


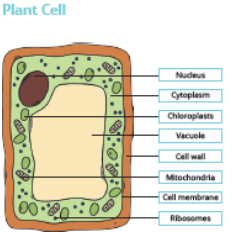
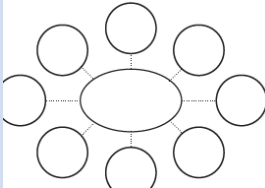


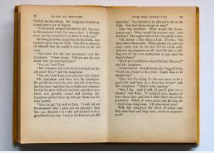

open  
academy

**Autumn 1 Knowledge Organiser - Year 7 Name:**

Just reading through your books or a knowledge organiser is not always an effective way to revise. Instead, you should do something with the information. Choose an example of the revision methods on the pages or see if you can come up with another method.

The knowledge is evolutionary not revolutionary. Approximately half the knowledge is new and half helps you revise. Many of the activities are changing. We hope you enjoy them.

Subject	Page Number	Subject	Page Number
Multidisciplinary Lessons	3	German	19
Art	11	History	22
DT	12	English	24
Food	13	Maths	27
PE	14	RS	32
Science	16	Music	34
Geography	17	Computer Science	37

Idea	Explanation
<p>Make some flash cards or PowerPoint slides. Make top trumps.</p> 	<p>Write down key words, quotation, questions or equations on one side of a card. On the other side, write the definition or answer. Use them to test yourself.</p>
<p>Make a poster.</p> 	<p>Turn your notes into posters with lots of colour and illustrations. Summarising the key information in a different way is an effective way of learning and your brain will remember the colours more easily. Do the title last!</p>
<p>Draw spider diagrams, or for the adventurous mind maps.</p> 	<p>Write the topic/keyword in the centre of your page. Add everything you know in subtopics. Then explore each subtopic in turn adding more ideas. Colour/pictures help you recall.</p>
<p>Write a song or a rap.</p> 	<p>Are there songs that stick your head. Change the lyrics to the information you want to learn. If you record and listen back it will be a more fun way of revising.</p>
<p>Plan a lesson</p> 	<p>If you teach something to someone else the chance of recalling it is really high. This has been found to be the most effective way of learning something for the long term.</p>
<p>Write a story or comic strip.</p> 	<p>Take the keywords or facts that you need to learn and turn them into a story or a cartoon. The sillier the story the more likely you are to remember it.</p>
<p>Write a quiz. Design a game.</p> 	<p>Playing is how we learn as young children and it is a very powerful way of learning throughout life. If we enjoy the game it helps us remember.</p>

# ZERO to HERO

ZERO to HERO: 'All of us, no matter who we are, or how insignificant we may think we are, has the potential to be a hero' It is sometimes hard to stand firm, be brave, show courage when everything around us causes us to be worried or scared.

Throughout the Bible though, we are told that God will be with us, always, and therefore, we should be able to conquer our fears. God commands us to have courage, having faith and confidence in Him.

*"No one has greater love than this, to lay down one's life for one's friends. You are my friends if you do what I command you. I do not call you servants any longer, because the servant does not know what the master is doing; but I have called you friends, because I have made known to you everything that I have heard from my Father. You did not choose me but I chose you. And I appointed you to go and bear fruit, fruit that will last, so that the Father will give you whatever you ask him in my name. I am giving you these commands so that you may love one another."*

Jesus speaking in John 15:13-17(NRSV)

**KEY QUOTE: 'Integrity is doing the right thing. Even when no one is watching' CS Lewis**

**LISTEN: "Give us your courage" - Tim Hughes**

[https://www.youtube.com/watch?v=nBE4v8IVlfs&disable\\_polymer=true](https://www.youtube.com/watch?v=nBE4v8IVlfs&disable_polymer=true)

This song is an encouragement to stand firm in the face of huge challenges –

*"For the truth of your Word we will stand. Give us your courage"*

**LISTEN: "Heroes" by David Bowie - sung by the Coach Choir**

[https://www.youtube.com/watch?v=DO0kAtg9dRw&disable\\_polymer=true](https://www.youtube.com/watch?v=DO0kAtg9dRw&disable_polymer=true)

Over 6000 strangers from 45 countries submitted a video in 3 days to sing 1 song. It's dedicated to all the frontline heroes who are keeping us safe in the midst of the Covid-19 global pandemic

- » Aspiration  
There are no barriers to your ambition
- » Leadership  
Live your own life
- » Teamwork  
Together we achieve more
- » Humility  
Put others first
- » Courage  
Handle your fear
- » Hard work  
We need to make the most of our talents
- » Respect  
Treat others as you would like to be treated yourself
- » Service  
It is better to give than to receive
- » Integrity  
Be true to yourself
- » Forgiveness  
Forgiveness is a friendship preserver
- » Thankfulness  
Appreciate others; appreciate what you have
- » Perseverance  
Never give up



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Never give up

## 'May your choices reflect your hopes not your fears' (Nelson Mandela)

Hope is fuel for our soul. Often in life, we find ourselves in need of hope, especially in difficult or worrying times. However, Jesus teaches that hope is an unbreakable spiritual lifeline; something that can grow through encouragement and faith and something that is to be shared with others (Hebrews 6:19-20).

### EVERYONE CAN BE A HOPE CARRIER

Hope is like a baton used in a relay race. It's supposed to be held tightly as you run with it. However, hope is also too precious to keep to ourselves – it's supposed to be passed onto someone else. When we receive hope, there's always a greater purpose than just us. Hope comes to us, in order to flow through us. Who is 'running' alongside you this week who you can pass the baton of hope to?

**BIBLE STORY:** The Road to Emmaus (Luke 24:13-35). When we feel we have lost hope, others can give it back to us. We, in turn, become carriers of that hope to others.

LISTEN: 'Cornerstone' song

<https://www.youtube.com/watch?v=izrk-erhDdk>

This song is an encouragement to hold on, regardless of our circumstances – even in 'every high and stormy gale', to hope. For Christians, this hope is placed in Jesus Christ, whom they call 'The Cornerstone'. A cornerstone was the foundation and key stone in buildings. It was always laid first and held the building up.

Wonderful World by Louis Armstrong:

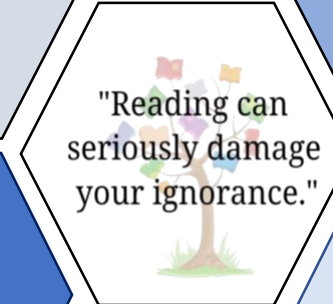
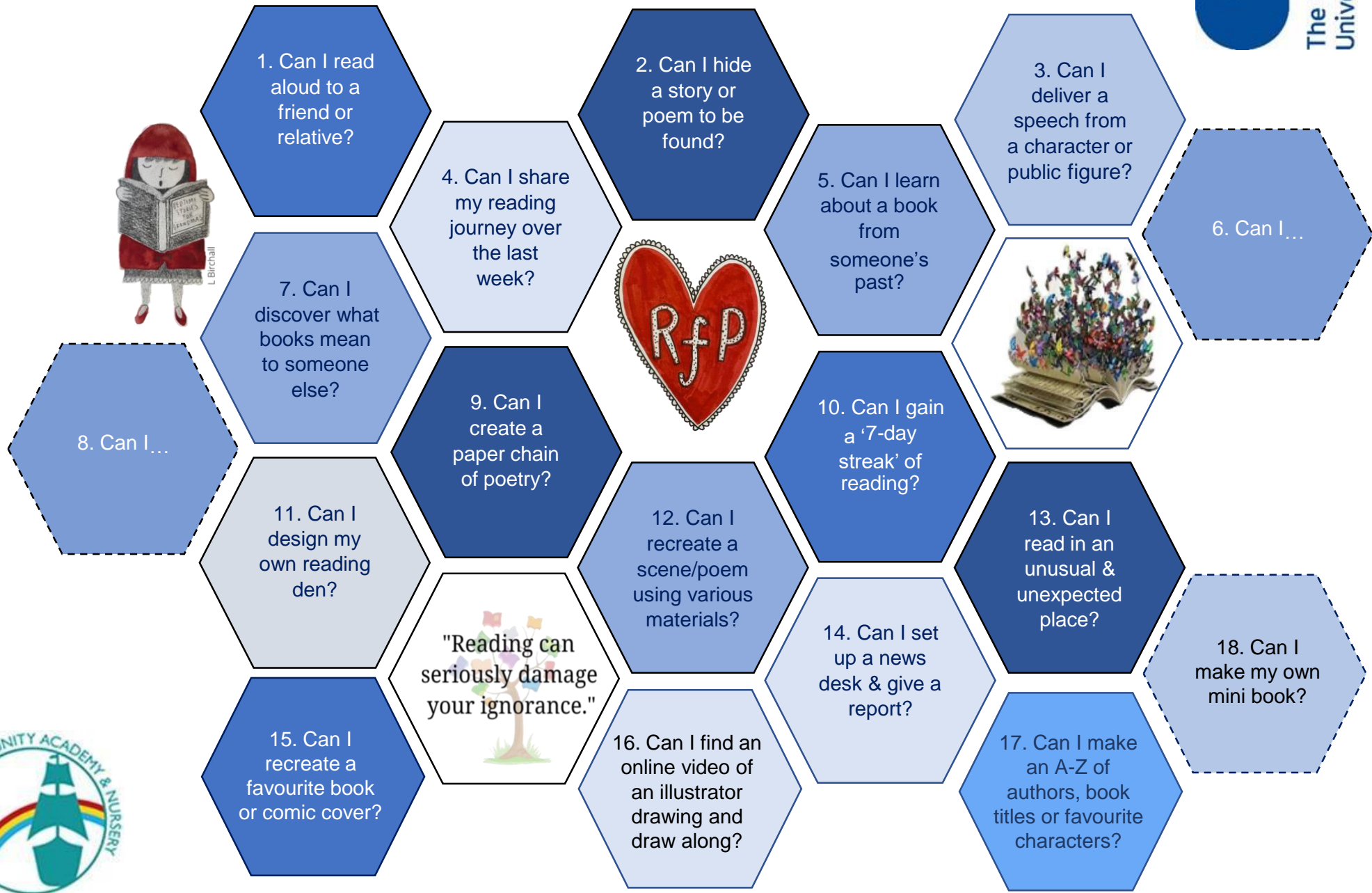
<https://www.youtube.com/watch?v=DRONFXoXsJ0>

For many people, looking at the wonder of nature can give them a new perspective and a renewed sense of hope. Where do you go to find a new hope?



**THINK:** Using these images, take a moment to think about the following: Where do you find your hope? What kind of hope do those around you need? What makes hope grow in what seem like barren and difficult circumstances?

# Sharing the Love of Reading: 11-16-year olds



## Questions, questions, questions...

Asking and answering questions (in our head and aloud) helps us to be better readers. We are constantly asking questions to encourage comprehension skills during reading and these can be broken into three clear sections; 'before', 'during' and 'after' reading.

Here are some examples you can try at home:

(You don't have to ask every question every time you read, try picking out 2-3 different questions each time you read.)

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### Before reading:

- Why did you select this book?
- What makes you think this book is going to be interesting?
- What do you think the book is going to be about (use the cover image, title and blurb for clues)?
- Does this book remind you of anything else you've already read or seen?

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### During reading:

- Who/What/Where/When/Why/How questions
- Will you catch me up on the story? What's happened so far?
- What do you think will happen next? Why do you think that?
- Why do you think the character did \_\_\_\_\_?
- If you were that character, what would you have done differently in that situation?
- How do you think the character is feeling right now?
- If the book was a TV show, which actors would you cast in it?
- Where is the book set?
- What does the place look like in your head as you read? Would you want to visit there?
- Did you learn any new words or facts so far?

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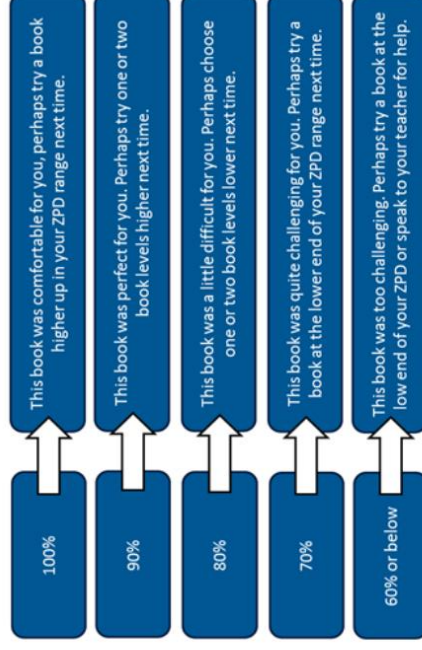
### After reading:

- What was your favourite part of the book? Why?
- Who was your favourite character? Why?
- What was the most interesting thing you learned from the book?
- Why do you think the author wrote this book?
- Would you have ended the book differently? Did it end the way you thought it would?
- If you could change one thing in the book, what would it be?
- Do you think the book had a good title? What different titles could it have had?
- Can you retell the story in your own words?
- Does this book remind you of anything else you have read? How so?



## To improve my Book Level:

- I will always quiz within my ZPD.
- According to my last quiz result, I should choose a book....



## To improve my Average Percent Correct:

I will use the 5 W's to review before I quiz

I will make notes when reading

I will take my time when quizzing

I will make sure my book within my ZPD range

I will quiz as soon as I finish my book

- 5 W's:
- What...
- Who...
- When...
- Where...
- Why....

## To meet my Points Target:

Aim for **100%** to earn all the points

I will stick with a book and finish it

I will fit in extra reading time:  
Before bed?  
On the bus?  
During lunch?



I will read fewer long books

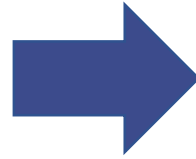
I will read several shorter books

If you are able to understand a book as you read, but struggle to remember events when you quiz, ask Miss Ling for a reading reminder sheet.



**Open University** research suggests there are three important ways to support readers and a love of reading.

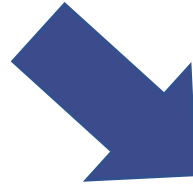
## Supporting Readers at Home



**Reading aloud** to your children shows them reading is a pleasure, not a chore. Older children can also read to younger ones.

\*Reading together doesn't have to be a story (recipes, news articles etc. all count too!)

\*If you are not confident in reading aloud, why not listen to an audiobook together.



**Children who read**, and are supported as readers, develop strong reading skills and do better at school. Research also shows that reading aids relaxation and has benefits for mental health.



**Making time to read** alongside one another helps develop children's reading stamina and interest, Let them chose what to read and relax together (you don't need to be reading the same thing.)

\* Where can you 'fit' reading in? It could be 10 minutes before tea, when they come home from school, waiting in the car, before bed etc. You may find it easier to set a regular time aside, or fit it in around your other commitments.



I wonder  
if...why...what...  
who...

**Book chats** encourage readers. Invite them to make connections and share their views. Join in with your views too! (Please see the next page for suggested questions you can ask about any book.)





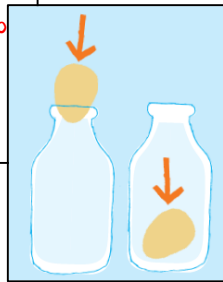
**CHANGES OF STATE**

The brief: Make an egg fit into a bottle without breaking it.

The method

1. Submerge the egg in a glass of vinegar for two days: the shell will become rubbery.
2. Heat the bottle in hot water – remember to use gloves or a tea towel when handling it.
3. Rest the egg on the neck of the bottle. 4. As the air inside the bottle cools down, it will contract and suck the egg down. Top tip: Try lubricating the egg with cooking oil or washing up liquid.

Now find out why this happens using your knowledge of solids, liquids and gases



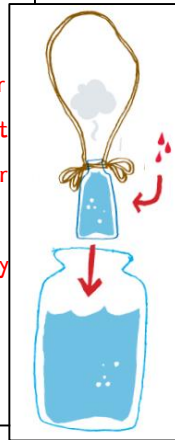
**HEAT TRANSFER**

The brief: Create a colourful underwater volcano.

The method

1. Cut a two foot length of string with a pair of scissors. Tie a knot around the neck of a salt shaker with one end of the string. Double-knot it to ensure the knot is secure. Repeat this process with the other end of the string, resulting in a handle to lower your shaker.
2. Empty and clean a large jar. Fill the clean jar about three quarters full with cold water.
3. Fill the salt shaker with hot water (with adult supervision) – as hot as you can get from your tap – to just below the neck. Add three to four drops of red food colouring.
4. Hold your salt shaker over the mouth of the jar by the string handle. Slowly lower the salt shaker into the jar until the shaker is completely submerged and resting upright on the bottom of the jar. Observe how the coloured water erupts from the shaker into the cold water.

Explain this using the idea of convection currents



**INVISIBLE INK**

The brief: Write your own secret message in an invisible ink solution.

The method

1. Squeeze lemon juice into the bowl and add a few drops of water. Stir with the spoon.
2. Dip the paint brush into the juice mixture and write a message on the paper.
3. Allow the paper to dry completely. Your message should become invisible.
4. Hold the paper very close to the light bulb to heat up the message area (adult supervision required). Watch your message appear.

Why does heat uncover the message? What is a reversible reaction?



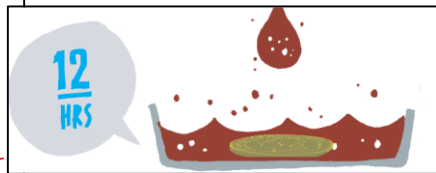
**ACIDS & ALKALIS**

The brief: Clean a penny using cola.

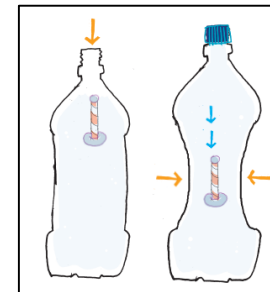
The method

1. Place the penny in the container.
2. Add enough cola so the penny is covered.
3. Leave overnight.
4. In the morning, you should find that your penny is clean.

What makes something acidic? What chemical reaction is happening to the penny?



**Practical Science at Home**



**THE DENSITY DIVER**

The brief: Build a Cartesian diver.

The method

1. Put a small ball of plasticine on the top of the straw to seal it.
2. Roll a sausage of plasticine and wrap it around the bottom of the straw, leaving the bottom open. This is your diver.
3. Now attempt to balance the diver so that it stays upright.
4. Place the diver vertically in the drinking glass. Add or remove weight from the base or top so that when you push it down, it just about bobs back up to the surface (and stays upright).
5. Once you are happy, place the completed diver in the two litre bottle filled to the top with water. Screw on the lid. Squeeze the bottle, and the diver will drop down to the bottom of the bottle. Release it and it floats back to the surface.

What is density? What makes something high or low density? Why might this be useful?

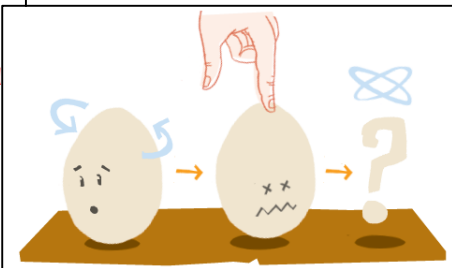
**MOMENTUM**

The brief: Use eggs to find out about momentum and changing direction.

The method

1. Spin each egg, one hard boiled and one fresh, on a table.
2. Leave it to spin for a few seconds then momentarily stop it by placing your finger on top.
3. Release the egg and observe what happens next.

What is happening to the inside of the egg? How do you calculate momentum?



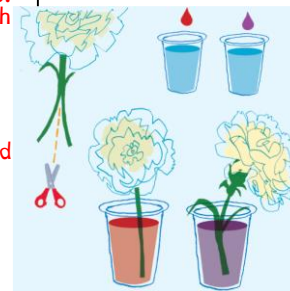
**COLOURED CARNATIONS**

The brief: Create multi-coloured flowers.

The method

1. Use the scissors to cut the stem of the carnation in half lengthways.
2. Take two cups and fill them with water. Add a different coloured food dye to each cup.
3. Put the split stems of the carnation into the cups and leave overnight.
4. The next morning you should find that your flower has changed colour.
5. What do you notice about the petals?

How does the food dye get to the petals? What is xylem and phloem?



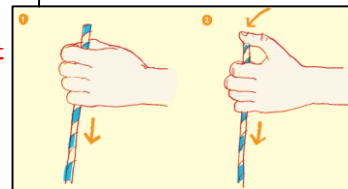
**STRONG AS A DRINKING STRAW**

The brief: Use a drinking straw to pierce through a raw potato.

The method

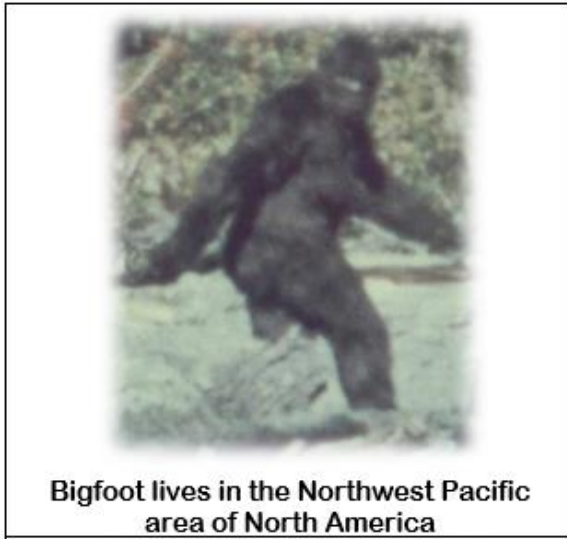
1. Hold the straw by its sides, without covering the hole at the top and try quickly stabbing the potato.
2. Repeat the experiment with a new straw but this time place your thumb over the top, covering the hole.

What forces are increasing or decreasing to allow this to happen?

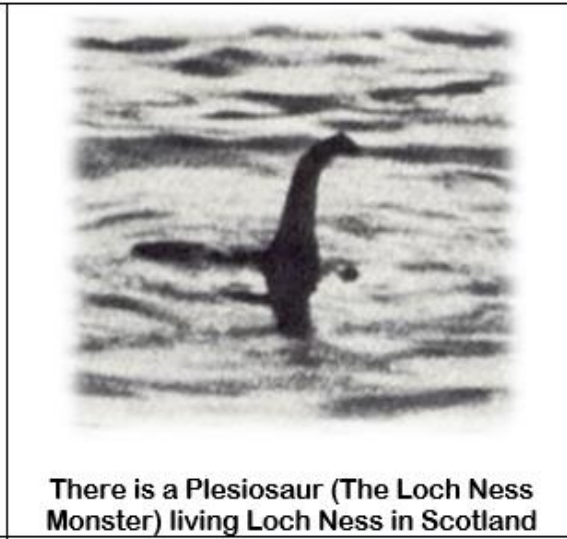


## What is a conspiracy theory?

Some people believe in things that other people do not. Here are a couple of examples for which there is little evidence.



Bigfoot lives in the Northwest Pacific area of North America



There is a Plesiosaur (The Loch Ness Monster) living Loch Ness in Scotland

However, some people then believe that other people are covering it all up. This can lead to some surprising places.

**Activity 1:** If there was Bigfoot or a Plesiosaur as shown above then how difficult would it be to keep it a secret? Look up how big Loch Ness is and how many people visit it every year.

**Activity 2:** Think about these questions / discuss them in a video chat with friends: What happens to you when you believe that the entire sections of society are keeping secrets? How could all scientists or the entire government keep a secret? How difficult would it be for 1000s of people to keep a secret? Why do film makers like conspiracy theories for their movies?

**Activity 3:** Listen to this radio programme. It is available on BBC Sounds. <https://www.bbc.co.uk/sounds/play/m000dfqn>

How many conspiracy theories are mentioned? Which ones have you heard about?

**Activity 4:** Mr Ford once, for a joke spread the rumour that the canteen at his college was serving Weetabix that were so cheap, the box they came in had more nutritional value as at least it contained roughage in the cardboard box. he got into a lot of trouble and had to write an apology to be displayed at the college canteen till. Write a letter for Mr Ford, to try to explain that he now understands how serious disinformation can be, highlighting what might have gone wrong.

**Activity 5:** Craft a conspiracy theory about Mr Ford. Email him with it. How would you get people to believe it? How far could you stretch it? How could you stop it once people started believing it – even if it was you who made it up?

For those of you with access to Disney watch Lion Guard “Beware of the Zimwi” episode. How can belief cause panic?

**Activity 6:** Find out how anti-vaccination conspiracy theory has killed people.

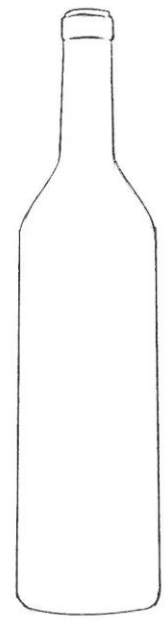
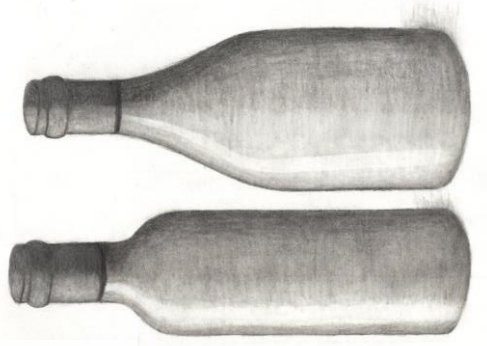
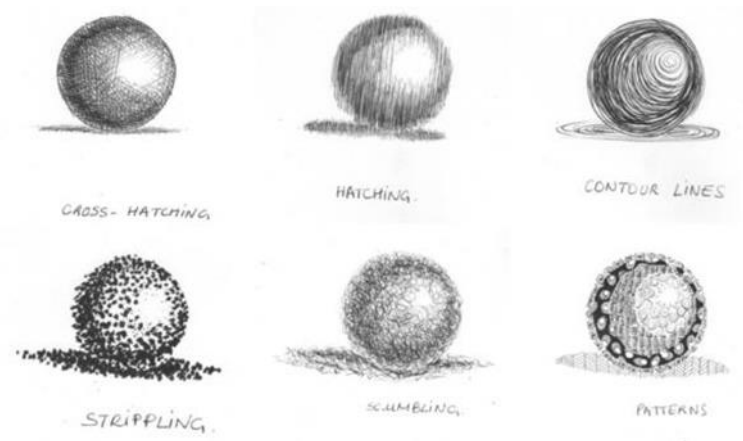
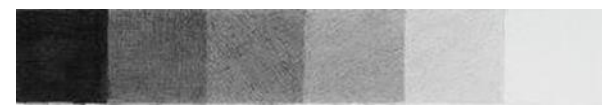
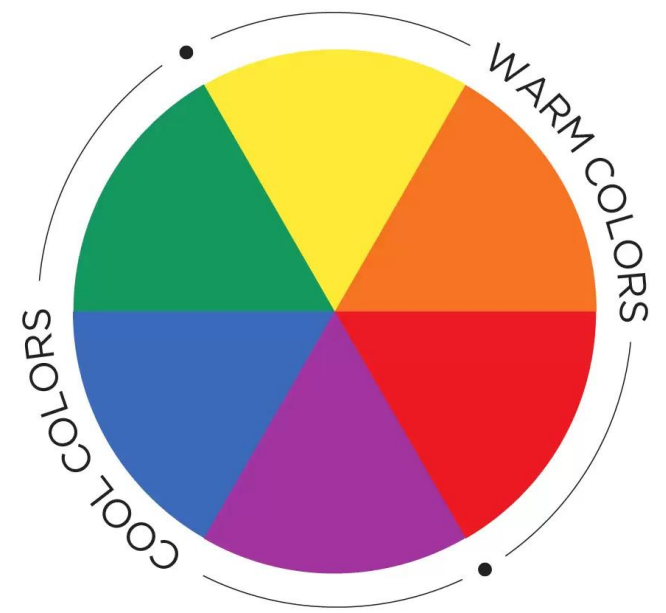
<https://www.iflscience.com/health-and-medicine/one-map-sums-damage-caused-anti-vaccination-movement/>

**Activity 7:** Challenge activity. Research one of the more popular myths and present a clear and referenced case to debunk it.

<https://www.osce.org/odihr/441101?download=true>

# Year 7 Art- Autumn Term

## Colour WHEEL



*INK shading* \*TECHNIQUES\*  
PRACTICE WORKSHEET

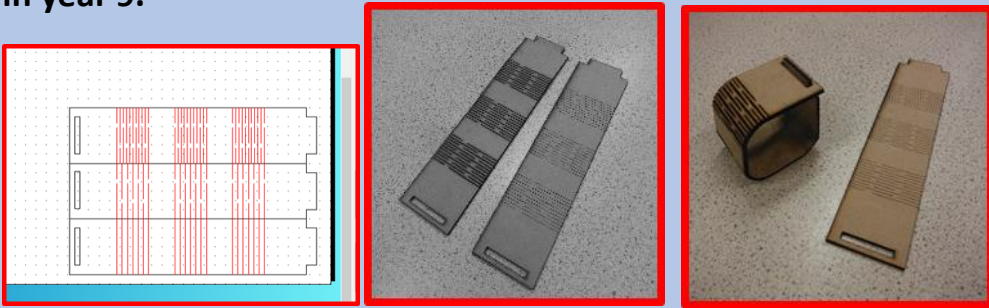
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<b>CROSS-HATCHING</b>	
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<b>STIPPLING</b>	
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## CAD Computer Aided Design



CAD is the use of computers to enable users to perform certain functions in the design process. At Open we use 2D Design and Siemens Solid Edge 3D CAD programmes. In year 7 you will be introduced to the basics of 2D design, progressing to 3D CAD in year 9.

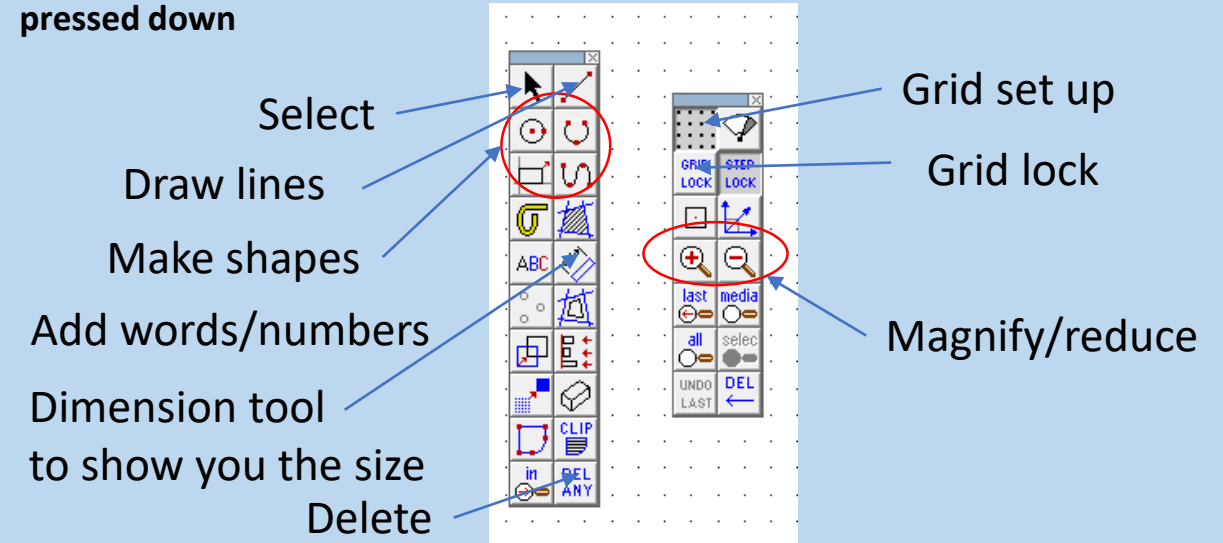


Above is an example of a 2D Design drawing, cut on our laser cutter (CAM) from MDF and assembled to make a scale model of furniture for a GCSE project last year.

Here is a mould drawn on 2D Design, cut on our laser cutter and poured with pewter to make a keyring.



These are 2 main menus used in 2D Design. You will be learning how to make shapes, colour in shapes and fonts, resize, modify, copy and paste. Many of the commands on the left hand menu can be expanded when the mouse is kept pressed down



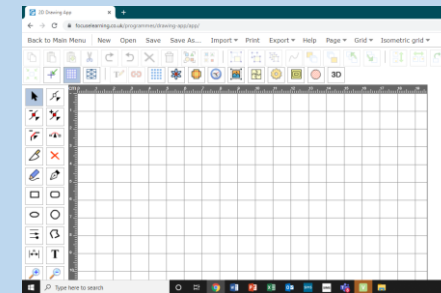
2D Design is on the main desktop computers in the computer rooms. If you want to practice 2D CAD at home you can go to our Academy D&T learning resource which can be found here:

<https://www.focuselearning.co.uk/u/36704/DDvsweeEdrxpvnkotbBFgcBvEycjwpio>

Some of the commands are the same, have a go. Practice makes perfect.

CAM equipment we have is a 3D printer, laser cutter and Stikka machine.

**Career paths** for those interested in CAD/CAM:  
Architect, Graphic designer, illustrator, textile designer, fashion designer, engineer.



## Micro-organisms

Micro-organisms are tiny forms of life. They can only be seen under a microscope and are sometimes called microbes.

They spoil food and make it unsafe to eat because they contaminate it with their waste products, their physical presence and the toxins they produce.

### What micro-organisms can spoil food and make it unsafe to eat?

There are three groups of micro-organisms that you need to know about that spoil food and cause food poisoning. These are..

- Bacteria
- Moulds
- Yeasts

### Micro organisms need 5 conditions to grow and multiply:

1. A warm temperature
2. Plenty of moisture (water)
3. Plenty of food
4. The right PH level (not too acidic or alkaline)
5. Enough time (bacteria split every 10-20 minutes)

## High risk foods

- High risk food have ideal conditions for bacteria
- High risk foods are ready to eat foods that could grow harmful bacteria
- They are moist and high in protein which is food for bacteria.
- High risk foods have a short shelf life - you can't keep them for long or the bacteria might multiply to dangerous levels.

### Examples of high risk foods:

Cooked meat, fish and poultry, dairy products (eggs, cheese etc.), gravies, stocks and sauces, shellfish, cooked rice.

### Example exam questions:

What five conditions to bacteria need to grow and multiply? (5 marks)

What is a high risk food? (5 marks)

## Storing food safely

Cooking (75°C)	The danger zone (5°C-63°C)
<ul style="list-style-type: none"> <li>• Cooking food above 75°C kills bacteria</li> <li>• Re-heat food properly, only once. Reheat food so 75°C for at least 3 minutes</li> <li>• Check the food is 75°C with a temperature probe</li> </ul>	<ul style="list-style-type: none"> <li>• Bacteria can grow and multiply quickly between 5°C to 63°C.</li> <li>• This is called the danger zone</li> <li>• The optimum temperature for bacterial growth is 37°C</li> </ul>
Chilling (0°C - 5°C)	Freezing (-18°C)
<ul style="list-style-type: none"> <li>• Keeping food between 0°C and 5°C slows down the growth of bacteria</li> <li>• This extends the shelf life of food</li> <li>• Chilling food doesn't change the properties much - food looks and tastes the same</li> </ul>	<ul style="list-style-type: none"> <li>• Freezing food below -18°C stops bacteria growing - they become dormant</li> <li>• Freezing generally extends shelf life and the nutrients aren't lost</li> <li>• It doesn't kill the bacteria though. They become active again once the food defrosts.</li> </ul>

### Preparing self for cooking

- Tie hair back to prevent hair and dandruff falling in food
- Take off coats and blazers
- Wear an apron to prevent bacteria transferring from our clothes to our food
- Wash hands with hot soapy water to kill bacteria

### Preparing the room for cooking

- Sanitise all work surfaces
- Check equipment is clean and dry
- Tuck all stools in as they can be a trip hazard
- Put all high risk foods in the fridge to slow bacteria growth

### Wash your hands after:

- Coughing
- Sneezing
- Blowing your nose
- Tying shoe laces
- Going to the toilet
- Touching hair or face
- Touching raw meat
- Touching eggs

**Warming up and cooling down**

**Components of a warm up:**

- Pulse raiser
- Stretches
- Skill related



**5 reasons why we must warm-up**

- 1.) Increases the temperature of the muscles, tendons and ligaments, which reduces the chances of injury.
- 2.) Increases heart rate and body temperature safely, which reduces chances of injury.
- 3.) Increases flexibility, which aids flexibility.
- 4.) Mentally prepares you for exercise, which can help improve performance.
- 5.) Increases oxygen delivery to the working muscles, which supports performance

**6 reasons why we must cool down**

- 1.) Gradually returns body temperature, breathing and heart back to their resting rate.
- 2.) To mentally unwind.
- 3.) To remove lactic acid, helping to prevent DOMS (Delayed Onset Muscle Soreness)
- 4.) To remove carbon dioxide and waste products.
- 5.) Improves flexibility
- 6.) Avoids blood from gathering in muscles (pooling), which can cause dizziness

**Why should we exercise?**



Sport England posted an infographic on Twitter to give reasons why walking for 30 minutes each day was important. Scan this QR code to see the benefits.



When warming up and cooling down it's a good idea to have a routine so that you don't miss out on any important muscle groups.

**Extension Task**

- Can you identify any of the main muscle groups in your body and tell your PE teacher in your next PE lesson?
- Research a stretch for each of the muscle groups you know?

How do I warm up and cool down?

Warming up (scan the QR code for a good stretching routine)  
5-10 minute jog at a slow pace with dynamic (moving) stretches such as lunges or high knees for example.

Cooling down  
5 minute slow jog with a 1 minute walk to reduce heart rate. Static (holding in one place) stretch for 15 seconds.



Scan the QR below and watch the video from the British Heart Foundation (BHF). Here they talk about what happens to our body after exercise.

Using this website, read the inspiring stories or useful information regarding how to keep your heart healthy.

Remember that attending extra-curricular clubs will not only help improve your understanding in that sport but it will also help improve your fitness levels, communication, teamwork, leadership and many other key values found in sport. We encourage you to attend at least one extra-curricular session.



## Career Link



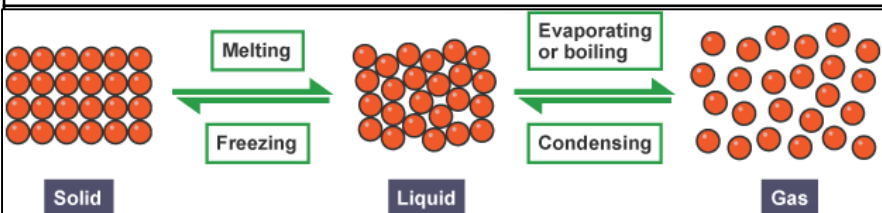
**Sports coaches** will need to have a good knowledge on what needs to be included in a warm up and cool down. They have the responsibility of making sure all the players/individuals are appropriately warmed up to prevent them getting injured and to help them perform at their best.

# PARTICLES

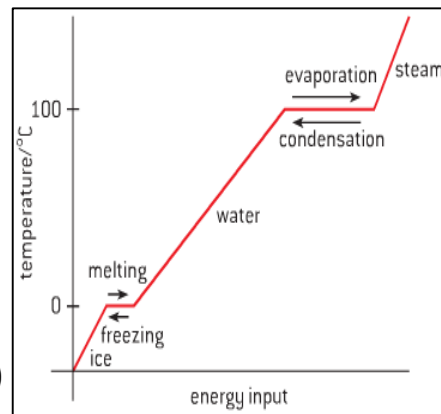
## Key knowledge – Particle theory, states of matter, changes of state, diffusion, density

State	Solid	Liquid	Gas
Diagram			
Arrangement of particles	Regular arrangement	Randomly arranged	Randomly arranged
Movement of particles	Vibrate about a fixed position	Move around each other	Move quickly in all directions
Closeness of particles	Very close	Close	Far apart

The particles should be the same in all 3 diagrams.



As a substance is heated it gains energy. When the particles gain enough energy they overcome the forces between them. Whilst a change of state is happening the temperature of the substance does not change. (flat line on graph)



### Density

1 kg of a gas has a larger volume than 1 kg of a solid. There is empty space between particles in a gas, but in a solid, they are tightly packed together.

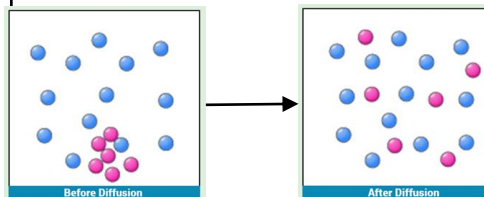
$$\text{Density} = \text{Mass} / \text{Volume}$$

... so the density of the gas is much smaller than the density of the solid.

### Diffusion

Particles in a liquid or a gas spread out from an area of high concentration to an area of low concentration until the concentrations are equal.

The higher the concentration gradient the faster the net diffusion. The higher the temperature the faster the net diffusion. If the particles that are spreading are water molecules we call this process osmosis.



### How Science works

#### Risk Assessment

Hazard	Risk	Level of risk	Control measure
What could cause harm? e.g. electricity	What harm could it cause? e.g. electrical shock, burns to the skin	How likely is it to happen and how bad would it be? Low, medium or high risk?	What safety precautions will be taken? e.g. wear safety goggles, ensure all wires and equipment is tested, fused, earthed and insulated. Do not use near water.

**The independent variable – The one factor that can be changed in an investigation**

**The dependent variable – The one thing that needs to be measured in an investigation**

**Control variable – all the factors that need to be kept the same to ensure the investigation is fair**





# Year 7 Knowledge Organiser: What is Geography?/Geographical Skills



## Topics covered

- ✓ Types of Geography
- ✓ Describing a Landscape
- ✓ My Local area
- ✓ Using an Atlas/maps
- ✓ Global places
- ✓ UK, Great Britain and England
- ✓ Using Digital maps (GIS)
- ✓ Distance and Scale
- ✓ Directions and navigation
- ✓ OS Map symbols
- ✓ Describing a journey
- ✓ Grid References
- ✓ Contours and height

## Key Ideas:

1. I can use geographical skills (topics on left) to help to understand my local surroundings.
2. I can recognise common 'geographical features' in un-familiar landscapes (places I have not seen before).
3. I can locate places from a local to a global scale using Atlas or Digital Mapping (GIS).

## Skills

- ❑ Describing geographical features from images
- ❑ Navigating my local area
- ❑ Locating places and features, changing scale in digital mapping
- ❑ Measuring a distance using a scale bar
- ❑ Navigation/directions using compass points
- ❑ Calculate a grid reference to find a location
- ❑ Describing the shape of a landscape

## Places and Environments

- ❖ Local area (where I live)
- ❖ Norwich
- ❖ England, Great Britain and UK
- ❖ 7 Continents and 6 Oceans

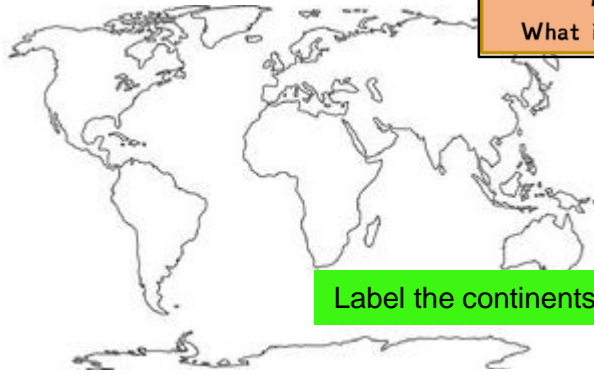
## Key Terms Used in this Unit

- ❑ Physical Geography
- ❑ Human Geography
- ❑ Environmental
- ❑ Geographical features
- ❑ Continents
- ❑ Equator
- ❑ Arctic circle
- ❑ Tropics
- ❑ Longitude
- ❑ Latitude
- ❑ Landmarks
- ❑ Land Use
- ❑ 4 figure Grid Reference
- ❑ 6 figure Grid Reference
- ❑ Scale
- ❑ Relief
- ❑ Plateau
- ❑ Valley

Label the countries shown



Year 7 Knowledge Organiser: What is Geography?/Geographical Skills



Label the continents and oceans

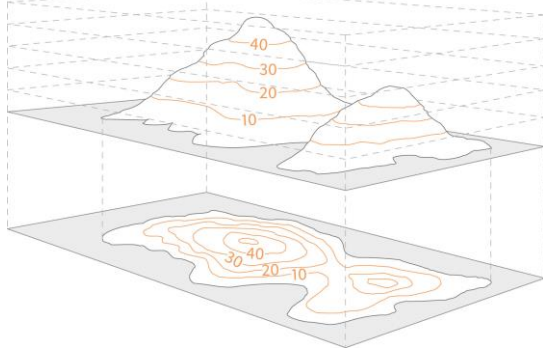


Career links: Town planner, GIS modeller, Road engineers, Geography teacher

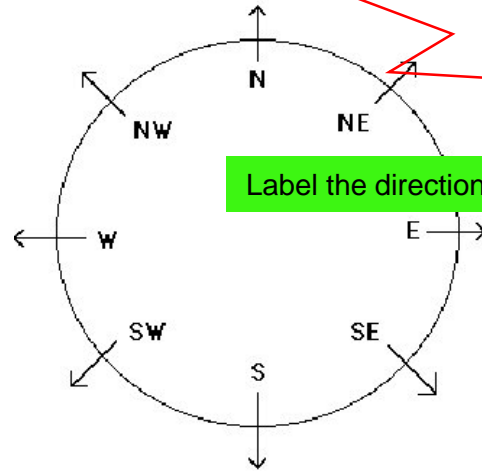
Label human and physical features

Physical features like seas, mountains and rivers are natural. They would be here even if there were no people around. Human features like houses, roads and bridges are things that have been built by people.

Use a 1/2 potato for drawing contours



Contour lines are added to a map to show height and gradient. On OS maps they are shown as thin orange or brown lines, some of which have the land height written on them. The lines join areas of equal height



Label the directions and the bearings

Try to remember the main compass points by using a mnemonic, e.g. Naughty Elephants Squirt Water - North East South West

Can you describe features shown on an OS map?

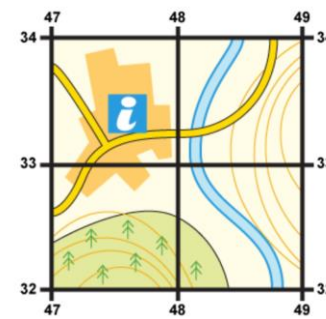


Describe how you can use scale on maps

Maps show objects as being much smaller than they are in real life. The relationship between the features on the map to the real size on the ground is called the scale. Scale is shown as a ratio, eg 1:25,000 means that 1 cm on a map represents 25,000 cm or 250 m in real life.

What do the map symbols show?

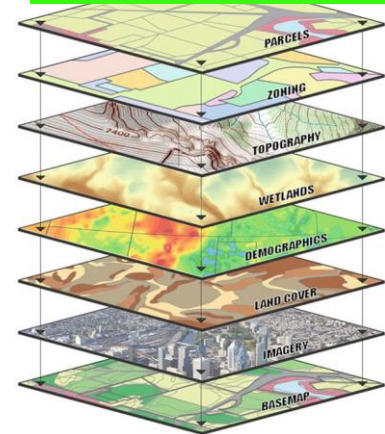
Four-figure grid references locate a place or object within a grid square. Four-figure grid references are found as follows: First, write the eastings number of the bottom left corner of the square (eastings are found along the bottom of the map). The number will have two digits eg 13. Then, write the northings number of the bottom left corner of the square (northings are found along the side of the map)




Can you work out a 4 figure and 6 figure grid reference?

GIS or digital mapping – What might the layers show?

Geographical Information Systems (GIS) maps are digital maps that have layers of data added to them. GIS maps can be changed to show specific information about a place



## Module 1: Meine Welt und ich (Me and My World)

Here is the vocabulary you will need for Module 1. Click on the hyperlinks near the speakers  to hear the German pronunciation. You will need to copy & paste the code first.

The full address is: <https://www.activeteachonline.com/view>

In this Module you will learn how to:

- introduce yourself in German
- pronounce German words
- count to 19
- say where you live
- describe your character
- ask & answer questions about your belongings.

### Die Zahlen 1-19 • Numbers 1-19

eins	1
zwei	2
drei	3
vier	4
fünf	5
sechs	6
sieben	7
acht	8
neun	9
zehn	10
elf	11
zwölf	12
dreizehn	13
vierzehn	14
fünfzehn	15
sechzehn	16
siebzehn	17
achtzehn	18
neunzehn	19

[cjj1TQJ7](#)



### Hallo! • Meeting and greeting

Wie heißt du?	What's your name?
Ich heiße ...	My name is ...
Hallo!	Hello! / Hi!
Guten Tag!	Hello!
Wie geht's?	How are you?
Gut, danke. Und dir?	Fine, thanks. And you?
Nicht schlecht.	Not bad.
Tschüs!	Bye!
Auf Wiedersehen!	Goodbye!



[rLDHjNSS](#)

Wie alt bist du?	How old are you?
Ich bin ... Jahre alt.	I am ... years old.
Wie alt ist (Julia)?	How old is (Julia)?
(Julia) ist ... Jahre alt.	(Julia) is ... years old.

**Wo wohnst du? • Where do you live?**

Ich wohne in ...	I live in ...
Er/Sie/Es wohnt in ...	He/She/It lives in ...
... England	England
... Irland	Ireland
... Nordirland	Northern Ireland
... Schottland	Scotland
... Wales	Wales
... Deutschland	Germany
... Österreich	Austria
... der Schweiz	Switzerland



[2nIPMbuu](#)

**Wie bist du? • What are you like?**

Ich bin ...	I am ...
Er/Sie ist ...	He/She is ...
faul	lazy
freundlich	friendly
intelligent	intelligent
kreativ	creative
launisch	moody
laut	loud
lustig	funny
musikalisch	musical
sportlich	sporty



[PYX0ie7M](#)

**Lieblingssachen • Favourite things**

Mein Lieblingssport ist ...	My favourite sport is ...
Mein Lieblingsmonat ist ...	My favourite month is ...
Meine Lieblingsmusik ist ...	My favourite music is ...
Meine Lieblingszahl ist ...	My favourite number is ...
Meine Lieblingssendung ist ...	My favourite programme is ...
Meine Lieblingsfußballmannschaft ist ...	My favourite football team is ...
Mein Lieblingsspiel ist ...	My favourite game is ...
Mein Lieblingsland ist ...	My favourite country is ...
Mein Lieblingsauto ist ...	My favourite car is ...
Was ist dein Lieblingssport?	What's your favourite sport?
Was ist deine Lieblingszahl?	What's your favourite number?
Was ist dein Lieblingsland?	What's your favourite country?



[SBwhhtvv](#)

**Hast du einen Computer?  
• Have you got a computer?**

Ich habe ...	I have ...
einen Computer	a computer
einen iPod	an iPod
einen Fußball	a football
eine Gitarre	a guitar
eine Wii	a Wii
eine Schlange	a snake
ein Handy	a mobile phone
ein Keyboard	a keyboard
ein Skateboard	a skateboard



[IMi7VI85](#)

**Oft benutzte Wörter**  
• High-frequency words

und	and
(und) auch	(and) also
aber	but
sehr	very
ziemlich	quite
nicht	not
Was denkst du?	What do you think?
Ich denke, ...	I think ...
Ich auch!	Me too!
Ich nicht!	Not me!/That's not what I think!
Was? Du spinnst!	What? You're joking!



[8U2E2wCX](#)

Read the Strategy Box for ideas on learning new vocabulary.

**Strategie 1**  
How do you know if you really know a word? Ask yourself:

- 1 Do I know what it means when I see it?
- 2 Can I pronounce it?
- 3 Can I spell it correctly?
- 4 Can I use it in a sentence?

**Look, Say, Cover, Write, Check**  
Use these five steps to learn the meaning, pronunciation and spelling of new words.

- 1 **Look** carefully at the word. Close your eyes and try to picture the word in your mind. This uses your visual memory.
- 2 **Say** the word out loud to yourself. This uses your auditory memory.
- 3 **Cover** the word – say it and ‘see’ the word in your mind.
- 4 **Write** the word out from memory.
- 5 **Check** your word against the original. Did you get it right? Combining seeing, listening and doing strategies makes memorising more effective.

Extra: If you find these steps easy, try to create sentences with the new words you learn.

**Fragewörter • Question words**

Wie?	How?
Was?	What?
Wo?	Where?
Woher?	Where... from?
Wer?	Who?



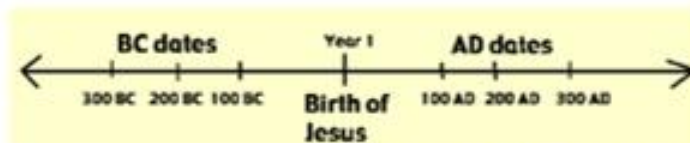
Practise your German vocabulary on [www.quizlet.com](http://www.quizlet.com)  
Click on your class name below to go directly to your Quizlet class.  
[7H 7O 7P 7E](#)

[bl2BXgGu](#)

[www.textivate.com](http://www.textivate.com)  
Username: openacademy  
Password: firstsecond123  
Go to 'myresources' to find your work.

# Year 7 History: Medieval life, kings and castles

Key words	
<b>Chronology</b>	The order in which things happen. The earliest event comes first.
<b>BC</b>	'Before Christ' – the number of years before the birth of Jesus Christ
<b>AD</b>	'Anno Domini' – the number of years after the birth of Jesus Christ
<b>Decade</b>	10 years
<b>Century</b>	100 years
<b>Millennium</b>	1000 years
<b>Primary source</b>	A source created in the time being studied
<b>Secondary source</b>	A source created after the time being studied
<b>Evidence</b>	Facts, statistics, or knowledge used to prove a particular point



100 - 199 2nd century  
 200 - 299 3rd century  
 300 - 399 4th century

Have you spotted the pattern yet? Have a close look at the numbers that are underlined - what do you notice?

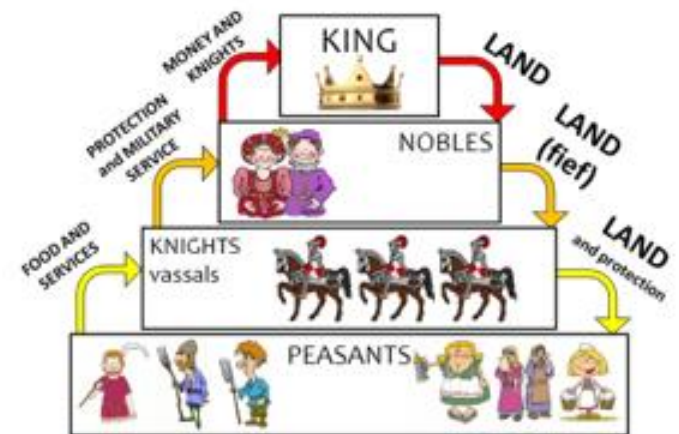
**REMEMBER!** Look at the first number(s) of the year and **ADD ONE** to get the century (c) e.g.  
 2018 = 21<sup>st</sup> c   268 = 3<sup>rd</sup> c   1815 = 19<sup>th</sup> c   1205 = 13<sup>th</sup> c   56 = 1<sup>st</sup> c



English, with experience of ruling Wessex  
 Betrayed the old King and tried to overthrow him

Protected the old King against Harold Godwinson  
 Already the ruler of a foreign land!

Has experience of being a King  
 A foreigner who uses force to get what he wants

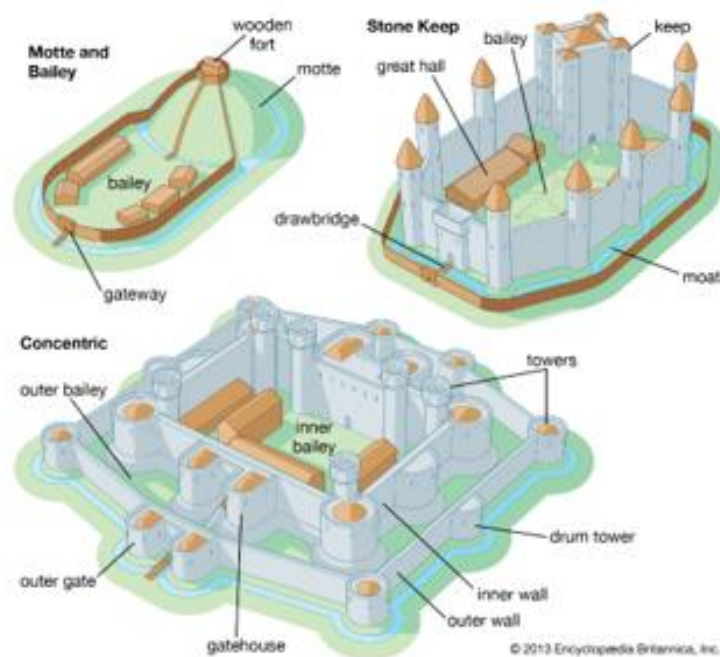


**The Feudal system**, introduced by William the Conqueror to keep order in medieval society. Each layer receives something from those above them, and gives something in return.



### The Battle of Hastings, 14<sup>th</sup> October 1066

- Harold's Saxon forces assembled at the top of Senlac Hill
- William's archers fire but the Saxon shield wall holds
- William's footmen charge but the shield wall still holds
- William's cavalry charge and even they can't break the shield wall
- The Normans believe William is dead – they retreat and some Saxons follow. Once William declared that he was still alive, his men turned and killed the pursuing Saxons
- The Normans carried out another false retreat and killed more gullible Saxons
- The shield wall now weakened, William's archers fired again and killed Harold Godwinson. The Saxons surrendered.



### Castles

In order to protect himself and his barons from Saxon attacks William also built castles around the country. These became more advanced over time. As well as being defensive structures they were also places for lords, barons and nobles to live.



### The Domesday Book

William wanted to know who owned what so he could tax them efficiently, so he sent inspectors around the country and they compiled their findings in the Domesday Book.

Find where you live on the Domesday Book! Search at <https://opendomesday.org/>

## Hikey Sprites Y6—Y7 Knowledge Organiser

### Sprites/Spirits/Fairies

In Tudor and Elizabethan times fairies and/or sprites were thought of as bad spirits who played tricks on people. Fairies were also thought to bring illness, misfortune and disease

In the 16th Century people did not know much about the world around them, so sprites and spirits were easy to blame for problems.

Travellers worried that sprites would lead them into the woods, and they would never be seen again...

Books and plays, such as the Faerie Queene, and A Midsummer's Night Dream were written about fairies, sprites and spirits- Elizabeth 1 was even known as "The Fairy Queen".



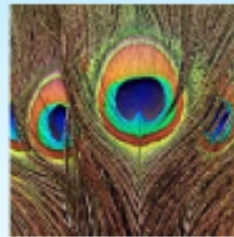
### Literary devices

- **Sensory language:** Language that connects to the five senses (sight, sound, smell, taste, touch) to create an image or description. Tom felt cold, and goose bumps rippled across his arms.
- **Foreshadowing:** A warning or indication of something that might happen later in the story. Gran had only one rule. Be home before dark.
- **Simile:** Used to compare one thing to another by using like or as. Tom stumbled on, and burst onto the road like a rocket.
- **Metaphor:** Used to compare one thing to another by saying it is that thing. The blanket of darkness became thicker.
- **Personification:** Giving human characteristics to something non-human. Deep shadows held a grip on the path.
- **Pathetic Fallacy:** a kind of personification that gives human emotions to nature; for example, referring to weather features reflecting a mood. Night was creeping in all around him, and the breeze made the limbs of trees clash together.
- **Bookending:** Linking the opening to the ending using a similar phrase or description. Gran replied, "I told you to be home before dark".

### Tudor/Elizabethan beliefs about magic

**Witches:** In Shakespeare's time people believed that witches were people who had made a pact with the Devil in exchange of supernatural powers. They blamed witchcraft for many things, such as a plague in your village, or animals getting ill.

**Superstitions:** Tudors and Elizabethans were very superstitious.



Some superstitions include: An eclipse was an omen of the devil; it was unlucky for a black cat to cross your path; the feathers on a peacock were seen as 'the evil eye'; you had to touch wood to avoid bad luck (this superstition dates back to the dark ages when trees were believed to have magical powers); and the seventh son of the seventh son was believed to possess supernatural powers

### Tudor/Elizabethan woodlands

In 1600 about a third of England was covered in forest.

The forest carried deeply symbolic meanings.

It was seen as a place of wildness and magic—the opposite of 'civilised' life.

Many of Shakespeare plays include scenes in woodlands, which are portrayed as offering temporary relief from a rigid order to which the characters must return.

Forest Law meant that the forest was a hunting ground for kings  
Travellers could walk for days and not see anyone else.





# Hikey Sprites Y6—Y7 Knowledge Organiser

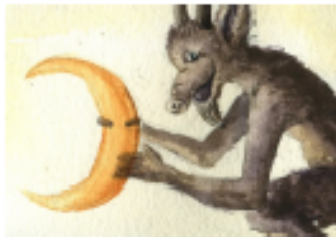
## Hikey Sprites

Hikey Sprites, also known simply as Hikeys, are a specific type of bogey from of Norfolk.

They are comparable to goblins or trolls, and have varying degrees of malice (evil intentions).

The Hikeys were known to have unpredictable personalities and thus could be playful and fun one moment only to turn vicious and cruel the next.

A common saying in some parts of Norfolk would be to warn children to return home at night with "come home quick or the Hikeys will get you!"



## KEY VOCABULARY 1

**Abandoned:** having been deserted or left

**Canopy:** made up of the overlapping branches and leaves of forest trees

**Glistening:** shining with a sparkling light

**Sinister:** giving the impression that something harmful or evil will happen

**Disfigured:** to spoil the appearance of

**Bewitched:** to cast a spell or enchantment over

**Eerie:** strange and frightening

**Mysterious:** difficult or impossible to understand, explain, or identify

**Decayed:** rotting

**Pungent:** having a sharply strong taste or smell

**Flora and Fauna:** Flora is plant life; fauna refers to animals.

**Overwhelmed:** buried or drowned, defeated

**Perish:** die

**Slaughter:** kill

**Acrid:** an unpleasantly bitter smell or taste

## KEY VOCABULARY 2

**Putrid:** decaying or rotting—smelling terrible

**Malice:** having evil intentions

**Fragrant:** a pleasant or sweet smell

**Superstitious:** any belief or practice based upon one's trust in luck or supernatural forces

**Unpredictable:** behaves in a way that cannot be predicted, can be changeable

**Contorted:** twisted or bent out of normal shape

**Enchanted:** placed under a spell

**Prophecy:** a prediction of what will happen in the future

**Rural:** relating to areas in the country rather than the town.

**Ominous:** giving the impression that something bad will happen.

**Traditional:** customs or ways of behaving that have continued for a long time without changing

**Sprite:** an elf/spirit or fairy

## Features of traditional/folk tales

- Rural/setting
- Warnings
- Naïve characters
- Magic/ magical creatures
- Happy ending?
- Moral/message
- Task or journey
- Hero/villain
- Good/evil

## The Brothers Grimm

These German brothers collected and published folklore during the 19th century. They were among the first and best-known collectors of German and European folk tales, and popularized traditional oral tale types such as Cinderella, The Frog Prince, Hansel and Gretel, Beauty and the Beast, Little Red Riding Hood, The Three Little Pigs, Sleeping Beauty and Snow White.

**Birch:** the symbol of new beginnings, regeneration, hope, new dawns and the promise of what is to come.

**Sycamore:** symbolizes strength, protection, eternity, and divinity.

**Beech:** believed to enhance creativity, and links to wisdom and writing.

**Oak:** symbol of strength, morale, resistance and knowledge.

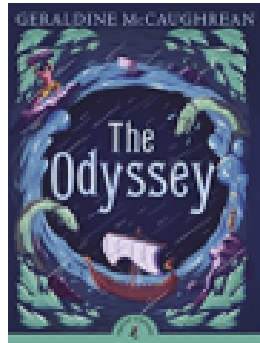
**Horse Chestnut:** symbolizes honesty, and justice. This tree produces conkers!

**Hazel:** Symbolizes wisdom and inspiration. This sacred tree is said to be cloaked in a powerful magic.



## Vocabulary to learn

Odyssey  
Penultimate  
Mythology  
Adjective  
Siren  
Mythical  
Narrative hook  
Hero  
Persuasive  
Journey



After 10 years of war, Odysseus turns his back on Troy and sets sail for home. But his voyage takes another 10 years and he must face many dangers.

## Structure analysis - methods:

- Zoom in/out
- Repetition of an image/idea
- Links and connections between paragraphs
- Shifts:
  - inside to outside (and vice versa)
  - focus
  - time
  - topic
  - setting/place
  - mood/atmosphere
  - description to dialogue (and vice versa)

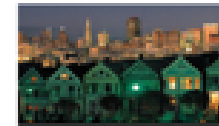
## Language analysis Checklist:

- Link to task
- Relevant quote
- Meaning of quote
- Method named
- Effects explained
- Word zoomed in on
- Meaning of word
- Implied meanings

## TIPTOP

PARAGRAPHS

Time - change in TIME



Place - change in PLACE

Topic - change in TOPIC



Person - change in SPEAKER



## Literary devices and word class

- Metaphor – a literal comparison – *she was a monster*
- Personification – human qualities – *the grass danced in the wind*
- Simile – as/like/as if – *he was like a man possessed*
- Onomatopoeia – the sound words – *bang, pop, sizzle*
- Alliteration – same starting sounds - *really rather raucous*
- Verbs – doing words
- Adjectives – describing words
- Nouns – objects or abstract things e.g. love
- Adverbs – describe doing words e.g. wrote neatly
- connotations of words – associations – night-time = mystery

Sentence Form	Definition	Example
Fragment sentence	An incomplete idea.	<i>Rolling thunder;</i>
Simple sentence	Contains one complete idea in an independent clause.	<i>The lightning flashed.</i>
Compound sentence	Contains two independent clauses, linked by a conjunction or a semi-colon.	<i>The lightning flashed <b>and</b> the rain fell. The lightning flashed; the rain fell.</i>
Complex sentence	Contains an independent clause and at least one dependent clause.	<i>Despite the thunder and lightning, there was no rain.</i>

# YEAR 7 — ALGEBRAIC THINKING... Sequences



## Keywords

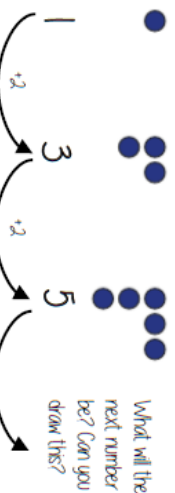
- Sequence: items or numbers put in a pre-decided order
- Term: a single number or variable
- Position: the place something is located
- Rule: instructions that relate two variables
- Linear: the difference between terms increases or decreases by the same value each time
- Non-linear: the difference between terms increases or decreases in different amounts
- Difference: the gap between two terms
- Arithmetic: a sequence where the difference between the terms is constant
- Geometric: a sequence where each term is found by multiplying the previous one by a fixed non zero number

## What do I need to be able to do?

- By the end of this unit you should be able to:
  - Describe and continue both linear and non-linear sequences
  - Explain term to term rules for linear sequence
  - Find missing terms in a linear sequence

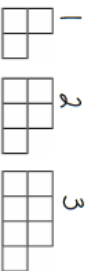
## Describe and continue a sequence diagrammatically

Count the number of circles or lines in each image



## Sequence in a table and graphically

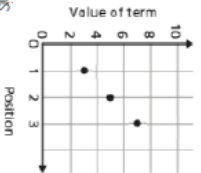
Position: the place in the sequence



Term: the number or variable (the number of squares in each image)

Position	1	2	3
Term	3	5	7

Because the terms increase by the same addition each time this is **linear** – as seen in the graph

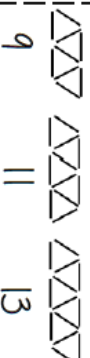


"The term in position 3 has 7 squares"

## Predict and check terms



CHECK – draw the next terms



**Predictions:**  
Look at your pattern and consider how it will increase  
e.g. How many lines in pattern 6? 7  
**Prediction - 13**  
if it is increasing by 2 each time - in 3 more patterns there will be 6 more lines

## Linear and Non Linear Sequences

- Linear Sequences** – increase by addition or subtraction and the same amount each time
- Non-linear Sequences** – do not increase by a constant amount – quadratic, geometric and Fibonacci:
  - Do not plot as straight lines when modelled graphically
  - The differences between terms can be found by addition, subtraction, multiplication or division

**Fibonacci Sequence** – look out for this type of sequence  
0 | 1 | 2 | 3 | 5 | 8 ...  
Each term is the sum of the previous two terms

## Continue Linear Sequences

7, 11, 15, 19...



- How do I know this is a linear sequence?  
It increases by adding 4 to each term
- How many terms do I need to make this conclusion?  
At least 4 terms – two terms only shows one difference not if this difference is constant (a common difference)
- How do I continue the sequence?  
You continue to repeat the same difference through the next positions in the sequence

## Explain term-to-term rule

How you get from term to term

- Try to explain this in full sentences not just with mathematical notation
- Use key maths language – adds, halves, multiply by two, add four to the previous term etc

To explain a whole sequence you need to include a term to begin at...

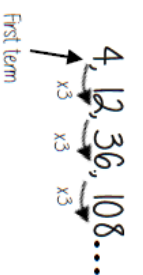
## Continue non-linear Sequences

1, 2, 4, 8, 16 ...



- How do I know this is a non-linear sequence?  
It increases by multiplying the previous term by 2 – this is a geometric sequence because the constant is multiply by 2
- How many terms do I need to make this conclusion?  
At least 4 terms – two terms only shows one difference not if this difference is constant (a common difference)
- How do I continue the sequence?  
You continue to repeat the same difference through the next positions in the sequence

The next term is found by tripling the previous term  
The sequence begins at 4



# YEAR 7 — ALGEBRAIC THINKING... Algebraic notation

@whisto\_maths

What do I need to be able to do?

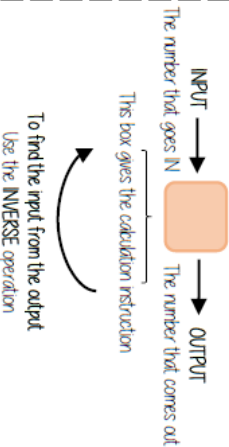
By the end of this unit you should be able to:

- Be able to use inverse operations and 'operation families'
- Be able to substitute into single and two step function machines
- Find functions from expressions
- Form sequences from expressions
- Represent functions graphically

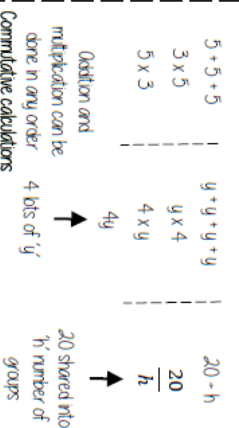
## Keywords

- Function:** a relationship that instructs how to get from an input to an output.  
**Input:** the number / symbol put into a function.  
**Output:** the number / expression that comes out of a function.  
**Operation:** a mathematical process.  
**Inverse:** the operation that undoes what was done by the previous operation (The opposite operation)  
**Commutative:** the order of the operations do not matter.  
**Substitute:** replace one variable with a number or new variable.  
**Expression:** a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)  
**Evaluate:** work out  
**Linear:** the difference between terms increases or decreases by the same value each time  
**Sequence:** terms or numbers put in a pre-decided order

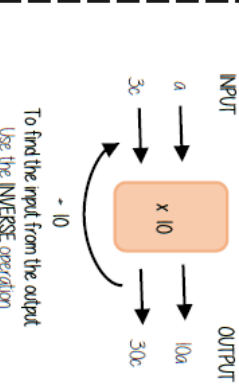
## Single function machines



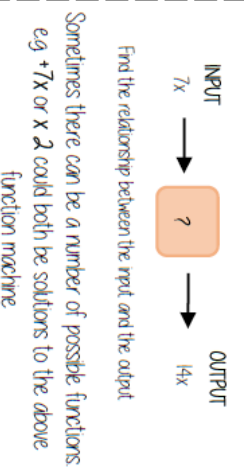
## Using letters to represent numbers



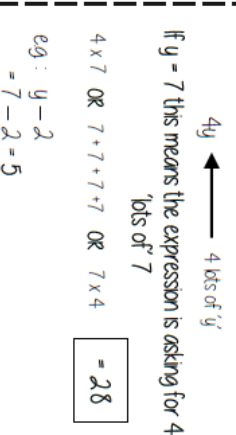
## Single function machines (algebra)



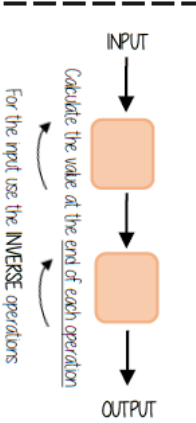
## Find functions from expressions



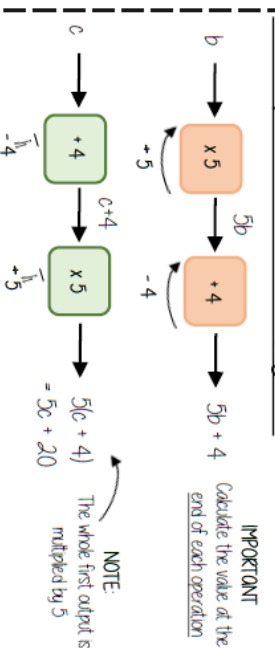
## Substitution into expressions



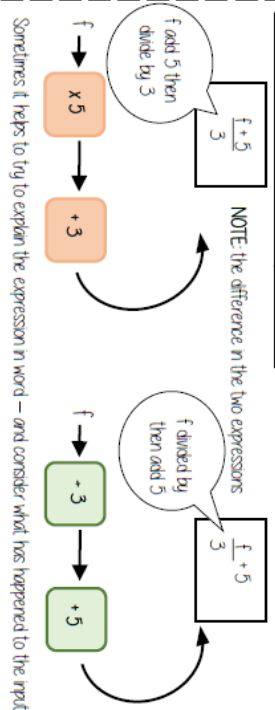
## Two step function machines



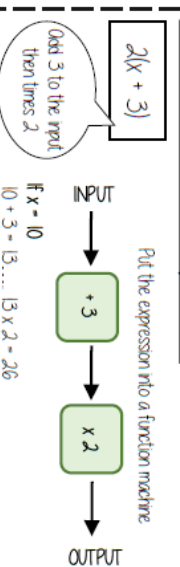
## Two step function machines (algebra)



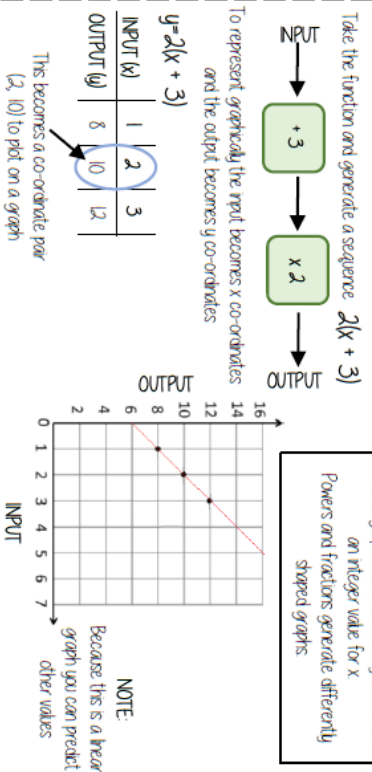
## Find functions from expressions



## Substitution into an expression



## Representing functions graphically



## Forming a sequence



# YEAR 7 — ALGEBRAIC THINKING

## Equality and Equivalence

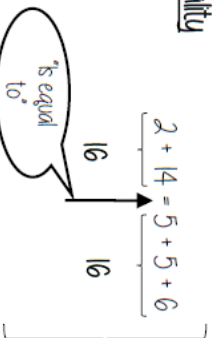
@whisto\_maths

What do I need to be able to do?

- By the end of this unit you should be able to:
  - Form and solve linear equations
  - Understand like and unlike terms
  - Simplify algebraic expressions

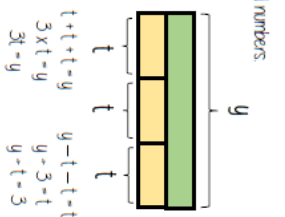
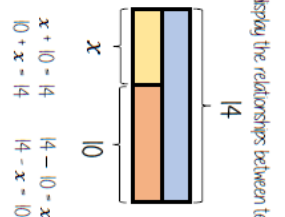
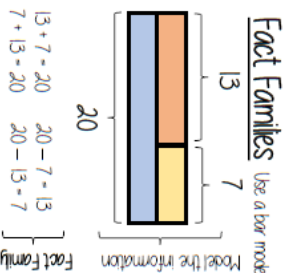
### Keywords

- Equality:** two expressions that have the same value
- Equation:** a mathematical statement that two things are equal
- Equals:** represented by '=' symbol — means the same
- Solution:** the set or value that satisfies the equation
- Solve:** to find the solution
- Inverse:** the operation that undoes what was done by the previous operation. (The opposite operation)
- Term:** a single number or variable
- Like:** variables that are the same are 'like'
- Coefficient:** a multiplicative factor in front of a variable eg  $5x$  (5 is the coefficient,  $x$  is the variable)
- Index:** the power
- Expression:** a maths sentence with a minimum of two numbers and at least one math operation (no equals sign)



Saying it out loud sometimes helps you to understand equality

The sum on the left has the same result as the sum on the right

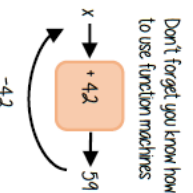
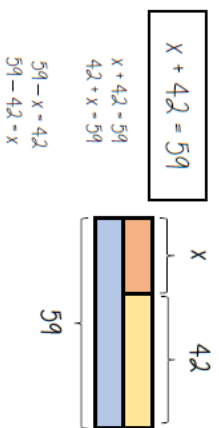


### Fact Families

Use a bar model to display the relationships between terms and numbers.

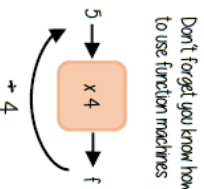
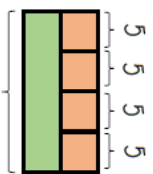
### Solve one step equations (+/-)

There is more to this than just spotting the answer



$$\frac{f}{4} = 5$$

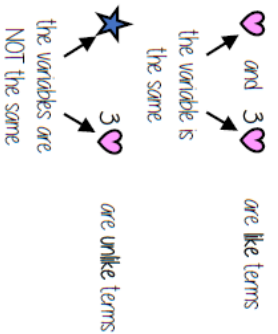
- $f - 4 = 5$
- $f - 5 = 4$
- $5 \times 4 = f$
- $4 \times 5 = f$



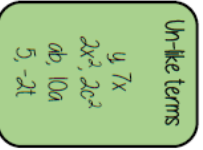
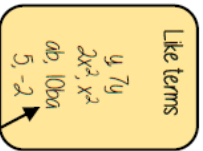
### Solve one step equations (x/+)

### Like and unlike terms

Like terms are those whose variables are the same



Examples and non-examples



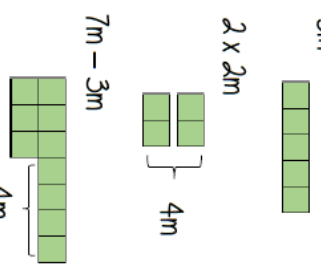
Note: here ab and ba are commutative operations, so are still like terms

### Equivalence

Check equivalence by substitution eg  $m = 10$

$$\begin{array}{l} 5m \\ 5 \times 10 \\ -2 \times 20 \\ -40 \end{array} \quad \begin{array}{l} 2 \times 2m \\ 2 \times (2 \times 10) \\ = 2 \times 20 \\ -40 \end{array} \quad \begin{array}{l} 7m - 3m \\ (7 \times 10) - (3 \times 10) \\ = 70 - 30 \\ -40 \end{array}$$

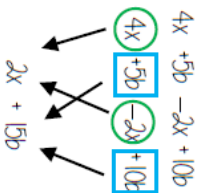
Equivalent expressions Repeat this with various values for m to check



### Collecting like terms ≡ symbol

The ≡ symbol means equivalent to It is used to identify equivalent expressions

Collecting like terms Only like terms can be combined



Common misconceptions

$$2x + 3x^2 + 4x \equiv 6x + 3x^2$$

Although they both have the x variable  $x^2$  and x terms are unlike terms so can not be collected

# YEAR 7 — DIRECTED NUMBER

## Operations with equations and directed numbers

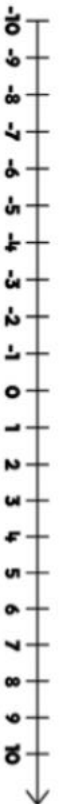
@whistio\_maths

What do I need to be able to do?

- By the end of this unit you should be able to:
  - Perform calculations that cross zero
  - Odd/ Subtract directed numbers
  - Multiply/ Divide directed numbers
  - Evaluate algebraic expressions
  - Solve two-step equations
  - Use order of operations with directed number

Keywords

- Subtract:** taking away one number from another.
- Negative:** a value less than zero
- Commutative:** changing the order of the operations does not change the result
- Product:** multiply terms
- Inverse:** the opposite function
- Square root:** a square root of a number is a number when multiplied by itself gives the value (symbol  $\sqrt{\quad}$ )
- Square:** a term multiplied by itself.
- Expression:** a math's sentence with a minimum of two numbers and at least one math operation (no equals sign)



### Perform calculations that cross zero

Number lines are useful to help you visualise the calculation crossing 0

$4 - 6 = -2$  → Use the number line to guide subtraction of 6

$-5 + 5 = 0$  → Rearrangements of the same equation

$5 - 5 = 0$  → Find the difference between 6 and -4. From 6 to 0, From 0 to -4, 10 beads between them.

### Odd directed numbers

$2 + -4 = -2$  → Representations: Two '+' '1' left, Zero pair (-1 + 1 = 0)

$8 + -3 = 5$  → Partitions: 8 + -3 = 5

$8 + -3 = 5$  → Partition the value to create a zero pair calculation:  $5 + 3 + -3 = 5$

### Subtract directed numbers

Representation for calculation:  $2 - 1 = 3$  (3 yellow beads)

Subtract - means take away or remove:  $2 - -1 = 3$  (3 yellow beads, 1 red bead crossed out)

Start with the representation of 2:  $2 - -3 = 5$  (5 yellow beads, 3 red beads crossed out)

### Multiply/ Divide directed numbers

Two representations of the same calculation:  $2 \times -3 = -6$  (2 groups of 3 red beads)

Negative Negative calculation:  $-2 \times -3$  (2 groups of 3 red beads, result is 6 yellow beads)

This is the negative of  $2 \times -3$

Divisors are the inverse operations

### Evaluate algebraic expressions

$a = 5$ ,  $b = -4$

$a^2 = 5^2$ ,  $b^2 = (-4)^2$

$a^2 = 25$ ,  $b^2 = 16$

With negative numbers the brackets are important so that it performs  $-4 \times -4$ .

Brackets around negative substitutions helps remove calculation errors

$2a - b = 2 \times 5 - (-4) = 10 + 4 = 14$

$3b - 2a = 3(-4) - 2(5) = -12 - 10 = -22$

### Two-step equations

Bar Model:  $4x + 2 = 10$

Function machine:  $10 - 4x = 2$

Function machine:  $x \rightarrow x4 \rightarrow +2 \rightarrow 10$

Inverse operations to find x:  $10 \rightarrow 2 \rightarrow x$

### Use order of operations

Order of operations:  $(\ )$ ,  $\sqrt{\quad}$ ,  $\times$  &  $\div$ ,  $+$  &  $-$

Brackets

Indices or roots

Multiplication or division

Addition or subtraction

Remember square roots have a positive and negative value

x	-5	-2	-1	0	1	2	3
-5	9	6	3	0	-3	-6	-9
-2	6	4	2	0	-2	-4	-6
-1	3	2	1	0	-1	-2	-3
0	0	0	0	0	0	0	0
1	-3	-2	-1	0	1	2	3
2	-6	-4	-2	0	2	4	6
3	-9	-6	-3	0	3	6	9

Brackets around negative substitutions helps remove calculation errors

# YEAR 7 — FRACTIONAL THINKING

## Addition and subtraction of fractions

@whisto\_maths

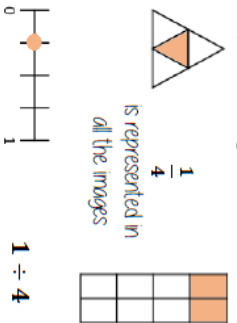
What do I need to be able to do?

- By the end of this unit you should be able to:
- Add/Subtract mixed numbers and fractions
- Add/Subtract unit fractions (same denominator)
- Add/Subtract fractions (same denominator)
- Add/Subtract fractions from integers
- Use equivalent fractions
- Add/Subtract any fractions
- Add/Subtract improper fractions and mixed numbers
- Use fractions in algebraic contexts

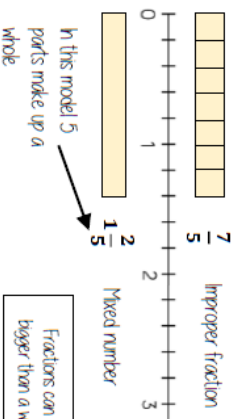
Keywords

- Numerator: the number above the line on a fraction. The top number. Represents how many parts are taken
- Denominator: the number below the line on a fraction. The number represent the total number of parts
- Equivalent: of equal value
- Mixed numbers: a number with an integer and a proper fraction
- Improper fractions: a fraction with a bigger numerator than denominator
- Substitute: replace a variable with a numerical value
- Place value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right

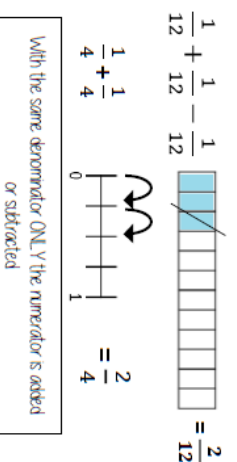
### Representing Fractions



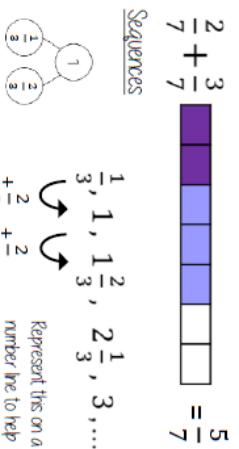
### Mixed numbers and fractions



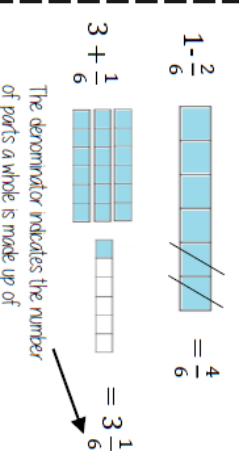
### Odd/ Subtract unit fractions



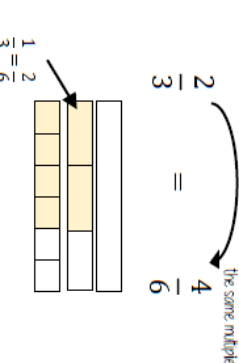
### Odd/ Subtract fractions



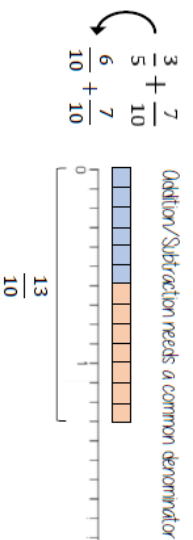
### Odd/ Subtract from integers



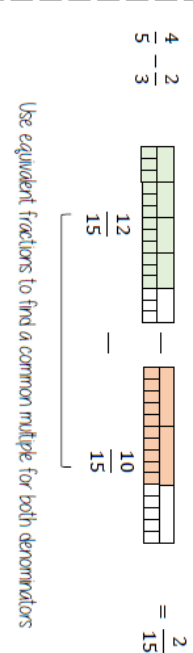
### Equivalent fractions



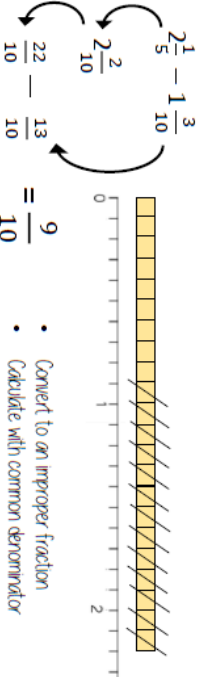
### Odd/ Subtraction fractions (common multiples)



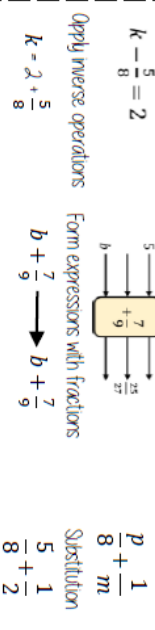
### Odd/ Subtraction any fractions



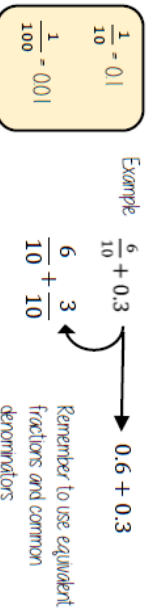
### Odd/ Subtraction fractions (improper and mixed)



### Fractions in algebraic contexts



### Fractions and decimals



### Partitioning method

$$2\frac{1}{5} - 1\frac{3}{10} = 2\frac{2}{10} - 1\frac{3}{10} = 1\frac{2}{10} - \frac{3}{10} = \frac{9}{10}$$

## Year 7 RS: How is identity influenced by religious belief and culture?

Key words	
Identity	A fact of being who a person is.
Beliefs	A firmly held opinion, something one accepts as being true or real.
Customs	A traditional or widely accepted way of behaving in a traditional society or culture.
Traditions	a long-established custom or belief that has been passed on from one generation to another.
Culture	The ideas, customs and social behaviour of a particular society or people.
Spiritual	relating to or affecting the human spirit or soul as opposed to material or physical things.
Morals	standards of behaviour; principles of right and wrong.
Belonging	an affinity for a place or situation.
Values	They are basic and fundamental beliefs that guide or motivate attitudes or actions. They help us to determine what is important to us.

**Believer's Baptism**– Christians who practise believer's Baptism accept that a person needs to be able to claim Jesus as their personal saviour. The celebration of baptism is a way of showing that this belief exists and the person wishes to be totally committed to the will of God. The Baptist and Pentecostal churches, and some Anglican churches, practise Believer's Baptism.

### Bar Mitzvah and Bat Mitzvah in Judaism.

Bar and Bat Mitzvah ceremonies mark the transition into adulthood for young Jews. At age 13 a boy becomes Bar Mitzvah and at age 13 a girl becomes a Bat Mitzvah. After these ceremonies Jewish boys or girls become responsible for living according to Jewish Law. At this point, each young person has to accept the law and its obligations, participate fully in services at the synagogue and set a good example for others. After the ceremony, a Jewish boy can be counted as part of a minyan, and in Reform synagogues girls who are Bat Mitzvah can also be counted.

A Bar Mitzvah happens around a boy's 13th birthday and is part of a service in the synagogue. The boy, who has prepared for the ceremony by spending a lot of time studying it, reads from the Torah. The boy puts on the tefillin for the first time.

The rabbi gives a talk, speaking to both the boy and his family and to the rest of the community. The boy might also give a talk to the people gathered.

It is traditional for the boy's father to recite a prayer of thanks to God for bringing his son to maturity. The boy receives gifts and there is a celebratory meal.

The Bat Mitzvah is only practised by Reform and Liberal Jewish communities. The ceremony follows a similar pattern to the Bar Mitzvah and happens around a girl's 12th birthday.

During her Bat Mitzvah, a girl may read from the Torah or she may instead read a prayer from the Siddur. Traditionally, within Judaism, males and females are not thought to have the same responsibilities. As a result, in some Jewish communities, some rules (such as the requirement to read from the Torah) are less strict for girls than they are for boys.



### Infant baptism in Christianity

Many denominations baptise infants. Although ceremonies are similar, there are some important differences between them.

During the infant baptism ceremony:

- the baby, parents and the godparents are welcomed
- there are readings from the Bible
- the parents and godparents take vows, renounce Satan and evil and profess their faith and the faith they want the baby to be brought up in
- the Apostles' Creed might be said as a statement of faith
- water is poured over the baby's head as the minister says: I baptise you in the name of the Father and of the Son and of the Holy Spirit (in Orthodox Churches, the baby is briefly put completely under the water)
- godparents are sometimes given a lighted candle to represent the light of Jesus that has come into the baby's life
- for the ceremony, parents may dress their baby in a special white garment

Christians believe that baptism welcomes the child into the Church, and some believe it removes from the baby original sin that was brought into the world when Adam and Eve disobeyed God in the Garden of Eden.

A pilgrimage is a journey with a religious or spiritual significance. For Muslims it is a duty to go on pilgrimage to Makkah (Mecca) at least once in their lifetime, if they have the means. For Muslims it is a duty to go on pilgrimage to Makkah (Mecca) at least once in their lifetime, as long as they are physically able and can afford it.

The pilgrimage to Makkah is called **Hajj** and is the fifth Pillar of Islam. Muslims try to go to Makkah during **Dhu al-Hijjah**, the twelfth month of the Islamic calendar.

Muslims must follow a number of important rituals whilst on **Hajj**:

#### **Ihram**

**Ihram** relates to the state of purity and equality before God (Allah) which Muslims enter before going on **Hajj**. To symbolise this state, male pilgrims wear two lengths of white cloth whilst on **Hajj**; female pilgrims wear ordinary clothes, but must keep their faces uncovered. These clothes may be kept by the pilgrim and at their death used to wrap their body for burial.

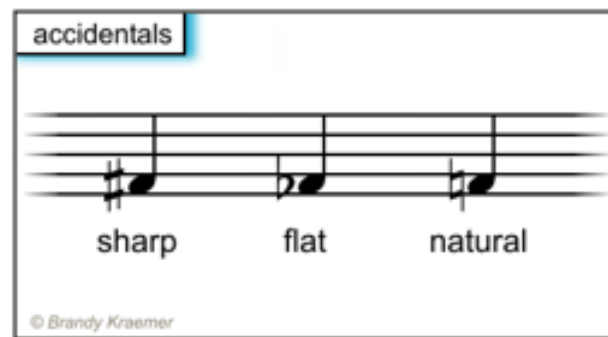
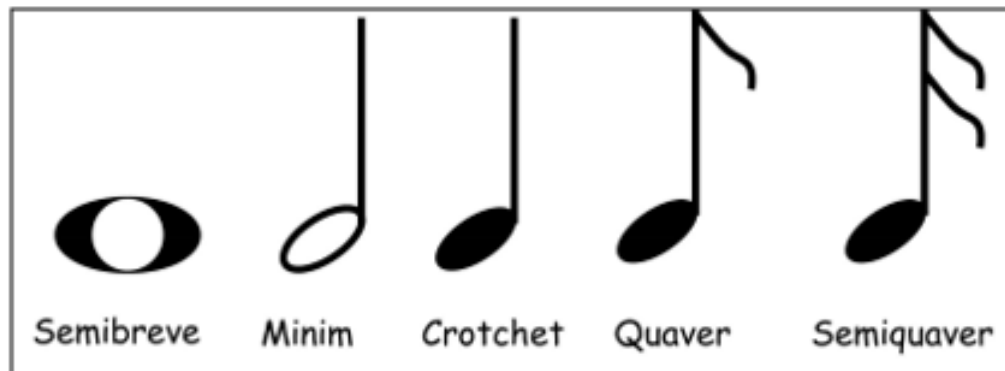
#### **Ka'bah**

On the first day of the **Hajj**, pilgrims walk around the **Ka'bah** seven times in an anti-clockwise direction while repeating prayers. This is called **Tawaf**. Thousands of people do this at the same time and only a few are able to touch or kiss the **Black Stone**, embedded in one corner of the **Ka'bah**. If a pilgrim isn't able to touch the **Black Stone**, they hold up their hand to it as they pass. Walking around the **Ka'bah** with thousands of others represents the Muslim belief in the equality of all Muslims. Muslims are recommended to complete a second **Tawaf** at the end of their pilgrimage. At the end of the pilgrimage, Muslims celebrate the festival of **Eid ul-Adha**. This festival reminds them of **Ibrahim's** obedience when he was told by Allah to sacrifice his son, **Ismail**. Muslims may sacrifice a sheep or a goat to symbolise the lamb provided by Allah for **Ibrahim** to sacrifice in place of **Ismail**.

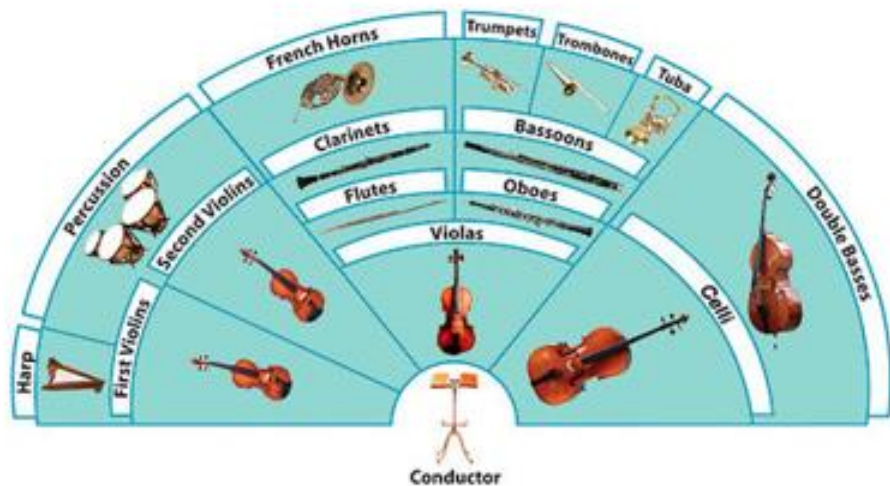


# Year 7 Autumn Term Knowledge Organiser

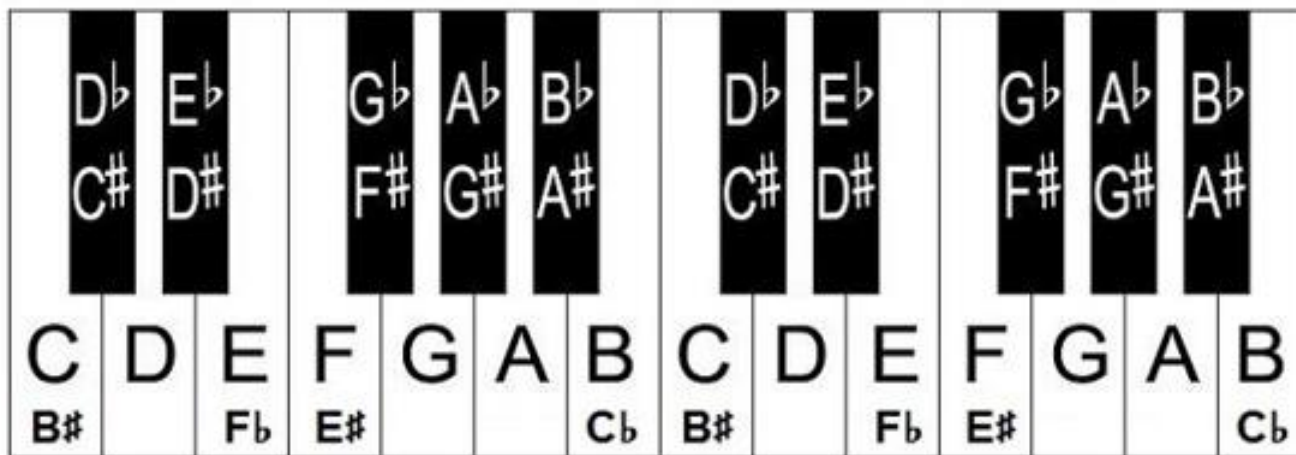
<b>Duration</b>	How long a note lasts for
<b>Pitch</b>	How high or low a note is
<b>Tempo</b>	How fast or slow a note is
<b>Dynamics</b>	How loud or quiet the music is
<b>Timbre</b>	The quality of sound
<b>Texture</b>	How thick or thin the music is
<b>Structure</b>	How the sections of music are laid out e.g. chorus, verse etc.
<b>Silence</b>	When the instruments stop playing



# Year 7 Autumn Term Knowledge Organiser



<b>Strings</b>	Violin, Viola, Cello, Double Bass, Guitar, Harp, Ukulele, Banjo
<b>Brass</b>	Trumpet, Trombone, Tuba, Cornet, French Horn, Euphonium, Sousaphone
<b>Woodwind</b>	Flute, Piccolo, Clarinet, Oboe, Bassoon, Recorder, Saxophone
<b>Percussion</b>	Drums, Timpani, Cymbals, Djembes, Cajons, Xylophone, Glockenspiel, Maracas, Claves, Snare Drum, Bass Drum



<p><u>General vocab</u></p> <p><b>accent</b> – where the music is emphasised</p> <p><b>bar</b> – a regular section on a staff, separated by vertical lines. Contains the beats</p> <p><b>beat</b> - unit of rhythm</p> <p><b>canon</b> – tune that is repeated at regular intervals by different performers, but with different starting times</p> <p><b>chant</b> – singing in unison, with a similar rhythm to speech</p> <p><b>choir</b> – group of singers</p> <p><b>chord</b> – 2 or more notes (usually 3) played simultaneously in harmony</p> <p><b>chord progression</b> – string of chords played in succession, usually a pattern</p> <p><b>clef</b> – a symbol on written music, defining what pitch to play the note</p> <p><b>crescendo</b> – getting louder</p> <p><b>decrescendo</b> – getting quieter</p> <p><b>dissonance</b> – harsh sounds, chords not in harmony</p> <p><b>downbeat</b> – first beat in a bar</p> <p><b>drone</b> – monotonous tone</p> <p><b>duet</b> – two vocalists or instruments</p> <p><b>dynamics</b> – how loud or quiet a piece of music is</p> <p><b>ensemble</b> – all instruments in an orchestra or all voices in a choir, playing at once.</p> <p><b>flat</b> – playing a note a semitone lower than the written one</p> <p><b>forte</b> – loud</p> <p><b>harmony</b> – pleasing combination of two or more notes, played in background behind melody</p> <p><b>key</b> – system of notes based on a key note</p> <p><u>Rest lengths</u></p> <p> Semibreve rest – 4 beats</p> <p> Minim rest – 2 beats</p> <p> Crotchet rest – 1 beat</p> <p> Quaver rest – ½ beat</p> <p> Semiquaver rest – ¼ beat</p>	<p><b>key signature</b> – the flats and sharps at the beginning of each line, to be played throughout the piece</p> <p>music</p> <p><b>major</b> – a happy sounding piece of music</p> <p><b>measure</b> – a bar in a piece of music</p> <p><b>minor</b> – a sad sounding piece of music</p> <p><b>notation</b> – a method of writing music</p> <p><b>octave</b> – 8 full tones above the key note.</p> <p>Start and end of a scale</p> <p><b>off beat</b> – the unaccented beat</p> <p><b>orchestra</b> – a large group of instruments, usually classical</p> <p><b>pulse</b> – the constant beat in a piece of music</p> <p><b>rest</b> – moment when a note is not played for a defined length of time</p> <p><b>rhythm</b> – structured groups of accented and unaccented beats</p> <p><b>scale</b> – successive notes of a key, ascending or descending</p> <p><b>sharp</b> – note to be raised by a semitone</p> <p><b>slur</b> – a curve over notes, suggesting that it is slurred together</p> <p><b>staccato</b> – short, sharp notes</p> <p><b>staff</b> – five horizontal lines on which notes are written</p> <p><b>tempo</b> – speed of a piece</p> <p><b>time signature</b> – how many beats to a bar</p> <p><b>unison</b> – playing or singing the same notes simultaneously</p> <p><b>vibrato</b> – quickly alternating between two notes – a wobbly sound</p> <p><u>Common Tempo words</u></p> <p><b>allegro</b> – quick and lively</p> <p><b>andante</b> – at a walking pace</p> <p><b>adagio</b> – slow and calm</p> <p><b>largo</b> – slow and broad</p> <p><b>moderato</b> – a moderate pace</p> <p><b>rallentando</b> - gradually getting slower</p> <p><b>accelerando</b> – gradually getting faster</p>
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**Summary**

Behaviours such as **altering computer data without permission, hacking, cyberbullying and trolling** are considered unethical and harmful in relation to **computer systems**.  
 Stay safe from **phishing** by deleting unknown email immediately. Do not follow any links contained in the **email**. Instead, **go to the website directly**, and try to log in there.  
 There are a number of ways to protect against **malware**: install antivirus software and use firewall. Show caution by not opening emails from senders who you do not recognise and not installing **programs downloaded illegally**.  
 The easiest way to stay safe online is to stay in control of **personal information** given out.  
**Resizing images and compressing files** reduces the upload and download time when sending email.  
**File Explorer** is a software application for managing your files, searching them and navigating around them.  
 Always choose a **password** that's difficult for someone else to guess. Use a mixture of UPPERCASE and lowercase letters, numbers and symbols.

**Key Vocabulary**

<b>Attachment</b>	A file that is sent with an email.
<b>Anti-virus</b>	Anti-virus software scans all forms of storage devices for viruses and, if found, attempts to remove them.
<b>Computer system</b>	Computer system is one that is able to take a set of inputs, process them and create a set of outputs.
<b>Cyberbullying</b>	Cyberbullying involves sending offensive texts or emails, posting lies or insults on social networking sites and sharing embarrassing videos or photos online.
<b>File sharing</b>	The act of sharing files over the internet.
<b>Hack</b>	Gaining unauthorised access to a computer.
<b>Malware</b>	Malicious software created to damage or gain illegal access to computer systems.
<b>Phishing</b>	Trying to trick someone into giving out information over email is called 'phishing'.
<b>Troll</b>	A derogatory name used as a term for a person who posts offensive messages online.

**Email is short for 'electronic mail'**

**Staying safe online**

**Advantages of using email**

- Can send to multiple recipients at once
- Can send attachments
- Sent instantly at any time
- Can request a receipt that the email has been read
- Can send and receive email from any web enabled device

**Never disclose**  
 your name telephone number address or school

Never accept someone as a 'friend' on social media simply because they claim to know another friend of yours. **Always be cautious about what you say online.**

**Never agree to meet anyone in person that you've only known online.** If somebody does start sending you messages that offend or upset you, tell an adult that you trust.

**Disadvantages**

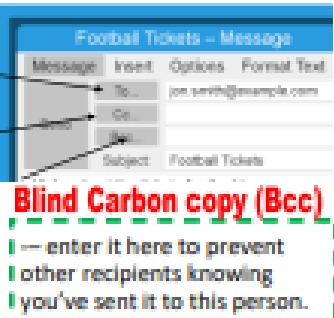
- Spam
- Viruses
- Phishing
- Need an Internet connection
- Your message can only be read when the recipient next logs in and checks their mail

**Sending an email**

**To**  
 - enter it here if this email is directly addressed to this person.

**Carbon copy (Cc)**  
 - enter it here if the email needs to be seen by this person but is not addressed to them.

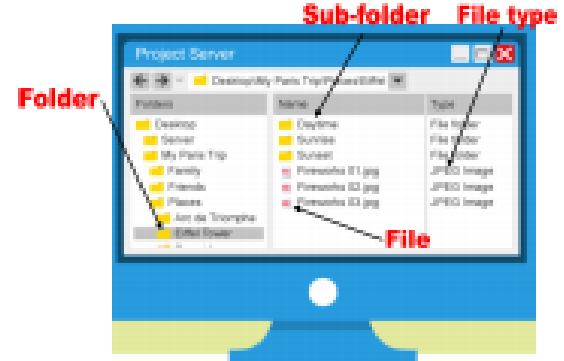
**Blind Carbon copy (Bcc)**  
 - enter it here to prevent other recipients knowing you've sent it to this person.



**Visit these websites for advice**



**Folders, sub-folders & files**



Labels in the image: Folder (points to Desktop), Sub-folder (points to Desktop), File type (points to Desktop), File (points to Desktop01.jpg).

<http://bit.ly/33YFOonV>

