



Knowledge Organisers

Year 7

Autumn Half Term 2

'Practice of what is taught'

Name:

Tutor:

House:

Art

Year 7 - Natural Forms

Key knowledge & skills

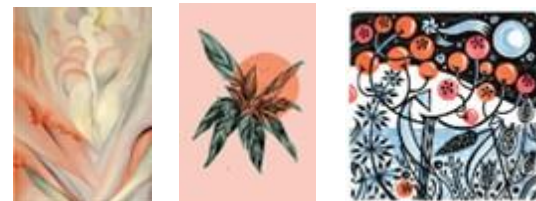
Make drawings from primary and secondary resources. Focus on first on **SHAPE, FORM** and **LINE**. Then work on building skills in adding **TONE, TEXTURE, COLOUR** and **PATTERN**. Practice applying range of pressures with pencil.



Mark making - This describes the different **LINES, DOTS, MARKS** and **PATTERNS** we can make in an artwork. When you look closely at a natural form, you will see lots of **DETAIL** and **TEXTURE**. Good artists use mark making to record all the detail they can see. Different **MEDIA** will create different types of marks.



Analyse work of artists whose work is **INSPIRED** by natural forms, understanding how *you* can be **inspired** by their processes and techniques of creating art.



Printmaking - An artistic process where you can make pictures or designs by printing them from specially prepared **PLATES** or **BLOCKS**. There are lots of different types of printmaking.



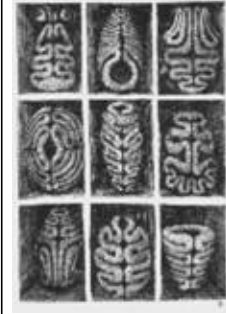
Collage— the process of layering materials to create an image or background which can then be worked onto using different media. You can carefully cut and present materials to create an image too.



Key Artists

Peter Randall -Page

Artist Peter Randall -Page was born in the UK in 1954 and studied sculpture at Bath Academy of Art from 1973 -1977. During the past 40 years Peter Randall -Page has gained an international reputation through his sculpture drawings and prints. He has undertaken numerous large -scale commissions and exhibited widely. His work is held in public and private collections throughout the world. His work is inspired by the natural world and the impact that it has on us as humans. For this project we will focus mainly on his drawings and specifically his use of mark making to show texture.



Georgia O'Keeffe

Born in 1887, Georgia O'Keeffe was an American artist who painted nature in a way that showed how it made her feel. She is best known for her paintings of flowers and desert landscapes. Her unique and new way of painting nature, simplifying its shapes and forms meant that she was called a pioneer. Her style of painting is a combination of abstract and realism. She was inspired by natural landscapes and the forms she would find there, including shells, skulls, flowers and leaves.

Angie Lewin

She studied BA (Hons) Fine Art Printmaking at Central St. Martins College of Art and Design between 1983 and 1986. Inspired by both the clifftops and saltmarshes of the North Norfolk coast and the Scottish Highlands, she depicts these contrasting environments and their native flora in wood engraving, linocut, silkscreen, lithograph and collage. She is fascinated by the huge variety of different plant species and insects which has in turn inspired her artwork. Her still life's often incorporate seedpods, grasses, flints and dried seaweed collected on walking and sketching trips.



Aimee Mac

Aimee Mac lives and works in Manchester in the UK. She sells her work through her website and on sites like Etsy. Her work consists of intricate illustrations that are inspired by plants, animals and insects, ceramics and retro interiors. Highly detailed, they are made up entirely of thousands of tiny dots and lines. She uses layers of block colour to tailor her work for digital, screen and risograph printing. I work with print, homeware and textiles, surface patterns, stationery, jewellery, stickers and clothing.

Computing Knowledge Organiser



The Castle School
ACHIEVE | BELONG | PARTICIPATE



Topic: Networks

Rationale:

As students using a network in school. How are they used to share information?

Networks and the Internet

A computer **network** is when two or more computers are connected together to allow them to communicate

The **internet** is a vast network of computers all connected together.

Interconnected
Network = Internet

Networks send and receive messages in small units of data known as *packets*

Wired and Wireless

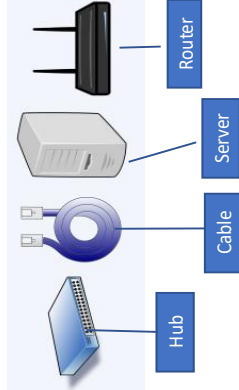
A computer network can be either wired or wireless.

Wired networks send data along cables.

Wireless networks send data through the air using radio waves.

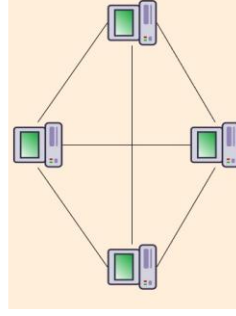


Network Hardware



Diagram

Network Diagram



Internet of Things

Any device connected to the internet is part of this network, for example:

- ☐ Laptops
- ☐ Games consoles
- ☐ PCs
- ☐ Tablets
- ☐ Mobile phones



World Wide Web

The World Wide Web is **part of** the internet that contains websites and web pages.

The Internet and the WWW are not the same thing.



Key Words

Network	A computer network is when two or more computers are connected together to allow them to communicate
Protocols	A set of rules which allow device to communicate.
Bandwidth	Amount of data that can per transferred per second.
Connectivity	The state of being connected or interconnected

DT

Homework Task 1 - What is Hardwood?

Hardwood: *Come from trees that shed their leaves each autumn.*

OAK: *Very strong and hard, easy to work with, open grained light brown colour. Use in furniture.*

BIRCH: *Hard but easy to work with. Close fine grain, very light brown colour.*

Furniture and turned items

ASH: *Tough and flexible. Open grained, light and creamy brown colour.*

Tool handles, ladders, pool cues

MAHOGANY: *Fairly strong/durable. Some interlocking grain, reddish colour*

High quality furniture

BALSA: *Soft. Off white colour. Used in modelling*

Softwood: *Come from coniferous trees. They keep their leaves all year round. They grow faster than hardwoods. They have a more open grain and also typically cost less. Softwood trees can come from managed forests. As they are cut down new ones are planted. They are a renewable resource.*

PINE: *Strong and durable, easy to work with. Straight grained, yellowish colour. Used in construction and furniture*

LARCH: *Tough, water resistant and durable. Straight or spiralled grain. Yellow/brownish colour. Used in boats, exterior cladding*

SPRUCE: *Strong and hard. Lo resistance to decay. Yellowish colour. Used in construction.*

What is Manufactured board?

These are made by gluing layers of wood fibres/veneers together.

They often use waste materials from the cutting of timber.

Top layers are often a high quality wood to give a good look or added protection. Manufactured boards come in very large sheets. Common sheet sizes are (8ft by 4ft).

Sheets are available in standard thicknesses (3 , 6, 9, 12, 15 mm)

MDF (Medium - density fibreboard):
Made from fine wood particles combined with glue. Smooth and easily machined. Used in furniture

PLYWOOD: *Layers of Veneer cut or shaved from timber and glued at 90 degrees to each other. Interior and exterior grades available. Used in furniture and boat building*

CHIPBOARD: *Made from chips of timber mixed with glue and pressed together. Often covered with a laminate or polymer such as Melamine Formaldehyde. Used for cupboards and kitchen worktops.*

Key Words

Hardwood - Trees that shed their leaves each autumn. Slow growing-expensive

Deciduous - loose their leaves

Softwood - They keep their leaves all year round. They grow faster than hardwoods. They have a more open grain and also typically cost less.

Manufactured – Produced in large quantities by machines

Coniferous – Keep leaves all year round

Durable – withstand being damaged

Veneer – A thin layer of wood normally applied to manufactured board

Homework 2: watch the following YouTube video: [Greatest Design - Anglepoise Lamp \(youtube.com\)](https://www.youtube.com/watch?v=AnglepoiseLamp) and use the Cornell



English – Sparx Reader

You should log onto Sparx Reader and spend 30 minutes reading your current book that is assigned to you. You can either do this in one sitting or spread the reading out over the week.

Reading Articles

You will have a reading article each week linking to the whole school theme for that week:

Week 1: Remembrance

Week 2: Kindness

Week 3: Resilience

Week 4: Equality

Week 5: Gratitude

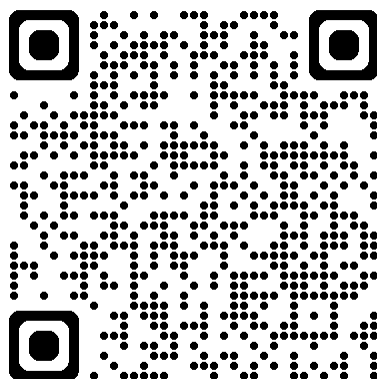
Week 6: Celebration

Read the article and highlight three words of which you were not sure. Then write the definition and draw an image which will help you remember.

As you read the articles, you will identify that the articles are not in UK English. However, the articles offer some great messages.

Use this QR code to access the reading articles read by a teacher or visit the link:

<https://www.castleschool.co.uk/students/year-7-homework.htm>



Food

Superfoods

Superfoods are nutrient-dense foods rich in vitamins, minerals, and antioxidants, offering significant health benefits and promoting overall well-being. While the term "superfood" is often used in marketing, certain foods are recognised for their exceptional nutritional value and potential health-promoting properties.

Examples of Superfoods:

Berries: Blueberries, strawberries, raspberries, and other berries are packed with antioxidants and fibre.



Leafy Greens: Kale, spinach, and other leafy greens are rich in vitamins A, C, and E, and may have cancer-fighting properties.



Nuts and Seeds: Almonds, walnuts, chia seeds, and flax seeds provide healthy fats, fibre, and antioxidants.

Fish: Salmon, tuna, and other fatty fish are excellent sources of omega-3 fatty acids, which may reduce the risk of heart disease.



Olive Oil: A healthy fat source with high antioxidant levels, contributing to overall health.

Avocado: A good source of healthy fats, vitamins, and minerals, potentially reducing heart disease risk.



Yogurt: Probiotic-rich yogurt supports gut health and can be a good source of calcium and protein.

Green Tea: Contains antioxidants that may help protect cells from damage.

Garlic: May boost immunity and improve cardiovascular health.



Whole Grains: Provide fibre, vitamins, and minerals.

Benefits of Superfoods:

Nutrient Rich - Superfoods are packed with essential vitamins, minerals, and antioxidants, supporting overall health.

Disease Prevention - Some superfoods may help reduce the risk of heart disease, certain cancers, and other chronic conditions.

Improved Gut Health - Probiotic-rich foods like yogurt can support a healthy gut microbiome.

Anti-Inflammatory - Some superfoods, like leafy greens and berries, have anti-inflammatory properties.



Important Considerations:

Balanced Diet - While superfoods offer benefits, they should be part of a balanced and varied diet.

Marketing Term - "Superfood" is a marketing term, and no single food can provide all the nutrients needed for optimal health.

Variety is Key - Consuming a wide range of nutrient-rich foods is crucial for overall well-being.



Week 2 - The Geography of Europe and The World	Week 4 - The UK and the wider world
There are 44 countries in Europe, Russia is the largest and Liechtenstein is the smallest. The total population of Europe in 2024 was 741,656,711 which is less than 10% of the world's population. The population of Europe is actually declining. The majority of the population in Europe live in urban areas - in towns and cities - where there are more jobs and facilities. Fewer people live in rural areas - the countryside - as there are fewer services such as hospitals. Our world has 7 continents and 5 oceans. The largest continent is Asia and the largest ocean is the Pacific. We use latitude and longitude lines to locate places in the world. The equator is 0° latitude so is the middle of the earth between the poles (north and south) and the Greenwich Meridian is 0° longitude so the middle of the planet west to east.	The UK has many links with other countries in the world. The UK exports goods worth £250 billion a year. The Channel Tunnel has meant that people and goods can move quickly to European countries. Media exports have increased enormously such as Peppa Pig which is exported to 170 countries. The 56 Commonwealth countries which used to be part of the British Empire meet every 2 years to discuss common values and goals to improve the quality of life for people. The British public voted for Brexit in 2016. Now people from Europe have to apply for a visa to live and work here. Another organisation that The UK belongs to is NATO which is an alliance of 28 countries bordering the North Atlantic Ocean. NATO was created in 1949 to provide security for those nations against the possible expansion of Russia.
Week 6 - The UK and the wider world	
The UK has many links with other countries around the world. The UK exports goods worth £250 billion a year. The Channel Tunnel has meant that people and goods can move quickly to European countries. Media exports have increased enormously such as Peppa Pig which is exported to 170 countries. The 56 Commonwealth countries which used to be part of the British Empire meet every 2 years to discuss common values and goals to improve the quality of life for people. The British public voted for Brexit in 2016. Now people from Europe have to apply for a visa to live and work here. Another organisation that The UK belongs to is NATO which is an alliance of 28 countries bordering the North Atlantic Ocean. NATO was created in 1949 to provide security for those nations against the possible expansion of Russia.	

History: The Roman Army - What made the Roman Army Successful?

<u>Week 1: How did good organisation help the Roman Army to be so successful?</u> 	• Main part of the army were the LEGIONS • These were made up of around 5000-6000 men. • A legion was divided into ten cohorts • Each cohort was made up of six centuries • The centuries were commanded by a centurion • Centuries had 80 - 100 men • They were responsible for training the soldiers under their command and making sure everyone obeyed. • Some were very cruel and would carry a stick, which they used to beat soldiers. • Most soldiers joined between 18-20 years old. • There were three 30km marches each month. • On each march the legionary would carry 25 kilos of equipment. Regular practices of weapons.	Key Vocab Centurion - A Roman who trained the soldiers under his command. Cohort – A group of about 600 men in the Roman Army Legion - The main part of the Roman Army was called the legion and was led by the Legate.
<u>Week 3 What were the tactics used by the Romans in battle?</u> 	THE ORB - The legionaries form a circle around the officers and the archers (these were the most important people!) using their shields as protection. THE WALL - The soldiers form a line, with the men at the front crouching down with their shields in front of them and their spears stick out of the gaps. The men behind put their shields over the top of the men in front and have their spears ready to throw. This would even stop horses from charging. The Wedge is at the front of the 'V' and the legionaries form the sides of the 'V'. They must stay close together to stop the enemy from breaking the line. The Tortoise is square. The men at the front hold their shields in front of them. The men at the sides hold their shields to the sides. The men in the middle hold their shields above them.	Key Vocab – SEE LEFT The Orb. The Wedge. The Wall. The Tortoise.
<u>Week 5: How would armour and weapons make Roman Soldiers Successful?</u> 	Armour - Roman soldiers had armour made of strips of strong iron. The iron made the armour strong, and the strips made it flexible. They also had iron helmets which protected their heads and neck but still let them have good vision for fighting. Weapons The Roman soldiers used a variety of weapons including a pugio (dagger), gladius (sword, see picture to the right), hasta (spear), javelin, and bows and arrows. The soldiers were trained to fight with their weapons and practiced on a regular basis. They would sometimes spar with each other using wooden swords.	Key Vocab Gladius (short sword) Pila (javelin) Scutum (Shield)

Languages – French

Tu as un stylo? Do you have a pen?

Verb	Equipment	Please
J'ai (I have)	un (nouveau) cahier (a (new) book) un stylo (vert) (a pen)(green)	
Je voudrais (I would like) Je peux emprunter (I can borrow) Je peux avoir (I can have)	un crayon (a pencil) un surligneur (a highlighter) une gomme (a rubber) des ciseaux (some scissors)	s'il vous plaît? (please)

Verb + negative structure	Equipment
Je n'ai pas de (I don't have (a))	stylo (vert) (a pen) (green) gomme (rubber) ciseaux (scissors)

Quel âge as-tu? Quel âge a ta soeur? How old are you? How old is your sister?

Please note – in French, you use the verb 'to have' to talk about your age e.g. j'ai dix ans

Part of 'avoir' verb	Number	Years
J'ai <i>(I have)</i>	cinq (5) dix (10) quinze (15)	ans <i>years old</i>
il a <i>(he has)</i> Mon (beau) père a <i>(my (step) dad has)</i> Mon frère a <i>(my brother has)</i>	vingt (20) vingt-cinq (25) trente (30)	
elle a <i>(she has)</i> Ma (belle) mère a <i>(My (step) mum has)</i> Ma soeur a <i>(my sister has)</i>		

C'est quand, ton anniversaire? When is your birthday?

My birthday is	Number	Month
Mon anniversaire c'est le <i>(My birthday is the)</i>	[number] premier* (1 st) dix (10 th) quinze (15 th)	[month] mars (<i>March</i>) juillet (<i>July</i>) novembre (<i>November</i>)

* = exception. You say the first of June instead of the number one in French. You use the number for all other dates.

Parle-moi de ta famille. Talk to me about your family

Part of 'avoir' verb	Family member

J'ai <i>(I have)</i>	un (beau) père. a (step) dad. un (demi) frère a (half) brother un oncle an uncle un grand-père a grandad
	une (belle) mère a (step) mum une (demi) soeur a (half) sister une tante a sister une grand-mère
	deux soeurs two sisters

<i>My + family member</i>	is/ are called
mon (beau) père. my (step) dad. mon (demi) frère a (half) brother mon oncle my uncle mon grand-père my grandad	s'appelle... is called

ma (belle) mère my (step) mum ma (demi) soeur my (half) sister ma tante my sister ma grand-mère	
ils (they) mes frères /soeurs (my brothers/sisters)	ils s'appellent (they are called – group of boys) elles s'appellent (they are called – group of girls)

Tu es comment? Comment est ton frère? What are you like? What is your brother like?

Part of être verb	Qualifier	Adjective (male or female spelling)
Je suis (I am) Je ne suis pas (I am not)	assez (quite) très (very) vraiment (really)	intelligent / intelligente (intelligent) bavard / bavarde (chatty) branché / branchée (trendy) amusant / amusante (funny) arrogant / arrogante (arrogant) grand / grande (tall) patient / patiente (patient) petit / petite (short)
il est (he is) mon oncle est (my uncle is)		

There are two spellings of each adjective. Use the first one if you are describing a male and the second for describing a female.

elle est (she is) ma tante est (my aunt is)		fort / forte (strong) timide / timide (shy)
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Week 1:

Je voudrais	I would like
J'ai	I have
Je n'ai pas de	I don't have a
un stylo	a pen
Je peux emprunter	Can I borrow
un crayon	a pencil
merci	thank you
s'il vous plaît	please

https://quizlet.com/_a4vgou?x=1qqt&i=1xg9z8

Week 2:

bonjour	hello
salut	hi
au revoir	goodbye
je m'appelle	I am called
Ça va?	how are you?
Ça va bien.	I'm fine
J' ai (douze) ans	I am (12) years old
Mon anniversaire, c'est le (dix mars)	My birthday is on the (10th March)
<i>Je voudrais</i>	<i>I would like</i>
<i>Je n'ai pas de</i>	<i>I don't have a</i>

https://quizlet.com/_a4vhf8?x=1qqt&i=1xg9z8

Week 3:

mon (père)	my dad
ma (mère)	my mum
mes (parents)	my parents
il a	he has
elle a	she has
il s'appelle	he is called
elle s'appelle	she is called
mon père s'appelle	my dad is called
<i>Je m'appelle</i>	<i>I am called</i>
<i>J'ai</i>	<i>I have</i>

https://quizlet.com/_a4viif?x=1qqt&i=1xg9z8

Week 4:

je suis	I am
je ne suis pas	I am not
il est	he is
elle est	she is
mon frère est	my brother is
il n'est pas	he is not
elle n'est pas	she is not
<i>j'ai</i>	<i>I have</i>
<i>il a</i>	<i>he has</i>
<i>elle a</i>	<i>she has</i>

https://quizlet.com/_a4vjaz?x=1qqt&i=1xg9z8

Week 5:

sur la photo	in the photo
il y a	there is /are
(dix) personnes	(10) people
un homme	a man
une femme	a woman
une fille	a girl
un garçon	a boy
J'aime la photo	I like the photo
<i>il est</i>	<i>he is</i>
<i>elle est</i>	<i>she is</i>

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Week 6:

Je m'appelle...	I am called...
Je suis (bavard(e))	I am (chatty)
<i>J'ai</i> (onze) ans	I am (11) years old
J'ai un frère	I have a brother
Il s'appelle...	He is called...
Il est (intelligent)	He is (intelligent)
Il a (neuf) ans	He is 9 years old
J'ai une soeur	I have a sister
Elle est (timide)	She is (shy)
Elle s'appelle...	She is called...

https://quizlet.com/_a4vknd?x=1qqt&i=1xg9z8

German

Wie geht's dir heute? (How are you today?)

SUBJECT- VERB	ADVERB		SUBORD. CONJUNCTION	SUBJECT...	ADJECTIVE		...VERB
Es geht mir <i>(I'm feeling)</i>	prima sehr gut gut ganz ok nicht so gut schlecht	<i>(great)</i> <i>(very well)</i> <i>(well)</i> <i>(alright)</i> <i>(not so good)</i> <i>(feeling bad)</i>	weil <i>(because)</i> obwohl <i>(although)</i>	ich <i>(I)</i>	aufgeregt entspannt glücklich  gesund  zufrieden gestresst krank müde  nervös  traurig	<i>(excited)</i> <i>(relaxed)</i> <i>(happy)</i> <i>(healthy)</i> <i>(satisfied)</i> <i>(stressed)</i> <i>(ill)</i> <i>(tired)</i> <i>(nervous)</i> <i>(sad)</i>	bin <i>(am)</i>

Wie alt bist du? (How old are you?)

Subject and verb	Number		Old
Ich bin <i>I am</i> Er ist <i>He is</i> Sie ist <i>She ist</i> Sie sind <i>They are</i>	ein 1	Jahr <i>years</i>	alt <i>old</i>
	zwei 2	Jahre <i>years</i>	
	drei 3		
	vier 4		
	fünf 5		
	sechs 6		
	sieben 7		
	acht 8		
	neun 9		
	zehn 10		
	elf 11		
	zwölf 12		

Wann hast du Geburtstag? (When is your birthday?)

Subject and verb		Number (ordinal – th)	Month	Noun
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Ich habe	am	ersten 1 st	Januar <i>January</i>	Geburtstag
<i>I have</i>	<i>on</i>	zweiten 2 nd	Februar <i>February</i>	<i>birthday</i>
Er hat	<i>the</i>	dritten 3 rd	März <i>March</i>	
<i>He has</i>		vierten 4 th	April <i>April</i>	
Sie hat		fünften 5 th	Mai <i>May</i>	
<i>She has</i>		sechsten 6 th	Juni <i>June</i>	
Sie haben		siebten 7 th	Juli <i>July</i>	
<i>They have</i>		achten 8 th	August <i>August</i>	
		neunten 9 th	September	
		zehnten 10 th	<i>September</i>	
		elften 11 th	Oktober <i>October</i>	
		zwölften 12 th	November <i>November</i>	
		dreizehnten 13 th	Dezember <i>December</i>	
		vierzehnten 14 th		
		fünfzehnten 15 th		
		sechzehnten 16 th		
		siebzehnten 17 th		
		achtzehnten 18 th		
		neunzehnten 19 th		
		zwanzigsten 20 th		
		einundzwanzigsten 21 st		
		zweiundzwanzigsten 22 nd		
		dreiundzwanzigsten 23 rd		
		vierundzwanzigsten 24 th		
		fünfundzwanzigsten 25 th		
		sechsendzwanzigsten 26 th		
		siebenundzwanzigsten 27 th		
		achtundzwanzigsten 28 th		

		neunundzwanzigsten 29 th dreißigsten 30 th einunddreißigsten 31 st		
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Wie bist du? (What are you like?)

Subject and verb	Intensifier	Adjective of personality	Connective	Adjective of personality
Ich bin <i>I am</i>	extrem <i>extremely</i>	alt <i>old</i>	und <i>and</i>	faul <i>lazy</i>
Er ist <i>He is</i>	zu <i>too</i>	altmodisch <i>old-fashioned</i>	aber <i>but</i>	freundlich <i>friendly</i>
Sie ist <i>She is</i>	echt <i>really</i>	begabt <i>talented</i>	und auch <i>and also</i>	intelligent <i>intelligent</i>
Sie sind <i>They are</i>	total <i>totally</i>	fleißig <i>hard-working</i>	oder <i>or</i>	laut <i>loud</i>
	sehr <i>very</i>	gut aussehend <i>good looking</i>		lustig <i>funny</i>
	ziemlich <i>quite</i>	hübsch <i>pretty</i>		musikalisch <i>musical</i>
	ein bißchen <i>a bit</i>	kreativ <i>creative</i>		schüchtern <i>shy</i>
	nicht sehr <i>not very</i>	launisch <i>moody</i>		sportlich <i>sporty</i>
	nicht <i>not</i>	modisch <i>fashionable</i>		unpünktlich <i>unpunctual</i>
	gar nicht <i>not at all</i>	nett <i>nice</i>		

Wie ist er? / Wie ist sie? (What is he like? / What is she like?)

Verb	Noun / Person	Connective	Subject and verb OR Verb and subject	Comparative	Comparative connective THAN	Noun
Ich liebe <i>I love</i> Ich mag <i>I like</i> Ich hasse <i>I hate</i> Ich mag... nicht <i>I don't like</i>	Beyoncé	denn because	er ist <i>he/it is (m)</i>	netter <i>nicer/kinder</i>	als than	Rihanna
	Messi		sie ist <i>she/it is (f)</i>	hübscher <i>prettier</i>		Ronaldo
	Little Mix		es ist <i>it is (nt)</i>	besser <i>better</i>		One Direction
	Donald Trump		sie sind = <i>they are (pl)</i>	begabter <i>more talented</i>		Rishi Sunak
	Harry Styles			doofer <i>more stupid</i>		Boris Johnson
	Herr Lamb			intelligenter <i>more intelligent</i>		Herr Beer
	Frau Jones			sportlicher <i>sportier</i>		Frau Reid
	Chelsea		ist er <i>he/it is (m)</i>	besser- aussehend <i>better-looking</i>		
	Yeovil F.C.		ist sie <i>she/it is (f)</i>	 kreativer <i>more creative</i>		
			ist es <i>it is (nt)</i>	 fleißiger <i>more hard-working</i>		
		jedoch however	sind sie <i>they are (pl)</i>			

Week 1:

Hallo	Hello
Guten Morgen	Good morning
Guten Tag	Good afternoon
Ich heiße	I am called
Wie geht's?	How are you?
Mir geht's gut	I am fine

nicht so schlecht	Not so bad
Auf Wiedersehen	Goodbye

Week 2:

Ich bin (elf) Jahre alt	I am 11 years old
Er ist (zwölf) Jahre alt	He is 12 years old
Sie ist (dreizehn) Jahre alt)	She is 13 years old
elf	11
zwölf	12
Mein Geburtstag ist am...	My birthday is on...
Juni	June
Juli	July
<i>Ich heiÙe</i>	<i>I am called</i>
<i>Mir geht's gut</i>	<i>I am fine</i>

Week 3:

Ich bin	I am
Du bist	You are
Er ist	He is
Sie ist	She is
ganz	quite
ziemlich	rather
Ich liebe	I love
Ich hasse	I hate
<i>Mein Geburtstag ist am...</i>	<i>My birthday is on...</i>
<i>Ich bin (elf) Jahre alt</i>	<i>I am 11 years old</i>

Week 4:

gut	good
besser (als)	Better (than)
lustig	funny
lustiger	funnier
Jedoch	however
Auch	also
Und	and
aber	<i>but</i>
<i>Ich bin</i>	<i>I am</i>
<i>Er/sie ist</i>	<i>He/she is</i>

Week 5:

Ich liebe	I love
Ich hasse	I hate

Ich mag	I like
Ich mag (Jenny) nicht	I don't like (Jenny)
jedoch	however
auch	also
und	and
oder	or
<i>aber</i>	<i>but</i>
<i>Ich bin</i>	<i>I am</i>

Week 6:

All of the above!

MFL – Mandarin

你多大？我十一岁。 How old are you? I am 11 years old.

Subject	number	years old
wǒ 我	yī 1	sù 岁
nǐ 你	èr 2	
You	sān 3	
tā 他	sì 4	
He	wǔ 5	
tā 她	liù 6	
She	qī 7	
lǎo shī 老师	bā 8	
Teacher	jiǔ 9	
	shí 10	
	shí yī 11	
	shí èr 12	
	èr shí 20	
	sān shí 30	
	sì shí 40	
	wǔ shí 50	
	liù shí 60	
	qī shí 70	
	bā shí 80	

Basic greetings

	Greetings in Chinese characters	English
1	nǐ hǎo 你好!	Hello!
2	nín hǎo 您好!	Hello! (respectful form)
3	nǐ hǎo ma 你好吗?	How are you?
4	wǒ hěn hǎo, xièxiè! nǐ ne? 我很好, 谢谢! 你呢?	I am very well, thank you. And you?
5	wǒ yě hěn hǎo, xièxiè! 我也很好, 谢谢!	I am also very well, thank you.
6	zǎo shàng hǎo! 早上好!	Good morning!
7	lǎo shī hǎo! 老师好!	Hello, teacher!
8	máng bù máng? 忙不忙?	(Are you) busy or not busy?
9	hěn máng 很忙。	(I am) very busy.
10	bù máng 不忙。	(I am) not busy.
11	zài jiàn! 再见!	Goodbye!
12	lǎo shī zài jiàn! 老师再见!	Goodbye, teacher!

nǐ jiào shén me míng zì? wǒ jiào lǐ níng
你叫什么名字? 我叫李宁。 What is your name? My name is Li Ning.

Subject	to be called	name
wǒ 我 I	jiào 叫	lǐ níng 李宁 Li Ning
nǐ 你 You		chéng lóng 成龙 Jacky Cheng
tā 他 He		
tā 她 She		Lily Jones
lǎo shī 老师 Teacher		

Week 1

1	一	1
2	二	2
3	三	3
4	四	4
5	五	5
6	六	6
7	七	7
8	八	8
9	九	9
10	十	10

1	口	mouth
2	人	person
3	火	fire
4	木	Tree; wood
5	山	mountain
6	日	Sun; day
7	月	Moon; month
8	门	Door; gate
9	女	female
10	王	king

1	水	water
2	厶	Roof with chimney
3	你	You
4	多	Many; much
5	大	big
6	我	I; me
7	岁	...years old
8	他	He; him
9	她	She; her
10	好	Good; well

1	我	I; me
2	叫	Call; to be called
3	再	again
4	见	Meet; see
5	早	Early; morning
6	上	Up; go
7	老	old
8	师	master
9	忙	busy
10	不	No; not

1	早	Morning
2	也	also
3	他	He; him
4	她	She; her
5	讠	Speech radical
6	饣	Food radical
7	艹	Plant/grass radical
8	父	father
9	鸟	bird
10	雨	rain

1	马	horse
2	妈	mum
3	可	Can; may
4	哥	Older brother
5	且	In addition
6	姐	Older sister
7	未	future
8	妹	Younger sisiter
9	有	Have/has
10	和	and

Spanish

¿Cómo te llamas? - *What's your name?*

llamarse (to be called)	name
Me llamo	Isabel
<i>I'm called</i>	Miguel
Te llamas	
<i>You're called</i>	
Mi amigo se llama	
<i>My friend (male) is called</i>	
Mi amiga se llama	
<i>My friend (female) is called</i>	

¿Qué tal? / ¿Cómo estás? = *How are you?*

estar (to be)	
Estoy	(muy) bien – <i>(very) good</i>
<i>I'm</i>	contento / a - <i>happy</i>
Estás	fantástico / a - <i>fantastic</i>
<i>You're</i>	feliz - <i>happy</i>
Está	fenomenal – <i>amazing</i>
<i>He is / She is</i>	genial – <i>great</i>
	cansado/a - <i>tired</i>
	fatal - <i>awful</i>
	mal - <i>bad</i>
	triste – <i>sad</i>



¿Dónde vives ahora? *Where do you live now?*

Time Phrase	vivir (to live)	Place	Extra detail
Ahora = Now	(yo) vivo en = <i>I live in</i> <i>Mi amigo vive en =</i> <i>my friend (male) lives</i>	un pueblo = <i>a village / a town</i> una ciudad = <i>a city</i>	que se llama Taunton = <i>that is called Taunton</i> que se llama Bristol = <i>that is called Bristol</i>
En el futuro = <i>In the future</i>	(yo) voy a vivir en = <i>I am going to live in</i> (yo) no voy a vivir en = <i>I am not going to live in</i> (yo) nunca voy a vivir en = <i>I am never going to live in</i>	el campo = <i>the countryside</i> la costa = <i>the coast</i> la montaña = <i>the mountain</i> España = <i>Spain</i> Inglaterra = <i>England</i>	

¿Cuántos años tienes? - How old are you?

tener (to have)a	Number	Connective	My friend...	Number
(Yo) tengo = <i>I have</i> (Tú) tienes = <i>You (singular) have</i> (Él) tiene = <i>He has</i> (Ella) tiene = <i>She has</i> (Nosotros) tenemos = <i>We have</i> (Vosotros) tenéis = <i>You (plural) have</i> (Ellos) tienen = <i>They have</i>	un año = <i>1 year</i> dos años = <i>2 years</i> tres años = <i>3 years</i> cuatro años = <i>4 years</i> cinco años = <i>5 years</i> seis años = <i>6 years</i> siete años = <i>7 years</i> ocho años = <i>8 years</i> nueve años = <i>9 years</i> diez años = <i>10 years</i> once años = <i>11 years</i> doce años = <i>12 years</i> trece años = <i>13 years</i> catorce años = <i>14 years</i> quince años = <i>15 years</i>	pero = <i>but</i>	Mi amigo tiene = My (male) friend has Mi amiga tiene = My (female) friend has	un año = <i>1 year</i> dos años = <i>2 years</i> tres años = <i>3 years</i> cuatro años = <i>4 years</i> cinco años = <i>5 years</i> seis años = <i>6 years</i> siete años = <i>7 years</i> ocho años = <i>8 years</i> nueve años = <i>9 years</i> diez años = <i>10 years</i> once años = <i>11 years</i> doce años = <i>12 years</i> trece años = <i>13 years</i> catorce años = <i>14 years</i> quince años = <i>15 years</i>

¿Cuándo es tu cumpleaños? - When is your birthday?

my birthday	is	the	number	of	month
Mi cumpleaños My birthday	es is	el the	uno 1	diecisiete 17	de enero January
			dos 2	dieciocho 18	of febrero February
			tres 3	diecinueve 19	marzo March
			cuatro 4	veinte 20	abril April
			cinco 5	veintiuno 21	mayo May
			seis 6	veintidós 22	junio June
			siete 7	veintitrés 23	julio July
			ocho 8	veinticuatro 24	agosto August
			nueve 9	veinticinco 25	septiembre September
			diez 10	veintiséis 26	octubre October
			once 11	veintisiete 27	noviembre November
			doce 12	veintiocho 28	diciembre December
			trece 13	veintinueve 29	
			catorce 14	treinta 30	
			quince 15	treinta y uno 31	
			dieciséis 16		

Week 1:

me llamo	I'm called
se llama	he/she is called
gracias	thank you
de nada	you're welcome
lo siento	sorry
tengo	I have
no tengo	I don't have

¿Tienes.... ?	Do you have.... ?
buenos días	good morning
hasta luego	see you soon

[Y7 HT2 SP High Frequency Vocabulary Week 1 Flashcards | Quizlet](#)

Week 2:

no entiendo	I don't understand
sí	yes
estoy bien	I am fine
estoy	I am
está	he/she is
¿Cómo te llamas ?	What are you called?
¿Cómo estás ?	How are you ?
bien	good
mal	bad
tengo	I have
me llamo	I am called

[Y7 HT2 SP High Frequency Vocabulary Week 2 Flashcards | Quizlet](#)

Week 3:

tengo once años	I am 11 years old
tiene doce años	he is 12 years old
tiene trece años	she is 13 years old
¿Cuántos años tienes ?	How old are you ?
¿Cuándo es tu cumpleaños ?	When is your birthday ?
mi cumpleaños es el...	my birthday is the...
junio	June
julio	July
Tengo	I have
no tengo	I don't have

[Y7 HT2 SP High Frequency Vocabulary Week 3 Flashcards | Quizlet](#)

Week 4:

la fecha	date
¿Puedo ir al baño ?	Can I go to the toilet?
once	11
doce	12
trece	13
catorce	14
quince	15
dieciséis	16
mi cumpleaños	my birthday
tengo	I have

[Y7 HT2 SP High Frequency Vocabulary Week 4 Flashcards | Quizlet](#)

Week 5:

me encanta	I love
odio	I hate
me gusta	I like
no me gusta	I don't like
no me gusta nada	I really don't like
también	also
y	and
pero	but
la fecha	date
¿Puedo ir al baño ?	Can I go to the toilet?

[Y7 HT2 SP High Frequency Vocabulary Week 5 Flashcards | Quizlet](#)

Week 6:

pienso que	I think that
es	(he/she/it) is
son	(they) are
muy	very

bastante	quite
porque	because
fácil	easy
difícil	difficult
también	also
pero	but

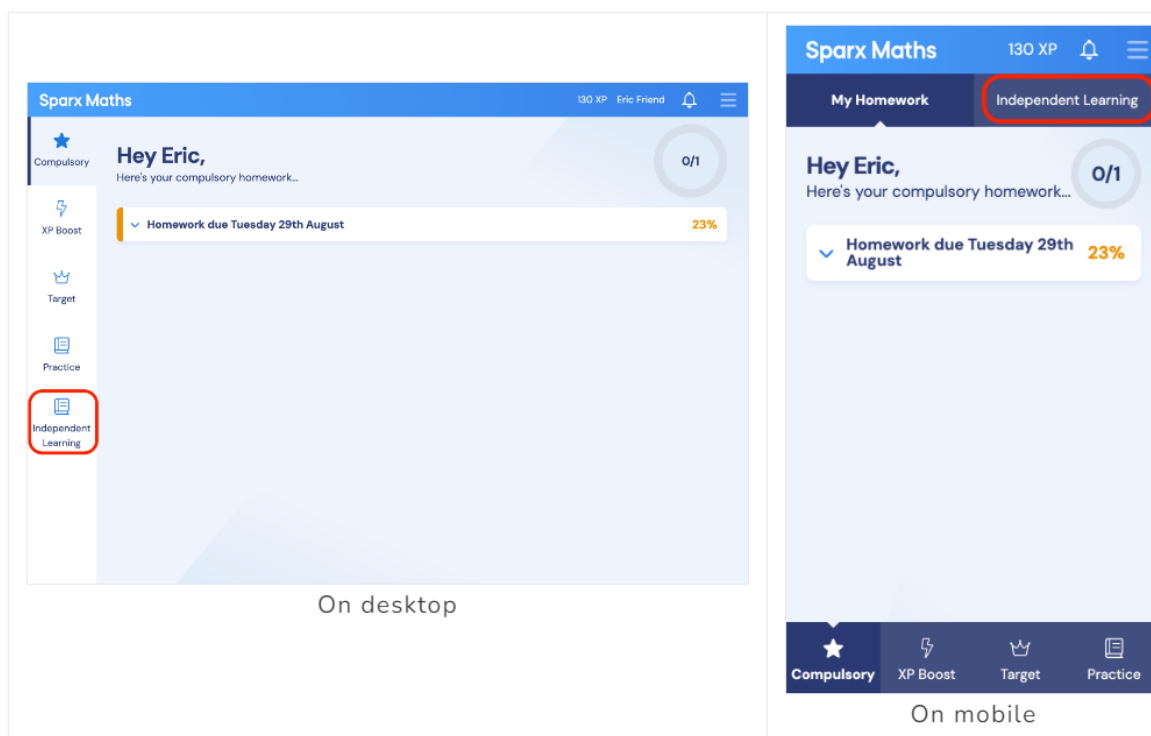
[Y7 HT2 SP High Frequency Vocabulary Week 6 Flashcards | Quizlet](#)

Maths

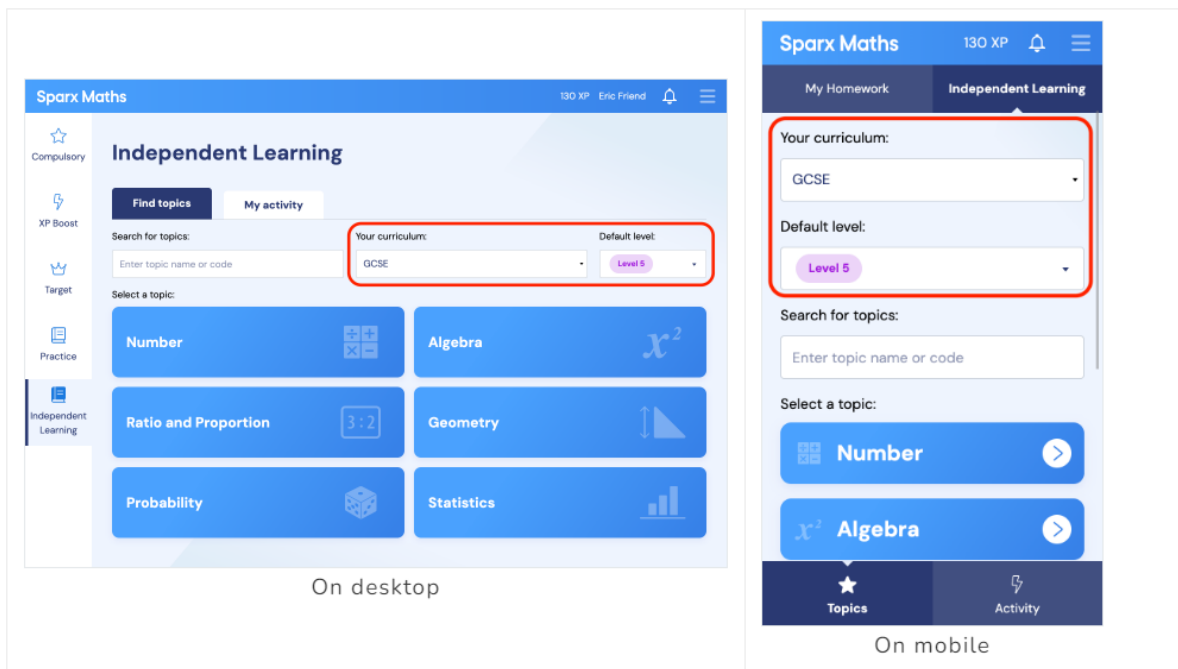
On a Monday, your Maths task will be set by your teacher. You should log on to Sparx Maths to complete this task. Your practice book has an area for your workings which you need to use as during the homework, Sparx Maths undertakes a bookwork check.

On a Thursday you practice independently on an area where you have a gap in your knowledge.

When logged in to Sparx students will always be able to see the Independent Learning option on the main menu:



Students have the option to choose both the **curriculum** they want to work on and the **default level** for the questions they will see, but when they first log in the curriculum will be the same as the **Base curriculum** that is set on their class' SoL, and the level will be set to the level they are being set for their homework (whether this was chosen by the algorithm or the teacher.)



- Typing one of the following in the **Search for topics field**:
 - The name of a topic
 - A keyword
 - A code given to them by their teacher. (Find out more about Topic Codes in our article on the [Independent Learning Page](#))
- Browsing the content by clicking on one of the main Strands:



Choosing what level to work at within a topic

When in a topic, students will see three sets of questions at the level set on their Independent Learning homepage (see image above) which they can choose from:

- **Introduce:** basics skills for this topic at this level
- **Strengthen:** questions to consolidate understanding
- **Deepen:** more problem-solving type questions to challenge

If students find questions too easy or too tricky, they can change the level of each individual topic*. This won't affect the overall level of questions in all other topic areas so they can tailor what they see to their strengths and weaknesses.

*Some topics won't have higher or lower levels depending on the subject chosen.

How students view their own progress

1. By a count next to each topic, and **Ticks** and **Stars** within each set of questions:



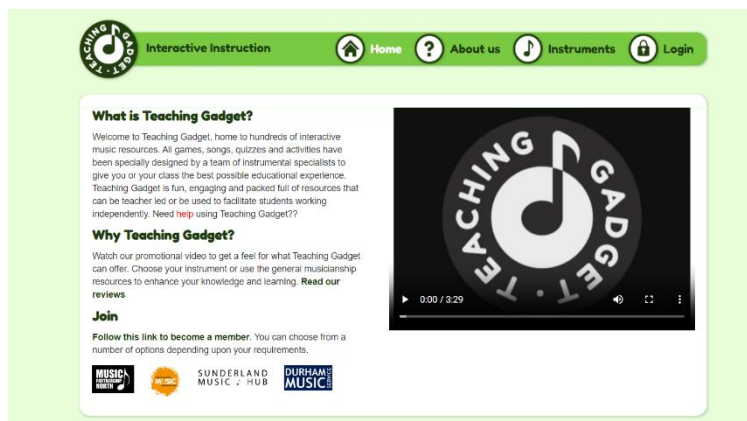
- Students will get a **tick** if they complete one of the tasks in the topic. This means all the basics are covered.
- Students will get a **star** for each subsequent task they complete.

Music

- 1) Go to teachinggadget.com on a computer or scan this QR code on your phone or tablet.

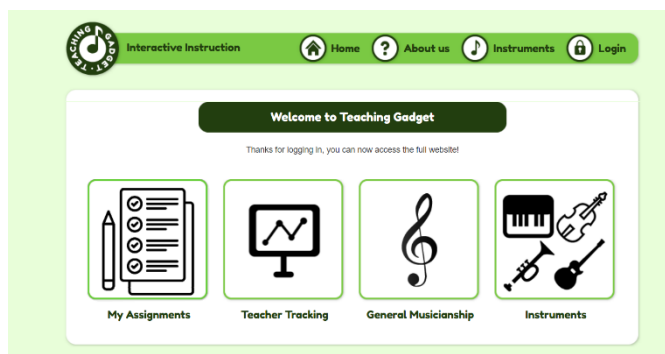


- 2) Click 'Log In'.



- 3) Type the username and password below:

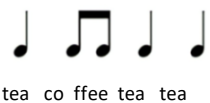
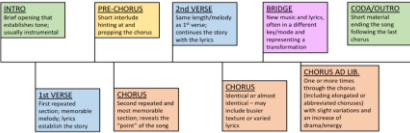
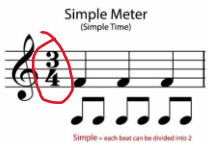
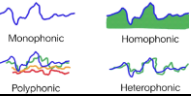
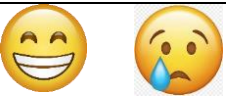
- 4) Click 'My Assignments'



5) Click the drop-down box and select your class. Then click the box 'Select Class'

6) The next page will display the lessons or quizzes you will need to complete for homework. Below is an example of what you will see.

Class	Assignment	Description	Date Set	Date Due
7G2 Leech MonP1	Pitch Quiz – Treble Clef Spaces	1.	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Treble Clef Lines	2.	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Treble Clef Level 1	3.	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Bass Clef Spaces	4. Extention	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Bass Clef Lines	5. Extension	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Bass Clef Level 1	6. Extension	20-11-2023	20-11-2023
7G2 Leech MonP1	Pitch Quiz – Alto Clef Level 1	Xander	20-11-2023	20-11-2023

D	Dynamics	How loud or quiet the music is played	
R	Rhythm	Rhythm and duration is how long or short a note or rest is	
S	Structure & Form	The overall plan or order of a piece of music	
M	Metre	How many beats are in the bar and what type of beat they are, the Time Signature The top number shows there are 3 beats in a bar The bottom number 4 shows the type of beat is a crotchet.	
	Melody	The tune. Moving by step or leap? High or low?	
I	Instrumentation / Voices (Sonority)	Describes the particular sound quality of an instrument or voice. E.g the cymbal sounds like a metallic crash	
T	Texture	Texture describes how melody, harmony and rhythm are layered in a piece of music	
	Tempo	How fast or slow the piece of music is played	
	Tonality	The key of the piece e.g Major or Minor	
H	Harmony	The chords (two notes or more notes played at the same time)	



Note Values

This is a *Rhythm Tree* – it is designed to help you identify what the symbols for different note values are, and how they relate to one another. Here are the note values!

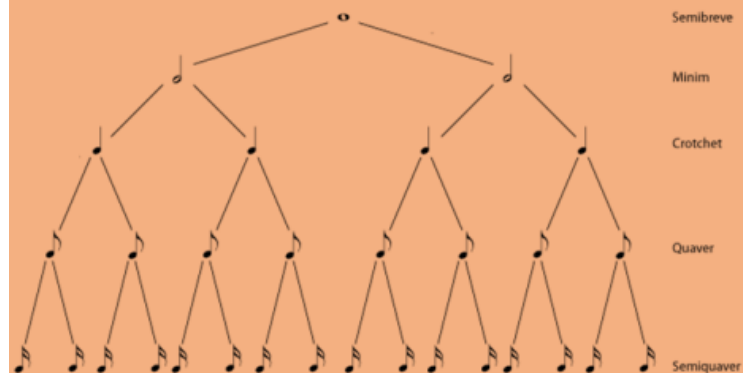
Semibreve = 4 beats

Minim = 2 beats

Crotchet = 1 beat

Quaver = ½ beat

Semiquaver = ¼ beat



Notes on the Stave

Here are the notes of the **treble** (top line) and **bass** (bottom line) clefs. When the notes fall outside the five lines of music paper, we add extra lines called **ledger** lines. Here are some phrases to help you remember where the notes go!

Treble Clef Lines: Every Green Bus Drives Fast

Treble Clef Spaces: F A C E (in the space!)

Bass Clef Lines: Green Buses Drive Fast Always

Bass Clef Spaces: All Cows Eat Grass

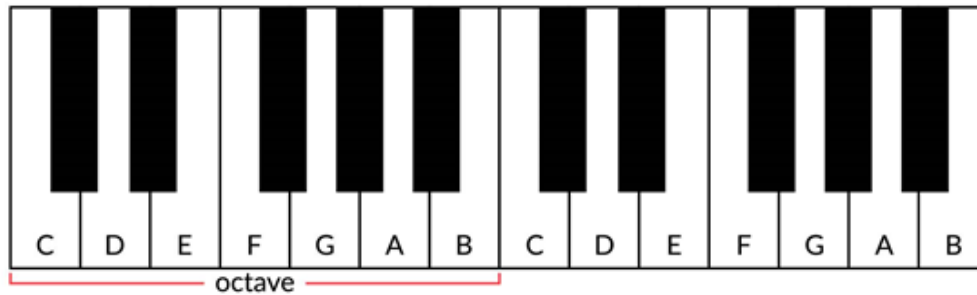


Keyboard Skills

Exploring Treble Clef Reading and Notation



A. Layout of a Keyboard/Piano



A piano or keyboard is laid out with **WHITE KEYS** and **Black Keys** (see section G). C is to the left of the two Black Keys and the notes continue to G then they go back to A again. Notes with the same letter name/pitch are said to be an **OCTAVE** apart. **MIDDLE C** is normally in the centre of a piano keyboard.

D. Keyboard Functions



E. Left Hand/Right Hand (1-5)



B. Treble Clef & Treble Clef Notation

A **STAVE** or **STAFF** is the name given to the five lines where musical notes are written. The position of notes on the stave or staff shows their **PITCH** (how high or low a note is). The **TREBLE CLEF** is a symbol used to show high-pitched notes on the stave and is *usually* used for the right hand on a piano or keyboard to play the **MELODY** and also used by high pitched instruments such as the flute and violin. The stave or staff is made up of 5 **LINES** and 4 **SPACES**.



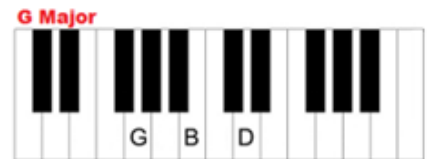
Every Green Bus Drives Fast. Notes in the **SPACES** spell "FACE"



Notes from **MIDDLE C** going up in pitch (all of the white notes) are called a **SCALE**.



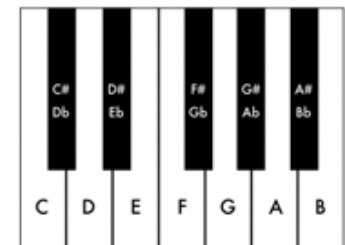
C. Keyboard Chords



Play one – Miss one – play one – miss one – play one

F. Black Keys and Sharps and Flats

There are five different black notes or keys on a piano or keyboard. They occur in groups of two and three right up the keyboard in different pitches. Each one can be a **SHARP** or a **FLAT**. The # symbol means a **SHARP** which raises the pitch by a semitone (e.g. C# is higher in pitch (to the right) than C). The b symbol means a **FLAT** which lowers the pitch by a semitone (e.g. Bb is lower in pitch (to the left) than B). Each black key has 2 names – C# is the same as Db – there's just two different ways of looking at it! Remember, black notes or keys that are to the **RIGHT** of a white note are called **SHARPS** and black notes to the **LEFT** of a white note are called **FLATS**.



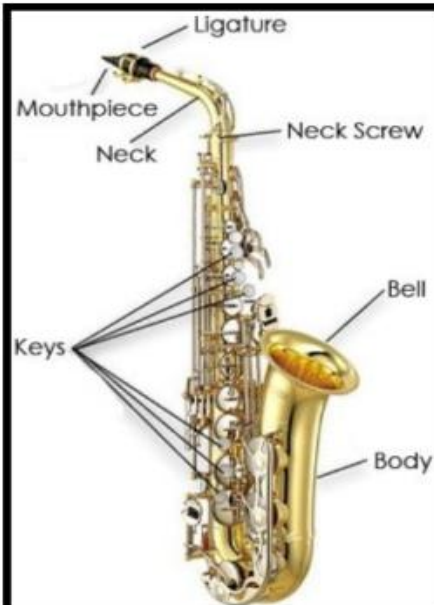


Beginner Saxophone – Autumn Term 'J6'



Key Parts of the Saxophone

- ♦ Pepper Pot
- ♦ Reed
- ♦ Mouthpiece
- ♦ Ligature
- ♦ Neck
- ♦ Body
- ♦ Bell
- ♦ Neck Strap



Name (UK)	Note	Rest	Beat Value
Semibreve			4
Minim			2
Crotchet			1
Quaver			1/2
Semiquaver			1/4



Reed



Pepper Pot,
Ligature, Mouthpiece



Parachute Cleaning
Cloth

12 Bar Blues

E	E	E	E
A	A	E	E
B	A	E	E

Listen to famous Saxophone songs here:



Blues Music





LGBTQ+

Representation – having a voice and a place within society

L – Lesbian

G – Gay

B – Bisexual

T - Transgender

Q – Queer or questioning

+ - The 'plus' is used to signify the gender identities and sexual orientations that are not specifically covered by the other five initials.

Follow the QR code to
watch more on
Remembrance →



**Every year the country
comes together for
Remembrance Sunday.**

A period of silence is held
at 11am to remember the
people who have died in
wars around the world.

44

British Values and Extremism

Individual
Democracy
Mutual
Rule of law
Tolerance
Celebration of
Other Faiths and
beliefs



<https://act.campaign.gov.uk/>

Extremism is the promotion or advancement of an
ideology based on violence, hatred or intolerance.

What does ACT stand for?

Use the QR code.

A _____ C _____ T _____

Sexual harassment:

it's sexual harassment if the behaviour is either meant to, or has
the effect of:

- violating your dignity, or
- creating an intimidating, hostile, degrading, humiliating or
offensive environment.

Sexual harassment can include:

- sexual comments or jokes
- physical behaviour, including unwelcome sexual advances,
touching and various forms of sexual assault
- displaying pictures, photos or drawings of a sexual nature
- sending emails or messages with a sexual content

#NotAtOurSchool

Religion and World Views

Week 1: Discovering Rastafarianism

Let's talk about how hair can be super special and a way to show who you really are! You know how sometimes you want to wear your favourite shirt, even if it doesn't match your pants? Well, some people feel that way about their hair. **They use their hair to say, "This is me!" even if it's different from what others expect.** In a place called Jamaica, some people started growing their hair in a special way called **dreadlocks. These are long, rope-like strands of hair.** They did this to show they were proud of who they were and that they didn't want to change to make others happy. There was a man named **Benjamin Zephaniah who loved this idea. He wrote poems and stories about being proud of who you are, even if you look different from others.** He thought it was important for everyone to feel good about themselves. Now, think about your own hair. How would you like to wear it to show the world who you are? Maybe you want it to be super long, or bright blue, or stick straight up! Your hair can be like a sign that says, "This is me, and I'm happy being me!" Remember, it's okay to be different. Your hair, just like you, is special and unique. And that's awesome.

What is Rastafarianism? Rastafarianism is a religion and way of life that began in Jamaica in the 1930s. People who follow this religion are called Rastafarians, or Rastas. They believe in living a natural and peaceful life, and they have a deep respect for nature and all living things.

Key Beliefs

- **One God:** Rastas believe in one God, whom they call Jah.
- **Haile Selassie I:** They believe that Haile Selassie I, the former Emperor of Ethiopia, is a divine figure.
- **Peace and Love:** Rastas promote peace, love, and unity among all people.

Symbols and Practices

- **Dreadlocks:** Many Rastas wear their hair in long, twisted locks called dreadlocks. This is a symbol of their faith and a natural way to wear their hair.
- **Reggae Music:** Reggae music, especially the songs of Bob Marley, is very important in Rastafarian culture. The music often talks about their beliefs and hopes for a better world.
- **Ital Food:** Rastas eat natural, healthy foods called Ital food. They avoid processed foods and often follow a vegetarian or vegan diet.
- **Fun Fact:** did you know that the colours red, gold, and green are very important to Rastas? These colours represent the Ethiopian flag and symbolize their connection to Africa.

Week 3: Exploring the Punk Movement

Let's talk about how you can use your hair to show what you believe in! **Imagine your hair is like a big sign that you wear on your head. Some people use their hair to tell others what they think is important or what they want to change in the world.**

People called "punks" made their hair super colourful and spiky. They did this to show they didn't like some of the rules grown-ups made. Sometimes, people grow their hair long or cut it all off to say something important. Long hair might mean "I don't want to follow all the rules," while no hair might mean "I care a lot about this special thing." For some people, their hair is special because of where they come from or what they believe. They might wear their hair in a certain way to show they're proud of who they are.

Now, think about what's important to you. Maybe you don't like it when people are mean to others, or when people don't take care of the earth. **You could use your hair to show that! Maybe you could make it look like a rainbow to show you want everyone to be kind or make it green to show you care about plants and animals.** Remember, your hair is yours to style however you want. It's a fun way to tell the world what you care about without saying a word!

What is the Punk Movement?

The punk movement is a style of music, fashion, and attitude that started in the 1970s. It began in places like the United States and the United Kingdom. Punk is all about being different, expressing yourself, and sometimes challenging the rules.

Key Features of Punk

- **Music:** Punk music is loud, fast, and energetic. Bands like The Ramones and The Sex Pistols are famous punk bands. The songs often talk about freedom and standing up for yourself.
- **Fashion:** Punk fashion is unique and bold. People might wear ripped clothes, leather jackets, and have colourful hair. Safety pins and spikes are also popular accessories.
- **Attitude:** Punk is about being yourself and not worrying about what others think. It's about questioning things and sometimes rebelling against unfair rules.

Fun Fact

Did you know that punk music inspired many other types of music, like alternative rock and grunge? Punk's influence can still be seen in music today!

Week 5: How Our Hair Shows Our Identity sum up all our learning so far.

Did you know that our hair can tell a lot about who we are? People all around the world use their hair to express their culture, beliefs, and personal style. Let's explore how hair can be a part of our identity!

Cultural Significance

- **Traditional Hairstyles:** In many cultures, specific hairstyles are passed down through generations. For example, in some African cultures, braids and cornrows are traditional styles that have been worn for centuries.
- **Ceremonial Haircuts:** Some cultures have special ceremonies for cutting hair. In Hindu culture, the first haircut of a child is a significant event called Mundan.

Personal Expression

- **Unique Styles:** People often choose hairstyles that reflect their personality. Some might like bright, colorful hair, while others prefer simple, natural looks.
- **Fashion Trends:** Hairstyles can also follow fashion trends. For example, in the 1980s, big, puffy hair was very popular!

Beliefs and Identity

- **Religious Practices:** Some religions have specific rules about hair. For instance, Sikh men wear turbans to cover their uncut hair as a sign of respect and faith.
- **Symbol of Strength:** In some cultures, long hair is seen as a symbol of strength and power. For example, the story of Samson in the Bible tells of a man whose strength was in his long hair.

Fun Fact: did you know that hair can also be a way to show support for a cause? People sometimes dye their hair in bright colours to raise awareness for different issues, like pink for breast cancer awareness.

Science – Physics

Week 1 - How does a wave travel?

A wave is the transfer of energy with no overall transfer of matter

There are 2 different types of wave.

1. Transverse waves

In transverse waves particles vibrate up and down. The direction of the wave is from left to right. Therefore, transverse waves are defined as 'a wave where particles travel at a right angle to the direction of the wave.'

Examples of transverse waves include:

Light waves, water ripples, x-rays, radio waves, microwaves.

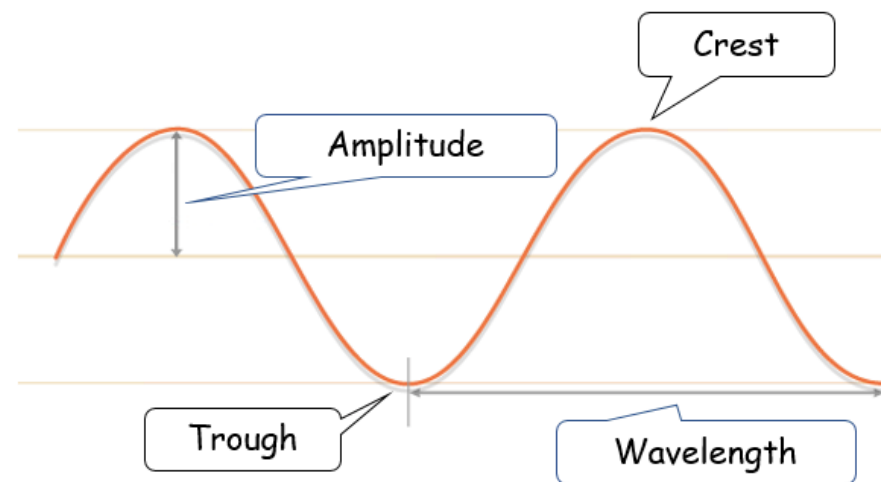
2. Longitudinal waves

In longitudinal waves particles vibrate back and forth, the direction of the wave goes from left to right. Therefore, longitudinal waves are defined as 'a wave where particles move parallel to the direction of the wave.'

Examples of longitudinal waves

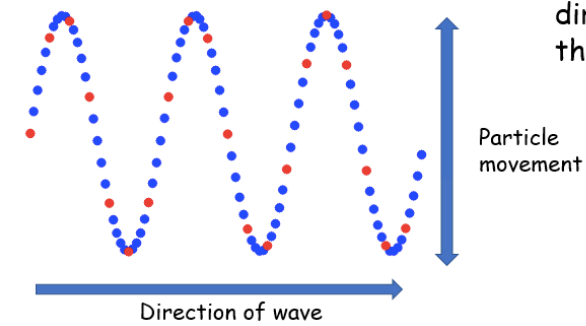
Sound waves, seismic waves (shock waves from earthquakes)

Labelling a transverse wave:

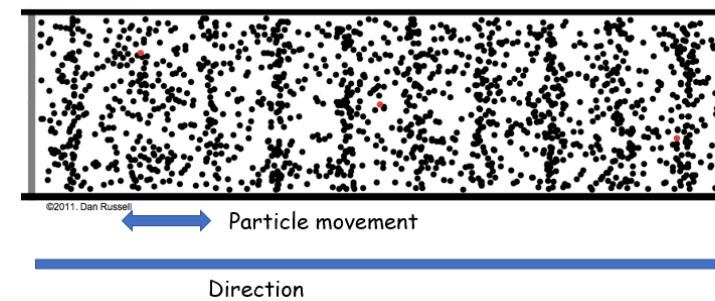


Frequency is the number of complete waves per second. Frequency is measured in hertz (Hz).

Transverse waves...



Longitudinal waves



Crest – highest point in a wave

Trough – lowest point in a wave

Amplitude – distance from the centre line to a crest or trough (measured in metres)

Wavelength – length of one full wave (easiest to measure from one peak to the next. Or from one trough to the next (measured in meters).

Week 2 - How does sound travel?

Sounds are made by something **vibrating**.
The vibrations push the air particles, these particles then collide with (bump into) neighbouring particles, passing along the sound wave.

Examples:

- When you speak, vocal cords vibrate.
- When you play a guitar, the strings vibrate.
- When a tuning fork is tapped, the prongs vibrate to make a note.

Amplitude (m) – shows the intensity (loudness) of the sound.

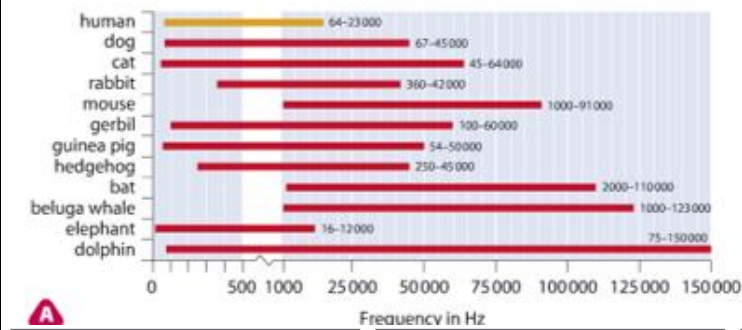
The bigger the amplitude, the louder the sound.

Wavelength (m) – shows the pitch of the sound.

The shorter the wavelength the higher the pitch of the sound.

Different animals can hear different frequencies of sound.

Humans have a hearing range between 20Hz to 20,000Hz (although this can vary between individuals)

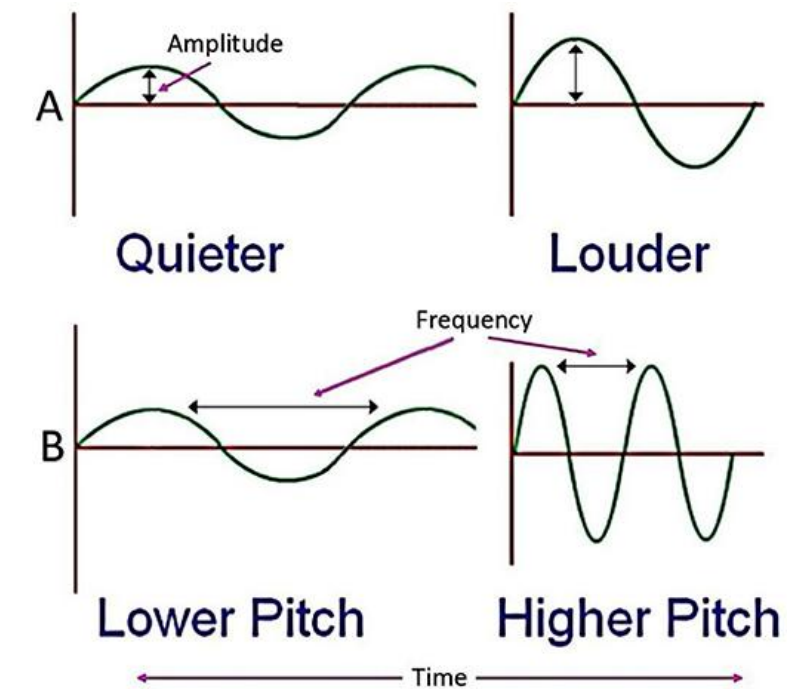


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Particles in a **solid** are very close together. They are held together with strong bonds. Sound vibrations can move very quickly through solids because the particles are close to each other and bump into each other often. It is easy for the vibrations to be passed on.

Particles in a **liquid** are close together. They are able to move about. Sound vibrations move more slowly than in a solid because the particles are a bit further apart and do not bump into each other quite as often.

In a **gas** the particles are very far apart. They can move easily in all directions. The particles do not bump into each other very often, so it is more difficult for vibrations to be passed on. Sound vibrations travel more slowly in a gas than they do in solids and liquids.



The speed of sound in air 340 m/s

Sound travels at different speeds through different types of material. Sound travels fastest in solids as the particles are close together so particles can easily collide and pass on the vibrations. Sound travels slowest in gases because the particles are very spread out.

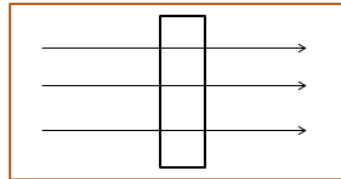
Remember sound waves are longitudinal waves.

Week 3 - What is light?

Luminous sources are objects that give off light. **Non-luminous** objects do not give off light.

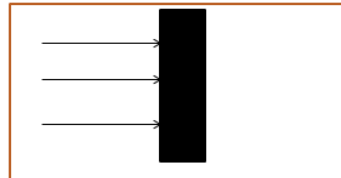
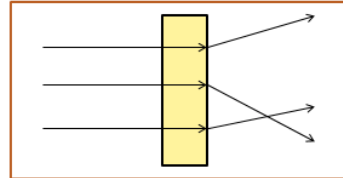
Light travels in rays. Light travels from the luminous objects to a person's eye.

Objects can be **transparent**, **translucent** or **opaque**.



Transparent – these are materials which let all of the light straight through.

Translucent – these materials let light through but it is randomly scattered.

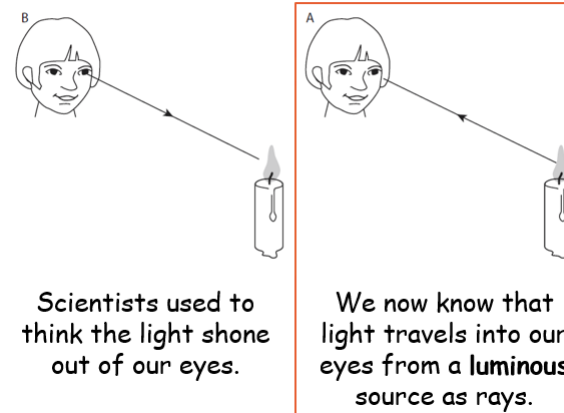


Opaque – these materials let no light through.

Examples:

Transparent	Translucent	Opaque
Clear glass	Frosted glass	Wood
Wine glass	Tracing paper	Book
Air	Cling film	Brick
Clean water	Marble	Steel
		Pencil

The Direction of Light



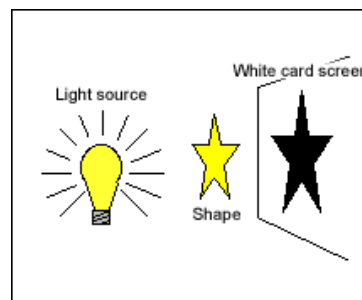
Scientists used to think the light shone out of our eyes.

We now know that light travels into our eyes from a **luminous** source as rays.

Arrows are always needed on light rays to show the direction light is travelling

Shadows form behind opaque objects because light cannot travel through them. **Light travels in a straight line** so cannot bend around them.

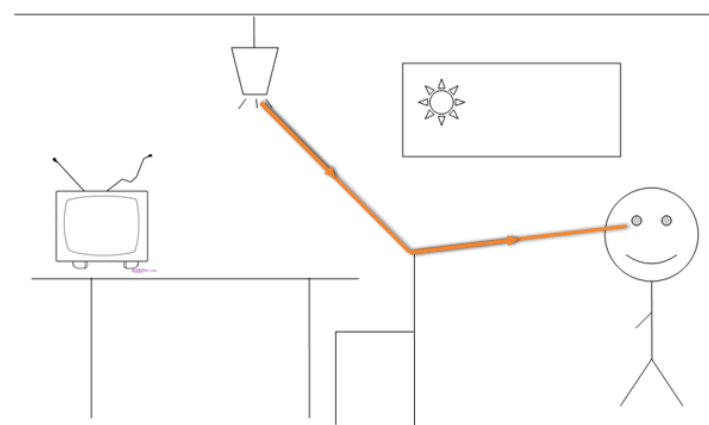
Shadows are the absence of light.



Light travels at approximately 300,000,000m/s!

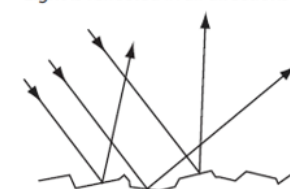
Remember light is a transverse wave.

Light from luminous sources bounces off (reflects off) opaque objects. Meaning we can see them:

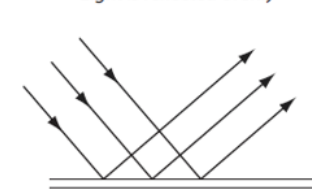


Light scatters in different directions when it reflects off rough surfaces. A mirror has a very smooth surface so it reflects light evenly.

Light is reflected in all directions



Light is reflected evenly



Week 4 - How is heat transferred?

Heat can transfer by **conduction**, **convection** or **radiation**.

1. Conduction

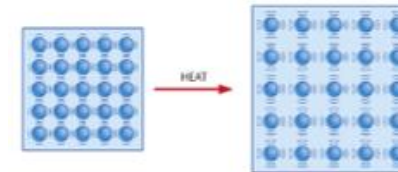
An object that easily allows heat to pass through is known as a good **thermal conductor** e.g. copper, aluminium (and other metals)

An object that does not easily allow heat to pass through is known as a **thermal insulator** e.g. plastic, wood, rubber.

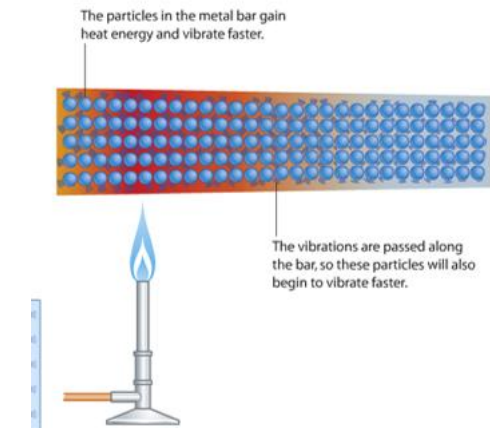
Heat transfers by conduction through solid conductors. When particles in solid conductors are heated the energy transferred causes the particles to vibrate faster (gain kinetic energy).

As the particles vibrate they collide into the particles next to them, causing the energy to pass through the solid.

Air is a poor conductor because particles in gas are spread out. Therefore, it's hard for the particles to collide and pass on the vibrations.



Heat energy is also known as thermal energy.



Metals also expand when they are heated..

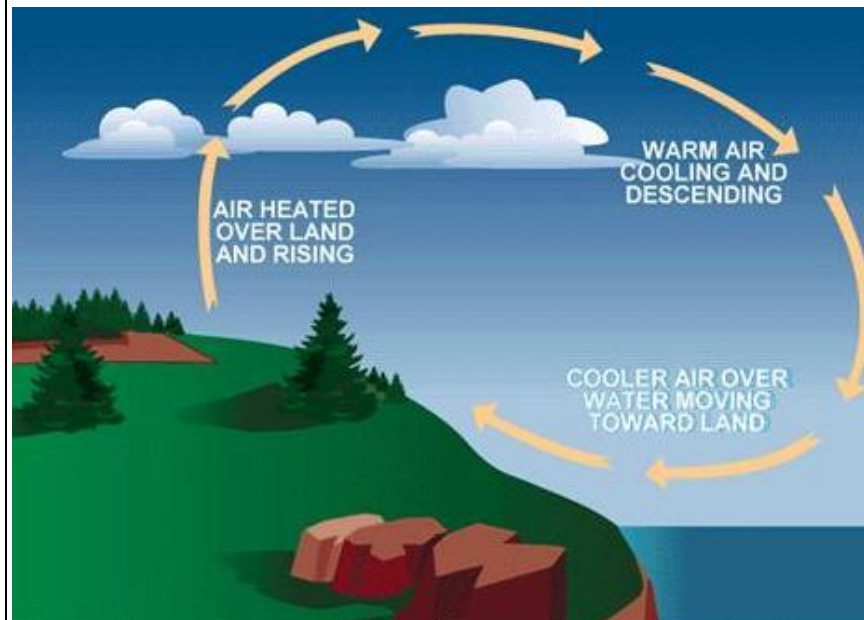
As the particles vibrate more, they need more space to move around in and so the solid will expand. When a solid expands it has the same mass but it takes up more space. Its density will decrease.

2. Convection

Heat cannot travel by conduction well through fluids (liquids and gases).

Heat transfers through fluids by **convection**.

Example:



3.

Radiation

Thermal radiation does not require particles, it transfers heat via a wave (**infrared**). We can't see infrared only feel it as heat.

All hot objects emit infrared radiation – including us!

Special infrared cameras can sense this infrared energy, and produce a picture for us to see.

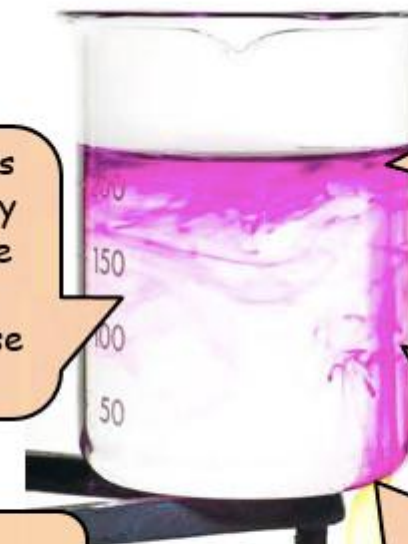
4. As the particles reach the top they cool. They become closer together, become more dense so sink

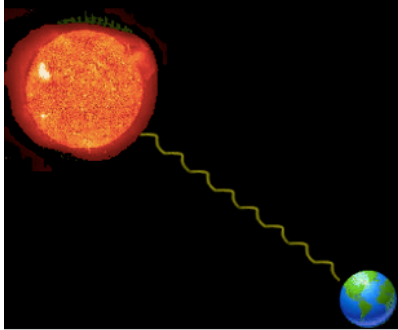
5. This is known as a **convection current**.

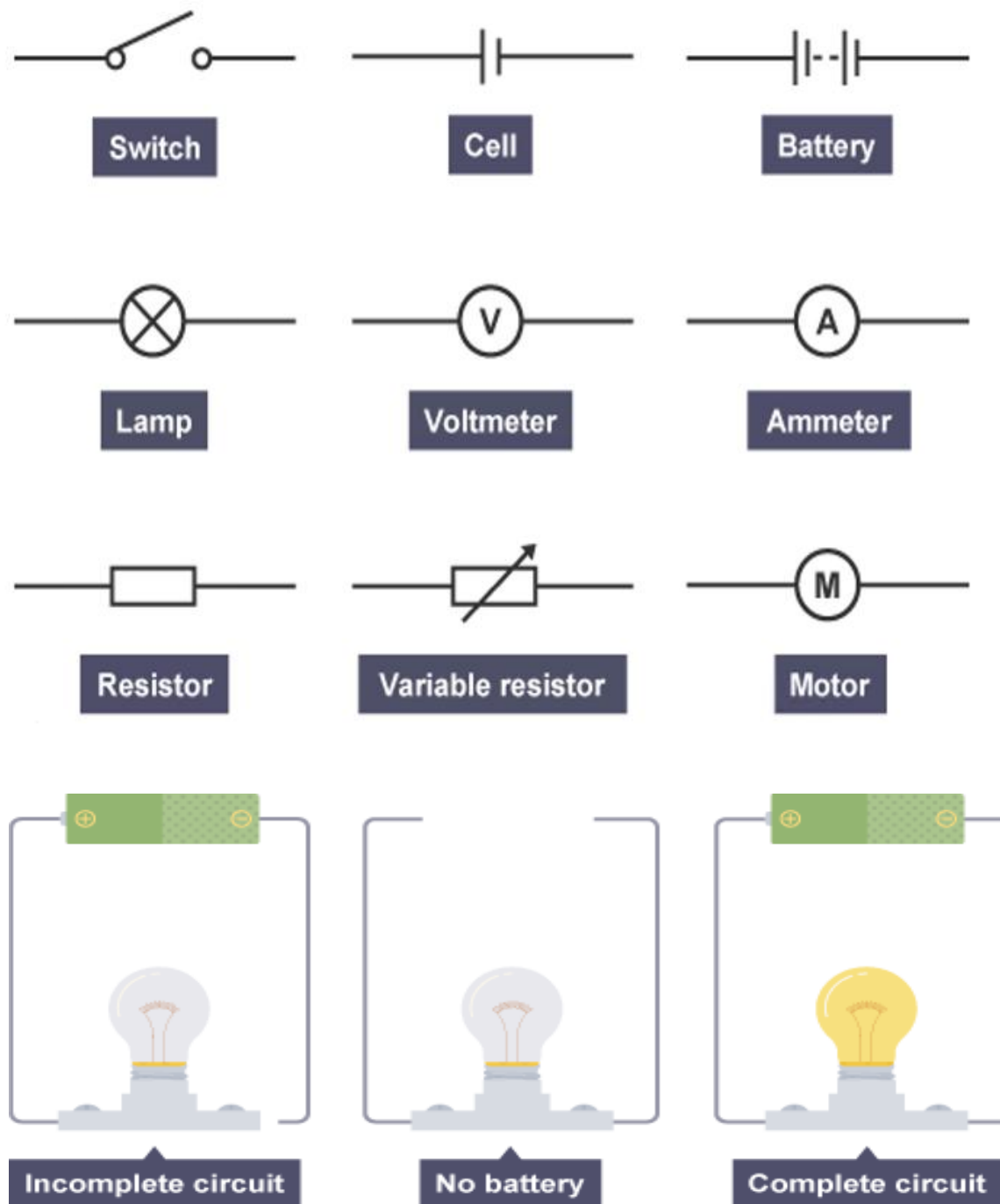
3. Less dense fluids rise

2. Because the particles take up more space they become less dense than the surrounding particles.

1. As the particles are heated they vibrate more and take up more space.



	When radiation hits something, it can be absorbed or reflected. Light coloured, shiny materials reflect the most radiation. Dull, dark, matt objects absorb the most radiation  - There are no particles in space (it is a vacuum) so conduction and convection won't work - Heat from the sun travels via infrared radiation 
Week 5 - What is energy?	Energy is defined as “something that is needed to make things happen or change” Energy is always measured in Joules (J) Energy stores include: - Chemical (e.g. stored in fuels, foods, batteries) - Kinetic (stored in anything that is moving) - Thermal (stored in anything hot) - Strain/Elastic potential (stored in stretched springs, or stretched elastic objects) - Gravitational potential (stored in anything above ground level) - Nuclear (stored in the nucleus of atoms) Energy transfers include: - Mechanical (transferred when a force makes something move) - Heating (transferred via conduction, convection and radiation – see next lesson) - Light (Transferred by anything giving off light) - Sound (Transferred by anything giving off sound) - Electrical (Transferred where there is electricity e.g. around a circuit) The law of conservation of energy: Energy cannot be created or destroyed it can only be stored or transferred. <u>Energy transfer diagrams</u> When processes happen energy can be transferred from one form to another. This can be shown on an energy transfer diagram.  Chemical → Electrical → Light
Week 6 - How can I build a circuit?	Electrical energy is transferred around circuits. The most basic circuits consist of a power source, wires and other components (like a bulb) To make it easier for us to draw circuits we use circuit symbols. Some are shown below:



In physics a cell is a single unit that stores chemical energy – what we would normally call an individual ‘battery.’ Two or more cells is known as a battery.

Three basic things are needed for a working circuit:

1. Power source
2. No gaps – complete circuit
3. Conductors