

Year 7 – HT2



**Newsome
Academy**
Everyone Exceptional Everyday

Knowledge Organisers

Name:

Team:



Mathematics

Our students will:

- become **fluent** in the fundamentals of mathematics, including through varied and frequent practice with increasingly complex problems over time, so that pupils develop conceptual understanding and the ability to recall and apply knowledge rapidly and accurately.
- **reason mathematically** by following a line of enquiry, conjecturing relationships and generalisations, and developing an argument, justification or proof using mathematical language
- can **solve problems** by applying their mathematics to a variety of routine and non-routine problems with increasing sophistication, including breaking down problems into a series of simpler steps and persevering in seeking solutions.



What do I need to be able to do?

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

- Describe and continue both linear and non-linear sequences
- Explain term to term rules for linear sequence
- Find missing terms in a linear sequence

Keywords

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

Career Focus - Where could this take you?

As an auditor, I have to make sure I understand lots of number skills and identify patterns to make sure accounts make sense and comply with the law



Challenge Activities

This pattern repeats every three terms as shown.



What will be the 9th term in the pattern? _____

What will be the 31st term in the pattern? _____

Retrieval Practice

- Write 0.07 as a fraction.
- Simplify $\frac{28}{50}$
- What is the value of the 6 in the number 361,829?
- Solve the equation $\frac{b}{5} = 10$

Topic Links

This topic links to:

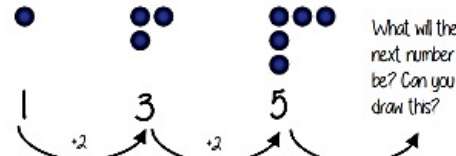
- Adding, Subtracting, Science and Multiplication.

Additional Resources

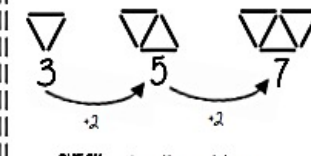
To further practice and develop your knowledge see:
<https://corbettmaths.com/contents/>
Number: 286-290

Describe and continue a sequence diagrammatically

Count the number of circles or lines in each image



Predict and check terms

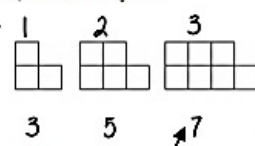


Predictions:
Look at your pattern and consider how it will increase.

eg How many lines in pattern 6?
Prediction - 13
If it is increasing by 2 each time - in 3 more patterns there will be 6 more lines

Sequence in a table and graphically

Position: the place in the sequence

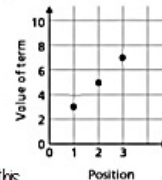


"The term in position 3 has 7 squares"

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

Position	1	2	3
Term	3	5	7

Graphically



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

Linear and Non Linear Sequences

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

Fibonacci Sequence - look out for this type of sequence

0 | 1 | 1 | 2 | 3 | 5 | 8 | ...

Each term is the sum of the previous two terms

Continue Linear Sequences

7, 11, 15, 19...

How do I know this is a linear sequence?

It increases by adding 4 to each term

How many terms do I need to make this conclusion?

At least 4 terms - two terms only shows one difference not if this difference is constant (a common difference)

How do I continue the sequence?

You continue to repeat the same difference through the next positions in the sequence.

Continue non-linear Sequences

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

How do I know this is a non-linear sequence?

It increases by multiplying the previous term by 2 - this is a geometric sequence because the constant is multiply by 2

How many terms do I need to make this conclusion?

At least 4 terms - two terms only shows one difference not if this difference is constant (a common difference)

How do I continue the sequence?

You continue to repeat the same difference through the next positions in the sequence.

Explain term-to-term rule

How you get from term to term

Try to explain this in full sentences not just with mathematical notation

Use key maths language - doubles, halves, multiply by two, add four to the previous term etc

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

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

4, 12, 36, 108...
x3 x3 x3
First term

What do I need to be able to do?

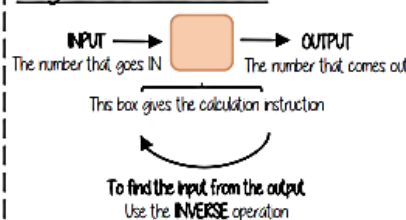
By the end of this unit you should be able to:

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

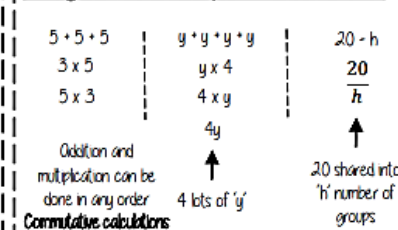
Keywords

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

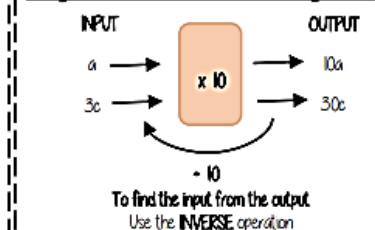
Single function machines



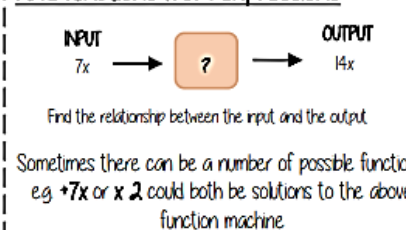
Using letters to represent numbers



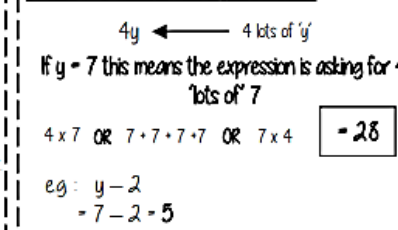
Single function machines (algebra)



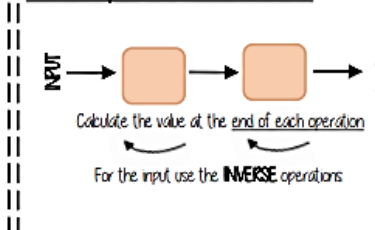
Find functions from expressions



Substitution into expressions



Two step function machines



Career Focus - Where could this take you?

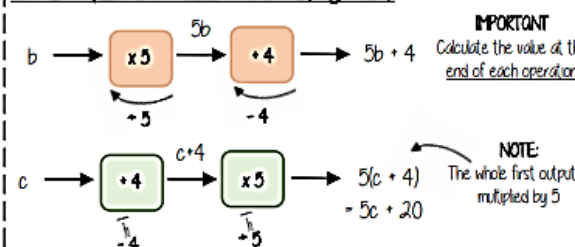


As an auditor, I have to make sure I understand lots of number skills and identify patterns to make sure accounts make sense and comply with the law

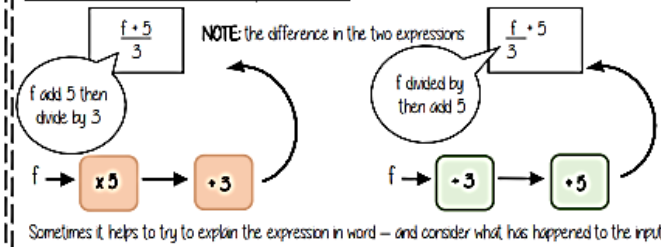
Retrieval Practice

- 1) Find the first term of the sequence. $____, 13, 20, 27 \dots$
- 2) Is the sequence linear? $2, 4, 6, 10, 16 \dots$
- 3) What is the value of the 2 in the number 4029?
- 4) Calculate the area of the rectangle. 7 cm 23 cm

Two step function machines (algebra)

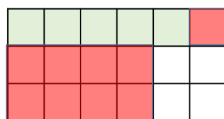


Find functions from expressions



Challenge Activities

Lucy shades in part of a rectangle.



She shades some more squares.

$\frac{7}{9}$ of the rectangle is now shaded.

How many more squares did Lucy shade?

Topic Links

This topic links to:

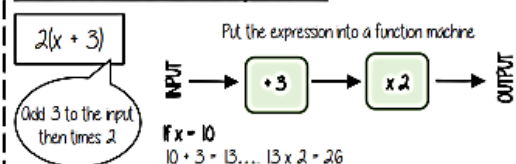
- Adding, subtracting, function machines

Additional Resources

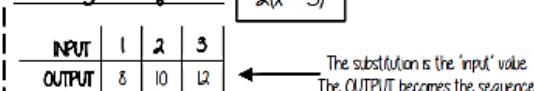
To further practice and develop your knowledge see:

- <https://corbetmaths.com/contents/Number: 386>

Substitution into an expression

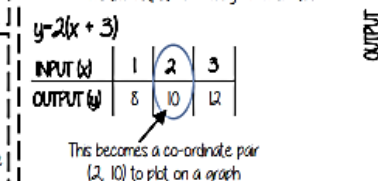
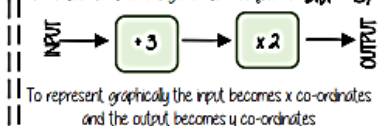


Forming a sequence



Representing functions graphically

Take the function and generate a sequence $2(x + 3)$



Not all graphs will be linear only those with an integer value for x Powers and fractions generate differently shaped graphs

What do I need to be able to do?

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

- Form and solve linear equations
- Understand like and unlike terms
- Simplify algebraic expressions

Keywords

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



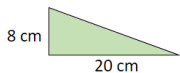
Career Focus - Where could this take you?



As an auditor, I have to make sure I understand lots of number skills and identify patterns to make sure accounts make sense and comply with the law



Retrieval Practice

- 1) A graph of the sequence $5n - 2$ is drawn. Will the points lie in a straight line? How do you know?
- 2) Find the value of $a + 2b$ when $a = 7$ and $b = 2$
- 3) Work out the next term in the sequence.
5 10 20 40 _____
- 4) Calculate the area of the triangle. 

Topic Links

This topic links to:

- Sequences, Algebra, bar modeling

Additional Resources

To further practice and develop your knowledge see:

- <https://corbetmaths.com/contents/>
Number: 9

Challenge Activities



Circle all the fractions that are greater than 1 but less than 2

$\frac{12}{5}$ $\frac{12}{6}$ $\frac{12}{7}$ $\frac{12}{8}$

Equality

$$2 + 14 = 5 + 5 + 6$$

16 16

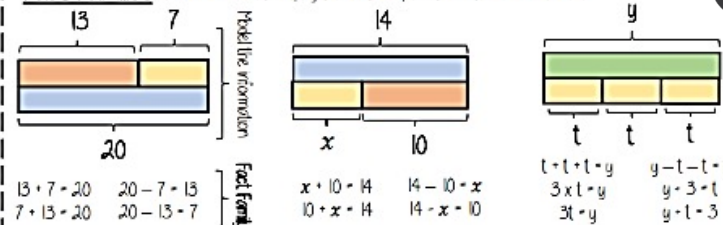
"is equal to"

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

Saying it out loud sometimes helps you to understand equality

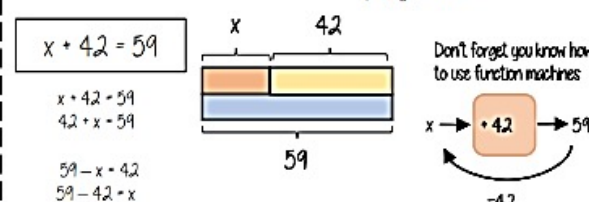
Fact Families

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

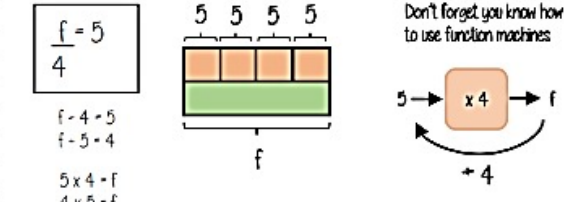


Solve one step equations (+/-)

There is more to this than just spotting the answer



Solve one step equations (x/÷)



Like and unlike terms

Like terms are those whose variables are the same

♥ and 3♥ are like terms
the variable is the same

★ and 3♥ are unlike terms
the variables are NOT the same

Examples and non-examples

Like terms

$y, 7y, 2x^2, x^2, ab, 10ba, 5, -2$

Un-like terms

$y, 7x, 2x^2, 2c^2, ab, 10a, 5, -2t$

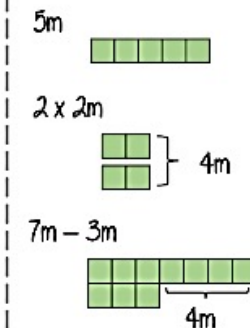
Note here ab and ba are commutative operations, so are still like terms

Equivalence

Check equivalence by substitution e.g. $m=10$

$5m$	$2 \times 2m$	$7m - 3m$
5×10	$2 \times (2 \times 10)$	$(7 \times 10) - (3 \times 10)$
$= 50$	$= 2 \times 20$	$= 70 - 30$
	$= 40$	$= 40$

Equivalent expressions
Repeat this with various values for m to check



Collecting like terms ≡ symbol

The \equiv symbol means equivalent to. It is used to identify equivalent expressions

Collecting like terms
Only like terms can be combined

$$4x + 5b - 2x + 10b$$

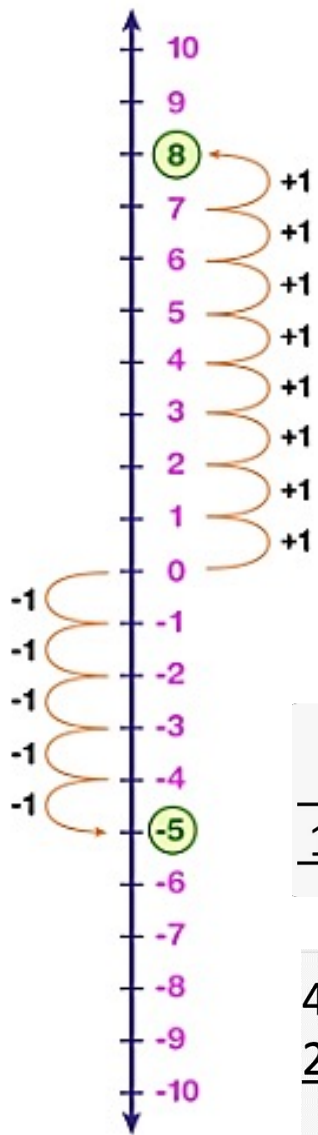
$$2x + 15b$$

Common misconceptions

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

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

Maths Quick Reference: Number Skills



100 Hundreds	10 Tens	1 Units	•	$\frac{1}{10}$ Tenths	$\frac{1}{100}$ Hundredths
3	5	2	•	7	1

addition

- add
- more
- plus
- sum
- total
- altogether

subtraction

- subtract
- minus
- leave
- less
- take away
- difference between

multiplication

- lots of
- times
- multiply
- groups of
- product
- multiplied by
- multiple of
- repeated addition
- array

division

- divide
- divided by
- divided into
- share
- share equally
- equal groups of

$$\begin{array}{r} 476 + \\ 874 \\ \hline 1350 \\ 11 \end{array}$$

$$\begin{array}{r} 586 \\ \times 7 \\ \hline 42 \\ 560 \\ \hline 3500 \end{array}$$

$$\begin{array}{r} 045 \\ 8 \overline{) 33640} \end{array}$$

$$\begin{array}{r} 7 \\ 4,783 - \\ 2,349 \\ \hline 4 \end{array}$$

156000. = 1.56×10^5
Move decimal point 5 places left,
exponent goes up by 5

0.0000053 = 5.3×10^{-6}
Move decimal point 6 places right,
exponent goes down by 6

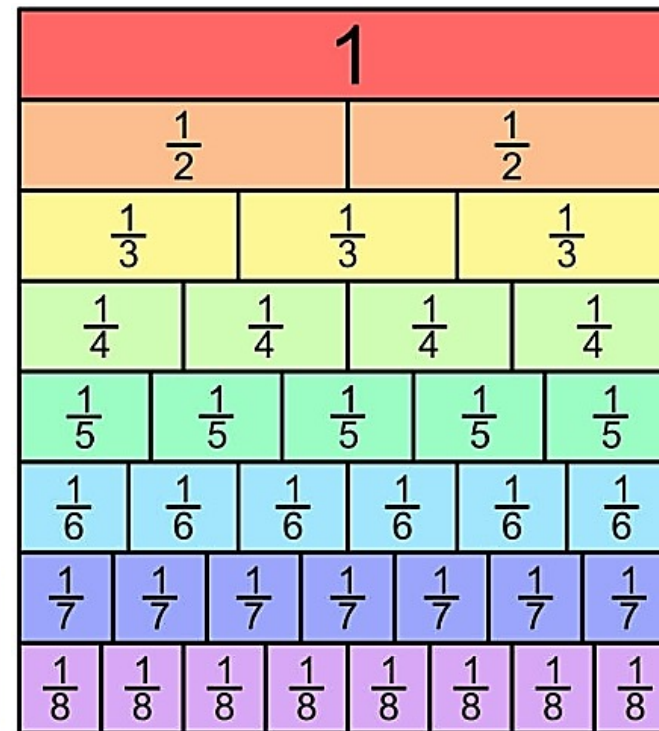
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	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

BIDMAS

() x^y ÷ or × + or -
Brackets Indices Divide & Multiply Add & Subtract



<p>1% of</p> <p>÷ 100</p> <p>$\frac{1}{100}$ of</p> <p>$\times \frac{1}{100}$</p> <p>$\times 0.01$</p>	<p>5% of</p> <p>÷ 10, ÷ 2</p> <p>$\frac{1}{20}$ of</p> <p>$\times \frac{1}{20}$</p> <p>$\times 0.05$</p>	<p>10% of</p> <p>÷ 10</p> <p>$\frac{1}{10}$ of</p> <p>$\times \frac{1}{10}$</p> <p>$\times 0.1$</p>	<p>20% of</p> <p>÷ 5</p> <p>$\frac{1}{5}$ of</p> <p>$\times \frac{1}{5}$</p> <p>$\times 0.2$</p>
<p>25% of</p> <p>÷ 4</p> <p>$\frac{1}{4}$ of</p> <p>$\times \frac{1}{4}$</p> <p>$\times 0.25$</p>	<p>50% of</p> <p>÷ 2</p> <p>$\frac{1}{2}$ of</p> <p>$\times \frac{1}{2}$</p> <p>$\times 0.5$</p>	<p>75% of</p> <p>÷ 4, $\times 3$</p> <p>$\frac{3}{4}$ of</p> <p>$\times \frac{3}{4}$</p> <p>$\times 0.75$</p>	



Maths Quick Reference: Geometry & Measures

Quadrilaterals

<p>Square</p> <p>Four sides of equal length, four internal right angles.</p>	<p>Rectangle</p> <p>Four internal right angles, opposite sides of equal length.</p>	<p>Parallelogram</p> <p>Opposite sides are parallel and equal in length, opposite angles are equal.</p>	<p>Rhombus</p> <p>All four sides are the same length, like a square that has been squashed sideways.</p>
<p>Trapezium (or trapezoid)</p> <p>Two sides are parallel. Side lengths and angles are not equal.</p>	<p>Isosceles Trapezium (or trapezoid)</p> <p>Two sides are parallel and base angles are equal, non-parallel sides are equal length.</p>	<p>Kite</p> <p>Two pairs of adjacent sides are of equal length; the shape has an axis of symmetry.</p>	<p>Irregular Quadrilateral</p> <p>No sides are equal in length and no internal angles are the same.</p>

3D shapes

Cone	Cylinder	Sphere	Square Based Pyramid
Cube	Triangular Prism	Tetrahedron	Cuboid

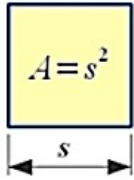
Triangle	Quadrilateral	Pentagon	Hexagon
Heptagon	Octagon	Nonagon	Decagon

Pentagon		$180^\circ \times 3 = 540^\circ$
Hexagon		$180^\circ \times 4 = 720^\circ$
Heptagon		$180^\circ \times 5 = 900^\circ$

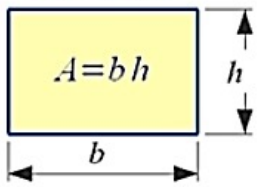
Length		
cm	mm	m
$\times 10$	$\times 100$	$\times 1,000$
$\div 10$	$\div 100$	$\div 1,000$
km	m	
Mass		
g	mg	kg
$\times 1,000$	$\times 1,000$	$\times 1,000$
$\div 1,000$	$\div 1,000$	$\div 1,000$
t	kg	
Volume		
l	ml	cl
$\times 1,000$	$\times 10$	$\times 100$
$\div 1,000$	$\div 10$	$\div 100$

Maths Quick Reference: Geometry (Areas & Volumes)

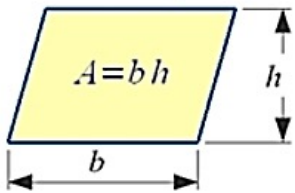
Square



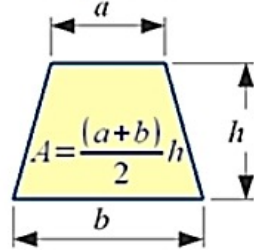
Rectangle



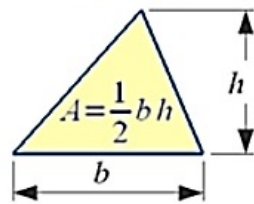
Parallelogram



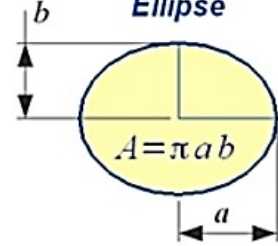
Trapezoid



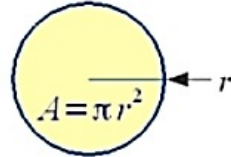
Triangle



Ellipse



Circle



electronics-micros.com

Area and volume of 3d figures

S.No	Name	Figure	Curved Surface Area	Total Surface Area	Volume
1)	Cube	$a = \text{side}$	$4a^2$	$6a^2$	a^3
2)	Cuboid	$l = \text{length}$ $b = \text{breadth}$ $h = \text{height}$	$2h(l + b)$	$2(lb + bh + lh)$	$l \times b \times h$
3)	Sphere	$r = \text{radius}$	$4\pi r^2$	$4\pi r^2$	$\frac{4}{3}\pi r^3$
4)	Solid Hemisphere	$r = \text{radius}$	$2\pi r^2$	$3\pi r^2$	$\frac{2}{3}\pi r^3$
5)	Right circular cylinder	$r = \text{radius}$ $h = \text{height}$	$2\pi rh$	$2\pi r(h+r)$	$\pi r^2 h$
6)	Right circular cone	$r = \text{radius}$ $h = \text{height}$ $l = \text{slant height}$	$\pi r l$	$\pi r(l+r)$	$\frac{1}{3}\pi r^2 h$
7)	Frustum of a cone	$r = \text{top radius}$ $R = \text{base radius}$ $h = \text{height}$ $l = \text{slant height}$	$\pi l(R + r)$	$\pi l(R+r) + \pi r^2 + \pi R^2$	$\frac{1}{3}\pi h(R^2 + r^2 + Rr)$

Simplifying Expressions

Like terms

$$3y + 2x + 4x - y = 2y + 6x$$

Like terms

$$C \times C \times C \times C = C^4$$

$$C + C + C + C = 4C$$

Expanding Brackets

multiply

$$7(x + 2)$$

$$7x + 14$$

multiply

$$5a(b - 4)$$

$$5ab - 20a$$

Expand & Simplify...

$$5(x + 3) + 6(x - 4)$$

$$5x + 15 + 6x - 24$$

$$11x - 9$$

FOIL Method

F O

$$(2x + 3)(5x - 8)$$

I L

First: $(2x)(5x) = 10x^2$

Outer: $(2x)(-8) = -16x$

Inner: $(3)(5x) = 15x$

Last: $(3)(-8) = -24$

$$(2x + 3)(5x - 8)$$

$$= 10x^2 - 16x + 15x - 24$$

$$= 10x^2 - x - 24$$

Grid Method

$$(2x + 3)(5x - 8)$$

	$2x$	$+ 3$
$5x$	$10x^2$	$+ 15x$
$- 8$	$- 16x$	$- 24$

$$10x^2 + 15x - 16x - 24$$

$$= 10x^2 - x - 24$$

An Expression

$$4a + 7b$$

A Formula

$$A = \pi r^2$$

An Equation

$$4a + 12 = 60$$

An Identity

$$(a + b)^2 = a^2 + 2ab + b^2$$

Factorising Brackets

Common factor?

$$7x + 14$$

$$7(x + 2)$$

Common factor?

$$5ab - 20a$$

$$5a(b - 4)$$

Substitution

b = 9

$12b + 10 = 118$ $\frac{b}{3} = 3$ $-b = -9$ $3(b+1) = 30$
 $3b = 27$ $\frac{2b}{3} = 6$ $b - 5 = 4$
 $7b = 63$ $\frac{b+11}{4} = 5$ $b - 20 = -11$
 $3b - 4 = 23$ $b^2 = 81$ $b + 15 = 24$

Solving Equations

$$6x - 5 = 7$$

$$\boxed{+ 5} \qquad \boxed{+ 5}$$

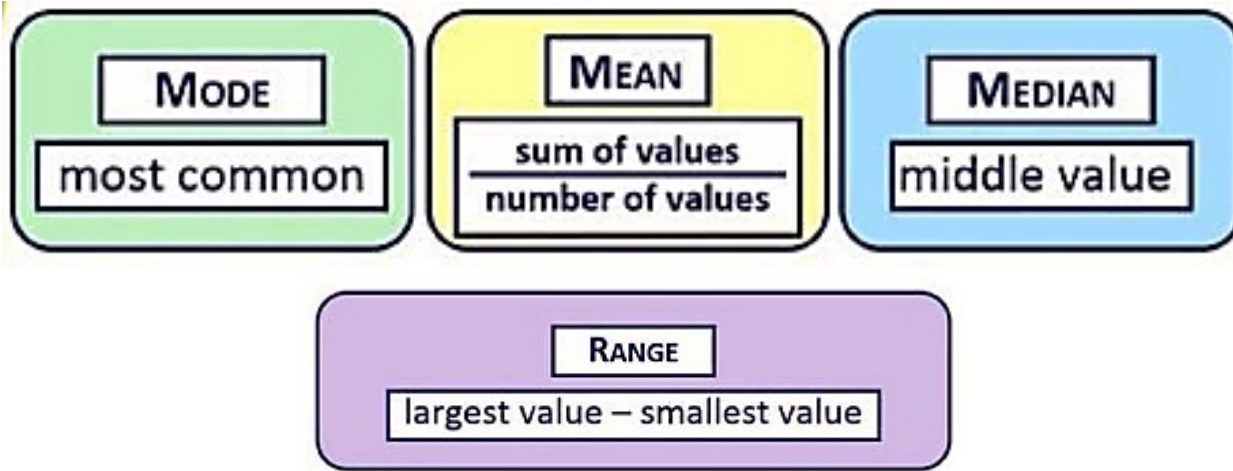
$$6x = 12$$

$$\boxed{\div 6} \qquad \boxed{\div 6}$$

$$x = 2$$



Maths Quick Reference: Statistics



<p>Mean 7, 3, 4, 1, 7, 6 Sum of numbers divided by the total numbers Mean = $(7+3+4+1+7+6)/6$ $= 28/6 = 4.66$</p>	<p>Median 7, 3, 4, 1, 7, 6 Arrange in order and pick the middle value 1, 3, <u>4</u>, <u>6</u>, 7, 7 Median = $(4+6)/2 = 5$</p>
<p>Mode 7, 3, 4, 1, 7, 6 Most common number <u>7</u> 3, 4, 1, <u>7</u> 6 Mode = 7</p>	<p>Range 7, 3, 4, 1, 7, 6 Difference between highest and lowest Range = $7 - 1 = 6$</p>

Mean from the Frequency Table

Discrete Data Frequency Table

$$\text{Mean} = \frac{\text{Sum of (value} \times \text{frequency)}}{\text{Total frequency}}$$

Grouped Data Frequency Table

$$\text{Mean of grouped data} = \frac{\text{Sum of (interval midpoint} \times \text{frequency)}}{\text{Total frequency}}$$

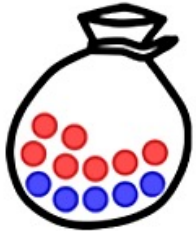
Length (x cm)	Frequency	Midpoint	Midpoint \times frequency
$0 < x \leq 10$	4	$\times 5$	$= 20$
$10 < x \leq 20$	10	$\times 15$	$= 150$
$20 < x \leq 30$	7	$\times 25$	$= 175$
$30 < x \leq 40$	4	$\times 35$	$= 140$
	25		485

estimated mean = $485 \div 25 = 19.4 \text{ cm}$

Simple Probability

$$\text{Probability} = \frac{\text{Favorable outcomes}}{\text{Total outcomes}}$$

Example:



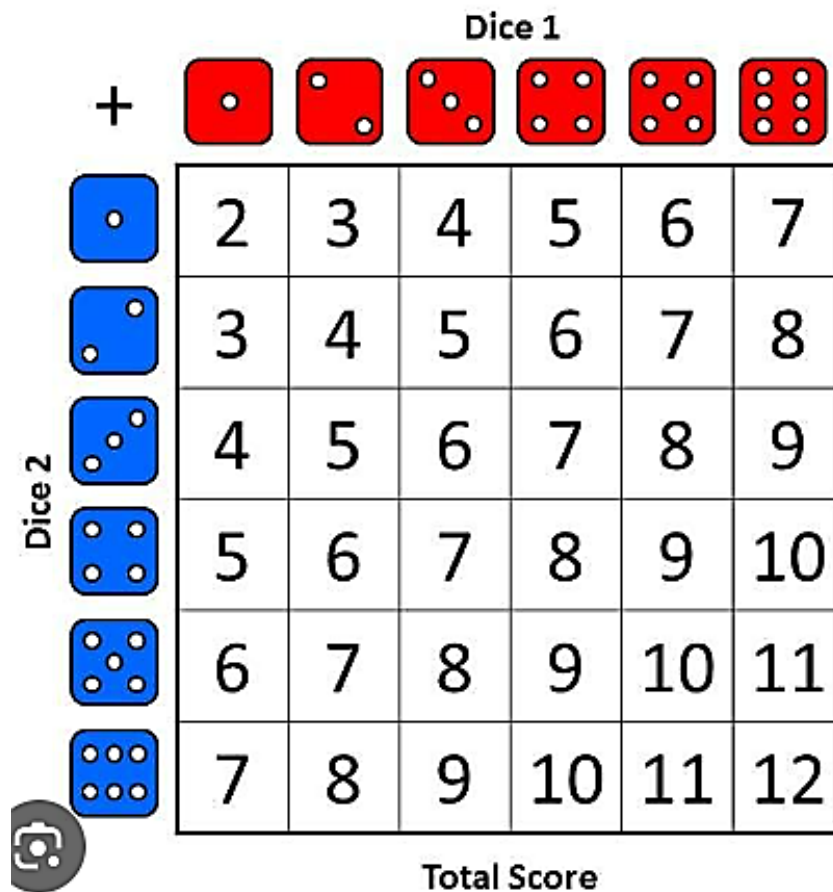
$$P(\text{red}) = \frac{7}{12}$$

← Number of red marbles
← Total number of marbles (sample space)

$$P(\text{blue}) = \frac{5}{12}$$

← Number of blue marbles
← Total number of marbles (sample space)

Sample Space Diagrams



		Dice 1					
	+						
Dice 2		2	3	4	5	6	7
		3	4	5	6	7	8
		4	5	6	7	8	9
		5	6	7	8	9	10
		6	7	8	9	10	11
		7	8	9	10	11	12
		Total Score					

In words:	Impossible	Very unlikely	Unlikely	Even chances	Likely	Very likely	Certain
As decimal fractions:	0	0,2	0,4	0,5	0,6	0,8	1
As fractions:	0	$\frac{1}{5}$	$\frac{2}{5}$	$\frac{1}{2}$	$\frac{3}{5}$	$\frac{4}{5}$	1
As percentages:	0%	20%	40%	50%	60%	80%	100%



Our students will:

- read easily, fluently and with good understanding
- develop the habit of reading widely and often, for both pleasure and information
- acquire a wide vocabulary, an understanding of grammar and knowledge of linguistic conventions for reading, writing and spoken language
- appreciate our rich and varied literary heritage
- write clearly, accurately and coherently, adapting their language and style in and for a range of contexts, purposes and audiences
- use discussion in order to learn; they should be able to elaborate and explain clearly their understanding and ideas
- are competent in the arts of speaking and listening, making formal presentations, demonstrating to others and participating in debate.



Knowledge



World War 2: Evacuees



Fear that German bombing would cause civilian deaths prompted the government to evacuate children, mothers with infants and the infirm from British towns and cities during the Second World War.

Evacuation was voluntary, but the fear of bombing, the closure of many urban schools and the organised transportation of school groups helped persuade families to send their children away to live with strangers.

Evacuees and their hosts were often astonished to see how each other lived. Some evacuees flourished in their new surroundings. Others endured a miserable time away from home. Many evacuees from inner-city areas had never seen farm animals before or eaten vegetables.

At this time, the writer, C.S.Lewis was living in Oxford, in a large country cottage called 'The Kilns' with his wife. The couple opened their home to some of these young refugees, one of whom had been fascinated by a wardrobe there, imagining that there was another way out of it through the other side.

The Chronicles of Narnia

Siblings **Peter**, **Susan**, **Edmund**, and **Lucy** have been sent away from London during the air-raids at the height of World War II. They arrive at the countryside house of a kind but eccentric **Professor**, and as the children explore the house, Lucy winds up in a room which is empty except for a large wardrobe. She opens it to see what's inside, and, after finding a row of fur coats, climbs up into it to rub her face into the furs. The wardrobe goes back farther than she thought, and as she climbs deeper and deeper into it, she soon finds herself walking on freshly fallen snow; when she looks up, she is deep in a snowy wood, and in front of her there is an old lamp-post...

'The Lion, The Witch and The Wardrobe' is the second book in a series of seven books about the magical land of Narnia and the extraordinary creatures and humans who live, visit or adventure there.

Topic Links	Additional Resources
<p>This topic links to:</p> <ul style="list-style-type: none"> • History: World War 2 • RE: Christian allegory • Art:: Creative tasks 	<p>To further practise and develop your knowledge see:</p> <p>https://www.sparknotes.com/lit/lion/ 1988 TV version of the novel can be watched here:</p> <p>https://www.youtube.com/watch?v=6Fft9DLp7E The Evacuated Children Of The Second World War Imperial War Museums (iwm.org.uk)</p>





- Explore connotations at a much deeper level than at key stage 2
- Explore good and evil

- Understand contextual information about WW2
- Explore how writers craft characters, structure and plot
- Explore the writer's craft



Skills Practice

Read the extract below and write an answer to the question that follows. Use the technique in the **Key Skill** box to help you.

Looking into the inside, she saw several coats hanging up - mostly long fur coats. There was nothing Lucy liked so much as the smell and feel of fur. She immediately stepped into the wardrobe and got in among the coats and rubbed her face against them, leaving the door open, of course, because she knew that it is very foolish to shut oneself into any wardrobe. Soon she went further in and found that there was a second row of coats hanging up behind the first one. It was almost quite dark in there and she kept her arms stretched out in front of her so as not to bump her face into the back of the wardrobe. She took a step further in - then two or three steps always expecting to feel woodwork against the tips of her fingers. But she could not feel it. "This must be a simply enormous wardrobe!" thought Lucy, going still further in and pushing the soft folds of the coats aside to make room for her.

How does the writer use language to suggest the wardrobe is usual ?

Key Skill: Writing about language

Writers use a range of methods and specific word choices to make their ideas easy for you to imagine. To write about how something is presented:

Establish the **Main Image**- What is the focus being described as? How do you know? The words that give you this impression should be used as quotes to support your answer as you explore how that image is **Created**, **Continued** and **Contrasted**. These sentence starters will help:

- C.S.Lewis presents through the main image of.....
- He creates this through the use of which suggests.....
- He continues this image through the use of.....which infers.....
- He then contrasts/ further continues this through....., suggesting.....

Career Focus -



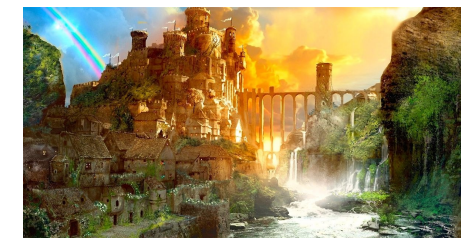
I am a Public Relations officer. Studying English gives me important skills. It helps me communicate and write effectively. I can use these skills to create interesting news releases, persuade people, and make engaging social media posts. it helps me understand and share complex messages, which makes me better at public relations.

Challenge Activities



Task 1 - Write a diary entry as your choice of character- you could be one of the children, Mr Tumnus, The White Witch... Or maybe even try a few from different perspectives.

Task 2: - Design a holiday brochure for a visit to Narnia. Use your imagination to create possible lodgings and activities for your prospective customers. (Beaver dams, tree houses, palaces...)





Vocabulary

You will be tested on five words per week.



Keyword	Definition
Evacuee	A person evacuated or moved from a place of danger to somewhere safe.
Chronicles	A written account of an important or historical events in the order of their occurrence.
Inquisitive	Curious or inquiring.
Faun	A half-human, half-goat mythical creature.
Nymphs	Mythical spirits on nature believed to live in the woods.
Hoax	A trick or prank.
Anthropomorphism	Giving an animal or object human characteristics.
Prophecy	A prediction.
Emblem	A symbolic object or representation.
Allegory	A story, poem or picture that has a hidden meaning or a moral lesson.
Semantic field	A set of words that link to a specific category.
Taunting	Intended to provoke someone into an insulting or annoying way.

Keyword	Definition
Oppressed	Subject to harsh, cruel and unjust treatment.
Righteous	Morally right, good and virtuous.
Malicious	Intending or intended to do harm.
Resurrection	Rising from the dead, being restored to life.
Treason	The crime of betraying one's country by attempting to overthrow the monarchy or government.
Brute	A savagely violent person or animal.
Incantation	A series of words said as a magic spell or charm.
Consort	A partner or companion of a reigning king or queen
Magnificent	Impressively beautiful, elaborate or extravagant; striking.
Just	Fair or morally correct.
Valiant	Possessing or showing courage or determination.
Stag	A male deer.
Legend	A very old story, or set of stories, from ancient times.



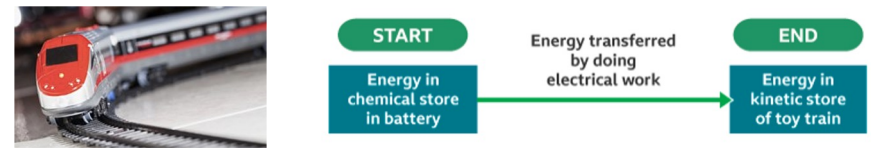
Our students will:

- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about the world around them
- are equipped with the scientific knowledge required to understand the **uses and implications** of science, today and for the future.

Keyword	Definition
Energy store	Type of energy. Energy is measured in Joules (J).
Kinetic energy	Anything moving has energy in its kinetic store (faster = more energy).
Gravitational potential energy	Anything that has mass and is in a gravitational field (higher up = more energy).
Chemical energy	Anything that can release energy by a chemical reaction (examples include food and fuels).
Elastic potential energy	Anything that can be stretched or compressed.
Thermal energy	Every object has thermal energy (higher temperature = more energy).
Energy transfer	When energy moves from one store to another.
Heat transfer	Energy transfer between hot and cold objects.
Electrical transfer	Energy transfer when a charge (current) moves.
Radiation transfer	Energy transfer through light/sound.
Mechanical transfer	Energy transfer when an object moves due to a force.
Renewable	Naturally replenished (will not run out), for example solar panels and wind turbines.
Non-renewable	Not naturally replenished (will run out), for example fossil fuels.

Energy transfers

Example 1: Battery powered train



Example 2: Person moving a book to a high shelf



Law of Conservation of Energy

The law of conservation of energy states that energy **cannot** be **created** or **destroyed**, it can **only** be **transferred** from one store to another.

When energy is transferred, it can be **dissipated**. This is where energy is **'wasted'** by being transferred to the **surroundings**. Energy becomes stored in less useful ways, e.g. as thermal energy.

Energy efficiency

How good a device is at transferring energy input to useful energy output is called **efficiency**. The more efficient a device is, the less energy it will waste.

$$\text{EFFICIENCY} = \frac{\text{USEFUL POWER OUTPUT}}{\text{TOTAL POWER INPUT}} \times 100$$

Energy resources

FOSSIL FUELS (NON-RENEWABLE)

Coal, oil and gas are all fossil fuels. They are formed from dead remains over millions of years. They are burnt which produces thermal energy used to turn a generator and make electricity.

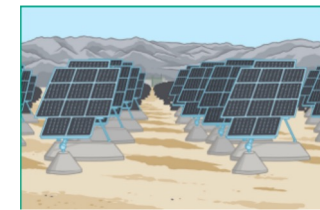


- + Reliable
- + Releases energy quickly
- + Can be used in vehicles as fuel

- Will run out
- Releases carbon dioxide
- Extraction can run landscapes

SOLAR PANELS (RENEWABLE)

They use the sunlight to produce an electrical current.



- + No pollution
- + No fuel costs
- + Can be used in remote locations

- Unreliable
- Expensive to set up
- Can only be used in daytime

WIND TURBINES (RENEWABLE)

Wind turns the blades which turns a generator, this produces electricity.



- + No pollution
- + No fuel costs
- + Minimal running costs

- Unreliable
- Spoils the view
- Can only be used when it is windy

- Describe energy stores and transfers
- Calculate the cost and efficiency of energy transfers

Retrieval Practice



Questions	Answers
What is kinetic energy?	Anything moving has energy in its kinetic store (faster = more energy).
What is thermal energy?	Every object has thermal energy (higher temperature = more energy).
What is elastic potential energy?	Anything that can be stretched or compressed.
What is gravitational potential energy?	Anything that has mass and is in a gravitational field (higher up = more energy).
What is chemical energy?	Anything that can release energy by a chemical reaction (examples include food and fuels).
What are the 4 methods of energy transfer?	Heat, electrical, radiation, mechanical.
What is unit of measurement for energy?	Joules (J).
What is the law of conservation of energy?	Energy cannot be created or destroyed; it can only be transferred from one store to another.
What does the efficiency tell you about a device?	How much of the input energy is transferred usefully and how much is wasted.
What does renewable mean?	It is naturally replenished (will not run out).
What does non-renewable mean?	It is not naturally replenished (will run out).
What are the disadvantages of using fossil fuels?	It is non-renewable so will run out, it releases carbon dioxide and extraction can ruin landscapes.
What are the advantages of solar panels?	It is renewable so will not run out, there is no pollution or fuel costs and has minimal running costs.

Career Focus - Where could this take you?



I am a welder. My job is to use high heat to fuse materials, creating strong, durable bonds between them. I must decide the best techniques to use on different materials to quickly create strong and safe joins. Welders are required in most sectors so my workplace could be in a workshop, in a factory, on a construction site, on a demolition site or even on an oil rig. Welding combines the mental satisfaction of exacting technical standards with the physical rewards of precise handcrafting.

Challenge Activities



1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mind map for this topic. Remember to include keywords and the links between information.
3. Research the latest innovations in renewable energy. What is currently being developed and how does it work?
4. Make a poster about energy transfers.
5. Find out more about welders and what they do. What qualifications would you need for this career? What is the average salary?
6. Research the famous scientist Thomas Edison (1847-1931) and how he influenced and improved our understanding of energy. What contributions to society did he make?

Topic Links



This topic links to other science topics such as:

- Digestive system
- Types of pollution

We will also be learning how to create a sustainable future and economy.

Additional Resources



Educake - <https://www.educake.co.uk/>

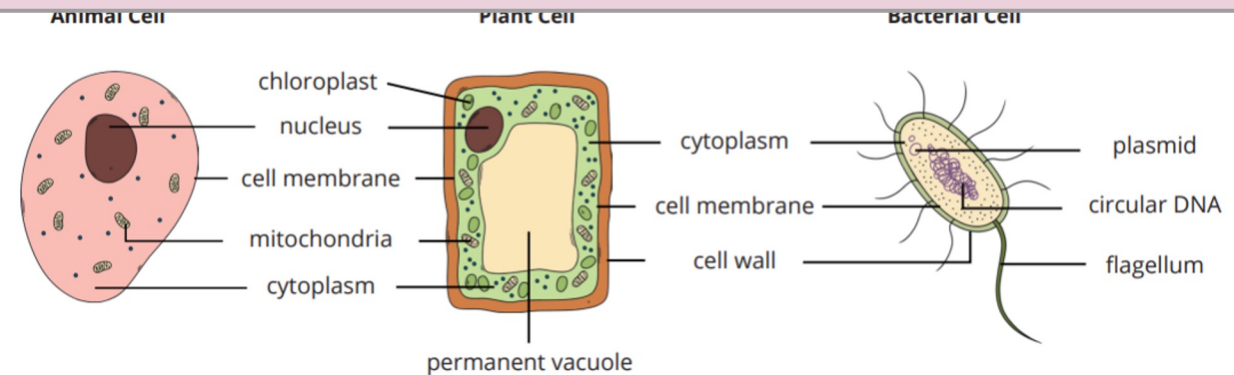
BBC Bitesize – <https://www.bbc.co.uk/bitesize/topics/z89ddxs>

YouTube Cognito - <https://www.youtube.com/watch?v=JGwDCeYRYo&list=PLidq1GKox7UVC-8WC9djoeBzwxPeXph7>

- Recall the function of the organelles
- Describe and compare animal, plant and bacterial cells

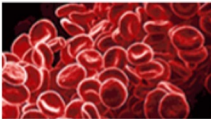
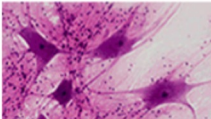
Keywords	Definition
Cell	Basic unit of life.
Cell membrane	Controls the movement of substances in and out of the cell.
Nucleus	Contains genetic information.
Circular DNA	The genetic information found inside bacteria (without nucleus).
Cell wall	Provides support to plant and bacterial cells.
Cytoplasm	Jelly-like substance where chemical reactions take place.
Mitochondria	Where respirations takes place. Releases energy.
Chloroplasts	Contains the green pigment chlorophyll, the site of photosynthesis.
Vacuole	Contains cell sap.
Flagella	Hairlike structure that allows bacteria to move.
Plasmid	Small circular ring of DNA.
Specialised cell	Cells designed to carry out a particular role in the body.
Function	The purpose for which something exists, its role.
Adaptation	Features of living organisms that help them survive

Key Concepts



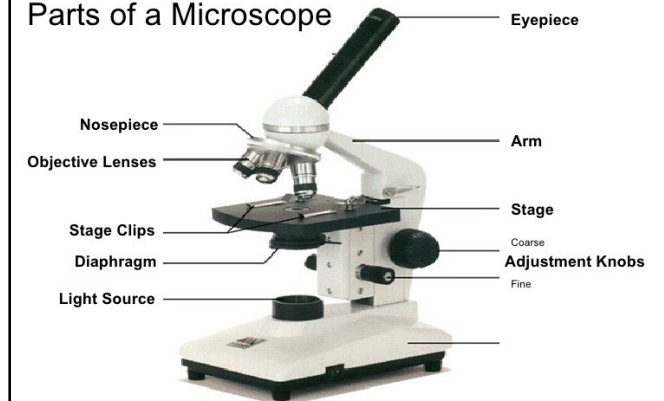
Specialised Cells

Humans are multicellular. That means we are made of lots of cells, not just one cell. The cells in many multicellular animals and plants are specialised, so that they can share out the processes of life. They work together like a team to support the different processes in an organism.

Image	Type of animal cell	Function	Special features
	Red blood cells	To carry oxygen	<ul style="list-style-type: none"> • Large surface area, for oxygen to pass through • Contains haemoglobin, which joins with oxygen • Contains no nucleus
	Nerve cells	To carry nerve impulses to different parts of the body	<ul style="list-style-type: none"> • Long • Connections at each end • Can carry electrical signals

Parts of a light microscope

Parts of a Microscope



Using a Light microscope

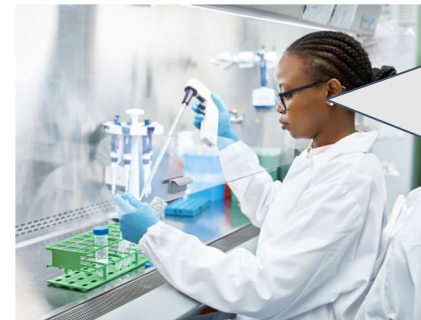
- Prepare a slide.
- Plug in microscope and turn on light.
- Place slide on stage and hold with clips.
- Use lowest magnification objective lens to focus image.
- Then turn up the magnification by turning to a

- Recall the function of the organelles
- Describe and compare animal, plant and bacterial cells

Retrieval Practice	
Questions	Answers
What is a cell?	Cells are the basic building blocks of all living organisms.
What is an organelle?	Specialised structures that perform various jobs inside cells.
What is the function of the nucleus?	Contains genetic information (DNA) that controls cell activities.
What is the function of the cell membrane?	To control what enters and leaves the cell.
What is the function of the cytoplasm?	Where chemical reactions take place.
What is the function of mitochondria?	The site of respiration - where energy is released.
What is the function of the cell wall?	To strengthen and support plant and bacterial cells.
What is the function of chloroplasts?	Contains chlorophyll to absorb light energy for photosynthesis.
Which organelles are present in both animal and plant cells?	Nucleus, Cell membrane, Cytoplasm, Mitochondria,
Which organelles are present in plant cells but not in animal cells?	Chloroplasts, Cell wall, Vacuole.
Name the parts of a microscope	Eye piece, objective lens, stage, lamp, focusing wheel.
What does focus mean and how do you focus an image?	Making an image clear enough to be viewed under the microscope by using the focussing wheel.
What is a specialised cell?	Specialised cells are cells designed to carry out roles in the body.



Career Focus - Where could this take you?



I am a biochemist. My job is to investigate the chemical processes that take place in all living things such as bacteria, plants and people. My workplace is a laboratory at a University where I get to plan and carrying out scientific experiments, use lab equipment and publish my findings. Biochemistry has hugely benefited society, for example it has provided explanations for many diseases, helped with food production and improved human health!

Challenge Activities



1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mindmap for this topic. Remember to include keywords and the links between information.
3. Research specialised cells found in both animals and plants and turn the information into a leaflet.
4. Make a 3D model of a cell - you can use recycled materials or even bake!
5. Find out more about Biochemists and what they do. What qualifications would you need for this career? What current research is being done?
6. Construct a fact file about a famous historical scientist that helped us to understand more about cells

Topic Links



This topic links to other science topics such as

- Scientific Skills
- Organisation
- Energy

We will also be practising how to

- Calculate area and volume
- Write descriptively to compare cells

Additional Resources



Educake - <https://www.educake.co.uk/>

BBC Bitesize -

<https://www.bbc.co.uk/bitesize/guides/z9hyvcw/revision/3>

YouTube Cognito -

<https://www.youtube.com/watch?v=qHkUOIC8Nbo&list=PLidqglGKox7X5UFT-expKluR-i-BN3Q1g&index=2>

The learning outcomes for this topic are:

- Describe the structure and properties of solids, liquids and gases
- Explain how substances change state and gases diffuse

Keyword	Definition
Solid	Solid objects can hold their shape.
Liquid	Liquids can flow but cannot be compressed (squashed).
Gas	Gases can flow and expand to fill a container.
State of Matter	The states at which substances can exist, either solid, liquid or gas.
Particles	A small portion of matter usually drawn as a circle.
Properties	The characteristics of a substance.
Flow	When fluids (gases or liquids) move in a steady stream
Compressed	When something is squashed to make it smaller.
Density	The amount of space (volume) something takes up in relation to its mass.
Melt	When a substance changes from a solid to a liquid.
Freeze	When a substance changes from a liquid to a solid.
Condense	When a substance changes from a gas to a liquid.
Evaporate	When a substance changes from a liquid to a gas.
Sublimation	When a substance changes from a solid to a gas.
Diffuse	When particles of a substance spread out.

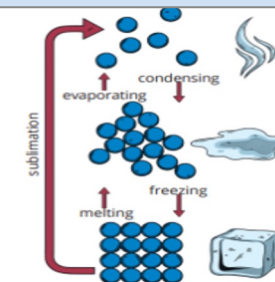
Key Concepts

	Solid	Liquid	Gas
particle model diagram			
particle arrangement	regular structure no space between particles	irregular structure very little space between particles	irregular structure large space between particles
volume and shape	fixed volume fixed shape	fixed volume shape changes to fill bottom of container	volume increases to fill capacity shape changes to fill capacity
able to flow	no (forces between particles are very strong and hold them in fixed positions)	yes (forces between particles are weak and particles slide over one another)	yes (forces between particles are very weak and particles move randomly and rapidly)
density	high cannot be compressed (particles are already tightly packed)	high cannot be compressed (particles are already tightly packed)	low can be compressed (particles are forced closer together)
particle energy levels	low (particles vibrate around a fixed point only)	moderate (particles can move and flow but slowly)	high (particles moving rapidly and freely)

Changes of State

Substances can change state; from a solid to a liquid (melting) liquid to a gas (evaporating) gas to liquid (condensing) and liquid to solid (freezing). Sublimation is when a substance changes from a solid directly to a gas.

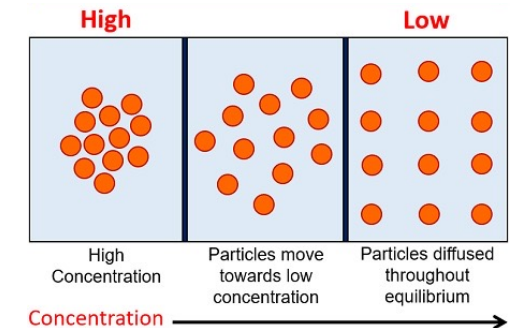
The arrangement of particles changes when the substance changes state.



Diffusion

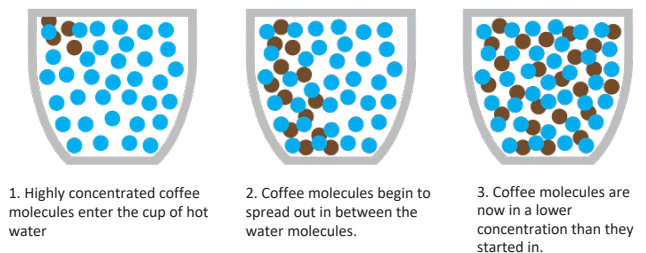
Diffusion is the movement of a substance from an area of high concentration to an area of lower concentration. Diffusion occurs in liquids and gases when their particles collide randomly and spread out.

Diffusion is an important process for living things - it is how substances move in and out of cells.



Diffusion occurs in gases like air and liquids like water because their particles can move around and collide with each other randomly.

For example, if you mix two drinks, the liquids diffuse into each other. Blackcurrant squash has a high concentration level. When the squash is mixed with water, it becomes less concentrated and is diluted.



- Describe the structure and properties of solids, liquids and gases
- Explain how substances change state and gases diffuse

Retrieval Practice



Questions	Answers
How are particles arranged in solids?	A regular structure with no space between particles
How are particles arranged in liquids?	An irregular structure with little space between particles
How are particles arranged in gases?	An irregular structure with large spaces between particles
What are the properties of a solid?	Fixed volume and shape that cannot flow or be compressed
What are the properties of a liquid?	Fixed volume, can flow/change shape, can't be compressed
What are the properties of a gas?	No fixed volume or shape, can be compressed
Which state is the most dense and why?	Solid because the particles are tightly packed
Which state is the least dense and why?	Gas because the particles are spread apart
What is happening when a substance melts?	The particles gain energy and change from solid to liquid
What is happening when a substance freezes?	The particles lose energy and change from liquid to solid
What is happening when a substance evaporates?	The particles gain energy and change from liquid to gas
What is happening when a substance condenses?	The particles lose energy and change from gas to liquid
What is sublimation?	When a substance changes from a solid to a gas
What is diffusion?	The movement of fluids (gas or liquid) from an area of high concentration to an area of low concentration
How does temperature affect the rate of diffusion?	The particles move faster so diffusion happens quicker
What happens to water density when it freezes?	It becomes less dense! Which is unusual for a solid.

Career Focus - Where could this take you?



I am a barista. I work in a café making and serving speciality coffees and teas, as well as occasionally helping with food orders.

You can become a barista through experience of working in a coffee shop or you can go to college to complete an apprenticeship. The best baristas understand how to use the process of diffusion to make an outstanding cup of coffee.

The skills needed for this job involve having good customer service skills and being good with your hands.

Challenge Activities



1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mindmap for this topic. Remember to include keywords and the links between information.
3. Research how the particle model was first developed and the important findings that helped scientists understand states of matter.
4. Make a 3D model of the different states of matter - solid, liquid and gas.
5. Find out more about baristas and what they do. What qualifications would you need for this career? What is the average salary?
6. Construct a fact file about a famous historical scientist that helped us to understand more about substances and particles.

Topic Links



This topic links to other science topics such as

- Scientific Skills
- Chemical reactions
- Energy

We will also be practising how to

- Use numerical data to identify states of matter
- Present information using V21 skills

Additional Resources



Educake - <https://www.educake.co.uk/>

BBC Bitesize -

https://www.bbc.co.uk/bitesize/topics/zkr4jxs/articles/z3qy_ydm

YouTube Cognito -

https://www.youtube.com/watch?v=vi_SJBnxmHo&list=PLid_gqIGKox7WeOKVGHxcd69kKqtwrKl8W&index=5

Our students will:

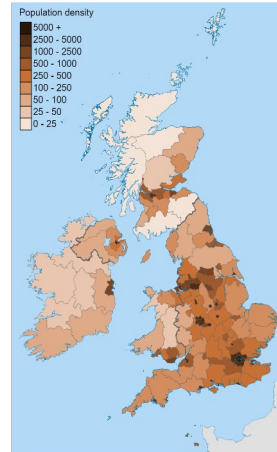
- know and understand the history of these islands as a coherent, chronological narrative, from the earliest times to the present day: how people's lives have shaped this nation and how Britain has influenced and been influenced by the wider world
- understand historical concepts such as continuity and change, cause and consequence, similarity, difference and significance, and use them to make connections, draw contrasts, analyse trends, frame historically-valid questions and create their own structured accounts, including written narratives and analyses
- understand the methods of historical enquiry, including how evidence is used rigorously to make historical claims, and discern how and why contrasting arguments and interpretations of the past have been constructed
- develop contextual knowledge of the location of globally significant places – both terrestrial and marine – including their defining physical and human characteristics and how these provide a geographical context for understanding the actions of processes
- understand the processes that give rise to key physical and human geographical features of the world, how these are interdependent and how they bring about spatial variation and change over time

- Explain how the population is distributed across the UK
- Evaluate whether the UK is an island on its own or not

Keyword	Definition
Population	The number of people living in a place
Population Density	The average number of people living in a place
Rural	An area which is mainly countryside
Urban	A built up area
Economy	All the business going on in a country
Primary Sector	Jobs in which people work with natural materials
Secondary Sector	Jobs in which people make products from raw materials
Tertiary Sector	Jobs which provide a service for others
Multiracial	Consisting of people of many different nationalities and cultures.
Trade	The buying and selling of goods and services between countries
Gross National Income	A measure of how well off people in a country are
Communications	The transfer of information
Sanctions	A penalty - for example a ban on trade with a country

Key Concepts

UK Population Distribution



The distribution of people in the UK is not evenly spread due to physical geography (climate and mountains). Most people live in the south east and in towns which developed during the Industrial Revolution.



London

South West of the UK, developed and named Londinium by the Romans

Our capital city

population: 8.3 million, or 13% of the UK's population
 share it contributes to the UK's wealth: 19%
 % of its population born outside the UK: 37%
 daily commuters from outside London: around 750 000
 secondary schools: around 660
 hospitals: around 80
 cinemas: around 110
 premiership football clubs: 5
 shops: thousands
 places to eat: thousands

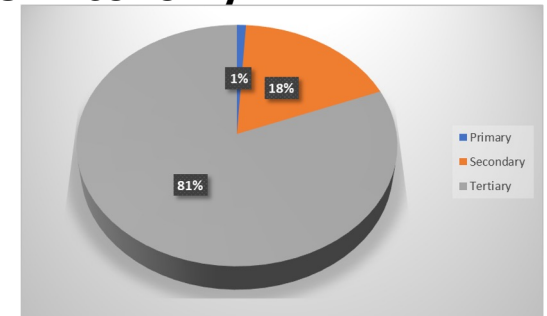


UK links to the World




- Trade - Buy & sell goods to other countries
- Transport - 25 airports, Channel Tunnel & 30 ports
- Communications - Internet, phone, music & TV
- Investment - Many foreign companies have business here
- Membership - Of the UN and Commonwealth
- Tourism - 40 million visitors come to our country each year
- Culture - Books, fashion, music, TV & sport is watched around the World
- Aid - We give 0.7% of our earning a year to poorer countries

The UK Economy



- Explain how the population is distributed across the UK
- Evaluate whether the UK is an island on its own or not

Retrieval Practice 	
Questions	Answers
Which area of the UK has the highest population density and why?	The South East of the UK (around London) as the land is flatter, a warmer climate and good transport links to Europe
Which areas of the UK have the lowest population density and why?	The Highlands of Scotland (North West Highlands) as the climate is cooler and the land is steep and difficult to build on
Why might people want to live in an urban area?	Better job opportunities more places of entertainment
Which sector of the economy employs the most people?	Tertiary with 81%
Name 3 jobs associated with the tertiary sector	Teacher, Nurse and Firefighter
Give 3 ways we are linked to the rest of the World	Members of the UN, 0.7% of our income goes to countries who are poorer and 40 million people visit every year from other countries
Why do you think 40 million tourists a year visit the UK?	The history of the country and the castles/tourist attractions like Buckingham Palace and Houses of Parliament
Who founded London and what was it called?	The Romans - Londinium
Why do you think London is an International city?	Many international companies and banks have headquarters there, it also has 2 huge airports (Heathrow and Gatwick) to link to other countries.

Career Focus - Where could this take you?



Aid Worker

We help people in overseas countries affected by man-made and natural disasters like wars, outbreaks of disease and earthquakes. We work with organisations and government officials in affected areas, to roll out healthcare or education programmes and work on building or engineering projects.

Challenge Activities

- Design a quiz based on the UK. Include at least 10 questions plus their answers
- Create top trumps cards for 6 cities in the UK - include size, population, age, height above sea level and distance from London
- Create an advert (on paper or online) encouraging people to visit London. You must include at least 4 tourist destinations

Topic Links

This topic links to:

- History and the Roman Invasion of Britain
- Geography Half term 1 the physical landscape and population
- English producing an advert (persuasive writing)
- CAPE - foods, technologies and music produced in the UK

Additional Resources

To further practise and develop your knowledge see:

- Changes to the UK economy (Bitesize)
- UK population change (Bitesize)
- UK economy & links to the world





Key Concepts:

World – Countries and Oceans



- Explain why was Rome able to create a vast Empire
- Evaluate how successful was the Roman Army was

Keyword	Definition
Chronology	Arranging events or dates in the order they took place.
Legend / Myth	A story believed to be fact, but over time has taken on fictional elements.
Romans	Citizens of Ancient Rome and the Roman Empire.
Expansion	How a state or country grows by taking over other states or countries.
Invasion	Attacking another state or country and its people on their own land.
Empires	A group of territories controlled by another country and one ruler.
Emperor	The ruler of an Empire.
Legion	A large section of the Roman Army made up of 5000 soldiers.
Centurion	Responsible for training the soldiers and making sure they obey orders.
Legionary	A soldier from a Roman tribe (a citizen of Rome).
Auxiliary	A soldier from lands conquered (not a citizen of Rome).
Tactics	Carefully planned actions and strategies to achieve a specific goal.
Formations	The arrangement of soldiers and weapons to act as a unit.
Sources	Different types of evidence used to study the past. (See <i>Half-Term 1</i>).
Successful	Achieving a desired aim or result.

Key Concepts

Birth of Rome (Myth and Legend)

Legend has it that an ancient land called **Alba Longa** was ruled by good king **Numitor**. He had a daughter called **Rhea Silvia** who was imprisoned by her Uncle **Amulius** as he wanted to be King. Whilst imprisoned in the temple of **Vestal Virgins**, Rhea Silvia became pregnant by **Mars** (God of War) and gave birth to twin boys, **Romulus and Remus**. Amulius ordered that the twins be put to death, so a servant placed the twins in a basket and set them adrift on the river **Tiber**. The twins did not drown and were instead found by a **she wolf** who raised them until they were taken in by a **shepherd** and his wife. They went on to become fierce soldiers who defeated Amulius and gave the throne back to Numitor. They went on to build their own city. However, Romulus **killed** Remus in a fierce fight and named the city after himself, **Rome**.

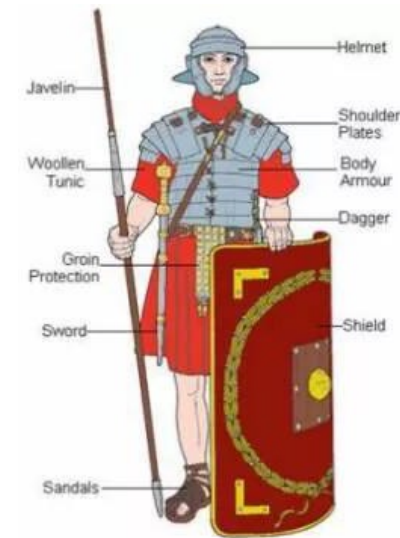


Expansion of the Roman Empire:

The **Roman Empire** did not begin as the mighty Roman Empire that we know today. They were actually defeated many times by other groups and **tribes** within **Italy**. The **Gauls** (French) defeated the Romans in Italy and only left when the Romans **paid** them a lot of money to go back north. From **340 BC - 275 BC**, the Romans defeated the **Etruscans** (neighbours and friends), the **Samnites** (southern Italy) and the **Greek settlers** in the north (the **Pyrrhic war**). Wars with **Carthage** (North Africa) lasted 118 years from **264 - 146 BC** and became known as **The Punic Wars**. Once the **Carthaginians** had been defeated Rome had control over the whole region. Now they could expand across **Europe, North Africa and the Middle East** swallowing up other countries.

Life as a Roman Soldier:


As the Empire grew bigger the army had to fight further and further away from home. Being a soldier became a full-time job and soldiers were no longer sent home when a battle ended. These full-time soldiers were well-trained and disciplined. They had to be tough and confident in the use of a number of weapons. There were two types of Roman soldiers: Legionaries and Auxiliaries. Legionary soldiers were Roman citizens and grouped into large numbers called Legions. Auxiliaries were conquered people who joined the Roman Legions. These served for 25 years in the army and became full Roman citizens when they retired. This meant that their families would be entitled to all the things that Roman citizens had too.



- 753 BC** - The building of Rome begins.
- 510 BC** - Rome becomes a republic. Offices are elected.
- 202 BC** - Rome conquers territories outside Italy and its power spreads.
- 130 BC** - Rome conquers Greece and Spain.
- AD 1** - The birth of Jesus.
- AD 43** - The Romans conquered Britain.
- AD 61** - Boudicca rebels against the Romans.
- AD 122** - The building of Hadrian's wall begins.
- AD 200** - Rome is attacked by the Barbarians.
- AD 235-285** - 20 Roman emperors are assassinated.
- AD 410** - Roman rule in Britain comes to an end.
- AD 455** - Vandals destroy Rome and the Empire collapses.

The aims of the sequence of learning are to ensure that all students:

- Explain why was Rome able to create a vast Empire
- Evaluate how successful was the Roman Army was

Retrieval Practice 	
Questions	Answers
Which animal is believed to have looked after Romulus and Remus?	A Wolf
What animal helped Hannibal defeat the Romans in 218BC?	Elephant
What was the name given to the Commander of a Roman Legion?	Legate
Tell me two qualities a Legionary had to have to join the Roman Army:	Confidence and Courageous
Write down two pieces of equipment a Roman Legionary had – in Latin!	Dagger – Pugio Javelin – Pilum
Tell me one tactic and one formation the Romans used which were successful:	Tactic – shoot arrows and catapults first Formation – The Phalanx
List as many advanced weapons as you can that the Roman Army had:	Ballista and Scorpio
What did the Roman soldiers like to do when they were 'off-duty'?	Building forts and bridges or mining and quarrying
Tell me two 'rewards' of being a Roman soldier and two possible 'punishments':	Rewards – land they could farm or a special ring Punishments – Beating or reduced food rations

Career Focus - Where could this take you?



I am a Recruitment Consultant: My job is to attract candidates for various roles by creating job adverts and matching them to temporary or permanent positions with different companies. I need to check over their job application to make sure they are right for the business. I must carefully read their information, analysing as I go to ensure I make the correct choice. Then I need to interview them to check they have the key qualities and skills needed for the role.

Challenge Activities

1. Research a Roman settlement in Britain and produce an information leaflet about it. You must include true historical facts and images.
2. Research key battles the Romans fought to expand their Empire and produce a PowerPoint to explain what happened. Include the facts (dates, events etc.) and images.
3. Produce a display piece of a Roman Soldier - this could be drawn, chalked, painted or modelled and either take a photo of your creation or bring it along to your History teacher. Don't forget to add labels detailing what their weapons and armour were called.

Topic Links

This topic links to other humanities topics such as:

- Roman Society
- The makeup of the UK
- Migration

We will also be practicing how to:

- Complete a job application form.
- Decide on the utility of a source.

Additional Resources

To further practise and develop you knowledge see:

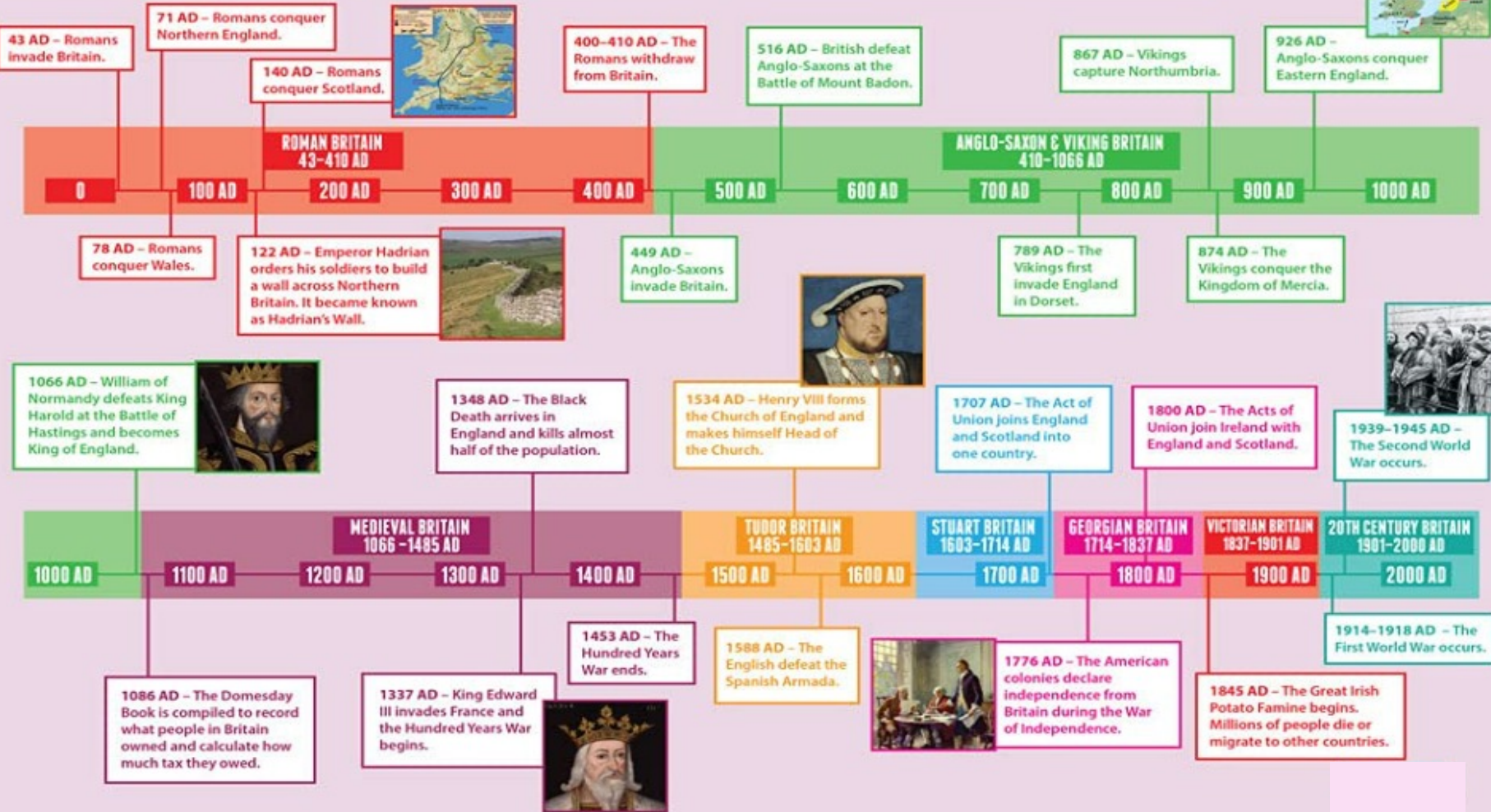




Key Concepts


TIMELINE 0-2000 AD

A timeline is a way to record important events and track when they happened.





- Describe the Hindu belief on life after death
- Explain why the Vedas is the dominant source of authority in Hinduism
- Discuss why there such a focus on the three avatars of God

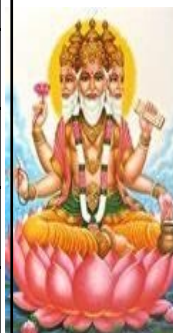
Keyword	Definition
Dharma	Means religious duty but also refers to the Hindu code of conduct and way of life.
Reincarnation	Most Hindus believe in reincarnation – the idea that death, the soul is reborn into a new life.
Karma	The belief that actions in this life will have a consequence for a persons' rebirth.
Brahman 	Many people misunderstand Hindu beliefs about God, who can be seen in many forms. The different forms of God are referred to as deities. Brahman is often represented through the Aum symbol.
Atman	Hindus believe that all living things have a soul (an atman). It is the soul that is reborn after death.
Good & Evil	According to Hindu scriptures there is constant struggle between good & evil, order & chaos, light & darkness. The deities are believed to uphold order whilst demons are said to be trying to disrupt it.
Ahimsa	Non-violence
Brahmin	A Hindu priest
Incarnation	A living form of God; God in the flesh
Ramayana	A Hindu holy book

Key Concepts

Sanatana Dharma

This is the more accurate name for the religion and way of life that is popularly called Hinduism. It is a belief system that began around 5000 years ago in India. The Hindu Dharma has evolved over time and there is great deal of diversity within the religion. It is the 3rd largest religion in the world, with around 750 million followers.

One God in many forms Hinduism teaches that there is one God (Brahman) with many forms. Brahman is an energy that fills the universe and is far too complex for the human brain to comprehend. Hindus understand Brahman through the many deities of Hinduism.



The Ramayana

The Ramayana is a Hindu holy book and tells the story of Prince Rama and his wife Sita. They are banished to live in the forest for 14 years, but Sita is kidnapped by the demon king Ravana. With the help of the monkey general Hanuman, Rama & his brother Lakshman rescue Sita and kill Ravana. They return home to the kingdom of Ayodhya and Rama becomes king. Rama is no ordinary human; he is an avatar of the God Vishnu.

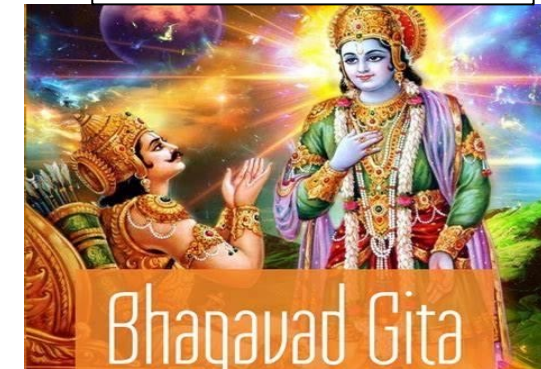
The Trimurti

The 3 main aspects of

Brahman are known as the Trimurti (tri=3, murti = an image of God). These are: Brahma – the creator Shiva – the regenerator Vishnu – the protector

Vishnu & Avatars

Vishnu is believed to have visited earth in living forms (AVATARS) to destroy evil. Some avatars were in animal form, others were human. Rama & Krishna are the most well-known and popular incarnations of Vishnu.





- Describe the Hindu belief on life after death
- Explain why the Vedas is the dominant source of authority in Hinduism
- Discuss why there such a focus on the three avatars of God

Hinduism Beliefs



- ▣ Beliefs
 - Extremely Diverse → Everyone has different beliefs
 - Agree → Main Ideas
 - Dharma → Ethics/Duties
 - Samsara → Continuing Cycle → Life, Death, Rebirth
 - Karma → Action and Reaction
 - Moksha → Liberation from Samsara
 - Yogas → Paths or Practices

Major Beliefs Of Hinduism

Dharma



Karma

Artha

Moksha



Overview

Hindus are the followers of the religion of Hinduism.

Hinduism is the oldest of the world religions we study, about 6000 years old.

Hindus believe in reincarnation, the belief that after death the soul is reborn into a different form.

Hindus worship in a Mandir but may also have shrines in the home.

Hindu sacred texts are called the Vedas.

Hindus believe in one Great Power called Brahman.

Brahman is worshipped through many other Gods and Goddesses called Deities.

Religious teachings

"God is one, but wise men call it by many names." (Rigveda)

"Great indeed are the Gods who have sprung out of Brahman." (Atharva Veda)

*"I will come forth for the protection of the good
For the destruction of evil doers
For the sake of establishing righteousness
For this purpose I am born from age to age." (Bhagavad Gita)*

"You have violated dharma and punishment will come to you more quickly than you think. You don't know Rama; he is not what you imagine him to be. You speak of the sea being an obstacle between him and me. But I say to you, Ravana, even if an ocean of stars lay between us, my Rama would come to find me" (Sita to Ravana in the Ramayana)

Key Teachings

Reincarnation is an important part of Hindu teaching. It is the belief that when you die your soul (atman) is reborn. This is called the Law of Samsara.

Mahatma Gandhi was a very influential Hindu who practised Ahimsa (non violence).

There are hundreds of Hindu Gods and Goddesses, the most significant being the Trimurti; Brahma, Vishnu and Shiva.

Hindus believe that live involves a series of duties called Dharma.



- Describe the Hindu belief on life after death
- Explain why the Vedas is the dominant source of authority in Hinduism

Retrieval Practice 	
Questions	Answers
Where did Hinduism start?	Hinduism originated from the Indus Valley. Most scholars believe that it started somewhere between 2300B.C and 1500B.C in the Indus Valley, near modern day Pakistan.
What is meant by one God in many forms?	Hindus worship one Supreme Being called Brahman though by different names. This is because the people of India, with many different languages and cultures have understood the one God in their own distinct way. Supreme God has uncountable divine powers.
What is a deity?	A God or a Goddess.
Who was Krishna?	Krishna, worshipped as the eight incarnation (avatar) of the Hindu God Vishnu.
Name the three gods associated with Brahman	The three Gods which are associated with Brahman are; Brahma, Vishnu and Shiva.
What is Samsara?	Samsara is the process of rebirth in Hinduism. There is no clear beginning or end.
What is the difference between Samsara and Moksha?	Samsara is the cycle of birth and rebirth (or reincarnation) and is governed by how karma is created and balanced. Moksha is liberation from the cycle of Samsara.
What are the 3 main sources of authority in Hinduism?	The three main sources of authority in Hinduism are; The Brahmanas – rituals and prayers to guide priestly duties and rituals. The Aranyakas – this involves worship and meditation. The Upanishads – the mystical and philosophical teachings of Hinduism.

Career Focus - Where could this take you?



I am a mediator. I must organise initial meetings with everyone involved to discuss what needs to be resolved and undertake background research around the situation. I must then put any final agreement reached in writing and make sure all parties are clear about what the agreement means

Challenge Activities

- What makes something a religion?
- How might a religion and religious life change over time?
- Should religion and religious life change with the times?
- What do Hindus believe about God and why are Hindu beliefs so often misunderstood?
- Create a leaflet for someone to explain the key beliefs of Hinduism.
- Research the history of the Indus Valley and find facts on the early civilization of Hinduism.

Topic Links

This topic links to other RE topics such as

- Ethics – Animal Rights
- Sikhism
- Buddhism

Additional Resources







To further practise and develop your knowledge see:





Key Concepts

SIX WORLD RELIGIONS (spellings vary)

Religion name	Follower	SYMBOL	NAME OF GOD/GODS	COUNTRY OF ORIGIN	FOUNDER /MESSENGER	HOLY BOOK/S	PLACE OF WORSHIP	MAIN FESTIVALS	Denominations /schools/type/	Followers in the UK (approx.)	Followers in the world (approx.)
BUDDHISM	Buddhist	 Dharmachakra	none	India (Today in Nepal)	Siddhartha Gotama (The Buddha)	Tripitaka	Temple Shrine room Vihara	Wesak Dharma day	Theravada Mahayana Zen Triratna Pure Land	98,000	376 million
HINDUISM	Hindu	 Om/Aum	Brahman (Shiva Vishnu Brahma)	Indus Valley	none	Vedas Bhagavad Gita Mahabharata	Mandir Temple	Holi Diwali		272,000	1 billion
CHRISTIANITY	Christian	 Cross	God	Palestine Israel	Jesus of Nazareth	Bible	Church Cathedral	Easter Christmas	Catholic Eastern Orthodox Church of England Baptist Quaker	30 million	2.2 billion
JUDAISM	Jew	 Star of David	G_d	Israel	Abraham	Torah Tenakh	Synagogue	Rosh Hashanah Pesach Yom Kippur	Hasidic Orthodox Reform Liberal	214,000	14 million
SIKHISM	Sikh	 The Khanda	God Waheguru	Punjab, India	Guru Nanak The ten Gurus	Guru Granth Sahib	Gurdwara	Vaisakhi Diwali	Sahajdhari Amritdhari	239,000	23 million
ISLAM	Muslim	 Five pointed star & crescent moon	Allah (God)	Saudi Arabia	Muhammad (pbuh)	Quran	Mosque	Eid-ul-Fitr Eid-ul-Adha	Sunni Shi'a Sufi	1,278,000	1.6 billion

Theist = Someone that believes in God

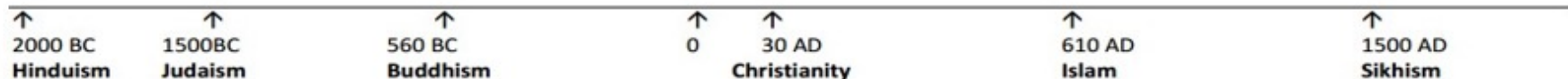
Atheist = Someone that doesn't believe in God

Agnostic = Someone that is not sure about the existence of God

Monotheist = Someone that believes in one God

Polytheist = Someone that believes in many gods

Timeline of religions (all dates approximate)





Our students will:

- understand and respond to spoken and written language from a variety of authentic sources
- speak with increasing confidence, fluency and spontaneity, finding ways of communicating what they want to say, including through discussion and asking questions, and continually improving the accuracy of their pronunciation and intonation
- can write at varying length, for different purposes and audiences, using the variety of grammatical structures that they have learnt
- discover and develop an appreciation of a range of writing in the language studied.


The aims of the sequence of learning are to ensure that all students:

- Can give their name age and birthday.
- Can say how many brothers and sisters they have.
- Can describe their pets.

- Can say what they like and dislike using cognates.
- Can describe their personality.
- Can conjugate 1st, 2nd and 3rd person singular of key verbs eg avoir and être.

Keyword	Definition
Comment ça va?	How are you?
Comment t'appelles-tu?	What is your name?
Ça s'écrit comment?	How do you spell it?
Quel âge as-tu?	How old are you?
C'est quand ton anniversaire?	What date is your birthday?
Tu as des frères et sœurs?	Do you have any brothers or sisters?
Qu'est-ce qu'il y a dans ta salle de classe?	What is there in your classroom?
Tu aimes le foot ?	Do you like football?
Tu es comment?	What are you like?
Qu'est-ce que tu fais?	What do you do?

Key Concepts

Un chat 	Un lapin 	Un perroquet 	Une souris 
Un chien 	Un poisson 	Un cochon d'inde 	Une tortue 
Un serpent 	Un hamster 	Une araignée 	Un oiseau 

Verbs

aimer (to like) is a regular **-er** verb.

j'aime I like
tu aimes you like
il/elle aime he/she likes

avoir (to have)

j'ai I have
tu as you have
il/elle a he/she has
J'ai deux frères. I have two brothers.

You also use **avoir** with age.
Quel âge as-tu? How old are you?
J'ai onze ans. I am 11 years old.

être (to be)

je suis I am
tu es you are
il/elle est he/she is

To make it negative, use **ne ... pas** to make a 'sandwich' around the verb.

Je ne suis pas très grand(e).
 I am not very tall.

assez quite **trop** too
très very **un peu** a bit

Most adjectives change their ending to 'agree' with the noun.

masculine	feminine
<i>amusant</i>	<i>amusante</i>
<i>arrogant</i>	<i>arrogante</i>
<i>bavard</i>	<i>bavarde</i>
<i>fort</i>	<i>forte</i>
<i>grand</i>	<i>grande</i>
<i>intelligent</i>	<i>intelligente</i>
<i>méchant</i>	<i>méchante</i>
<i>patient</i>	<i>patiente</i>
<i>petit</i>	<i>petite</i>
<i>timide*</i>	<i>timide</i>

- Can give their name age and birthday.
- Can say how many brothers and sisters they have.
- Can describe their pets.

- Can say what they like and dislike using cognates.
- Can describe their personality.
- Can conjugate 1st, 2nd and 3rd person singular of key verbs eg avoir and être.

Retrieval Practice



Questions	Answers
Comment ça va?	Ça va bien merci et toi?
Comment t'appelles-tu?	Je m'appelle Sarah .
Ça s'écrit comment?	Ça s'écrit ess- ah – air – ah – ash .
Quel âge as-tu?	J'ai onze ans.
C'est quand ton anniversaire?	Mon anniversaire c'est le douze novembre .
Tu as des frères et soeurs?	J'ai deux frères et une soeur.
Qu'est-ce qu'il y a dans ta salle de classe?	Dans ma salle de class il y a des chaises et des tables . Il y a aussi un tableau interactif .
Tu aimes le foot ?	Oui j'aime le foot mais je n'aime pas la gymnastique .
Tu est comment?	Je suis assez grand et intelligent .
Qu'est-ce que tu fais?	J'aime jouer et tchatter en ligne .

Career Focus - Where could this take you?



I am a marketing officer. I create ideas to advertise products and services. I use languages to communicate with customers overseas and I do research to see what sells abroad.

Challenge Activities



1. Create a poster all about you. Add as much detail as you can. Choose some pictures to decorate your work.
2. Record a short paragraph about yourself.
3. Make a calendar with the French months and add your birthday and other important dates.
4. Make a fact file about France or a French – speaking country,

Topic Links



This topic links to:

- Bienvenue
- Hobbies
- Family and friends

Additional Resources



To further practise and develop you knowledge see:

- Language nut.
- Sentence builders.com
- Oak academy.

Your teacher can remind you of your login.




Our students will:

- produce creative work, exploring their ideas and recording their experiences
 - become proficient in drawing, painting, sculpture and other art, craft and design techniques
 - evaluate and analyse creative works using the language of art, craft and design
 - know about great artists, craft makers and designers, and understand the historical and cultural development of their art forms.
-
- develop competence to excel in a broad range of physical activities
 - are physically active for sustained periods of time
 - engage in competitive sports and activities
 - lead healthy, active lives.

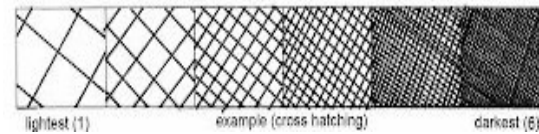
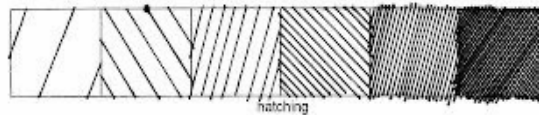
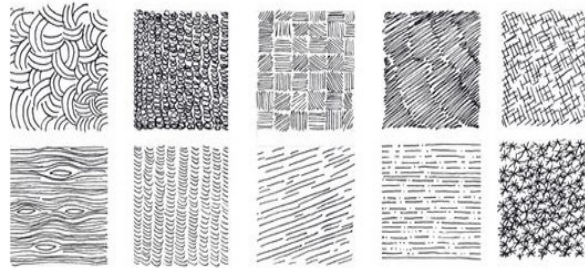
- The aims of the sequence of learning are to ensure that all students:
- Demonstrate use of drawing and shading skills.
 - Identify the elements of art .

- Demonstrate an understanding of colour theory
- Demonstrate an understanding of how the elements of art created.

Keyword	Definition 
Colour	What you see when light reflects off something. Red, yellow and blue are primary colours
Line	A mark which can be long, short, wiggly, straight etc
Tone	How light or dark something is
Texture	How something looks or feels, e.g. rough or smooth
Space	Refers to the emptiness or area between, around, above, below, or within objects.
Shape	A 2D area which is enclosed by a line, e.g. a triangle
Form	Something which has 3 dimensions, e.g. a cube, sphere or sculpture

Key Concepts

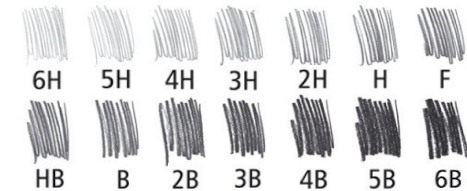
Mark Making describes the different lines, dots, marks, patterns we create in an artwork. It can be loose and gestural or controlled and neat. **Mark Making** can be used to create texture in an artwork.



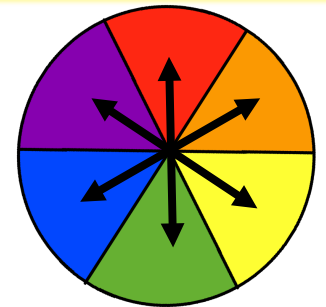
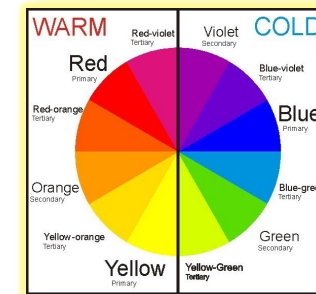
Grades of Pencils

Pencils come in different grades, the softer the pencil, the darker the tone.

H = Hard B = Black



In art the most useful pencils for shading are B, 2B and 4B. If your pencil has no grade it is likely to be HB.



Making something look 3D

To prevent objects looking flat, a range of tonal shading is essential to make them appear 3D.

Shading straight across a surface will make an item appear flat.

Shading with the form will help to enhance the 3D surface.



- Describe multiple methods for mark making
- Describe complementary colours
- Synthesise a 3D drawing by employing mark making techniques



Retrieval Practice

Questions	Answers
What are complementary colours	These are colours that are found opposite each other on the colour wheel. Complementary colours are pairs of colours that contrast with each other more than any other colour, and when placed side-by-side make each other look brighter.
What are primary colours?	Red, blue and yellow. These are colours that cannot be made by mixing other colours together but are used to make all other colours.
What are secondary colours?	Green, orange and purple. Secondary colours are made by mixing two primary colours together.
What are tertiary colours?	These are colours created by mixing a primary and a secondary colour together.
What are harmonious colours?	These are colours that are next to each other on the colour wheel.
What is tint?	When you add white to a colour to make it lighter
What is shade?	When you add black to a colour to make it darker.
What is a primary source?	Observational drawing: drawing something directly from first-hand experience. Drawing from something real that is in front of you.
What is a secondary source?	Observational drawing: drawing from something that was produced by another person

Career Focus - Where could this take you?



I am a **magazine art director** and my job is to put together the illustrations and photographs for my magazine to ensure that the articles look interesting, and people purchase our magazine

Challenge Activities



1. Draw an object using your mark making techniques to make it appear to be 3D.
2. Create a complementary colour wheel

Topic Links



This topic links to:

- Maths – ratios of mixing paints to make various colours
- Science – accurate observation skills

Additional Resources



To further practise and develop your knowledge see:



Here you will find why art education is important from artists, young people and major cultural figures.



The aims of the sequence of learning are to ensure that all students:

- Demonstrate knowledge of cyberbullying by describing how to deal with it
- Demonstrate knowledge of online safety by explaining how to best deal with common scenarios when browsing the internet

- Demonstrate knowledge of the dangers of technologies by describing their benefits, dangers and how to stay safe
- Apply knowledge from this unit to accurately describe some keywords

Keyword	Definition
E-Safety	The safe and responsible use of technology
Cyber bullying	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature
Pop-up message	A message that appears on your browser or desktop designed to grab the users attention
Password	A combination of characters that allows access to a computer system or service
Error Message	Information displayed on a computer system when an unexpected problem occurs
Smart Devices	An electronic gadget that is able to connect, share and interact with its user and other smart devices
Hacking	The gaining of unauthorised access to data in a system or computer system

Key Concepts

S SAFE Keep safe by being careful not to give out personal information – such as your full name, email address, phone number, home address, photos or school name – to people you are chatting with online.

M MEETING Meeting someone you have only been in touch with online can be dangerous. Only do so with your parents' or carers' permission and even then only when they can be present.

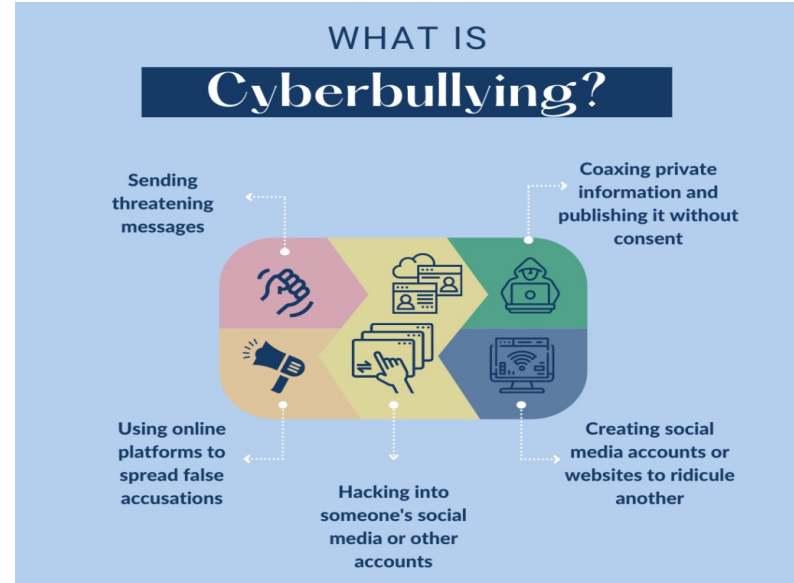
A ACCEPTING Accepting emails, IM messages, or opening files, pictures or texts from people you don't know or trust can lead to problems – they may contain viruses or nasty messages!

R RELIABLE Information you find on the internet may not be true, or someone online may be lying about who they are.

t TELL Tell your parent, carer or a trusted adult if someone or something makes you feel uncomfortable or worried, or if you or someone you know is being bullied online.
You can report online abuse to the police at www.thinkuknow.co.uk

STOP

- Take time out before getting involved, and don't share or like negative comments
- Try and get an overview of what's really going on
- Check the community guidelines for the site you're on



SUPPORT

- Give the person being bullied a supportive message to let them know they're not alone
- Encourage them to talk to someone they can trust
- Give the person being bullied a positive distraction from the situation



SPEAK

- Ask an adult or friend that you can trust for advice
- Use the report button on the social platform it's happening on
- Speak to one of the charities set up to help with situations like this, such as Childline





The aims of the sequence of learning are to ensure that all students:

- Demonstrate knowledge of cyberbullying by describing how to deal with it
- Demonstrate knowledge of online safety by explaining how to best deal with common scenarios when browsing the internet

- Demonstrate knowledge of the dangers of technologies by describing their benefits, dangers and how to stay safe
- Apply knowledge from this unit to accurately describe some keywords



Retrieval Practice

Questions	Answers
What does the term 'Cyberbullying' mean?	The use of electronic communication to bully a person, typically by sending messages of an intimidating or threatening nature.
Why should you not post your real name online?	It becomes possible to find out some personal details about you, such as, your home address, age and telephone number.
Why should you always update your virus checker when asked to do so?	Your computer will not be protected against the newest threats. This will leave your computer vulnerable to attacks.
What are the dangers of using free public Wi-Fi?	As you are connecting to an unsecure internet connection, your computer will be easier to hack. Hackers can access every piece of information your sending out on the internet and also access the files on that computer, and any other connected devices.
What would you do in the following situation? You click on a link that loads up a website with unsuitable and inappropriate content.	Switch my monitor off and tell my parent or carer – they help you to block the website to stop it from loading up again.
What advice would you give to somebody to stay safe when playing online games?	Disable the chat feature, if that's not possible, only play and talk to people you know in real life and play where your parents can hear the conversations.
What are the dangers of using technology in our everyday life?	Although technology can be used to help make our lives easier, it can result in a lack of privacy, increased chances of your devices being hacked and an over-reliance of technology making it difficult to do things that have become automated or not required to do manually.

Career Focus - Where could this take you?



I am a **cyber security engineer** and it is my job to identify any threats or vulnerabilities in systems or software. I have to be confident in trouble shooting problems and testing systems.

Challenge Activities



1. Create a poster on MS PowerPoint that includes the following details: definition of cyberbullying, advice on what you should do if somebody was being cyberbullied and what you think we can do in the future to help stop cyberbullying in our school.
2. Do you agree or disagree with the following statement? You must back up your answer with reasons and examples. "People under the age of 14 should not be allowed to use the internet without adult supervision".
3. Create a short vlog about which new technologies you think could create safety issues for children in the future? Give advice on how you could tackle these problems.

Topic Links



This topic links to:

- Computing Curriculum: Understand a range of ways to use technology safely, respectfully, responsibly and securely
- English and RSE (being a responsible citizen and using language appropriately)

Additional Resources



To further practise and develop your knowledge see:

- www.childline.org.uk
- www.thinkuknow.co.uk
- stopcyberbullying.org

- Demonstrate knowledge of the Eatwell Plate through practical tasks, discussion and written tasks
- Identify the key differences between food manufacturing and processing

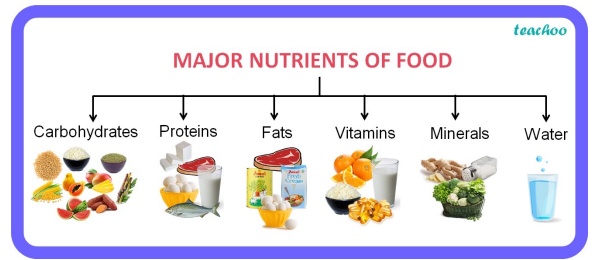
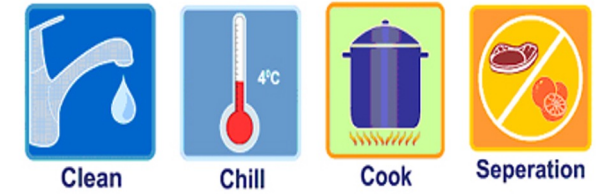
Demonstrate safe and hygienic working practices

Keyword	Definition
Food origin	Where the food originated in the world
Food provenance	Whether the food was grown, caught or reared
Transportation	How food is transported from one place to another
Food processing	Changing food in some way e.g washing, chopping, pasteurising, freezing, fermenting, packaging
Food manufacturing	Food manufacturing refers to transforming raw ingredients into edible products such as using wheat, oat, and sugar to make cereals, desserts, and pet food.
Farming	Farming is the activity of growing crops or keeping animals on a farm.
Calcium	Calcium is a mineral your body needs to build and maintain strong bones and to carry out many important functions.
Carbohydrate	Carbohydrates provide energy for the body. The body breaks carbohydrates down into glucose, which is the primary energy source for the brain and muscles.
Protein	Protein is one of the three nutrients found in food that the body needs in large amounts. It is essential for the maintenance and building of body tissues and muscle.
Fibre	Fibre is a type of carbohydrate that the body cannot break down and so it passes through our gut into our large intestine (or colon). It is found naturally in plant foods like wholegrains, beans, nuts, fruit and vegetables and is sometimes added to foods or drinks. Fibre helps to keep our digestive system healthy and helps to prevent constipation.
Fat	The body uses fat as a fuel source, and fat is the major storage form of energy in the body. Fat also has many other important functions in the body, and a moderate amount is needed in the diet for good health. Too much fat or too much of the wrong type of fat can be unhealthy.
Cross-contamination	Cross-contamination is the physical movement or transfer of harmful bacteria from one person, object or place to another.
Nutrient	a substance that provides nourishment essential for the maintenance of life and for growth.
Healthy	In a good physical or mental condition; in good health.

Key Concepts

The 4C's Concept

By practicing the four Cs of food hygiene **cross-contamination, cleaning, cooking and chilling** those working with food can avoid food poisoning and other illnesses.




Eatwell Guide

Use the Eatwell Guide to help you get a balance of healthier and more sustainable food. It shows how much of what you eat overall should come from each food group.

2500kcal = ALL FOOD + ALL DRINKS



KITCHEN SAFETY

- Use knives carefully
- Wash your hands and your utensils
- Keep burners clear
- Clean up spills
- Use appliances safely
- Wash knives separately
- Use pot holder and lift lids away from you
- Keep food at safe temperatures

- Use safe and hygienic practices in a working kitchen environment
- Demonstrate sound preparation skills of both equipment and ingredients

- Safely use a range of cooking techniques, appropriate to the task

Pasta Salad



Equipment:

Sauce pan
Chopping board
Vegetable knife
Colander
Wooden spoon
Mixing bowl
Table spoon

Ingredients:




- 50g grated cheese
- 100g dried pasta shapes
- 2tbsp. Mayonnaise or salad cream
- 5 cherry tomatoes
- ¼ cucumber
- 25g sweetcorn
- 2 spring onions
- 3 lettuce leaves
- ½ red or green pepper.

Method:




1. Bring a small saucepan of water to the boil, and then add the pasta. Simmer for about 8 – 10 minutes (check the packet instructions).
2. While the pasta is cooking, prepare the other ingredients:
 - shred the lettuce;
 - slice the spring onions, tomato and pepper, or if you have cherry tomatoes cut in half;
 - chop the cucumber into small chunks;
3. Drain the boiling hot water away from the pasta into a colander in the sink. Cool the pasta by rising it under a cold tap for a few moments. Drain well.
4. Place the pasta in the serving dish and stir in 1 x 15ml spoon of dressing:
 - Add sweetcorn into the pasta and mix evenly.
5. Assemble the remaining ingredients over the pasta in layers.
6. Lastly, drizzle over the remaining dressing.

Skills:	Meanings
1.	General Practical Skills: Weighing ingredients, measuring, preparing ingredients and equipment, correct cooking times, testing for readiness and sensory testing.
2.	Knife skills: Can use equipment safely. Slicing, dicing and chopping.
3.	Preparing fruit and vegetables: I can prepare fruit and vegetables in many different ways: Slicing, peeling, grating, dicing and chopping.
4.	Use of the cooker (and Skills 6: Cooking Methods): Using the cooker including: the hob, grill and oven.
6.	Cooking Methods: Using the cooker including: the hob, grill and oven.
7.	Preparing, combine and shape: Techniques to prepare, cook and combine different ingredients.
8.	Sauce Making including: starch based, reduction and emulsions

KITCHEN CONVERSIONS						
SPOONS & CUPS						
TSP	TBSP	FL OZ	CUP	PINT	QUART	GALLON
3	1	1/2	1/16	1/32	-	-
6	2	1	1/8	1/16	1/32	-
12	4	2	1/4	1/8	1/16	-
18	6	3	3/8	-	-	-
24	8	4	1/2	1/4	1/8	1/32
36	12	6	3/4	-	-	-
48	16	8	1	1/2	1/4	1/16
96	32	16	1	1	1/2	1/8
-	64	32	4	2	1	1/4
-	256	128	16	8	4	1

		
TABLESPOON 15 ML	DESSERTSPOON 10 ML	TEASPOON 5 ML

MILLILITERS				GRAMS		
OZ	ML	CUP	ML	OZ	G	LB
2	60	1/4	60	2	58	-
4	115	1/2	120	4	114	-
6	150	2/3	160	6	170	-
8	230	2/4	180	8	226	1/2
10	285	1	240	12	340	-
12	340	2	480	16	454	1

		
FLOUR 32g SUGAR 50g BUTTER 55g	FLOUR 64g SUGAR 100g BUTTER 112g	FLOUR 125g SUGAR 200g BUTTER 225g

Chocolate Chip Cookies



Method:

- Set oven at Gas 4 / 180°C.
- Grease a baking tray.
- Wash hands and put on apron.
- Collect a mixing bowl.
- Place margarine and sugar in bowl and cream with a white spoon.
- Add vanilla essence and chocolate chips.
- Add flour – mix with wooden spoon.
- Gradually add egg.
- Pull together and shape.
- Bake for 10 minutes.

Equipment

- Large mixing bowl
- Rolling pin
- Table knife
- Measuring jug
- Wooden spoon
- Round bladed knife

Dough ingredients

- 75g margarine
- 75g brown sugar
- Half an egg
- 2 drops of vanilla essence
- 150g self-raising flour
- 100g chocolate chips

**** Bring container with a lid *****

Tip: Can use different chocolate chips, nuts or add coco.

Skills:	Meaning
1.	General Practical Skills: Weighing ingredients, measuring, preparing ingredients and equipment, correct cooking times, testing for readiness and sensory testing.
4.	Use of the cooker (and Skills 6: Cooking Methods): Using the cooker including: the hob, grill and oven.
6.	Cooking Methods: Using the cooker including: the hob, grill and oven.
7.	Preparing, combine and shape: Techniques to prepare, cook and combine different ingredients.
10.	Dough: Making dough including: bread, pastry and pasta.
11.	Raising Agents: Use of raising agents including: eggs, chemical, steam and biological.

KITCHEN CONVERSIONS

SPOONS & CUPS

TSP	TBSP	FL OZ	CUP	PINT	QUART	GALLON
3	1	1/2	1/16	1/32	-	-
6	2	1	1/8	1/16	1/32	-
12	4	2	1/4	1/8	1/16	-
18	6	3	3/8	-	-	-
24	8	4	1/2	1/4	1/8	1/32
36	12	6	3/4	-	-	-
48	16	8	1	1/2	1/4	1/16
96	32	16	1	1	1/2	1/8
-	64	32	4	2	1	1/4
-	256	128	16	8	4	1



TABLESPOON
15 ML



DESSERT SPOON
10 ML



TEASPOON
5 ML

MILLILITERS

OZ	ML	CUP	ML	OZ	G	LB
2	60	1/4	60	2	58	-
4	115	1/2	120	4	114	-
6	150	2/3	160	6	170	-
8	230	2/4	180	8	226	1/2
10	285	1	240	12	340	-
12	340	2	480	16	454	1



1/4 CUP
FLOUR 32g
SUGAR 50g
BUTTER 55g



1/2 CUP
FLOUR 64g
SUGAR 100g
BUTTER 112g



1 CUP
FLOUR 125g
SUGAR 200g
BUTTER 225g

Keyword	Definition
Rhythm	A strong, regular repeated pattern of movement or sound
Dynamics	The volume of a note or sound
Duration	The length of a note or sound
Pulse	A steady beat like a ticking clock or your heartbeat. It can be measured in time by counting the number of beats per minute (BPM).
Tempo	The speed of the pulse.
Ostinato	A short, repeating pattern.
Polyrhythm	When two or more rhythms are being played at the same time.
Improvisation	To make music up in the moment, without planning or rehearsing what you will play.
Call and Response	One drummer plays a rhythm and the rest of the group repeat it exactly.
Master drummer/Griot	The master drummer is the leader of the group. They give the cues and lead the call and response. Griots are the wise leaders and musicians of West African villages

Symbol	Name	Number per bar (4/4)	Rest
1	Semibreve	1 per bar	
2	Minim	2 per bar	
4	Crotchet	4 per bar	
8	Quaver	8 per bar	
16	Semiquavers	16 per bar	

Time Signatures

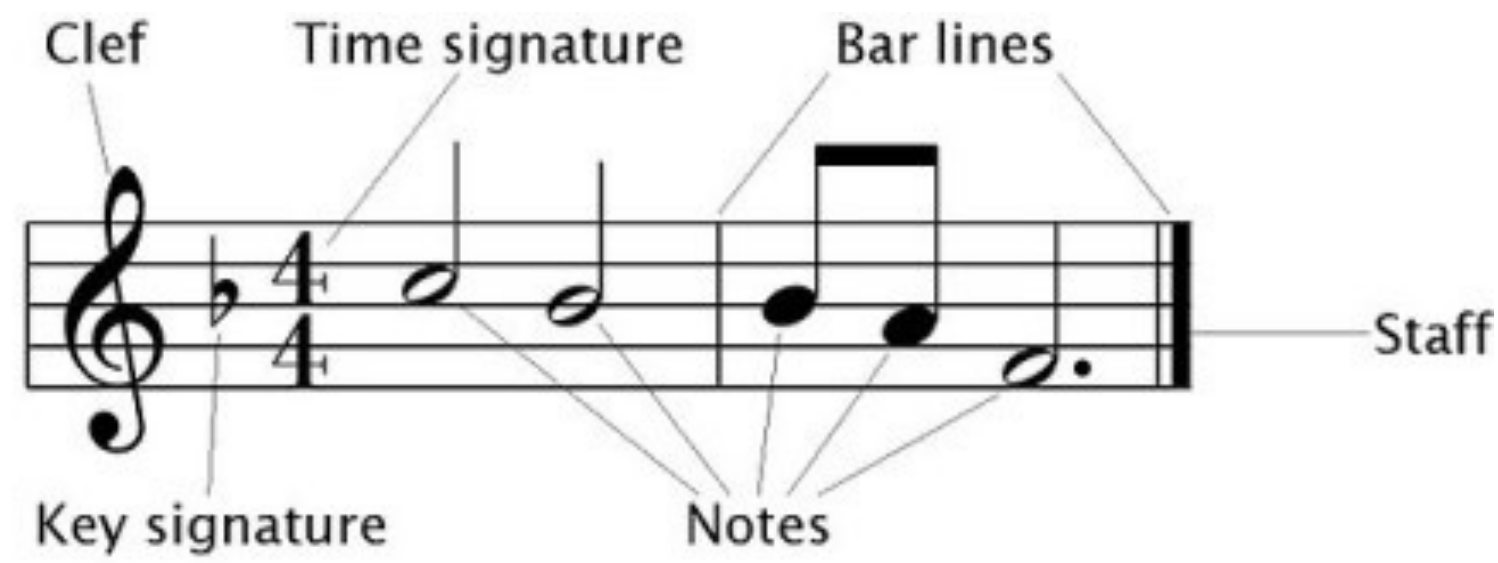


The top number tells us *how many beats* are in a bar of music.




The bottom number tells us the type of beat (see the chart to the left).

Time signatures are not fractions.



- Be able to read and write basic western rhythm notation.
- Demonstrate correct percussion technique using both hands and beaters
- Understand importance of rhythm in various cultures
- Compose, communicate and perform with others using improvisation, call & response and signals.

Retrieval Practice 	
Questions	Answers
What does dynamics mean in music?	The volume of a note or sound
What does duration mean in music?	The length of a note or sound
What does the bottom number of a time signature tell us?	The type of beat in a bar
How many crotchets fit into a bar of 4/4?	Four. The bottom number tells us the type of note.
What is the definition of a rhythm.	a strong, regular repeated pattern of movement or sound
How many crotchets would there be in a bar of 3/4?	Three. The top number tells us how many beats are in the bar.
What does tempo mean in music?	The speed of the music

Career Focus - Where could this take you?



We are djembe drummers. Group composition requires us to respect the ideas and contributions of others in the group. It also builds teamworking skills as we have to work creatively with other musicians. It is important to learn about music from all over the world to understand different backgrounds and cultures. Tolerance is one of the core British values. Teamwork, creativity and respecting others are important in most jobs and careers.

Challenge Activities

1. Here's a rhythm quiz to really test your knowledge:
<https://www.macprovideo.com/course/musictheory103-rhythm/quiz>
2. Here is an online djembe lesson. See if you can learn this rhythm:
https://www.youtube.com/watch?v=jfNs0Z2duPs&ab_channel=DjembeGuru

Topic Links

This topic links to:
Drama – rehearsing and performing in groups
Maths – Counting rhythms and dividing bars and beats
Geography – Cultural relevance of world music

Additional Resources

Music of Africa:



How to read rhythm notation:



- Can identify at least four core skills required for invasion games
- Demonstrate basic core skills such as a chest pass
- Demonstrate basic core skills in a game situation
- Lead a small group of peers in a warmup

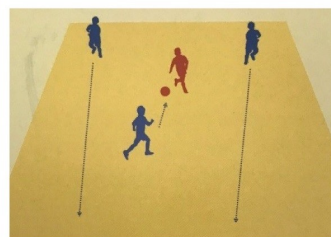
Keyword	Definition
Pass	keep possession of the ball by maneuvering it between different players with the objective of advancing it up the playing field
Catch	to receive the ball from another player and keep possession
Defend	to resist the attack of the opposing team
Attack	the action of attacking or engaging an opposing team with the objective of scoring points or goals
Tackle	trying to take the ball from an opponent
Intercept	Obstruct someone/something from getting to their desired position/destination

Key Concepts

Defending

Delay

If possession is lost quickly—a defender should try to slow the **attacker** down so other players can get back in position (**goal side**).



Balance

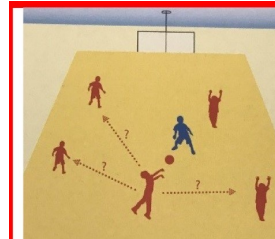
Defenders need to move into an appropriate **formation** in relation to where the ball is.



Attacking

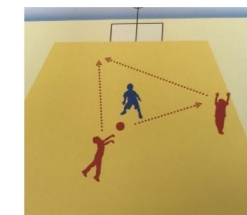
Support

To give the player in possession **as many options as possible** team-mates move into different positions to receive the ball. This could be to the side / behind / in front of the ball.



Improvisation

Players need to become **creative** to get past an organised defence e.g. one-twos, fake passes, outwit defenders with the ball



You should already know:

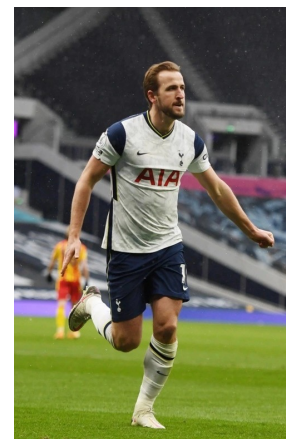
- The aim of an invasion game
- The name of at least 2 invasion games

You will be assessed on:

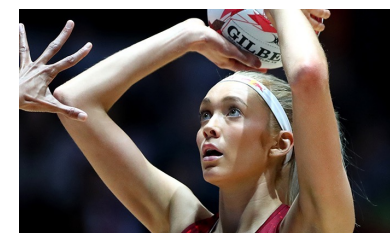
- Understanding
- Technique in isolation
- Technique in game
- Leadership
- Attitude to learning

Athletes to research further:

Harry Kane



Helen Housby




Lewis Ludlam



- Can identify at least four core skills required for invasion games
- Demonstrate basic core skills such as a chest pass

- Demonstrate basic core skills in a game situation
- Lead a small group of peers in a warmup

Retrieval Practice 	
Questions	Answers
What are the core Netball skills?	Chest pass, Bounce pass, Shoulder pass, Overhead pass, Two-footed landing, Shooting, Pivot, Defending and Attacking
What are the Netball positions?	Goal keeper, Goal defence, Wind defence, Centre, Wing attack, Goal attack and Goal shooter
What are the core football skills?	Dribbling close to feet, Dribbling changing direction, Passing side foot, Passing close distance, Defending and Attacking
What are the core Rugby skills?	Target with hands out, Push pass, Catching, Protecting, Side-stepping, Attacking, Defending

Career Focus - Where could this take you?



A sport science qualification helps you as a biologist by teaching you how the human body works during physical activity. You learn about muscles, bones, and how they react when we exercise. This knowledge can be useful for studying how living organisms move, grow, and adapt to different situations, which is an important part of biology.

Challenge Activities

1. Design a new rule for either football, netball or rugby. Explain how your rule will impact the game.
2. Create a mind map of all of the equipment needed to play an invasion game of your choice.

Topic Links

This topic links to:

- Science – movement of the body and muscles; the physics of sports
- English – understanding and defining key terminology
- Mathematics – problem solving, recording figures and analysing performance

Additional Resources

To further practise and develop your knowledge see:

- <https://tgfu.weebly.com/invasion-games.html>
- https://en.wikipedia.org/wiki/Association_football
- <https://www.youtube.com/watch?v=aBuxsRnU50A>
- <https://www.world.rugby/the-game/laws/home>

Some of the aims of the sequence of learning are to ensure that all students:

- Explain how a resist method of dyeing is created.
- Demonstrate safe use of tools and equipment.
- Rank Fibres in order of environmental impact.

Justify the importance of sustainability within Textile manufacture.

- Calculate the costings of materials and production
- Explain the lifecycle of a cotton T-shirt
- Demonstrate a clear understanding of the manufacturing Process

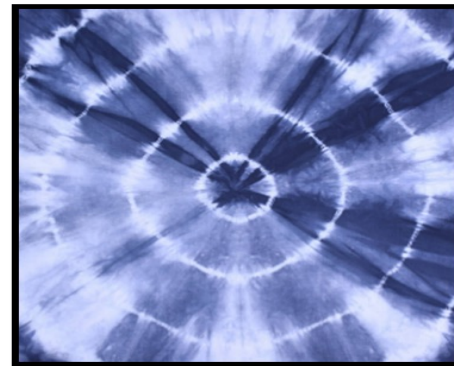
Keyword	Definition
Machine	An apparatus using or applying mechanical power and having several parts.
Fabric	Cloth or other material produced by weaving or knitting fibres:
Natural	Existing in or caused by nature; not made or caused by humankind:
Fibres	A thread or filament from which a vegetable tissue, mineral substance, or textile
Resist	Withstand the action or effect of:
Textiles	A type of cloth or woven fabric:
Aesthetics	A set of principles concerned with the nature and appreciation of beauty
Seam Allowance	Seam allowance is the extra fabric between the seamline and the edge of the fabric when two (or more) pieces of fabric are sewn together.
Design	A plan or drawing produced to show the look and function or workings of a building, garment, or other object before it is built or made
Needle	A very fine slender piece of metal with a point at one end and a hole or eye for thread at the other, used in sewing:
Organic	Relating to or derived from living matter:
Cotton	A soft white fibrous substance that surrounds the seeds of a tropical and subtropical plant and is used as textile fibre and thread for sewing:
Fastening	A device that closes or secures something:
Equipment	The necessary items for a particular purpose:
Decorative	Serving to make something look more attractive; ornamental:

Key Concepts

Tie Dye

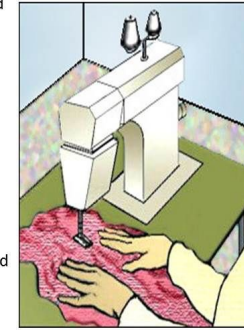


Resist dyeing is a technique of colouring yarn or fabric in order to create a pattern by resisting certain areas, so that only the unblocked areas receive colours. Resist materials including thread, wax, rice or mud paste are used in this dyeing process on the basis of the patterns. Tie-dye method is a type of resist dyeing.



Health and Safety

- Only use sewing machines in a designated area of the classroom.
- Unplug the sewing machine when not in use.
- Do not use bent or broken needles.
- Switch off the sewing machine whilst making adjustments in the needle area.
- Keep fingers away from moving parts.
- Make sure foot peddle wiring is tidy and kept away from moving parts.
- Turn off the sewing machine before removing the plug from the socket.
- Make sure the machine is switched off and the foot peddle is packed away when finished.



Sewing Machines

Properties Of Fibres

Natural - Plant

Linen:

- Fresh, cool to wear
- Very absorbent, fast drier
- Stiffer handle
- Good drape
- Durable
- Creases badly
- Wash and iron

Cotton:

- Very absorbent
- Dries slowly
- Cool to wear
- Soft handle
- Good drape
- Durable
- Creases easily
- Wash and iron

Applications

Summer clothing, table cloths etc

Applications

Jeans, Towels, T-shirts

NATURAL FIBRES

WOOL



COTTON



SILK



BAMBOO



Retrieval Practice

Questions	A1	A2	A3	A4	A5
A. How is cotton produced?	From a plant	From a factory	From Coal & oil	From Aldi	From a tree
B. Where does Silk come from?	A rabbit	A moth	A butterfly	A worm	A cow
C. What is a design Specification?	A list of design solutions	A list of costings	A list of design issues	A list of important points	A detailed list of what the product must be
D. What are Fibres?	A thin thread of a natural or synthetic substance	A source of material	An origin of cotton	A type of synthetic fibre	A fraying edge
E. What is Tie Dye?	A method of adding colour to fabric with paint	A Type of Resist Dyeing	A type a pattern dyeing	A type of printing	A type of fabric testing
F. What physical properties do fabrics have? (select more than 1)	Stretchy	Soft handle	Creases easily	Stiff	Strong

Which questions did you get wrong?	Quick Corrections (bridge learning gaps & misconceptions)

Career Focus - Where could this take you?



Textile designers create designs for knitted, printed and woven textiles. Textile design can include designing:

- textiles for clothing and accessories
- fabrics and furnishings
- printed, paper-based products

You will need a foundation diploma in Art & Design or A level equivalent, Kirklees College offer a Level 1-3 in Art and Design and Leeds City College offer a Level 3 diploma in Fashion and Textiles, you will need 4 GCSE grades 4 and above including maths and English.

Salaries usually range from around £13,000 to £40,000 a year.

Challenge Activities



Properties

Suggested Fibre Type

Product Type



Properties

Suggested Fibre Type

Product Type

Topic Links Additional Resources

This topic links to:

- Science- How fibre properties are created and used.
- English- Subject specific Vocabulary knowledge, understanding and spelling.
- Math's- Material costings and standard measurements in length.

To further practise and develop your knowledge see:

- [The ONLY textiles recycling video YOU NEED TO WATCH – YouTube](#)
- [How to Tie-Dye at Home Like a Pro - Try These 5 Easy Techniques! – YouTube](#)
- [Classification Of Textile Fibers - Sources Of Textile Fibre – YouTube](#)
- [Fairtrade - How Cotton Is Produced - YouTube](#)

Username and Passwords
