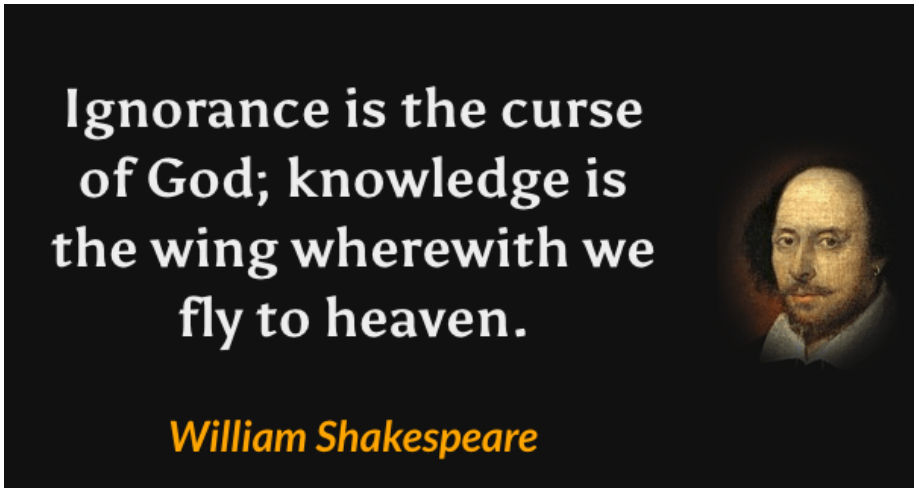
Dorset Studio School
CENTRE OF EXCELLENCE FOR ENVIRONMENTAL SCIENCES

Knowledge Organiser Booklet

Year 7 Spring Half Term 1



Name:_____ Tutor group:_____

Contents

Education Endowment Foundation

Research carried out by the Education Endowment Foundation proved that: Homework has a positive impact on average of + 5 months, particularly with pupils in secondary schools.

Home learning timetable

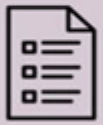
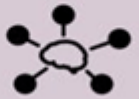
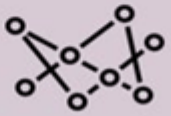
The table below details which days each subject will set home learning on each week. Students will have one week to complete home learning tasks for each subject.

Group	Monday	Tuesday	Wednesday	Thursday	Friday
7N	Humanities Art	Science MFL	Maths Science	English Music	Reading
7E	MFL Science	Art Humanities	Maths Science	English	Music Reading
7W	MFL	Science Art	Maths Humanities	English Science	Music Reading

Please note you have two science teachers; science home learning will be set by both teachers

These knowledge organisers have been created by your teachers to support your learning both in class and for home learning. They are also a valuable revision tool for you to use independently when preparing for assessments. It is important that you make good use of your knowledge organisers by learning how to use them in different ways.

How to use a knowledge organiser – step by step guide

	Look, Cover, Write, Check	Definitions of Key Words	Flash Cards	Self Quizzing	Mind Maps	Paired Retrieval
Step 1	Look at and study a specific area of your KO. 	Write down the key words and definitions. 	Use your KO to condense and write down key facts or information onto flash cards. 	Use your KO to create a mini quiz. Write down your questions using your KO. 	Create a mind map with all the information you can remember from your KO. 	Ask a friend or family member to have the KO or flash cards in their hands. 
Step 2	Cover or flip the KO over and write down everything you can remember. 	Try not to use your KO to help you. 	Add pictures to help support. Then self-quiz using the flash cards. You could write questions on one side, and answers on the other! 	Answer the questions and remember to use full sentences. 	Check your KO to see if there are any mistakes on your mind map. 	They can test you by asking you questions on different sections of your KO. 
Step 3	Check what you have written down. Correct any mistakes in green pen and add anything you have missed. Repeat. 	Use your green pen to check your work. 	Ask a friend or family member to quiz you on the knowledge. 	Ask a friend or family member to quiz you using the questions. 	Try to make connections, linking the information together. 	Write down your answers, 

Poetic Structures

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

Poetic Techniques

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

PARAGRAPH STRUCTURE

Point

Evidence

Explain the effects of the language on the reader

Link to the other text

Repeat for second text

Useful Sentence Starters

Point	Evidence	Explain
The writer uses… The writer gives the impression that… We can clearly see…	We see this when… …in the line '__' When X says '_'…	This:- suggests implies highlights illustrates portrays conveys the idea depicts contrasts with reinforces

Comparison Connectives	
Similarly	In contrast / Contrastingly
In the same way	On the other hand
Also	However
In addition	Whereas

Tentative Phrases	
Could	Maybe
Might	Possibly
May	Perhaps
Appears	Seems to

Approaching unseen poems

FLIRT

Remember to FLIRT with the poem:

Find the meaning.

Language needs to be explored.

Imagery should be considered.

Rhyme, rhythm and structure.

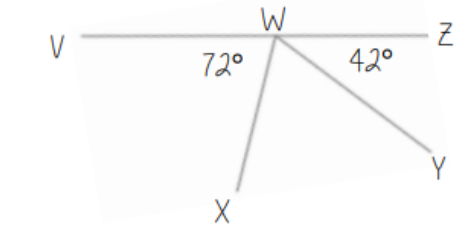
Themes within the poem.

7N: Angles, shapes, perimeter, area and volume

Year 7 Maths: Spring 1

Sum of angles on a straight line

Adjacent angles that share a common point on a line add up to 180°



Find angle XWY

72° + 42° = 114°

180° - 114° = **66°**

Classify angles

Acute Angles
0° < angle < 90°

Obtuse
90° < angle < 180°

Reflex
180° < angle < 360°

Right Angles
90°

Right angle notation

Straight Line
180°

Volumes

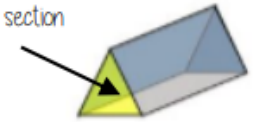
Volume is the 3D space it takes up – also known as capacity if using liquids to fill the space

Counting cubes
Some 3D shape volumes can be calculated by counting the number of cubes that fit inside the shape.

Cubes/ Cuboids = base x width x height

Remember multiplication is commutative

Cross section



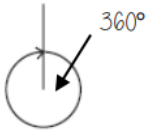
Cross section

Prisms and cylinders = area cross section x height

Height can also be described as depth

Sum of angles at a point

The sum of angles around a point is 360°



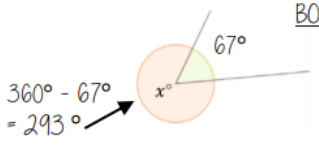
Find angle BOE

90° + 33° + 92° = 205°

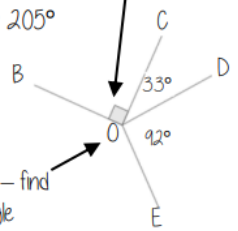
360° - 205°

BOE = **155°**

Angle notation – 90°

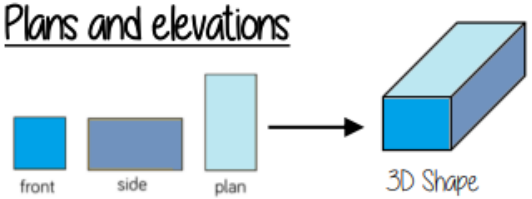


360° - 67° = 293°



Angle notation – find this missing angle

Plans and elevations



The direction you are considering the shape from determines the front and side views

Area of 2D shapes

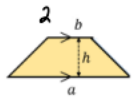
R

Rectangle
Base x Height

Triangle
½ x Base x Perpendicular height

Parallelogram/ Rhombus
Base x Perpendicular height

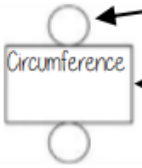
Area of a trapezium
$\frac{(a+b)\times h}{2}$



Area of a circle
π x radius²

Surface area - cylinders

The area of the circle
π x radius²



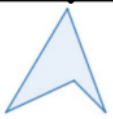
The width of this face is the same as the circumference
π x diameter x height

2 x π x radius² + π x diameter x height

Sum of angles in quadrilaterals

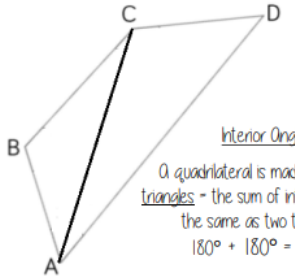
Sum of interior angles in a quadrilateral = 360°

Convex Quadrilateral



Concave Quadrilateral

Interior angles are those that make up the perimeter (outline) of the shape



Interior Angles

A quadrilateral is made up of two triangles - the sum of interior angles is the same as two triangles:
180° + 180° = 360°

7E: Angles and lines and transformations

Year 7 Maths: Spring 1 - 1.1

Sum of angles on a straight line

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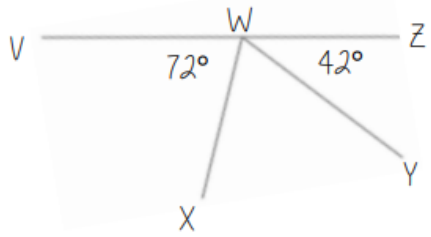

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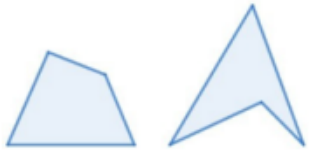

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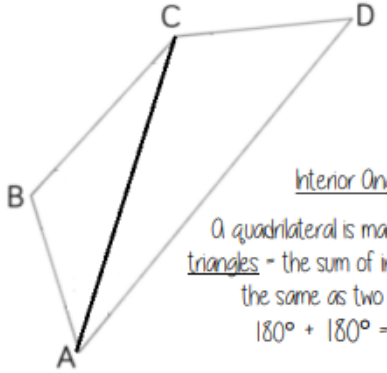

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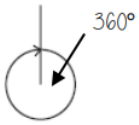

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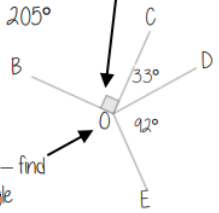

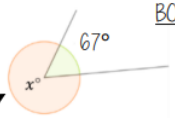

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Angle notation – find this missing angle

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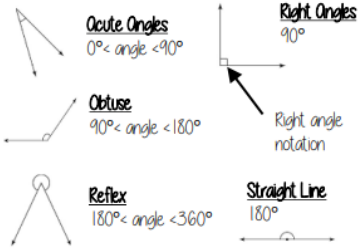
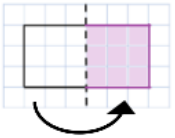
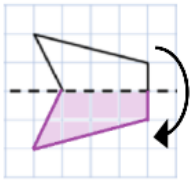


Reflect horizontally/ vertically (1)



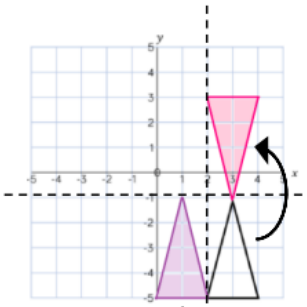
Note: a reflection doubles the area of the original shape

Reflection in a vertical line



Reflection in a horizontal line

Reflection on an axis grid

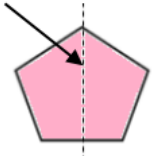


Reflection in the line y=-2

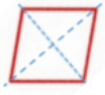
Reflection in the line x=2

Lines of symmetry

Mirror line (line of reflection)



Shapes can have more than one line of symmetry... This regular polygon (a regular pentagon has 5 lines of symmetry)



Rhombus
two lines of symmetry

Parallelogram
No lines of symmetry

A circle has an infinite amount of lines of symmetry

7W: Angles and lines and transformations

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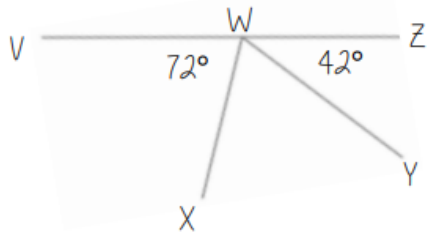

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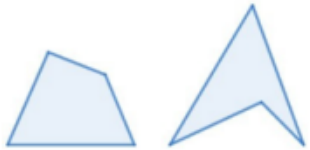

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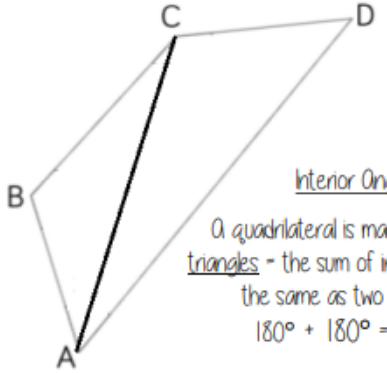

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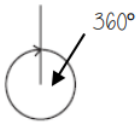

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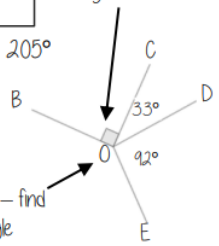

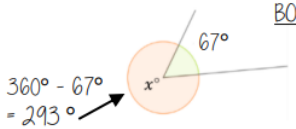

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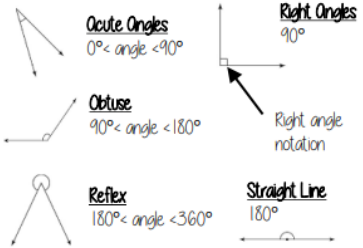
Classify angles



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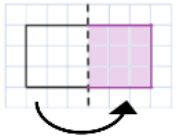

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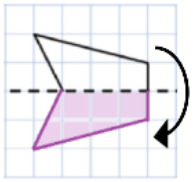
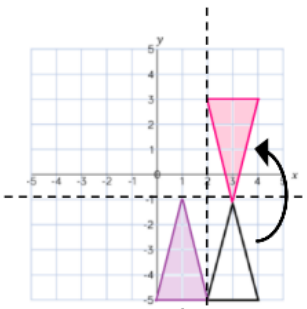
Reflection in a vertical line



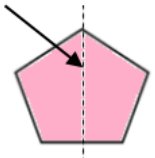
Reflection in a horizontal line

Reflection on an axis grid



Lines of symmetry

Mirror line (line of reflection)



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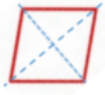

Rhombus
two lines of symmetry

Parallelogram
No lines of symmetry

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Atoms - There are 92 types of atoms that exist naturally. All chemical substances are made of atoms.

Each type of atom has its own chemical and physical properties.

Elements - There are 92 types of elements that exist naturally.

An element is a chemical made **only** of **one type of atom.**

An element **cannot** be broken down into other substances.

The names and symbols of all the elements can be found in the **Periodic Table** of elements.

Hydrogen	H
Carbon	C
Nitrogen	N
Oxygen	O
Sodium	Na
Magnesium	Mg
Aluminium	Al
Silicon	Si
Sulfur	S

Chlorine	Cl
Potassium	K
Calcium	Ca
Iron	Fe
Copper	Cu
Zinc	Zn
Silver	Ag
Gold	Au
Lead	Pb

Compounds - There are millions of compounds that exist naturally.

A compound is a chemical made of **two or more types of atom chemically bonded** together.

A compound **can** be broken down into other substances.

In a compound made of a **metal** and a **non-metal**, the name of the metal comes first. (iron bromide, magnesium fluoride)

If the non-metal atom is oxygen, it is called oxide. (copper oxide)
If the non-metal atom is chlorine, it is called chloride. (sodium chloride)

In a compound made of a **non-metal** and **oxygen**, oxygen comes second and is called monoxide if there is one oxygen atom or dioxide for two oxygen atoms.
(carbon monoxide, sulfur dioxide)

Molecule – Made of atoms chemically bonded together.

It might be an **element**, several of the **same type** of atom bonded together.
It might be a **compound**, with **two or more types** of atoms.

Chemical formulae – tells you how many of each atom there are in a molecule.

For example water - H_2O – two hydrogen atoms and one oxygen atom

A **chemical reaction** is a process where **atoms** are **rearranged** to make **new substances** with the **atoms joined together in different ways.**

Thermal decomposition reactions

A decomposition reaction is when a **substance breaks down into simpler substances**.

They need **heat** to happen.

Oxidation is when **substances react with oxygen.**

Combustion is a type of oxidation reaction where a **fuel reacts (burns)** with **oxygen.** This **transfers energy by heating.**

Most fuels produce **carbon dioxide** and **water** when combusted. This release of carbon dioxide is harmful to the environment and a cause of climate change.

Hydrogen can also be combusted and used as a fuel. This may be better than using fossil fuels because **it only produces water** as a product.

$$2H_2 + O_2 \rightarrow 2H_2O$$

Equations

The substances that you **start** with in a reaction are called **reactants**, and the ones you **finish** with are the **products**.

We can represent a reaction with a **word equation**.
The reactants are on the left
The products are on the right
There is an → from the reactants to the products

Conservation of mass

In a reaction, atoms are not created or destroyed – they are just rearranged.

The total mass of the reactants is always equal to the total mass of the products.

This is called conservation of mass.

Energy transfer	Type of reaction
From the surroundings, which cool down, to the reaction.	**Endothermic**
From the reaction to the surroundings, which heat up.	**Exothermic**

Observations

If a chemical reaction is happening you might:
1 see flames or sparks
2 notice a smell
3 hear fizzing or a bang
4 feel the temperature of the reaction mixture going up or down

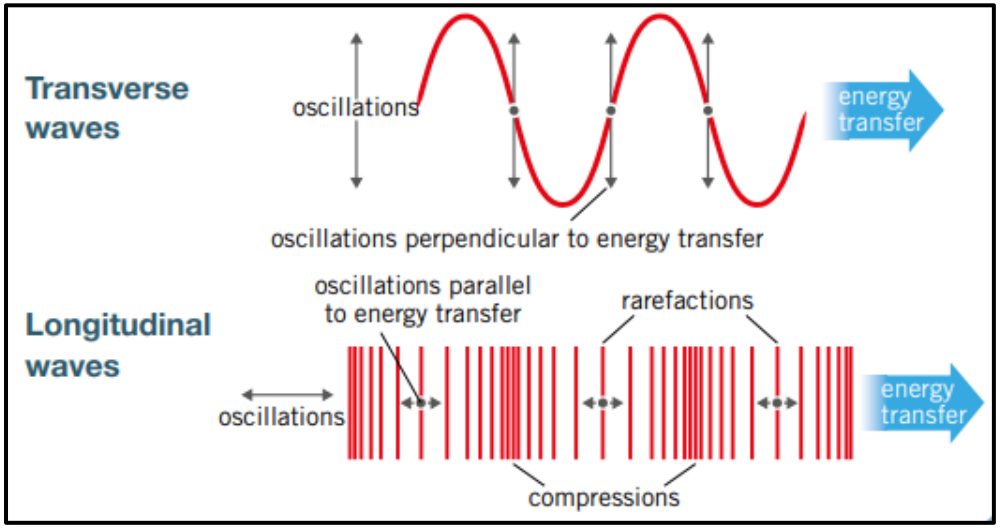
Catalysts

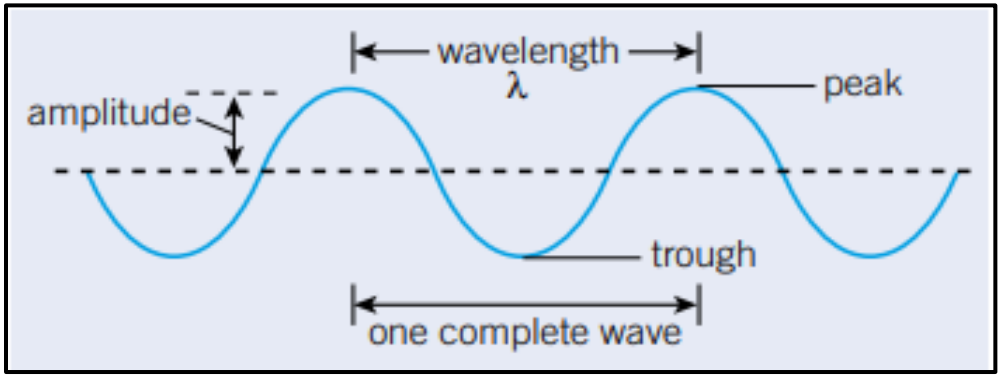
A catalyst can **speed up** a reaction.
A catalyst **isn't used up** in the reaction.
Different reactions require different catalysts.

Chemical reactions are normally **not reversible**. This means that you cannot turn the products back into reactants.

Changes of state are **not chemical reactions**, they **are reversible,** they are called a **physical change**. This is because no new substances are made.

A **wave** is an oscillation or vibration that **transfers energy**. Matter is not transferred. Sound is produced by **vibrations**. It travels as a **longitudinal wave**.



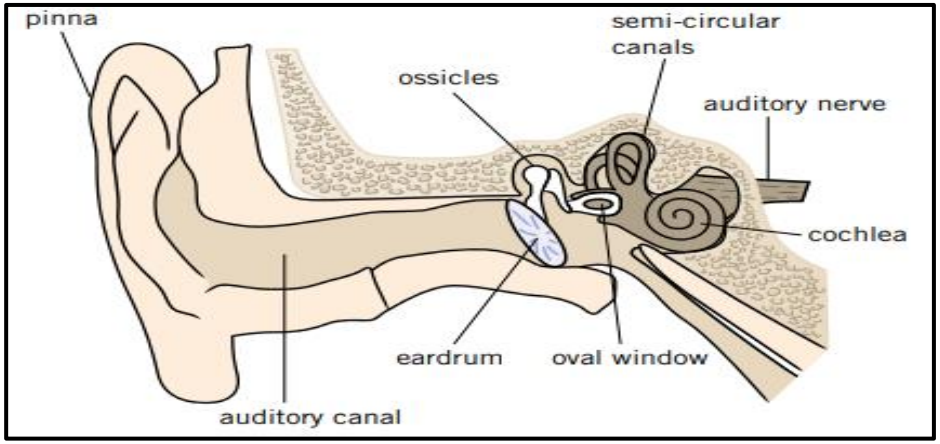


Frequency - how many waves go past a particular point in a second, measured in hertz (Hz) or kilohertz (kHz).

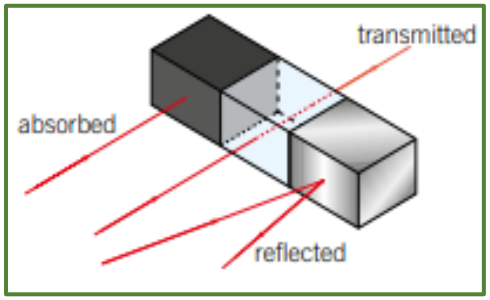
Volume – measured in decibels (dB).

Infrasound – below 20Hz. **Ultrasound** – above 20 kHz

Humans can hear frequencies **20 Hz to 20 kHz**.



Part of ear	Structure and function
Outer ear	Pinna – directs sound into …
	Auditory canal
	Eardrum - vibrates
Middle ear	Ossicles – amplifies vibrations
	Oval window - vibrates
Inner ear	Cochlea – detects vibrations
	Semi-circular canals –keep you balanced



Luminous objects are sources of light.

Non-luminous objects do not produce their own light.

When light hits an object it can be **absorbed**, **reflected**, or **transmitted**.

If an object is:
- **transparent** – most light is transmitted in a straight line
- **translucent** – light is scattered as it is transmitted
- **opaque** – no light is transmitted so a shadow is produced.

The **speed of light** in air is **300 000 km/s**.

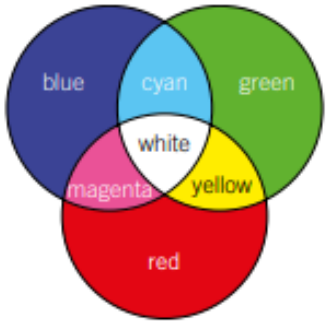
A **prism disperses** light into a continuous **spectrum** of colours ; Red, Orange, Yellow, Green, Blue, Indigo, Violet

The **primary colours** of light are red, green, and blue.

We see the **secondary colours** of light when any two primary colours are mixed.

The **secondary colours** of light are yellow, cyan and magenta.

We see **white** when all three primary colours of light are mixed.



Filters only allow their own colour of light to pass through.

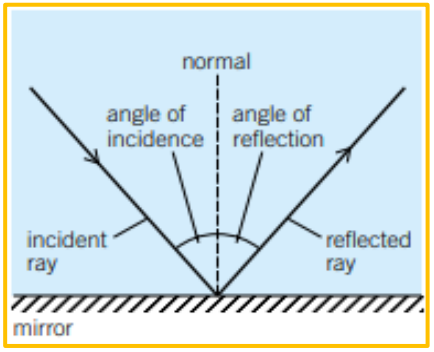
Coloured objects only **reflect** their **own colour** of light, all **other colours** are **absorbed**.

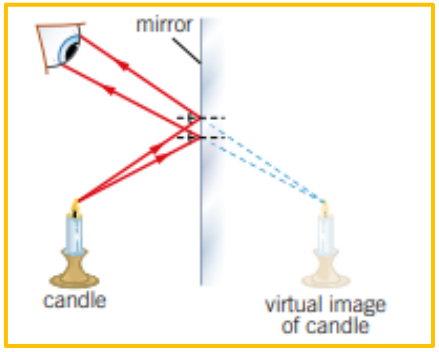
Black objects **absorb all colours.** White objects **reflect all colours**.

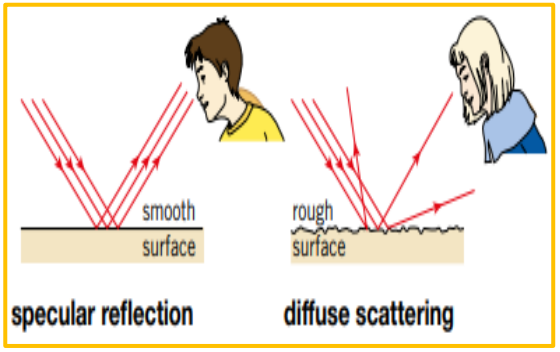
The **law of reflection** states that: The angle of incidence is equal to the angle of reflection.

Images in mirrors are **virtual** – they look like they are behind the mirror.

Mirrors cause **specular reflection**. Rough surfaces like paper cause **diffuse scattering**.

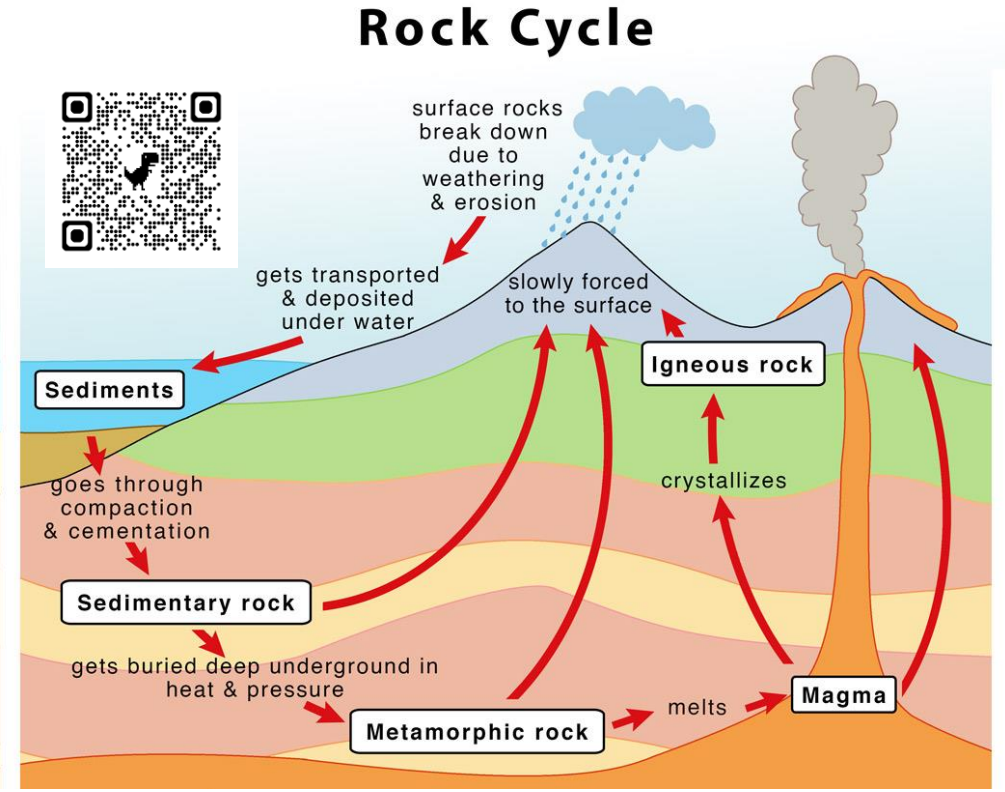






3.1 KEY TERMS	
3.1.1. Landscape	The visible features of an area of land.
3.1.2. Uplands	Land that is hilly or mountainous.
3.1.3. Foreground	The part of the view that is at the front.
3.1.4. Land use	What land is used for e.g. farming or industry.
3.1.5. Physical Layer	Where rock type (geology), geology and landscape processes have created a physical landscape.
3.1.6. Biological Layer	The layer that includes soil, plants and trees.
3.1.7. Human Layer	This includes settlements, communications, industry and farming.

3.2 Landscape processes	
3.2.1. Geology	The study of the rocks beneath our feet
3.2.2. Rock cycle	When one type of rock changes into another type of rock
3.2.3. Igneous	A type of rock formed on the earths surface (during volcanic eruptions) or deep underground by the cooling of molten lava
3.2.4. Sedimentary	A type of rock formed by the deposition of sediment e.g. sandstone.
3.2.5. Metamorphic	A type of rock that has undergone change due to intense heat and/or pressure e.g. slate.
3.2.6. Transportation	The movement of material from one place to another.
3.2.7. Deposition	Leaving or depositing transported material.



The Rock Cycle

Long Profile of River Severn

Compare intensive farming landscape to re-wilded one

Topic Tent Posts: Rewilding land once used for intensive farming

Key Vocabulary

- Intensive farming
- Landscape
- Rewilding
- Monocrops
- Global Goal 15

Habitat

Pre-wilded Woodbury Farm

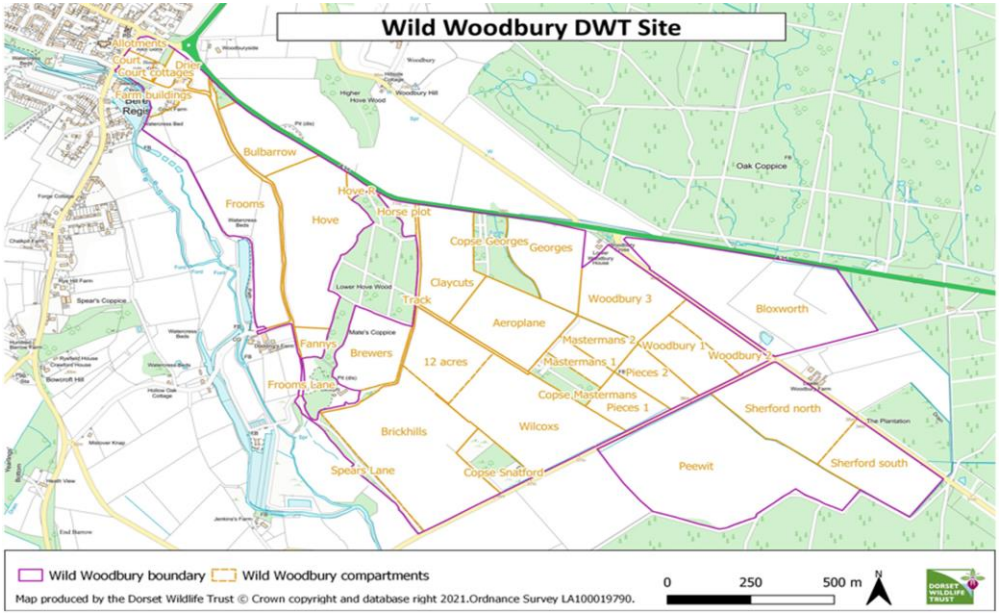
- Was used for grazing veal calves until they go to market weight
- To grow feed for the veal calves
- It needed expensive fertilizer
- Paid for by the BPS (Basic Payment Scheme) UK Government funded through it's farming department DEFRA.
- It was this funding alone that made it work.

Re-wilded Woodbury

- The plants and animals that live in **wetlands** are specially adapted for semi-aquatic conditions and are therefore entirely dependant on the continuation of these habitats for their survival.
- Exmoor PoniesGrazing animals eat selectively and often choose more dominant plant species
- This allows competitive plants to thrive.
- Wildflowers encourage insects, which are eaten by birds and mammals. Increasing biodiversity.
- The cattle and ponies decide for themselves where to concentrate their grazing efforts creating a mosaic of different heights of vegetation and micro-habitats.

Mission

To tackle the ecological and climate crises, Dorset Wildlife Trust acquired 170 hectares (170ha) of land near Bere Regis for a large-scale rewilding project.



Challenges and pressure

Local farmers object to air borne spread of weeds such as thistle.

Solutions

Rewilding

Storing carbon

New wildlife habitats

Rewetting

Cleaning water

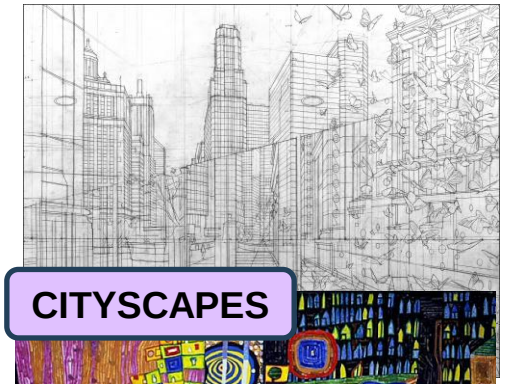
New wetland habitats

LANDSCAPES

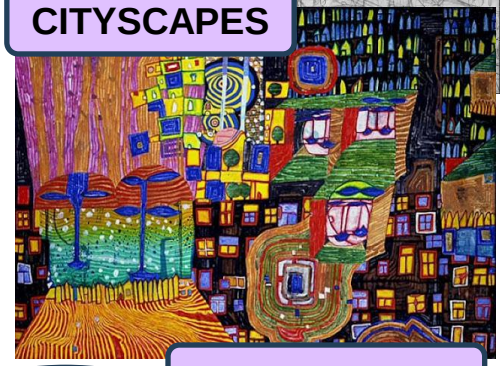
Painting: Watercolour, blending, wet wash

Printing: Line, shape, composition, polyprinting

COLOUR

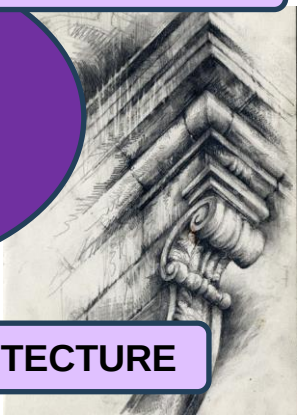


CITYSCAPES



PERSPECTIVE

Drawing: Pencil,charcoal, fineliner, cross-hatching



ARCHITECTURE

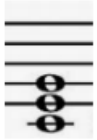
ABSTRACT

Oil pastel: Blending, directional lines, tone, texture

Key vocabulary
Abstract
Blending
Contrast
Line
Pattern
Cross-hatching
Mixed media
Proportion
Composition
One point perspective
Architecture
Neo-Impressionist
Polyprinting

Artists we will study: Wassily Kandinsky, Paul Klee, Friedensreich Huntertwasser, Henri Rousseau, Ian Murphy, Nathan Walsh

1. The Musical Elements are the basic building blocks of all music

Melody			**Melody** is The tune; high and low **pitch** notes
Articulation			**Articulation** Is The way a note is played; **staccato** (short) or **legato** (smooth)
Dynamics			**Dynamics** are how loud or quiet the music is
Texture			**Texture** is how thick or thin the music is (how many instruments are playing)
Structure			**Structure** is the building blocks of music (How it is put together)
Harmony			**Harmony** is the effect of two or more notes sounding simultaneously; **chords**, **bass line**
Instrument/ timbre			**Timbre** is the specific sound an instrument makes
Rhythm			**Rhythm** is the pattern of long and short notes. **Duration** is how long or short the note is
Tempo			**Tempo** is how fast or slow the music is played

2. Keywords

Conductor	Person who stands at the front of the orchestra and directs it. They indicate the main beats in the music using a baton (a 'stick' that they hold and beat time with).
Orchestra	A large ensemble (group of musicians) divided into four sections - Strings, Woodwind, Brass and Percussion

3. String section

- Violin
- Viola
- Cello
- Double Bass
- Harp

4. Woodwind section

- Piccolo
- Flute
- Clarinet
- Oboe
- Bassoon

5. Brass section

- Trumpet
- French Horn
- Trombone
- Tuba

6. Percussion section

4.1 Tuned Percussion (Can play different pitches)


Timpani


Piano


Xylophone


Glockenspiel

4.2 Untuned Percussion (Can only play one pitch)


Cymbals


Bass Drum


Snare Drum


Guiro

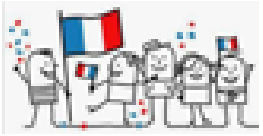

Woodblock


Tambourine


Triangle


Maracas

The French fashion industry is important to France's economy and culture in many ways, it accounts for 3.1% of GDP and Paris is said to be the capital of fashion. Paris has a fashion week once a year in Autumn. Famous French designers include: Christian Dior, Jean-Paul Gautier, Yves Saint Laurent and Chanel



Je porte = I wear

Je préfère porter = I prefer to wear

Je n'aime pas = I don't like

J'adore = I love

C'est à la mode = it's in fashion

Ce n'est pas à la mode = it's not in fashion

Pour aller au collège... = to go to school

Pour sortir avec mes amis = to go out with friends

Pour travailler = for work

LES VETEMENTS


Un polo


Un tee-shirt


Un sweat


Un jean


Des chaussures


Un pull


Une chemise


Des chaussettes


Un pantalon


Une jupe


Des baskets


Un blouson

What is Eco Fashion?

Eco-fashion, also known as sustainable fashion, is a social and cultural movement that aims to reduce the environmental impact of the fashion industry.

Ethical and responsibly sourced fashion is produced in a way that is socially and environmentally responsible. It focuses on fair, healthy working conditions, and a fair living wage. It also considers the materials used, the dyes and finishes, and the company's policies and track record.

Why do we use Spreadsheets?

- Spreadsheets are used to store information and data.
- Once we have our information in a spreadsheet we can run powerful calculations, make graphs and charts and analyse patterns/trends.
- Charts/Graphs can be used to clearly display the information in a spreadsheet
- How to use spreadsheets. Use this QR code to learn and test yourself on the BBC Bitesize website www.bbc.co.uk/bitesize/guides/zdydmp3/revision/1

Google Sheets

How spreadsheets work – what software do we need?

- At Dorset Studio School, we use Google Sheets. This works with our Chromebooks and is linked with our Google Drive.
- The other popular software for creating and editing spreadsheets is Microsoft Excel. Most PCs use Microsoft Excel.

What can spreadsheets be used for?

- Spreadsheets are used by many businesses around the world. Some examples:
- Budget tracker e.g. working out the costs for a school prom
- Stock tracking of a business such as a market stall selling fruit and vegetables (see example image on the right)
- A teacher may also use it to keep a record of grades.

File Edit View Insert Format Tools Data Window Help

	A	B	C	D	E
1	Produce	Unit	Number sold	Price	Sales
2	Apples	kg	7	£0.70	£4.90
3	Potatoes	25kg	8	£6.00	£48.00
4	Oranges	kg	6	£0.90	£5.40
5	Carrots	25kg	8	£8.50	£68.00
6	Sprouts	kg	4	£1.40	£5.60
7	Cabbage	kg	6	£0.70	£4.20
8	Onions	kg	9	£0.56	£5.04
9				Total	£141.14

Page 1 Page 2

Formulas	Functions
Formulas and functions are extremely useful features. They make automatic calculations that update when the data changes.	

• Formulas are usually simple calculations, e.g. adding two or more numbers together.
• They always start with an equals sign (=).
• There are a number of symbols used in formulas or calculations.
• These are the most common ones:
  ○ '+' add
  ○ '-' subtract
  ○ '*' multiply
  ○ '/' divide
	• Functions make more complex calculations.
	• Like formulas, all functions start with an equals sign (=) followed by the function's name, e.g. =SUM, =MIN, =MAX, etc.
	• Simple and regularly used functions include:
	  ○ SUM – adds values in selected cells
	  ○ MIN – finds smallest value
	  ○ MAX – finds largest value
	  ○ AVERAGE – finds the average value
	  ○ COUNT – counts how many of the selected cells have numbers in them

Spreadsheets Key words	
Axis labels on charts	A label for a chart or graph's horizontal or vertical axis that explains what the value relates to.
Cell	An individual spreadsheet box where you enter data.
Cell reference	Names of individual cells (B3 for example).
Column	Cells that go down the spreadsheet page.
Computer model	Predicts and investigates how real-life devices might behave in different situations.
Data	Values, typically letters or numbers.
Formatting cells	The appearance of a document, including the fonts, colours, size and rotation.
Formula	Makes automatic calculations that update when the data does.
Function	Makes more complex calculations.
Row	Cells that go across the spreadsheet page.
Sort / Filter	Sorting data organises it alphabetically or numerically. Filtering data makes it easy for us to find a piece of data.