictogram	<p>Uses pictures or symbols to show the value of the data.</p> <p>A pictogram must have a key.</p>	<p>Black   </p> <p>Red   </p> <p>Green </p> <p>Others    </p> <p> = 4 cars</p>
10. Line Graph	<p>A graph that uses points connected by straight lines to show how data changes in values.</p> <p>This can be used for time series data, which is a series of data points spaced over uniform time intervals in time order.</p>	

MathsWatch References and Worksheet Links:

15 – Tally Charts and Bar Charts

62 – Averages and the Range

63 – Data (Discrete and Continuous)

64 – Vertical Line Charts

127a – Venn Diagrams (Introduction)

128a – Pie Charts

128b – Stem and Leaf Diagrams

129 – Scatter Diagrams