KNOWLEDGE ORGANISER

YEAR 7 – TERM 4

THOMAS HALL SCHOOL

Think Like An
Environmentalist

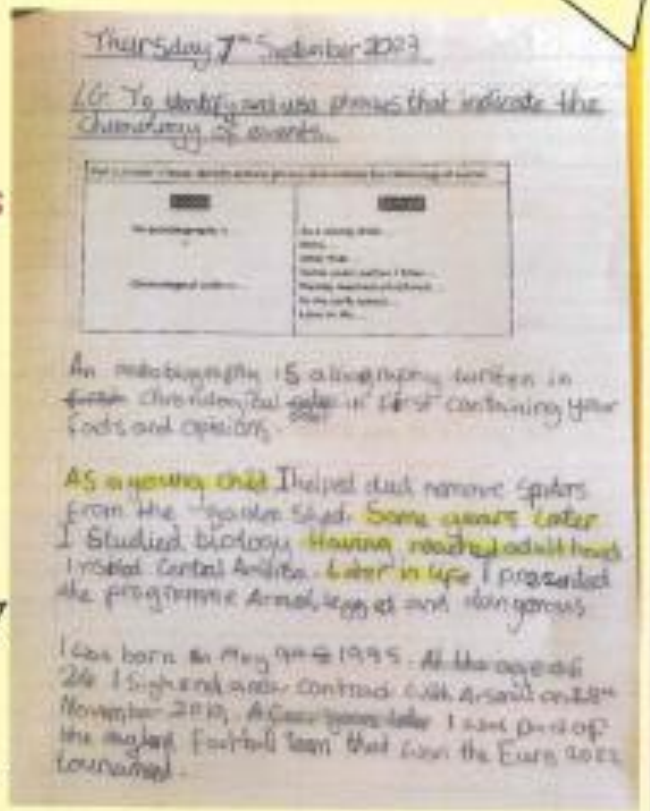
Community, Collaboration and Challenge

Long date and learning goal (LG) on left and underlined.

Minimise errors

Use pencil or blue or black pen for all written work, ruler for straight lines.

Worksheets glued in straight, next to margin.


Thursday 7th September 2017

LO: To identify and use phrases that indicate the chronology of events.

An autobiography is a biography written in chronological order in first person using past tense verbs and opinions.

As a young child I helped dad remove spiders from the garden shed. Some years later I studied biology. Having reached adulthood I visited Central America. Later in life I preceded the programme Armed, Legal and Dangerous.

I was born on May 9th 1995. At the age of 24 I signed a new contract with Arsenal on 28th November 2019. A few years later I was part of the England Football team that won the Euro 2021 tournament.


Music notes:

Numbered questions written in margin.

Always try your best to be neat (even when note taking).

Feel proud

Prepare for the future

Respond to feedback in green pen.

Easier to read and give better feedback

Single line through mistake. No scribbles.

ATTENDANCE MATTERS

EVERY DAY COUNTS
Missing just 1 day every 2 weeks is the same as missing 10% of the school year.

LEARNING
Being in school allows you the best opportunity to learn.

WELLBEING
Attending school supports your mental and emotional health.

FUTURE SUCCESS
Regular attendonce at school is vitol for building the key skills needed for future employment

EQUIPMENT

SCHOOL DAY

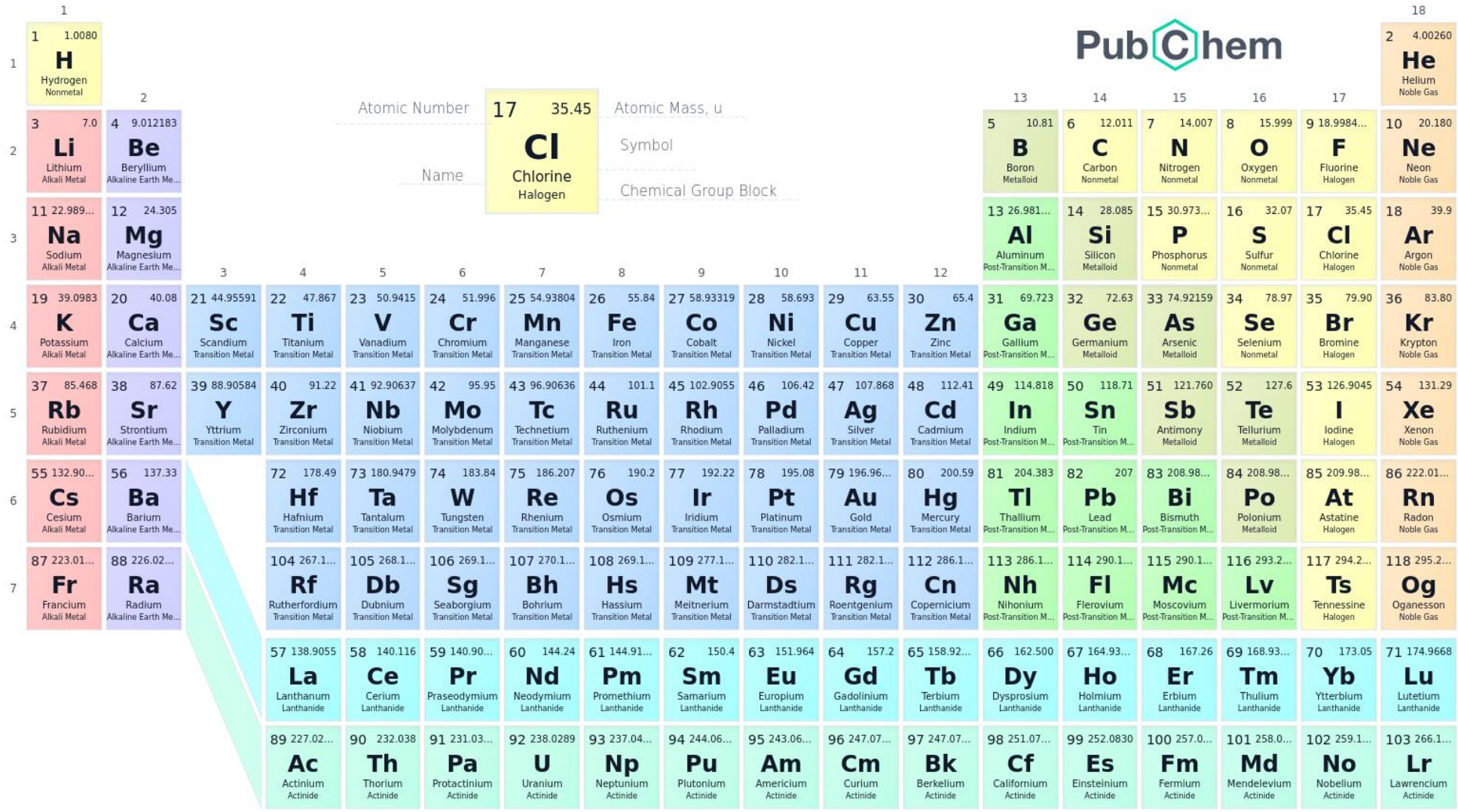
9:00–9:05	AM Reg
9:05–10:20	Lesson 1
10:20–11:35	Lesson 2
11:35–12:05	Break 1
12:05–13:20	Lesson 3
13:20–13:50	Break 2
13:50–15:05	Lesson 4
15:05–15:30	PM Reg – assembly or guided reading

Multiplication Grid

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

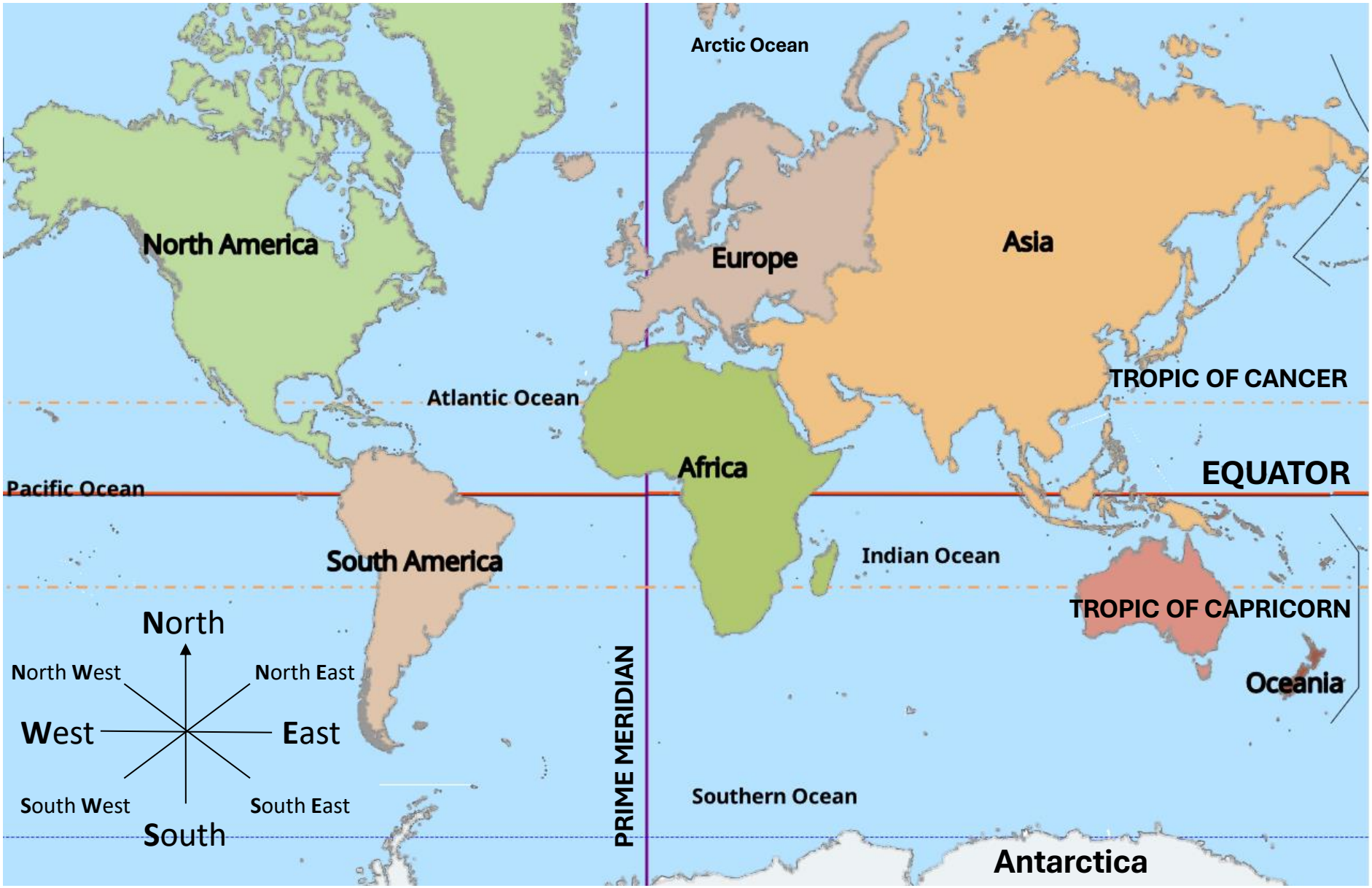
PERIODIC TABLE OF ELEMENTS

Chemical Group Block




01 Adjectives
THAT DESCRIBE:
age: young, old
colour: red, blue
condition: new, used
size: large, medium
speed: fast, slow
etc.
COMPARATIVE:
smaller, better...
SUPERLATIVE:
the smallest,
the worst,
the best...
02 Adverbs
PLACE:
here, there,
outside, everywhere,
upstairs, nowhere,
somewhere....
TIME:
ago, before, since,
yet, for, still,
afterwards...
FREQUENCY:
often, never,
sometimes, always
MANNER:
just, quite,
quickly, hardly,
well, carefully,
barely, almost,
scarcely,
beautifully...
03 Conjunctions
COORDINATING:
and, or, but,
yet, nor, for, so
CORRELATIVE:
both... and...,
either... or...,
just as... so...,
whether... or...,
neither... nor...,
not only... but also...
SUBORDINATING:
after, since, if,
while, although,
before, because,
unless
04 Determiners
TELLS US WHICH:
each, every,
some, none,
all...
TELLS US WHOSE:
my, your, her, his, its,
our, your, their (= possessive
adjectives or determiners)
05 Nouns
COMMON NOUNS: house, dog, laptop...
PROPER NOUNS:
(Capitalised)
London, Paris,
James, William,
Julia, Jennifer...
> VERBAL:
swimming...
> COLLECTIVE:
choir, jury...
> COMPOUND:
mother-in-law...
> COUNTABLE:
book, day...
> UNCOUNTABLE:
traffic, calm...
> ABSTRACT V. CONCRETE:
wit vs. road...
06 Prepositions
PLACE / DIRECTION:
in, at, on,
under, above,
across,
among,
between...
TIME:
in, at, on,
over, until, about,
during, before,
after, while,
through...
OTHER (agent,
phrase...):
by, with, on, over,
to, up, within,
beyond, for...
07 Pronouns
PERSONAL
(subject):
I, you, he, she, it,
we,
you, they
PERSONAL
(reflexive):
myself, yourself,
himself, herself,
itself, ourselves,
yourselves,
themselves
DEMONSTRATIVE:
this, these,
that, those
PERSONAL
(object):
me, you, him, her,
it, us, you, them
POSSESSIVE:
mine, yours, his,
hers, its, ours,
yours, theirs
INTERROGATIVE:
how, where,
when, which...?
INDEFINITE:
somebody,
anyone...
RELATIVE:
that, which,
whose, whom...
08 Verbs
ACTION:
to run, to organise,
to read, to think...
> Transitive
or
> Intransitive
LINKING:
to be,
to look, to appear,
to seem, to smell...
HELPING
(= AUXILIARY):
can, may,
will, must,
should, to be,
to have...
Word Classes

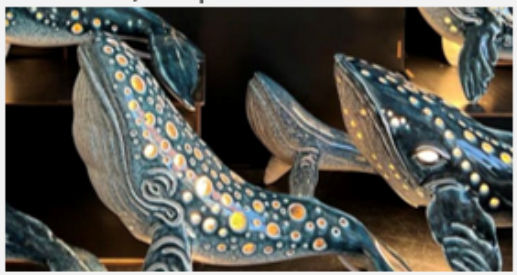
World Map


Arctic Ocean
North America
Europe
Asia
Atlantic Ocean
TROPIC OF CANCER
Africa
EQUATOR
Pacific Ocean
South America
Indian Ocean
TROPIC OF CAPRICORN
Oceania
North
North West
North East
West
East
South West
South East
South
PRIME MERIDIAN
Southern Ocean
Antarctica

Art

Year 7 3D Techniques Art Term 4

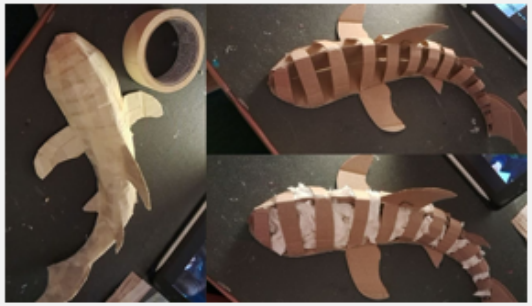
Sculpture: Paper Mache
This unit explores 3D form through papier-mâché techniques. Students will design and construct a sculpture inspired by cultural or contemporary art, developing skills in design, structure, surface decoration, and presentation.



Techniques & Skills
- Layering papier-mâché
- Building and strengthening armatures
- Sketching and planning 3D forms
- Painting and surface design

•Understand the history and cultural significance of papier-mâché
•Sculpture, 3D form, Modelling, Structure
•Papier-mâché carnival masks (Venice, Mexico).
•Explore fur, feathers, or skin textures. Use tissue, cardboard, or additional paper for detail.

Materials & Techniques
Learn basic papier-mâché techniques: pasting, layering, shaping
PVA glue, Armature, Layering, Adhesive
Traditional mask makers



Research & Ideas
- Investigate themes: animals, characters, fantasy, cultural artefacts
- Inspiration, Sketchbook, Design sheet
- Yayoi Kusama (surreal forms), Nick Cave (Sound suits) Abigail Brown

Design & Planning
- Create initial designs with annotations
- Annotate, Design process, Evaluation
- Romero Britto (bold forms), Abigail Brown.
- Refining Shape. Add more layers. Carve, shape, and refine the form. Begin building texture.
- Explore fur, feathers, or skin textures. Use tissue, cardboard, or additional paper for detail.

Who is Abigail Brown? Study of her paper and textile animal sculptures. Artist research task. Mood board creation.
- Observational drawings of animals. Explore form, texture, and character. Choose an animal for your sculpture.
- Annotated design sheet for final sculpture. Consider scale, structure, texture, and materials.
- Build a wire/card/foil armature as the base for your papier-mâché animal.
- Apply papier-mâché layers. Focus on smooth form and structure. Drying and layering.

Computing

Computational Thinking

Key Concepts:
Computational Thinking is a method of problem-solving that uses concepts from computer science. It is useful for everyone, not just computer scientists, as it helps break down problems into manageable parts.

Why it's important:
It helps us solve complex problems, design systems, and understand behaviours.

Four Key Components:

Decomposition – Breaking a large problem into smaller, manageable tasks.
Example: Planning a school project by dividing it into research, writing, and presenting.

Abstraction – Filtering out unnecessary details to focus on the important parts.
Example: Explaining how to play a game without going into the underlying technical details.

Pattern Recognition – Identifying patterns and trends in data or problems to make predictions or simplify solutions.
Example: Recognising patterns in your morning routine to optimise your time.

Algorithms – Step-by-step instructions to solve a problem or complete a task.
Example: Following a recipe to bake a cake.

Abstraction

Key Concepts:
Abstraction is focusing only on the most important details and ignoring irrelevant or complex information. It helps manage complexity by simplifying problems or systems.

Examples:
1. When telling a story, you don't include every single detail, just the key points. 2. A smartphone's interface is an abstraction that hides the complex technology (like circuits and software) behind simple icons and gestures.

In Problem-Solving:
Abstraction helps you focus on what truly matters, allowing you to make quicker decisions without being distracted by unimportant details. ***Example***: The London Underground map is a famous abstraction, showing only the routes and stops, ignoring real-world distances.

Decomposition

Key Concepts:
Decomposition is the process of breaking down a big or complex problem into smaller, easier-to-manage parts.
This makes it easier to understand the problem and solve each part individually.

Example: When designing a video game:

- Storyline development
- Level design
- Programming
- Art and graphics
- Testing and debugging
- Release planning

Why Decomposition is Useful:
Makes a big problem feel less overwhelming.
Helps identify which parts need the most attention.
Makes it easier to distribute tasks among a team.

Pattern Recognition

Key Concepts:
Pattern Recognition involves identifying patterns or regularities in data or systems to make predictions or simplify problems.
It's like being a detective—spotting clues that help you solve mysteries.

Types of Patterns:

Visual Patterns: Recognising repeated designs, like stripes on a zebra.

Numerical Patterns: Recognising sequences or trends in numbers, such as counting by twos (2, 4, 6...).

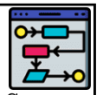
Behavioural Patterns: Recognising repeated actions, like your dog barking when the doorbell rings.

Why it's Important:
Helps us predict outcomes and solve problems efficiently.
Example: Noticing that it always rains before the local park gets muddy helps you plan for rainy days by wearing boots.

Key Vocabulary

Key Word	*Definition*
Decomposition	Breaking down a complex problem into smaller, easier-to-manage parts.
Abstraction	Filtering out the unnecessary details and focusing on what is important.
Algorithm	Designing a step-by-step solution to solve a problem or complete a task.
Cognitive	The mental processes involved in understanding a problem.
Computational Thinking	Identifying an issue and determining an effective solution for it.
Irrelevant	Not important in the context of the situation.
Pattern Recognition	Observing patterns in data or the environment and using these patterns to make predictions or decisions more efficiently.

Algorithmic Thinking



Key Concepts:
Algorithms are sets of instructions designed to complete a specific task.
An algorithm should be clear, with a defined start and end, and each step must be precise and executable.

How to Create an Algorithm:
Identify the Problem: Clearly define what you need to solve.
Break Down the Task: List each step needed to solve the problem.
Order the Steps: Arrange steps logically, repeating some if needed.
Test the Algorithm: Follow the steps and check if it works.

Examples:
Everyday Algorithm: A set of steps for brushing your teeth (wet the toothbrush, apply toothpaste, brush for 2 minutes, rinse).
Programming Algorithm: Use tools like Scratch to create algorithms for games or stories, where each block of code represents a step.

Why Algorithms are Important:
They help break down tasks into manageable steps.
Clear algorithms make it easier to solve problems and complete tasks efficiently.

Summary of Key Terms:
Computational Thinking: A problem-solving method that uses computer science principles. ***Decomposition***: Breaking a large problem into smaller parts. ***Abstraction***: Focusing only on the important details, ignoring irrelevant information.
Pattern Recognition: Identifying and using patterns to predict outcomes or simplify problems. ***Algorithm***: A step-by-step process to complete a task or solve a problem.

Drama

Year 7 **Term 4**

Drama

Greek Theatre Key Facts

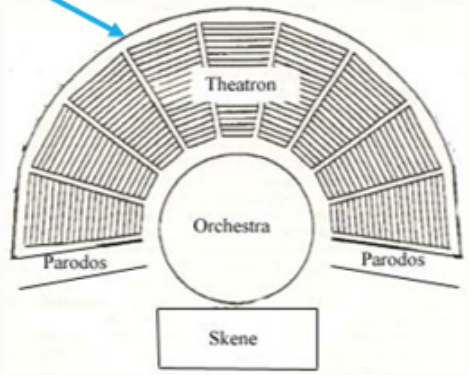
- 550BC - 220BC
- The theatres were outdoors, and the plays were performed in daylight.
- The actors wore heavy costumes and masks.
- Performing in the Greek theatre required strenuous physical and vocal exertion.
- Each play was usually only ever performed once.
- Greek theatres were enormous and could hold 13,000-14,000 spectators.

Medieval Theatre Key Facts

- 900s – 1500s
- Began as religious dramas performed in churches before moving to public spaces like town squares.
- It primarily featured mystery, miracle, and morality plays that taught biblical stories and Christian values through allegory and symbolism.
- Performances were a community effort, taking place on elaborate, temporary stages like pageant wagons or platforms.

Greek Theatre Terminology

Amphitheatre - a large, open-air, semi-circular venue for performances, built into a hillside with tiered seating.
Tragedy - sad plays where something terrible happens
Comedy - funny plays
Satyr – rude plays
Chorus - a group of performers who comment on action.



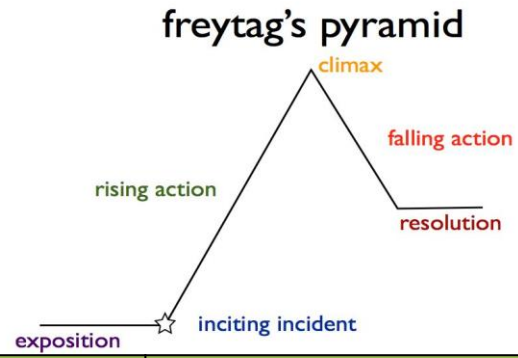
Medieval Theatre Terminology

Pageant Wagon – moveable stage on wheels
Guild – a group of craftsmen
Trade – a medieval job, such as a carpenter
Mystery plays – trade workers performing bible stories
Morality plays- about death.
Miracle plays – about saints.
Mummers plays – Hero-combat plays.

History of Theatre

English

Basic features	Definition
Capital Letters	These must be at the starts of names, starts of sentences and use the pronoun 'I'.
Full stops	Unless using another piece of punctuation, these need to be at the end of sentences.
Question marks	Instead of a full stop denoting a question. E.g. When do you use a question mark?
Commas	Used to separate items in a list or a dependent clause from an independent clause. E.g. If I had to choose, I like blue, red and green.
Apostrophes	Indicating a contraction or possessive. E.g. The pie wasn't Peter's to eat.
Consistent tense	The tense you begin writing in should usually stay the same throughout your writing.
Paragraphs	A break in writing indicates the topic, person, place, time or focus of your writing has changed.
Homophone spellings	Easily mistaken spellings like there, their and they're; to, too and two or your and you're.
Semi-colons	A punctuation mark that can separate two independent clauses instead of a conjunction or full stop.
Colon	Colon can separate an independent clause and a dependent clause or start a list.
Simple, compound and complex sentences	Use a variety of these to make writing interesting. Simple sentences are just an independent clause. Compound sentences are two independent clauses usually joined with a conjunction and a complex sentence is an independent and dependent clause.



Language Devices	Definition
Simile	A comparison using the words 'like' or 'as'.
Metaphor	A comparison that represent one thing as being the other.
Personification	When an object is represented as being human.
Onomatopoeia	Words that sound like a sound.
Alliteration	Two or more words starting with the same letter.
Imagery	A vivid, easy to imagine description.
Symbolism	When one thing is standing in the place of another.
Oxymoron	When two things are put together but are impossible.
Juxtaposition	When two opposing ideas or themes are used near each other.
Pathetic Fallacy	When nature creates a mood in a story.

WAR HORSE English

Word	Definition (student-friendly)
Camouflage	Colours or patterns used to blend into surroundings.
Trench	A long, narrow ditch soldiers used for protection.
Shrapnel	Sharp fragments from an exploding bomb or shell.
Propaganda	Messages designed to influence people's beliefs about war.
Soldier	A person who serves in an army.
Terrain	The physical features of a landscape.
Remembrance	Honouring and remembering those who died in war.
Tanks	Heavy armoured vehicles used in battle.
Rifle	A long-barrelled gun fired from the shoulder.
Poppy	A flower worn to remember fallen soldiers.
Justice	Fairness; doing what is morally or legally right.
Peace	A state without war or conflict.
Refugee	Someone forced to flee their home due to danger.
Resistance	Efforts to oppose or fight against an enemy.
Canine	Relating to dogs; often used for military dogs.

Ammunition	Bullets or shells used in weapons.
Crimson	A deep red colour.
Flank	The side of a person, animal, or military position.
Charred	Burnt or blackened by fire.
Shells	Explosive projectiles fired from large guns.
Gallop	The fastest pace of a horse.
Gallant	Brave, noble, or heroic.
Deploy	To move troops or equipment into position.
Landing craft	A boat used to bring soldiers to shore during invasions.
Obstacle	Something that blocks progress or movement.
Veteran	Someone who has served in the armed forces.
Impenetrable	Impossible to get through or break into.
Khaki	A dull brown-green colour used in uniforms.
Turbulent	Unstable, chaotic, or full of conflict.
Malevolent	Having or showing a desire to cause harm.
Canopy	A covering, often formed by trees or parachutes.
No Man's Land	The dangerous area between two opposing trenches.
'Over the top'	Leaving the trench to charge into battle.

Reeds	Tall, thin plants that grow near water.
Operation	A planned military action or mission.
Onerous	Difficult, heavy, or demanding.
Notorious	Famous for something negative.
Dilapidated	Run-down or in poor condition.
Clandestine	Secret or hidden, often for military purposes.
Conflagration	A large, destructive fire.
Fugitive	Someone running away to avoid capture.
Reconnaissance	Gathering information about an enemy or area.
Military slang	Informal words used by soldiers (e.g., "chow" for food).

Useful Vocabulary

French

Each week you will need to practise and learn your **Sentence of the Week** as well as your **Vocabulary of the Week**. For your **Vocabulary of the Week** also pay attention to which

Verbs are in **VIOLET**
Feminine nouns are in **PINK**
Masculine nouns are in **BLUE**
Adjectives are in **AMBER**

Week 5	J'ai un ami amusant. Il est chanteur.	I have a funny friend. He is a Singer.
Week 6	Le professeur est malade et la chanteuse est intelligente.	The teacher is ill and the singer (f) is intelligent.
Week 7	Il fait la cuisine mais elle fait les courses.	He does the cooking but she does the shopping.
Week 8	Je suis amusant comme mon ami.	I am funny, like my friend.
Week 9	Il fait beau et je fais une promenade.	The weather is good and I am going for a walk.

Week 6		Week 7		Week 8		Week 9		Week 10	
l'acteur (m)	actor (m)	faire	to do, make / doing, making	le poème	poem	le bateau	boat, ship	aimer	to like / liking
l'actrice (f)	actor (f)	je fais	I do / make	le poète	poet (m)	le magasin	shop	cocher	to tick / ticking
la fille	girl	tu fais	you do / make	la poète	poet (f)	le promenade	walk, ride	rester	to stay / staying
le garçon	boy	il fait	he does / makes	le ciel	sky	la visite	visit	passer	to spend / spending time
le médecin	doctor (m)	elle fait	she does / makes	le rêve	dream	le voyage	trip, journey	porter	to wear / wearing
la médecin	doctor (f)	ça	that	la vague	wave	le numéro	number	trouver	to find / finding
la personne	person	une activité	an activity	la couleur	colour	la question	question	un uniforme	a uniform
l'anglais (m)	English language	les courses	grocery shopping	bleu(e)	blue	la réponse	answer	l'école (f)	school
le français	French language	la cuisine	cooking	jaune	yellow	beau	beautiful (m)	le moment	moment
le	the (m)	les devoirs	homework	rouge	red	mauvais(e)	bad	la semaine	week
la	the (f)	le lit	bed	vert(e)	green	en	in/by	la solution	solution
les	the (pl)	le ménage	housework	comme	like	de	of	chaque	every
en	in	le modèle	model			Paris	Paris	à	to
le mot	word	Quoi?	What?			Londres	London	avec	with
la phrase	sentence								

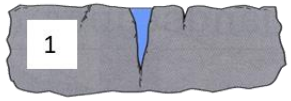
Ice and Water Geography

1. Tier 3 words that describe key concepts related to glaciation

Tier 3	Definition
glacier	A large body of **ice** and **snow**
ice sheet	a **layer of ice** covering an extensive tract of land for a **long period of time**. Similar to ice cap.
ice age	periods of Earth history where **ice advances** into regions such as the UK that are **not normally glaciated**.
plucking	The **water** at the bottom of the glacier **freezes** onto rock on the valley base. As the glacier moves, the **rock is pulled away** from the valley base.
corries	**Hollows** high up in the mountains **left behind** by glacial erosion

2. Weathering in cold places: Frost Shattering

1. Water enters joints and cracks in the rock.

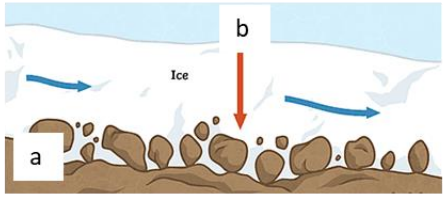


2. When the temperature drops below 0ºC the water freezes and **expands** as it changes to ice.

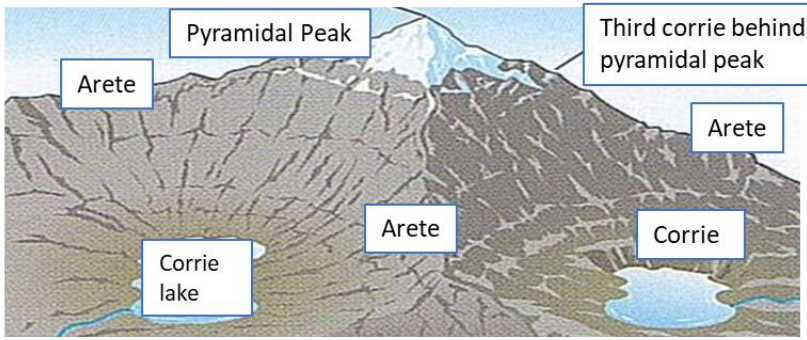
3. After **repeated freezing/thawing** the cracks widen and the rock shatters.

3. Erosion in cold places: Abrasion

a) Rock **fragments** accumulate beneath crags or cliffs as **scree** (or **talus**).
b) This rock carves the surrounding rock beneath the glacier



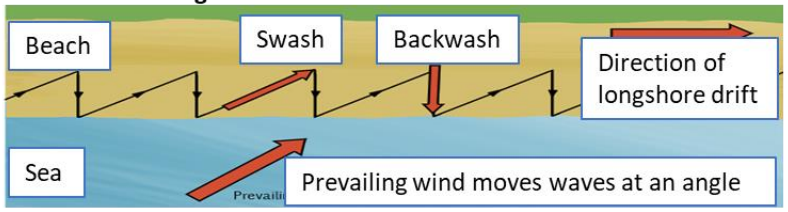
4. Features in the landscape formed by glaciation



5. Tier 3 words to describe key concepts in river and coastal environments

Tier 3	Definition
hydraulic action	water is **forced** into cracks **under pressure**, breaking up the rock
attrition	rocks get **knocked together** and wear each other into making them **smaller** & **rounder**
solution	water **dissolves** soluble material in the rock
longshore drift	the **movement** of **pebbles and sand** along the coastline due to a **southwest prevailing wind** pushing waves at an **angle** along the coast

6. Process of longshore drift



Movement of material along the shore by wave action. It happens when waves approach the beach at an angle (caused by the prevailing wind).

7. Formation of an oxbow lake

1. **Erosion** makes the neck **narrower**
2. During **flood**, river takes **shortest course** through the neck
3. **Cut off** meander/ox bow lake forms and the river has a new, **straighter river course**

Areas of deposition Areas of erosion

Operations with equations and directed numbers

@whisto_maths

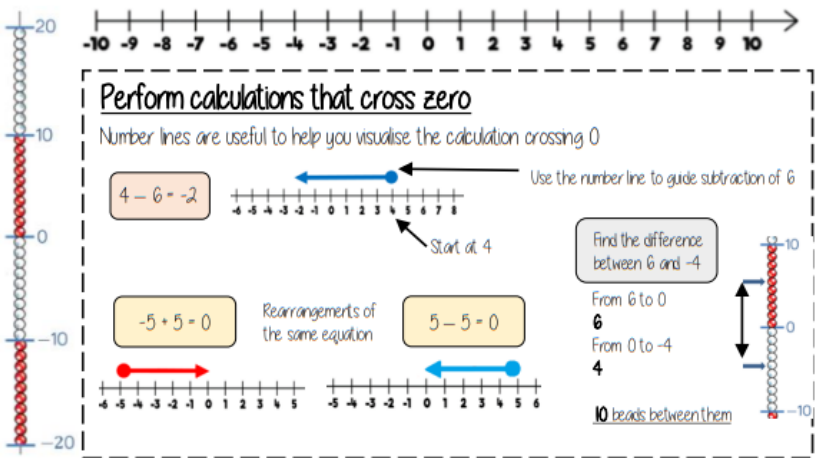
What do I need to be able to do?

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

- Perform calculations that cross zero
- Add/ Subtract directed numbers
- Multiply/ Divide directed numbers
- Evaluate algebraic expressions
- Solve two-step equations
- Use order of operations with directed number

Keywords

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



Perform calculations that cross zero

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

4 – 6 = -2

Use the number line to guide subtraction of 6

Start at 4

-5 + 5 = 0

Rearrangements of the same equation

5 – 5 = 0

Find the difference between 6 and -4

From 6 to 0
6
From 0 to -4
4

10 beads between them

Odd directed numbers

= -1
= 1
Representations

2 + - 4 = -2

Zero pair
(-1 + 1 = 0)

Two "-1" left
= -2

8 + -3 = 5

Partitioning

8 + -3 = 5

5 + 3 + - 3 = 5

Partition the value to create a zero pair calculation

Generalisation
+ - = -

Subtract directed numbers

= -1
= 1
Representations

=
Representation for calculation

2

"Subtract" – means take away or remove

2 - - 1 = 3

Take away one

Start with the representation of 2

= 3

2 - - 3 = 5

= 5

Generalisation
- - = +

Multiply/ Divide directed numbers

-3 -3

Two representations of the same calculation

2 x -3 = -6

Negative, Negative calculation

-2 x -3

This is the negative of 2 x -3

The act of making counters into their negative is turning them over

-2 x -3 = 6

Divisions are the inverse operations

Evaluate algebraic expressions

a = 5

b = -4

$a^2 = 5^2$
$a^2 = 25$

$b^2 = (-4)^2$
$b^2 = 16$

With negative numbers the brackets are important so that it performs -4 x -4

Brackets around negative substitutions helps remove calculation errors

2a – b = 2 x 5 – (-4) = 10 + 4 = 14

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

Two-step equations

Bar Model

10

x x x x 2

10

4x + 2 = 10

10 – 4x = 2

Representing the same question (use fact families)

Function machine

x x x x

8

x

2

x → x4 → +2 → 10

Inverse operations to find x

Use order or operations

( )
^{2} & $\sqrt{}$
× & ÷
+ & –

Brackets
Indices or roots
Multiplication or division
Addition or subtraction

Brackets around negative substitutions helps remove calculation errors

Remember square roots have a positive and negative value

×	-3	-2	-1	0	1	2	3
-3	9	6	3	0	-3	-6	-9
-2	6	4	2	0	-2	-4	-6
-1	3	2	1	0	-1	-2	-3
0	0	0	0	0	0	0	0
1	-3	-2	-1	0	1	2	3
2	-6	-4	-2	0	2	4	6
3	-9	-6	-3	0	3	6	9

Maths

Addition and subtraction of fractions

@whisto_maths

What do I need to be able to do?

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

- Convert between mixed numbers and fractions
- Add/Subtract unit fractions (same denominator)
- Add/Subtract fractions (same denominator)
- Add/Subtract fractions from integers
- Use equivalent fractions
- Add/Subtract any fractions
- Add/Subtract improper fractions and mixed numbers
- Use fractions in algebraic contexts

Keywords

Numerator : the number above the line on a fraction. The top number. Represents how many parts are taken

Denominator: the number below the line on a fraction. The number represent the total number of parts

Equivalent: of equal value

Mixed numbers: a number with an integer and a proper fraction

Improper fractions: a fraction with a bigger numerator than denominator

Substitute: replace a variable with a numerical value

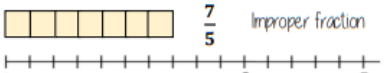
Place value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right

Representing Fractions

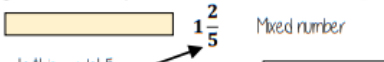
$\frac{1}{4}$ is represented in all the images

$1 \div 4$

Mixed numbers and fractions



$\frac{7}{5}$ Improper fraction



$1\frac{2}{5}$ Mixed number

In this model 5 parts make up a whole

Fractions can be bigger than a whole

Add/Subtract unit fractions

Same denominator

$\frac{1}{12} + \frac{1}{12} - \frac{1}{12} = \frac{2}{12}$

$\frac{1}{4} + \frac{1}{4} = \frac{2}{4}$

With the same denominator ONLY the numerator is added or subtracted

Add/Subtract fractions

Same denominator

$\frac{2}{7} + \frac{3}{7} = \frac{5}{7}$

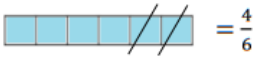
Sequences

$\frac{1}{3}, 1, 1\frac{2}{3}, 2\frac{1}{3}, 3, \ldots$

$+\frac{2}{3}$ $+\frac{2}{3}$

Represent this on a number line to help

Add/Subtract from integers



$1 - \frac{2}{6} = \frac{4}{6}$

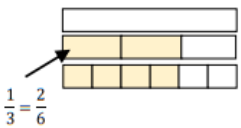
$3 + \frac{1}{6} = 3\frac{1}{6}$

The denominator indicates the number of parts a whole is made up of

Equivalent fractions

Numerator and denominator have the same multiplier

$\frac{2}{3} = \frac{4}{6}$



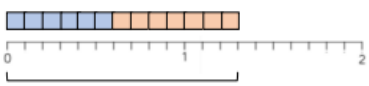
$\frac{1}{3} = \frac{2}{6}$

Add/Subtraction fractions (common multiples)

$\frac{3}{5} + \frac{7}{10}$

$\frac{6}{10} + \frac{7}{10}$

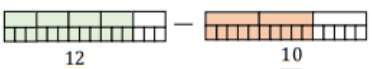
Addition/Subtraction needs a common denominator



$\frac{13}{10}$

Add/Subtraction any fractions

$\frac{4}{5} - \frac{2}{3}$



$\frac{12}{15} - \frac{10}{15} = \frac{2}{15}$

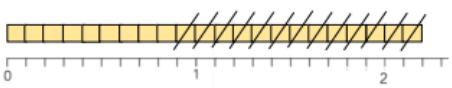
Use equivalent fractions to find a common multiple for both denominators

Add/Subtraction fractions (improper and mixed)

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

$2\frac{2}{10}$

$\frac{22}{10} - \frac{13}{10} = \frac{9}{10}$



- Convert to an improper fraction
- Calculate with common denominator

Partitioning method

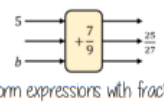
$2\frac{1}{5} - 1\frac{3}{10} = 2\frac{2}{10} - 1\frac{3}{10} = 2\frac{2}{10} - 1 - \frac{3}{10} = 1\frac{2}{10} - \frac{3}{10} = \frac{9}{10}$

Fractions in algebraic contexts

$k - \frac{5}{8} = 2$

Apply inverse operations

$k = 2 + \frac{5}{8}$



Form expressions with fractions

$b + \frac{7}{9} \rightarrow b + \frac{7}{9}$

$p = 5 \quad m = 2$

$\frac{p}{8} + \frac{1}{m}$

Substitution

$\frac{5}{8} + \frac{1}{2}$

Fractions and decimals

$\frac{1}{10} = 0.1$

$\frac{1}{100} = 0.01$

Example $\frac{6}{10} + 0.3 \rightarrow 0.6 + 0.3$

$\frac{6}{10} + \frac{3}{10}$

Remember to use equivalent fractions and common denominators

Maths

Music

Year 7 Music Term 4

Using Arpeggios:

Building on your stretch fingering and hand shift skills, you will learn how to play more complex tunes with more challenging arpeggio movements.

At home - on keyboard or phone app/
Practise the following 3 note arpeggio

C E G E C (twice)	C Eb G Eb C (twice)
1 3 5 3 5	1 3 5 3 5 (Right RH)
5 3 1 3 5	5 3 1 3 5 (Left LH)

Four note arpeggio (major then minor)

C E G B G E C	C Eb G Bb G Eb C
1 2 3 5 3 2 1	1 2 3 4 3 2 1 (RH)
5 3 2 1 2 3 5	5 3 2 1 2 3 5 (LH)

Applying Hand shifts:

Practise handshifts for good timing & smooth playing,

Practise the 3 following 3 note arpeggios with hand shifts between them.
Loop round to the first one and repeat.

C E G E C E G B G E A C E C E

Challenge

D F# A F# D F# A C# A F# A#, D F D A#

Composing melodies

Right Hand

Notes:	E	D#	E	D#	E	B	D	C	A
Finger:	5	4	5	4	5	2	4	3	1
Notes:									
Finger:									

Left Hand

Notes:	E	D#	E	D#	E	B	D	C	A
Finger:	1	2	1	2	1	4	2	3	1
Notes:									
Finger:									

Play the Fur Elise melody above with both left & right hands(on keyboard or phone app)
When confident – compose your own melody in a similar style in the empty grid.

Challenge

Play left and right together – try some chords.

Year 7 Rhythms in a grid format

The grid format is where the count is represented by squares and notes by shading the squares that are played – it is a popular and clear way of representing rhythms.

1	+	2	+	3	+	4	+

This a quaver count – 1 & 2 & 3 & 4 & -
The blue squares are notes to be played.

Count out loud 1 & 2 & 3 & 4 & (repeat)
Tap, clap, or play a note on an instrument every time a square is blue in the count.
Challenge: Swap hands with each beat played – play to a *metronome*.

Reading two-line grids

Two or more line grids can be played either as one long part going from one line to the next and repeating
- Or as two parts played at the same time (cross rhythm)

1	+	2	+	3	+	4	+
1	+	2	+	3	+	4	+

Count out loud 1 & 2 & 3 & 4 & (repeat)
Play the 2-bar rhythm, first line one, then line two and repeat.
Challenge: Play line 1 and line 2 at the same time with left and right hands.
Play with a *metronome* to keep time.

Swing rhythms & polyrhythms

We can divide beats into 3 to create triplet quavers (1 trip let, 2 trip let, 3 trip let, 4 trip let)
Play the swing rhythm below – two lines at once with both hands (start with one first!)

1	trip	let	2	trip	let	3	trip	let	4	trip	let
1	trip	let	2	trip	let	3	trip	let	4	trip	let

Challenge: (Below) Play line 1 and line 2 at the same time with left and right hands.
This is a 3 over 2 polyrhythm -
Play with a *metronome* to keep time.

1	trip	let	2	trip	let	3	trip	let	4	trip	let
1	trip	let	2	trip	let	3	trip	let	4	trip	let

Physical Education

Term 4

7 Movement & Positioning

Always return to the **ready position** after each shot. Good footwork and balance help keep rallies going. Stand around an arm's length from the table.

Table Tennis

8 Singles vs Doubles

In **singles**, players can serve diagonally or straight. In **doubles**, the serve must go diagonally and partners must alternate shots. Communication is key in doubles.

Table Tennis

9 How to hold the Bat

Hold the bat using the **"V grip"**: both hands close together on the handle, with the **V-shape** formed between thumb and index finger pointing down the back of the bat. Stand side-on to the bowler, knees slightly bent, with the bat resting near your back foot. A good grip and stance help with control and power when striking the

Cricket

10 How to Bowl

Use an **overarm action**, with a straight arm at the point of delivery. Start side-on, stepping forward with your opposite foot. A **seam-up grip** is used with the first two fingers either side of the seam. Keep your eyes on the target and follow through with your arm. Bowling must be accurate, aiming for the batter's stumps.

Cricket

11 How to Catch

Use **two hands** with fingers pointing **upward** for high catches and **downward** for low catches. Watch the ball closely, get your body behind it, and **soften your hands** on impact to absorb the force. Good catching technique is important in stopping runs and getting batters out.

Cricket

12 Game Play and Rules

Two teams take turns to **bat and field**. Batters score runs by running between the wickets or hitting boundaries. Fielders try to get batters **out** by catching, bowling, or run-outs. An **over** is 6 balls. Batters can be out by: **bowled, caught, LBW (leg before wicket), or run out**. Games can be adapted for small teams and short formats in lessons.

Cricket

Science

Particle Model

Keyword	Definition
Particle	A very tiny object such as an atom or molecule, too small to be seen with a microscope.
Particle model	A way to think about how substances behave in terms of small, moving particles.
Gas pressure	Caused by collisions of particles with the walls of a container.
Density	How much matter there is in a particular volume, or how close the particles are.
Evaporate	Change from liquid to gas at the surface of a liquid, at any temperature.
Boil	Change from liquid to a gas of all the liquid when the temperature reaches boiling point.
Condense	Change of state from gas to liquid when the temperature drops to the boiling point.
Melt	Change from solid to liquid when the temperature rises to the melting point.
Freeze	Change from liquid to a solid when the temperature drops to the melting point.
Sublime	Change from a solid directly into a gas.
Melting point	The temperature when a solid becomes a liquid.
Boiling point	The temperature when a liquid becomes a gas.

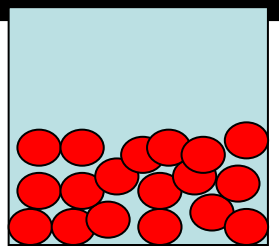
Moving particles

Particles move faster as the temperature goes up.

Interactions between particles break as they move faster.

Substances expand as they get hotter.

Liquid



Particles move freely past each other

Cannot be compressed

Takes the shape of the container

Can be poured

Density

Density (g/cm^3) = $\frac{\text{mass (g)}}{\text{Volume } (cm^3)}$

An object less dense than water will float.

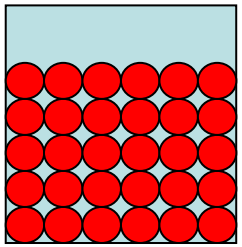
Melting

Freezing

Boiling/Evaporating

Condensing

Solid



Particles are close together

Particles vibrate at fixed points

Cannot be compressed

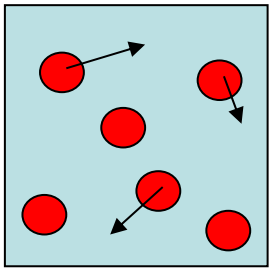
Hold their shape

Cannot be poured

Subliming

Deposition

Gas



Particles are fast moving and spread out

Can be compressed

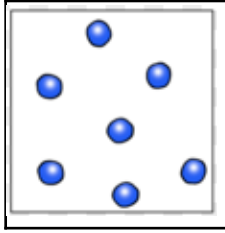
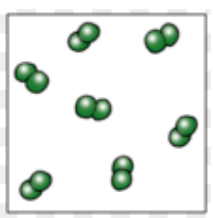
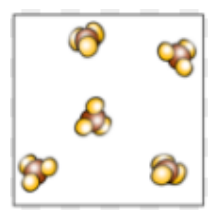
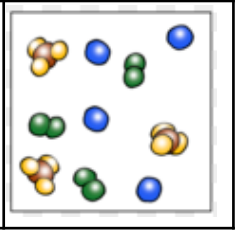
Fills the container

Can be poured

Science

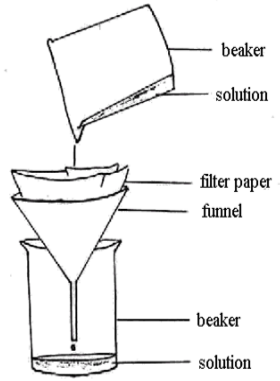
Keywords

Atom	The smallest particle of an element.
Molecule	Two or more atoms chemically bonded together.
Element	A substance made up of only one type of atom.
Compound	Substance made from two or more elements chemically bonded together.
Mixture	Two or more substances mixed together, but not bonded together. A mixture is not a pure substance.
Solute	A solid that can dissolve in a solvent.
Solvent	A liquid that dissolves another substance.
Solution	Mixture formed when a solvent dissolves a solute.
Solubility	A measure of how much a substance dissolves in a certain volume of solvent.

Atoms	Molecules	Compounds	Mixtures
			

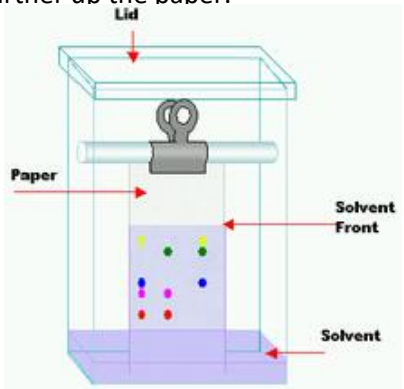
Filtration

Separating substances using a filter to separate an insoluble solid from a liquid. The insoluble solid (residue) stays behind on the filter paper, and the solution passes through the filter paper (filtrate`



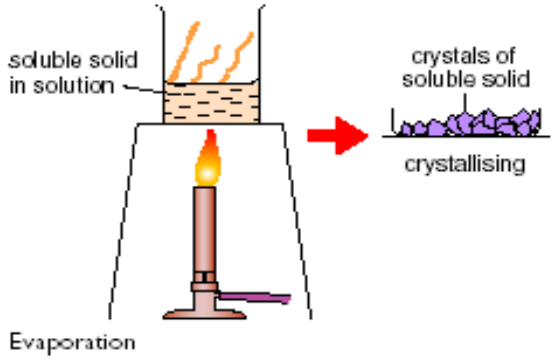
Chromatography

Chromatography is a method for separating soluble substances from one another. Some of the coloured substances dissolve in the solvent better than others, so they travel further up the paper.



Crystallisation

Crystallisation is used to separate a soluble solid from a liquid. The liquid evaporates away leaving solid crystals behind.



Substances

Science

Keywords

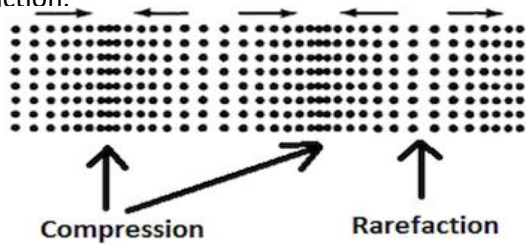
Vibration	A back and forth repeating motion.
Vacuum	A space with no particles of matter in it.
Oscilloscope	Device for viewing patterns of sound waves that have been turned into electrical current.
Absorption	When energy is transferred from sound to a material.
Echo	Reflection of sound waves from a surface back to the listener.

Waves

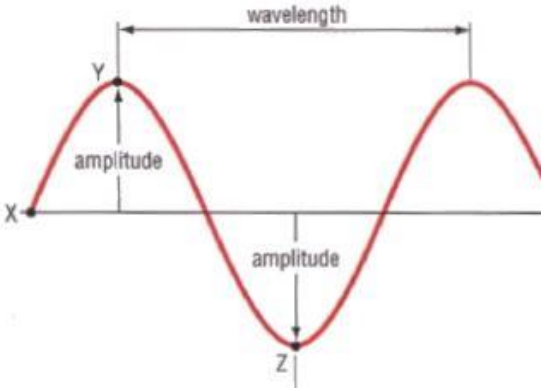
Waves can travel in two ways:

1. Longitudinal waves travel in straight lines - where the direction of vibration is the same as that of the wave.
2. Transverse waves move at right angles to the direction of the wave.

Sound waves are longitudinal waves. They involve particles and have areas of compression and rarefaction.



Wave Characteristics

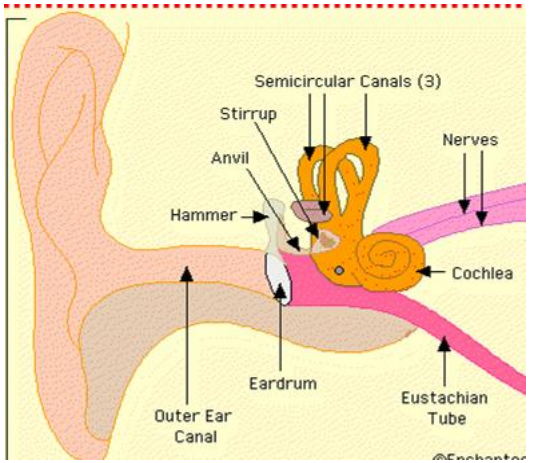


Wavelength
The distance from a point on one wave to the same point on the next wave.
Measured in metres and has the symbol λ (Greek letter lambda).
A shorter wavelength = higher frequency.

Frequency
The number of waves passing a point every second and is measured in hertz (Hz).
A higher frequency means a high pitch.

Amplitude
The height of the wave from the centre line to a peak or trough.
Measured in metres.
The more energy a wave has the bigger the amplitude and the louder the sound.

The Ear & Hearing



1. Your outer ear channels sound waves into your ear.
2. The sound waves travel along the auditory canal.
3. The ear-drum vibrates when a sound hits it.
4. The vibrating ear-drum makes the little bones in your ear vibrate.
5. The vibrations pass along the auditory nerve your brain.
6. Your brain sorts the messages and you hear the sound.

Hearing loss could be caused by:
Wax blocking the ear
Loud noises tearing eardrum
Ear infection
Small bones in the ear can get stuck together
Loud noises can damage the cochlea

Sound

Science

Light

Keywords

Normal line	A line drawn at right angles to the surface where the ray hits. Angles are measured from this line.
Absorption	Light is transferred to a material and is not reflected or transmitted.
Transmitted	Light that passes through an object is transmitted.
Scattering	When light bounces off an object in all directions.
Transparent	An object that allows light through without scattering.
Translucent	An object that allows light through with scattering.
Opaque	An object that allows no light through.

Reflection

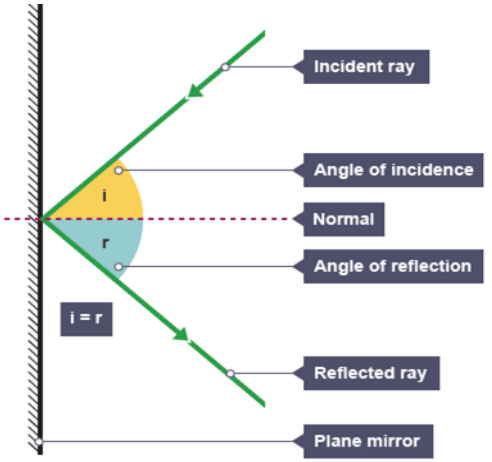
When light is reflected it bounces off of something.

We use ray diagrams to draw reflections.

To help us with our ray diagram, we can draw a line 90° to the reflective material.

This line is called the normal.

Angle of incidence = angle of reflection.



Calculating wave speed

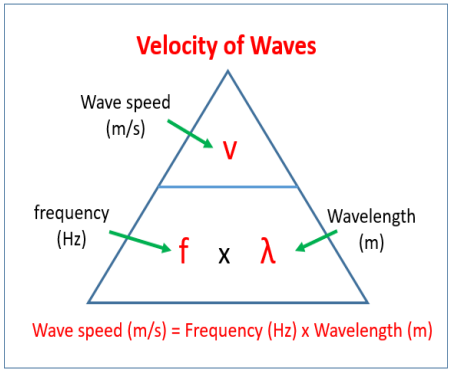
Speed = wavelength x frequency
(m/s) (m) (Hz)

Symbol equation: $v = f \times \lambda$

Equation rearranged:

Wavelength = Speed / frequency

Frequency = Speed / wavelength

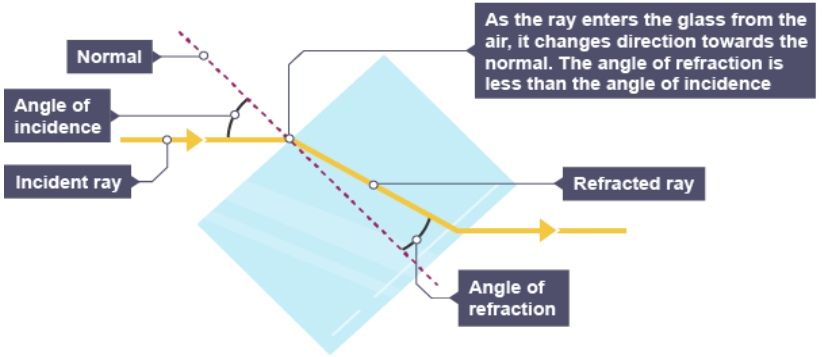


Refraction

Waves are refracted when they change speed.

When waves slow down they bend towards the normal line. This happens when light travels from air to glass.

When waves speeds up they bend away from the normal line. This happens when light travels from glass to air.



The angle of refraction is less than the angle of incidence.