

Year 7 – HT3



**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:

- Find a fraction of a given amount
- Use a given fraction to find the whole or other fractions
- Find the percentage of an amount, using mental methods
- Find the percentage of a given amount using a calculator

Keywords

Fraction: how many parts of a whole we have
Equivalent: of equal value
Whole: a number with no fractional or decimal part
Percentage: parts per 100 (uses the % symbol)
Place Value: the value of a digit depending on its place in a number. In our decimal number system, each place is 10 times bigger than the place to its right
Convert: change into an equivalent representation, often fraction to decimal to a percentage cycle

Fraction of a given amount

Find $\frac{2}{5}$ of £205

The bar represents the whole amount

£205

£41

2 out of the 5 equal parts
 $2 \times £41 = \underline{£82}$

$£205 \div 5 = £41$
 Each part of the bar model represents £41

90

30

Use bar models for comparisons

$\frac{1}{3}$ of 90 = 30

$\frac{2}{3}$ of 45 = 30

$\therefore \frac{1}{3}$ of 90 = $\frac{2}{3}$ of 45

Career Focus - Where could this take you?



As an engineer, I use basic operation (addition, subtraction, multiplication, division) as well as fractions in order to design efficient and powerful engines

Retrieval Practice

Work out $654 - 99$

Write $\frac{3}{4}$ as a percentage.

Write "three hundred million" in figures.

Work out $10a + 7$ when $a = 12$

Use a fraction of amount

$\frac{2}{3}$ of a value is 70. What is the whole number?

70

$70 \div 2 = 35$
 Each part of the bar model represents 35

35

$35 \times 3 = 105$
 The whole number is 105

The wording of the question is important to setting up the bar model

$\frac{3}{4}$ of a number is 63

63

21

Find the whole

What is $\frac{1}{6}$ of the number?

84

14

Use the whole to find a given part

-14

Challenge Activities

A rope measures 2.8 metres.



The rope is cut into 10 equal sized pieces.

What is the total length of 5 of these pieces?

Topic Links

This topic links to:

- Ratio, multiplication & division, and decimals

Additional Resources

To further practice and develop your knowledge see:

<https://corbettmaths.com/contents/>

- Number: 137, 234-235

Find the percentage of an amount (Mental methods)

The whole represents 100%

10% = $\frac{1}{10}$ of the whole

$10\% = \frac{1}{10}$ of the whole $50\% = \frac{5}{10} = \frac{1}{2}$ of the whole

$20\% = \frac{2}{10} = \frac{1}{5}$ of the whole $5\% = \frac{1}{20}$ of the whole

Find 65% of 80

Method 1

$65\% = 10\% \times 6 + 5\%$
 $= (8 \times 6) + 4$
 $= 52$

Method 2

$65\% = 50\% + 10\% + 5\%$
 $= 40 + 8 + 4$
 $= 52$

For bigger percentages it is sometimes easier to take away from 100%

Find the percentage of an amount (Calculator methods)

Using a multiplier

Find 65% of 80

Fraction, decimal, percentage conversion

$65\% = \frac{65}{100} = 0.65$ ← The multiplier

$0.65 \times 80 = \underline{52}$

Using the percent button

Find 65% of 80

Type 65
 Press **SHIFT** **(%)**
 Press **×** 80 and then press =

This brings up the % button on screen
 You will see 65%

"of" can represent "x" in calculator methods

You can also use the calculator to support non-calculator methods and find $\frac{1}{10}$ or $\frac{1}{100}$ then add percentages together



Year 7 – Operations & Equations with Directed Number

- To perform all four operations with directed numbers.
- To be able to find and use equivalence to add and subtract fractions.

What do I need to be able to do?


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

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

Keywords

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

Career Focus - Where could this take you?



As a pharmacist, I need to have a good understanding of fractions and negative numbers when making and storing pharmaceutical drugs.

Retrieval Practice

Ron has £235.52 in the bank. He pays in £188. What is his new bank balance?

Add together six thousand eight hundred and 794

Which is greater, 15% or 0.2? Justify your answer.

Solve the equation $20 = \frac{d}{10}$

Challenge Activities

On a bookcase

- $\frac{5}{8}$ of the books are fiction books.
- The rest are non-fiction.
- There are 72 non-fiction books.

How many books are fiction?

Topic Links

This topic links to:

- Addition, subtracting, multiplication, and division.

Additional Resources

To further practice and develop your knowledge see:
<https://corbettmaths.com/contents/>
 Number: 205-209, 110-111

Perform calculations that cross zero

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

$4 - 6 = -2$

Start at 4

Use the number line to guide subtraction of 6

Find the difference between 6 and -4

From 6 to 0
6
From 0 to -4
4
10 beads between them

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

Add directed numbers

$2 + -4 = -2$

Zero pair $(-1 + 1 = 0)$

Two -1 's left $= -2$

$8 + -3 = 5$

Partitioning

$8 + -3 = 5$ $5 + 3 = 8$ $8 - 3 = 5$

Partition the value to create a zero pair calculation

Generalisation $+ - = -$

Subtract directed numbers

$2 - -1 = 3$

Take away one

$2 - -3 = 5$

Generalisation $- - = +$

"Subtract" - means take away or opposite

Multiply/ Divide directed numbers

$-3 \times -3 = 9$

$2 \times -3 = -6$

Two representations of the same calculation

Negative, Negative calculation

$-2 \times -3 = 6$

This is the negative of 2×-3

$-2 \times -3 = 6$

Division are the inverse operations

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

Evaluate algebraic expressions

$a = 5$ $b = -4$

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

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

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

Brackets around negative substituents helps remove calculation errors

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

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

Two-step equations

Bar Model

$4x + 2 = 10$

$10 - 4x = 2$

Representing the same question (use fact families)

Function machine

$x \rightarrow x4 \rightarrow +2 \rightarrow 10$

Inverse operations to find x

Use order of operations

Brackets

Indices or roots

Multiplication or division

Addition or subtraction

Remember square roots have a positive and negative value

10	-5	-10	0	1	2	3
-5	5	5	0	-1	-2	-3
-10	5	2	0	-2	-4	-6
-1	3	2	1	-1	-2	-3
5	3	3	3	0	0	0
0	0	0	0	0	0	0
1	-1	-2	-1	1	2	3
2	-6	-4	-2	2	4	6
3	-9	-6	-3	3	6	9

Year 7 – Addition & Subtraction of Fractions

- To perform all four operations with directed numbers.
- To be able to find and use equivalence to add and subtract fractions.

What do I need to be able to do?

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

Keywords

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

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

Equivalent: of equal value

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

Improper fractions: a fraction with a bigger numerator than denominator

Substitute: replace a variable with a numerical value

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

Career Focus - Where could this take you?



As a pharmacist, I need to have a good understanding of fractions and negative numbers when making and storing pharmaceutical drugs.

Challenge Activities

Work out the value of each symbol.

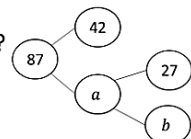
$$\triangle + \star + \diamond = 100$$

$$\triangle + \diamond = 67$$

$$\star - \diamond = 18$$

Retrieval Practice

What are the missing numbers?



Subtract 512 from two thousand three hundred.

Write $\frac{4}{5}$ as a percentage.

What is the 4 worth in the number 8.3471?

Topic Links

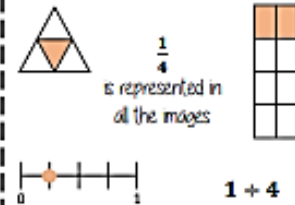
This topic links to:

- Addition, subtraction, fractions, and algebra.

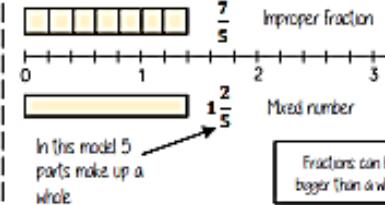
Additional Resources

To further practice and develop your knowledge see:
<https://corbettmaths.com/contents/>
Number: 132-133, 139-140

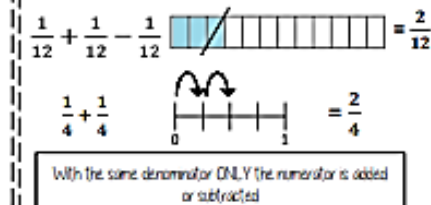
Representing Fractions



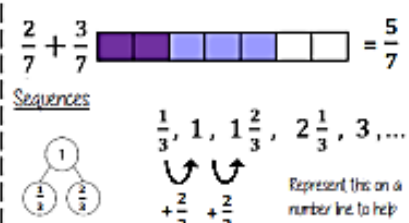
Mixed numbers and fractions



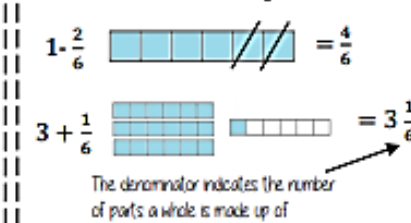
Add/Subtract unit fractions



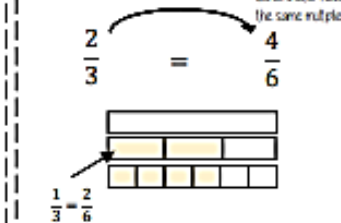
Add/Subtract fractions



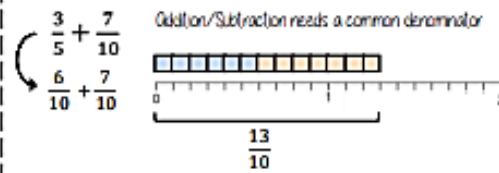
Add/Subtract from integers



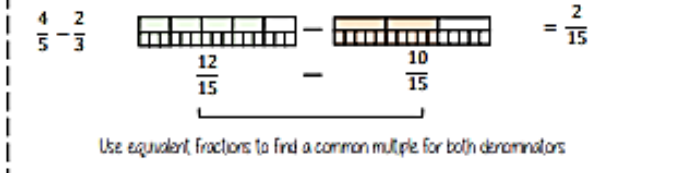
Equivalent fractions



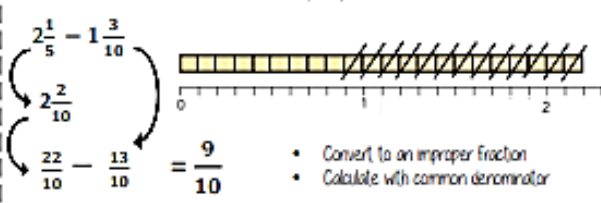
Add/Subtraction fractions (common multiples)



Add/Subtraction any fractions



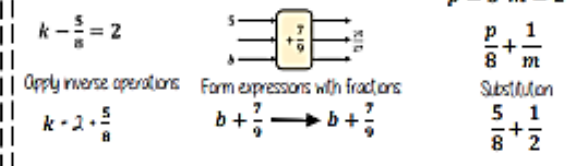
Add/Subtraction fractions (improper and mixed)



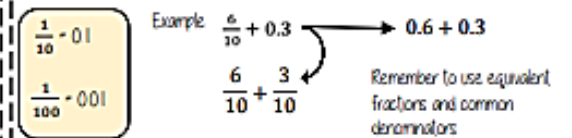
Partitioning method

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

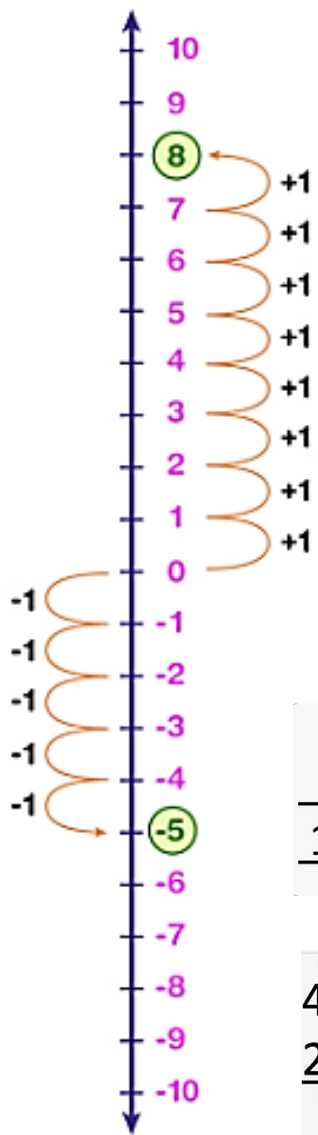
Fractions in algebraic contexts



Fractions and decimals



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

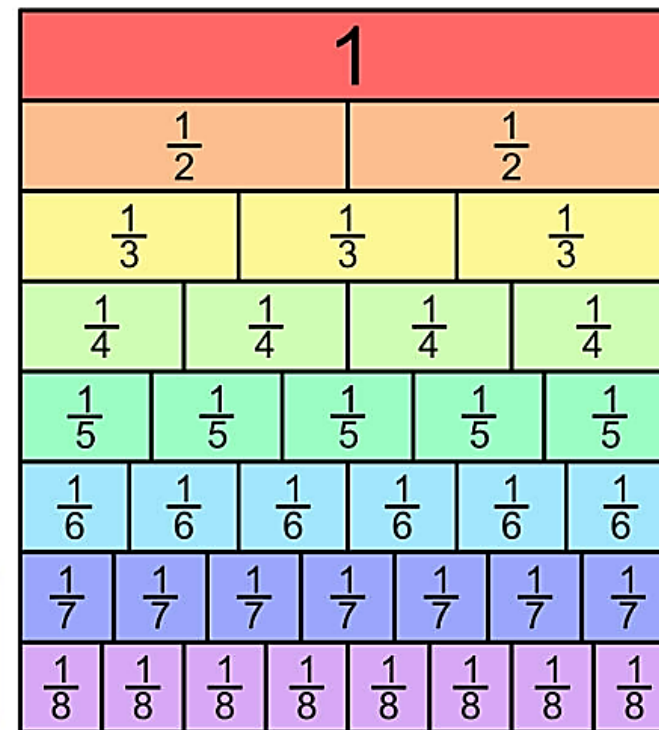
X	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	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 \div or \times + or -
Brackets Indices Divide & Multiply Add & Subtract



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



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

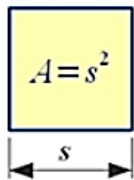
Triangle	Quadrilateral	Pentagon	Hexagon
Heptagon	Octagon	Nonagon	Decagon

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

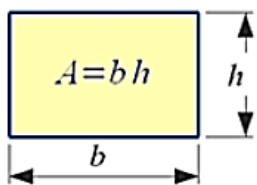
Length					
cm	mm	m	cm	km	m
$\times 10$	$\times 100$	$\times 1,000$	$\div 10$	$\div 100$	$\div 1,000$
Mass					
g	mg	kg	g	t	kg
$\times 1,000$	$\times 1,000$	$\times 1,000$	$\div 1,000$	$\div 1,000$	$\div 1,000$
Volume					
l	ml	cl	ml	l	cl
$\times 1,000$	$\times 10$	$\times 100$	$\div 1,000$	$\div 10$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

Maths Quick Reference: Geometry (Areas & Volumes)

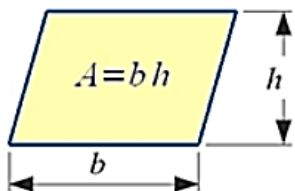
Square



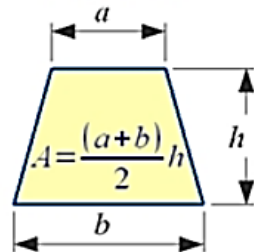
Rectangle



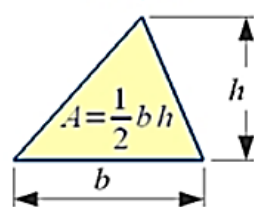
Parallelogram



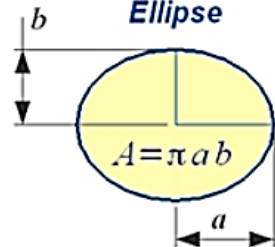
Trapezoid



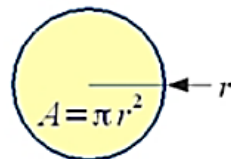
Triangle



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	$r = \text{top radius}$ $R = \text{base radius}$ $h = \text{height}$ $l = \text{slant height}$	$\pi l(R + r)$	$\pi l(R+r) + \pi r^2 + \pi R^2$	$\frac{1}{3}\pi h(R^2 + r^2 + Rr)$

Maths Quick Reference: Algebra Skills

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?

$$7x + 14$$

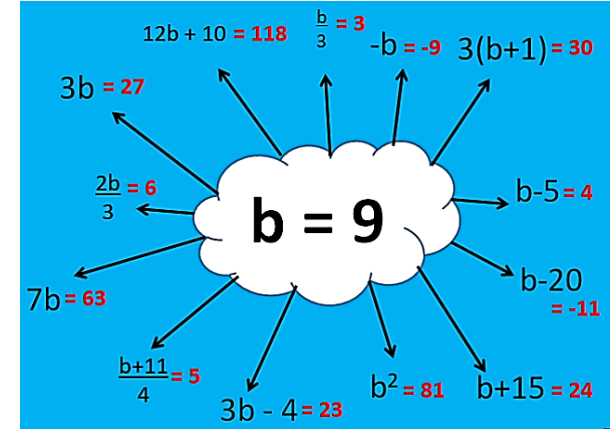
$$7(x + 2)$$

Common factor?

$$5ab - 20a$$

$$5a(b - 4)$$

Substitution



Solving Equations

$$6x - 5 = 7$$

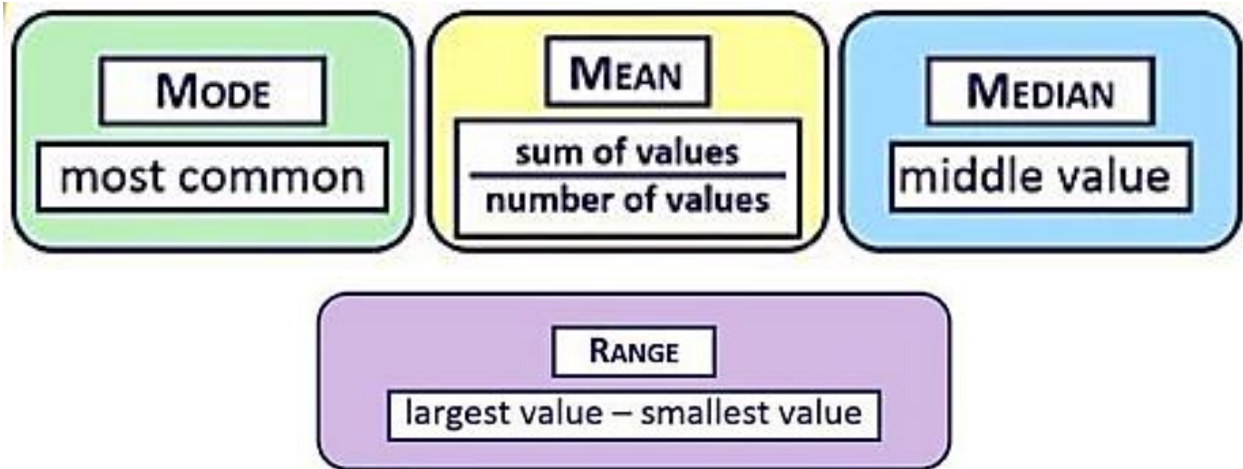
$$\boxed{+ 5} \qquad \boxed{+ 5}$$

$$6x = 12$$

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

$$x = 2$$

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

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

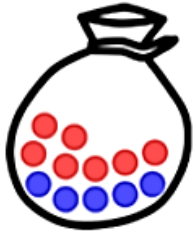
Length (x cm)	Frequency	Midpoint	Midpoint × frequency
$0 < x \leq 10$	4	× 5	= 20
$10 < x \leq 20$	10	× 15	= 150
$20 < x \leq 30$	7	× 25	= 175
$30 < x \leq 40$	4	× 35	= 140
	25		485

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

Simple Probability

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

Example:



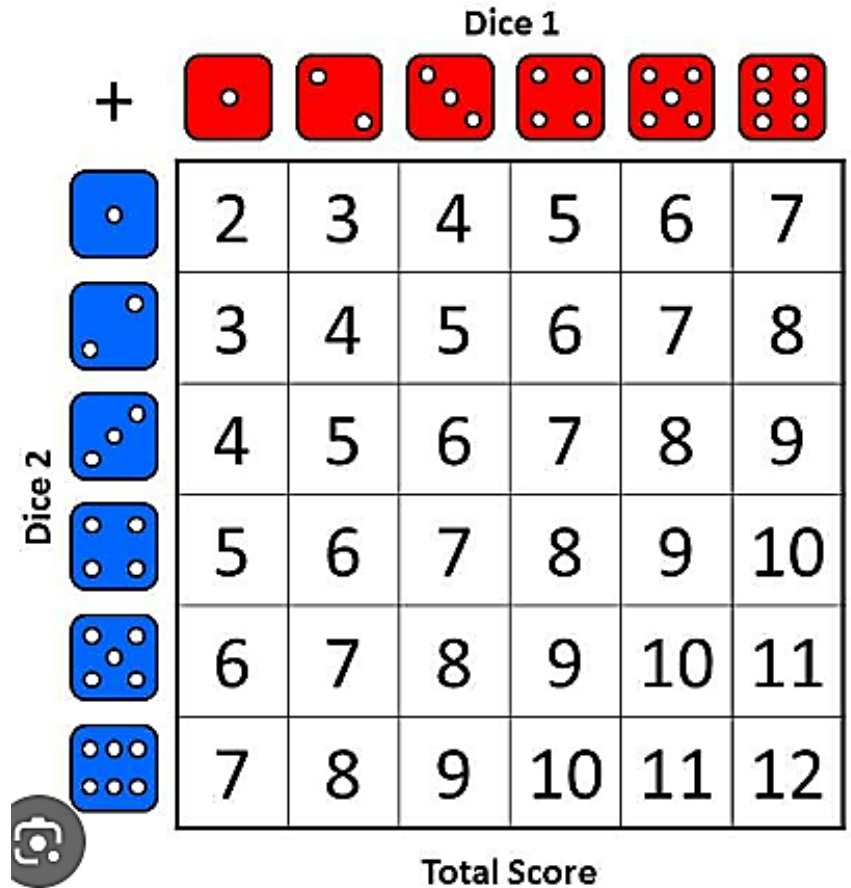
$$P(\text{red}) = \frac{7}{12}$$

← 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.

- recognise 'Genre, Audience and Purpose' (GAP);
- understand and use specific vocabulary;
- understand how authors craft their writing;
- use a range of sentences;
- use punctuation and spelling accurately;
- understand how writer's use methods to create meaning.



Key Concepts - Knowledge

Shakespeare's villains

Let's start by asking whether there really are heroes and villains in Shakespeare's plays. These labels suggest that someone can be all good, noble, and well-intentioned on the one hand, or all bad, ill-intentioned, and downright evil on the other. What makes Shakespeare's characters so interesting is that they are human beings, motivated by the things that motivate human beings: they react to their circumstances and to people in different ways. One man can, like Macbeth, be both 'hero' and 'villain,' responding to, or creating, the conditions he is faced with as they change.

During this term you will study several villainous characters from a range of Shakespeare plays to identify different characteristics of villainy and decide for yourself if a character really can be all bad.

Shakespeare's Villains you will study:

Macbeth,
Lady Macbeth,
Tybalt,
Richard III,
Claudius,
Lago



The Elizabethan Era

The Elizabethan Era took place from 1558 to 1603 and is considered by many historians to be the golden age in English History. During this era England experienced peace and prosperity while the arts flourished. The time period is named after Queen Elizabeth I who ruled England during this time.

Queen Elizabeth I attended plays that were performed at London's famous Globe Theatre.

The Globe

- The Globe Theatre was where many of Shakespeare's plays were performed.
- It was constructed in 1599 by the Burbage brothers.
- It was octagon shaped, roofless, with a stage and three galleries surrounding it.
- It was 80x80 ft. and held about 3,000 people.
- Shakespeare's Globe had to have special permission to have a thatched roof - there has been a law against thatched buildings in London since the Great Fire in 1666.

Key Concepts - Skills

Challenge Activities

To help you to structure a successful paragraph of language analysis, just remember:

SEIZE

S	Statement	How the writer has presented the focus of the question
E	Evidence	A quote and method from the text that supports your statement
I	Inference	What your quote suggests - how it links to your statement
Z	Zoom	Zoom in on a key word or phrase
E	Effect	Explain the effect on the reader/audience

***The castle of Macduff I will surprise,
Seize upon Fife, give to th' edge o' th' sword
His wife, his babes, and all unfortunate souls
That trace him in his line.***

How does Shakespeare present Macbeth as a villain in the extract above?
Use the sentence starters to help you:

S Shakespeare presents Macbeth as a villain in the extract.

E An example is '.....'

I The use of implies Macbeth isbecause.....

Z The word '.....' illustrates this because

E This suggests to the audience that

Topic Links

Additional Resources

This topic links to:

- Yr 7 - The Lion King
- Yr 8 - Romeo and Juliet
- Yr 9 - Richard III
- GCSE - Macbeth, An Inspector Calls, A Christmas Carol.

To further practise and develop your knowledge see:

<https://nosweatshakespeare.com/characters/villains/>

[\[Shakespeare: The Animated Tales\] Richard III - YouTube](#)

Career Focus - Where could this take you?



I'm a Police Officer. I help keep our community safe. My key skills include protecting people, solving problems, and being a friendly face when you need help. I wear this uniform to show I'm here for you. I know how to stay calm in tough situations, listen carefully, and work with others to make sure everyone is safe and happy.



Vocabulary - You will be tested on five words per week

Keyword	Definition	Keyword	Definition
Act	A major division in a play. An act can be split into scenes.	Dramatic Irony	The contrast between what a character believes and/or says and what the audience knows to be true.
Scene	A sequence of continuous action in a play, film, opera, or book.	Monologue	A speech by a single character without another character's response.
Tragedy	A play dealing with tragic events and having an unhappy ending, especially one concerning the downfall of the main character.	Metaphor	A word or phrase is applied to an object or action to which it is not literally applicable.
Allegory	A story that is used to represent a more general message about real-life (historical) issues and/or events.	Prose	Written or spoken language in its ordinary form, without metrical structure.
Antagonist	A character or force against which another character struggles.	Protagonist	The main character of a literary work.
Aside	Words spoken by an actor directly to the audience, but not "heard" by the other characters on stage during a play	Resolution	The sorting out or unravelling of a plot at the end of a play, novel, or story.
Prologue	A separate introductory section of a play.	Soliloquy	An act of speaking one's thoughts aloud when by oneself or regardless of any hearers, especially by a character in a play
Juxtaposition	Two things put close together with contrasting effect.	Setting	The place or surroundings where something is positioned or where an event takes place.
Conflict	An issue or disagreement that needs to be solved.	Simile	The comparison of one thing with another thing of a different kind, used to make a description more emphatic or vivid.
Complication	An issue or problem that arises.	Iambic pentameter	A line of verse with five metrical feet, each consisting of one short (or unstressed) syllable followed by one long (or stressed) syllable.
Oxymoron	A figure of speech in which apparently contradictory terms appear in conjunction (e.g. faith unfaithful kept him falsely true).	Stage Direction	A playwright's descriptive or interpretive comments that provide readers (as well as actors and directors) with information about the dialogue, setting, and action of a play.
Dialogue	The conversation between two or more people. In plays, characters' speech is preceded by their names.	Theme	A central idea or statement that unifies and controls an entire literary work. The theme can take the form of a brief insight or a comprehensive vision of life; it is not a message or a moral.
Foreshadowing	A literary device that introduces an idea that is repeated or expanded on later.		



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.

- Describe balanced and unbalanced forces
- Explain the effects of contact forces on objects

Keyword	Definition
Force	A push, pull or twist. Measured in newtons (N).
Contact Forces	Contact forces that act on objects that are physically touching.
Friction	This occurs when two objects move past each other. Friction slows objects down.
Air Resistance	This force is also known as drag. It is the force that acts on objects as they move through the air.
Upthrust	The upward force exerted by a fluid by an object floating on it.
Newton	Unit of force, symbol N.
Non-contact Forces	Non-contact forces that act between objects without them physically touching.
Gravitational Force	The force acting on an object due to gravity.
Magnetic Force	A force exerted by a magnetic field on a magnetic material.
Electrostatic Force	The force that acts between two charged objects.
Resultant Force	The overall force acting on the object that determines the movement of the object.
Streamlining	When an object is designed to reduce the resistance of air or water.
Newton Meter	A piece of equipment that measures the forces acting on an object.

Key Concepts

Contact Forces

Contact forces are forces that act between two objects that are physically touching each other.

Examples of contact forces include:

- **Reaction force** - An object at rest on a surface experiences **reaction force**. For example, a book on a table
- **Tension** - An object that is being stretched experiences a **tension** force. For example, a cable holding a ceiling lamp.
- **Friction** - Two objects sliding past each other experience **friction** forces. For example, a box sliding down a slope.
- **Air resistance** - An object moving through the air experiences **air resistance**. For example, a skydiver falling through the air.

Non-contact Forces

Non-contact forces are forces that act between two objects that are not physically touching each other.

Examples of non-contact forces include:

- **Magnetic force**
A magnetic force is experienced by any **magnetic** material in a **magnetic field**.
- **Electrostatic force**
An **electrostatic force** is experienced by any **charged particle** in an **electric field**.
- **Gravitational force**
A gravitational force is experienced by any **mass** in a gravitational field.

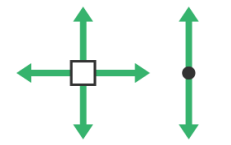
Friction and Drag (Air Resistance)

When an object is moving there are almost always forces which act against it, unless it is in a vacuum as in space. These are frictional forces and act in the opposite direction to the movement. Frictional forces make it more difficult for objects to move.

Drag is the force which acts against the movement on an object when it moves through a fluid (a liquid or gas). The faster the object moves the more drag it experiences. When the fluid is air, drag is usually described as air resistance.

Force Diagrams

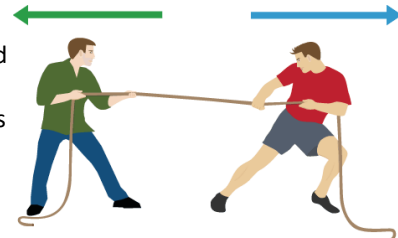
A **free body diagram** models the forces acting on an object. The object or 'body' is usually shown as a box or a dot. The forces are shown as thin arrows pointing away from the centre of the box or dot.



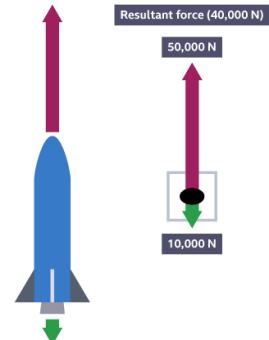
It is important to label each arrow to show the magnitude of the force it represents. The type of force involved may also be shown.

Balanced and Unbalanced Forces

Balanced forces are forces where the effect of one force is cancelled out by another. A tug of war, where each team is pulling equally on the rope, is an example of balanced forces.




If the forces acting on the object are not balanced then there is a resultant force acting on the object this means that the object is either accelerating or decelerating. It is **unbalanced forces** that cause 'changing motion'.





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

- Describe balanced and unbalanced forces
- Explain the effects of contact forces on objects

Retrieval Practice 	
Questions	Answers
What is a force?	A push, pull or a twist
What does a force do?	They can change the shape, speed or direction of an object.
How are forces represented?	Using arrows.
What are forces measured in?	Newtons (N)
Give an example of a contact force.	Tension, Friction, Upthrust, Air resistance, Thrust and Normal reaction force.
What is friction?	The force that slows an object down because it works in the opposite direction to the movement of the object.
What causes friction?	Contact between surfaces.
What is a drag force?	A resistance force caused by an object moving through a fluid (usually air or water)
How do drag forces slow objects down?	Particles from the fluid collide with the moving object providing a resisting force.
How can drag forces be reduced?	Making an object more streamlined.
What is a balanced force?	A force acting on an object in one direction that is the same size as a force acting in the opposite direction.
What happens if forces are balanced?	An object will remain stationary or will move at a constant speed.
What happens if forces are unbalanced?	The object's speed or direction changes.
How do you calculate resultant force?	Add together all the forces that are going in the same direction. The forces going in opposite directions will produce a resultant force that is calculated by taking the smaller magnitude away from the larger one.

Career Focus - Where could this take you?



I am a mechanical engineer. I work in one of the oldest branches of engineering that combines engineering physics and math to manufacture and maintain mechanical systems/machines. I could be working on anything from nanotechnology to space stations as mechanical engineers are responsible for designing and developing most things. The skills I need to do this job include a good knowledge of science and math, an ability to come up with new ways of doing things, ability to use a computer and use my hands to repair and build machines.

Challenge Activities

1. Make flash cards to give examples of the different types of forces.
2. Create a mind map of the contact forces topic. Remember to include key words and links between information.
3. Design a vehicle to reduce the force of air resistance, draw a diagram and label its features.
4. Draw a series of force diagrams to show how the forces change when a football is stationary, accelerating and slowing down.
5. Research the scientist Robert Hooke and describe his law of elasticity.

Topic Links

This topic links to:

- Organisation
- Chemical Reactions
- Space

We will also be practising how to

- Calculate resultant force
- Describe graphs

Additional Resources

To further practise and develop your knowledge see:

Educa ke - <https://www.educake.co.uk/>

BBC Bitesize -

<https://www.bbc.co.uk/bitesize/topics/z4brd2p/articles/zs3896f>

YouTube Cognito -

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

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

- Describe the transfer of energy in food chains and webs
- Explain how organisms interact with their environment

Keyword	Definition
Habitat	A home environment for plants and animals or other organisms.
Environment	The surroundings or conditions in which a person, animal, or plant lives.
Food chain	Part of a food web, starting with a producer, ending with a top predator
Food web	Shows how food chains in an ecosystem are linked.
Adaptation	Features of living organisms that help them survive.
Population	Group of the same species living in an area.
Producer	Green plant or algae that makes its own food using sunlight.
Consumer	Animal that eats other animals or plants.
Decomposer	Organism that breaks down dead plant/animal material so nutrients can be recycled back to the soil/ water.
Pyramid of numbers	The number of organisms in each trophic level is counted and presented in a pyramid of numbers.
Pyramids of biomass	The mass - in grams or kilograms - of the population of the trophic levels in a food chain.
Biodiversity	A measure of how many different species live in an ecosystem.
Ecosystem	The living things in a given area and their non-living environment.

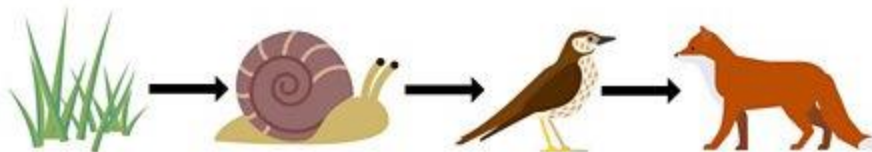
Key Concepts

Habitats



Food chains/Webs

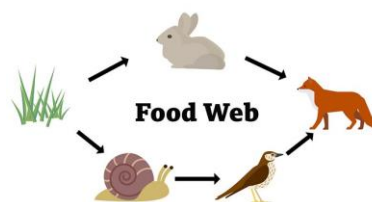
The flow of energy from one living thing to another is shown in the arrows in a **food chain**.



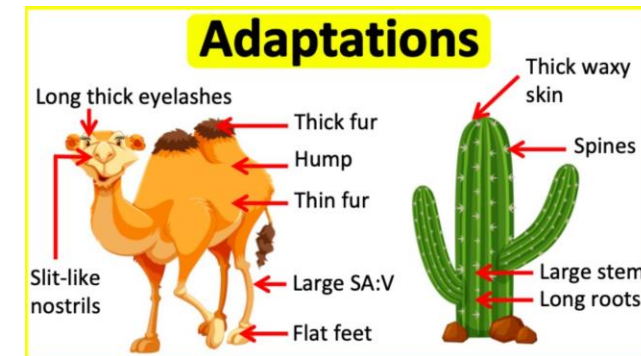
Plants are at the beginning of most food chains. They are called **producers** because they make their own food.

Any animal which eats a producer is called a **primary consumer**. All primary consumers are **herbivores** because they only eat plants.

Secondary consumers eat primary consumers. All secondary consumers are **predators** because they kill and eat other animals.

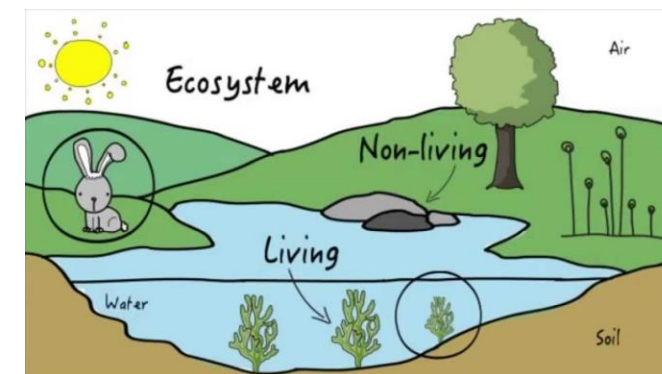


Adaptations



Ecosystems

An ecosystem is a geographic area where plants, animals, and other organisms, as well as weather and landscape, work together to form a bubble of life. Ecosystems contain biotic or living, parts, as well as abiotic factors, or nonliving parts. Biotic factors include plants, animals, and other organisms,



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

- Describe the transfer of energy in food chains and webs
- Explain how organisms interact with their environment

Retrieval Practice	
Questions	Answers
What is a habitat?	A place that organisms live.
What is an abiotic factor?	Non-living factors such as temperature, rainfall, terrain etc.
What is a biotic factor?	Living factors such as different species and diseases.
Describe the adaptations of a polar bear.	White fur, large paws, thick fur, sharp teeth.
What do arrows in a food chain represent?	Energy being transferred.
Which direction do arrows point in a food chain?	In the direction of the consumer.
What do all food chains start with?	A producer
What is interdependence?	Organisms that rely on each other for survival in an ecosystem.
What is an endangered species?	A group of organisms that are at risk of becoming extinct due to low levels.
What does extinction mean?	The species no longer exists.
What factors increase biodiversity?	A substance that changes colour in the presence of a chemical i.e. acid or alkali.
What factors decrease biodiversity?	Loss of habitats due to farming/building, pollution and hunting animals.
What causes global warming?	Burning fossil fuels, deforestation, landfill waste.
How does global warming lead to loss of habitats?	Increasing land/ocean temperature, rising sea levels, climate change (droughts etc)
How can population sizes be measured?	Using sampling methods such as quadrats and transects.

Career Focus - Where could this take you?



I am a bee keeper. Beekeeping is much more than just collecting honey. Bees can be used for crop pollination, wax production or collecting pollen. I raise and care for bees using a variety of skills such as wood work, honey extraction, disease and parasite control and queen rearing. I have to use my skills and knowledge about the fascinating cycles and interactions that occur in a colony of bees to maintain the health of their lives. The wage is variable but with more experience and science qualifications you can move into commercial production or research.

Challenge Activities

1. Make flashcards for the definitions and retrieval practice questions.
2. Choose an organism to research and produce an information leaflet on the organism and the habitat it is found in.
3. Create a new organism and produce a model of its habitat.
4. Identify a habitat and draw some food chains and a food web for that habitat.
5. Research the role of a beekeeper and the importance of bees.

Topic Links

This topic links to:

- Organisation
- Energy transfers
- Climate change

We will also be practising how to

- Draw pyramids of biomass
- Calculate energy transfers in a food chain
- Construct a scientific report

Additional Resources

To further practise and develop your knowledge see:

Educake - <https://www.educake.co.uk/>
 BBC Bitesize - [Ecosystems and habitats - KS3 Biology - BBC Bitesize](#)
 YouTube Cognito - <https://www.youtube.com/watch?v=XVD5izWXmKo>



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

- Describe what Mary Beard can tell us about Pompeii
- Analyse how advanced the Roman Army was

Keyword	Definition
Society	A community, nation, or broad grouping of people having common traditions, institutions, and collective activities and interests.
Pompeii	A Roman city located in Southern Italy which was buried after the eruption of Mount Vesuvius
Pyroclastic flow	A hot mixture of rock fragments, gas and ash which travel rapidly. Extremely destructive and deadly due to their high temperature.
Pliny the Younger	Roman statesman who was nearby when the eruption took place and witnessed the event. The only eyewitness account ever written.
Divorce	The ending of a marriage by one person or both.
Slavery/Slave Markets	Romans bought and sold people at slave markets to own them as property.
Gladiator	Professional fighters in Ancient Rome who fought in front of a crowd for entertainment.
La nista	Trainer of Gladiators at Gladiatorial school.
Colosseum	A giant Roman Amphitheatre in the centre of Rome, Italy.
Technology	The use of knowledge to invent new devices or tools.
Aqueduct	A bridge designed to carry water long distances.
Hypocaust	A Roman under-floor central heating system.
Advanced	Far on in time or course and being beyond others in progress or ideas.
Not Advanced	Undeveloped or little progress made, often in a specific area.

Key Concepts

Pompeii:

A volcano called Mount Vesuvius erupted and buried the city of Pompeii under volcanic ash, cinders and blasts of hot air with temperatures of up to 250C. One of the victims was Pliny the Elder, who tried to rescue people on boats. His nephew Pliny the Younger witnessed this and wrote about the events.

The eruption of Vesuvius in 79AD was quite sudden. Most of the 5000 victims lost their lives while going about their daily work. For over 1500 years, people had forgotten that Pompeii even existed. In 1748, the excavation of Pompeii began and archaeologists are still working on the site to this day, nearly 300 years later. A lot of what we know about the Romans' daily life comes from what was found while excavating Pompeii.



Family Life:

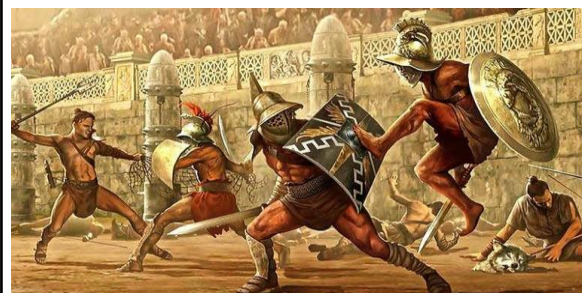
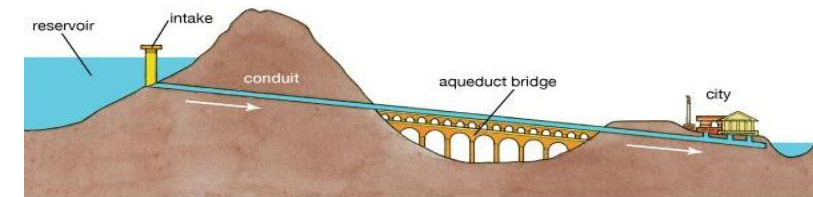
The family unit was very important to the Romans and Father (*Paterfamilia*) was head of the household. Everyone had to obey him as he had legal authority over his family and slaves. However, usually Mother (*Materfamilia*) had a strong say in what went on in the family and often handled the finances and managed the household.

Roman Women were treated differently depending on their status. Wealthy women had lots of independence, especially if they were widows and they could own and inherit property. A wife of a poor family, always had to obey her husband, and if he died, she was then under the control of her son or another male relative.

Slaves were usually bought and owned by rich families. They would cook and clean and carry out hard work on the land. They would even look after the children. Sometimes they were treated very badly but some were lucky and had kind masters. Sometimes slaves could be freed if they had served their master well.

Roman Technology:


The Romans were great builders, engineers, architects and inventors. They invented many things that we still use in our everyday lives, 2000 years later. When the Romans came up against problems that needed technological solutions, they usually found a way of solving them. The Romans lived in blocks of flats while people in England lived in little huts, they invented **aqueducts** (bridges that carried water – see diagram below) to bring water to their cities. They invented the **Hypocaust** (under-floor central heating system), proper **roads** (to move troops quickly), **amphitheatres** (like the Colosseum, a 50,000 all seater stadium with a retractable roof) and **pumps** to allow them to get precious water from the ground.




Entertainment:

Roman gladiators were trained in mortal combat, a form of public entertainment in Ancient Rome. The word gladiator comes from the Latin word gladius (sword). The popularity of the games grew and spread throughout the Roman Empire. The Colosseum in Rome opened in AD 80 (C.E.) and though many gladiators were slaves and prisoners of war, some were Roman citizens that wanted fame and fortune. Many gladiators came from the lands Rome had conquered (like Verus). Gladiators were supposed to fight to the death but, in reality, if they fought extremely well but lost, they had a 90% chance of surviving. Also, gladiators were well paid. For one fight a gladiator could earn a Roman soldier's annual wage!

- Describe what Mary Beard can tell us about Pompeii
- Analyse how advanced the Roman Army was

Retrieval Practice 	
Questions	Answers
In what year did Mount Vesuvius erupt and describe what happened?	79AD and 5000 victims lost their lives
Tell me two things we learnt about the Romans through the discovery of Pompeii:	Their daily life and some of the jobs they did
Give two ways Roman women were 'advanced':	Wealthy women had lots of independence and if they were widows, they could own and inherit property.
What was lifelike for Roman children? Explain with examples.	They studied subjects such as reading, writing, maths, literature, and debate. School was mostly for boys, however some wealthy girls were tutored at home. Poor children did not get to go to school. Most Romans ate a light breakfast and little food during the day.
What jobs were slaves expected to do in the Roman Empire?	They would cook and clean and carry out hard work on the land. They would even look after the children.
How could a Roman slave earn their freedom?	If they had served their master well
Tell me three forms of entertainment the Romans enjoyed:	Gladiator battles, chariot racing and mock battles
How did a Roman Aqueduct work and how was it 'advanced'?	They were bridges that carried water over a valley to bring water to their cities
Tell me two things that you would find in a rich Romans house:	Marble pillars and mosaics
Why did the Roman Empire collapse? Explain with examples.	There were 3 main reasons for the fall of Rome which are: political instability, economic and social problems, and finally a weakening of the frontiers/borders especially in the east



Career Focus - Where could this take you?



I am an Archaeologist: My job is to excavate (slowly dig) using spoons, knives, picks, brushes, and other tools. I am looking for material remains so that I can study features of human history through artefacts which were created, modified or used by people in the past. I will then use what I've uncovered to learn about how people lived in specific times and places. Artefacts also help me understand what people's daily lives were like, how they were governed, how they interacted with each other and what they believed and valued.

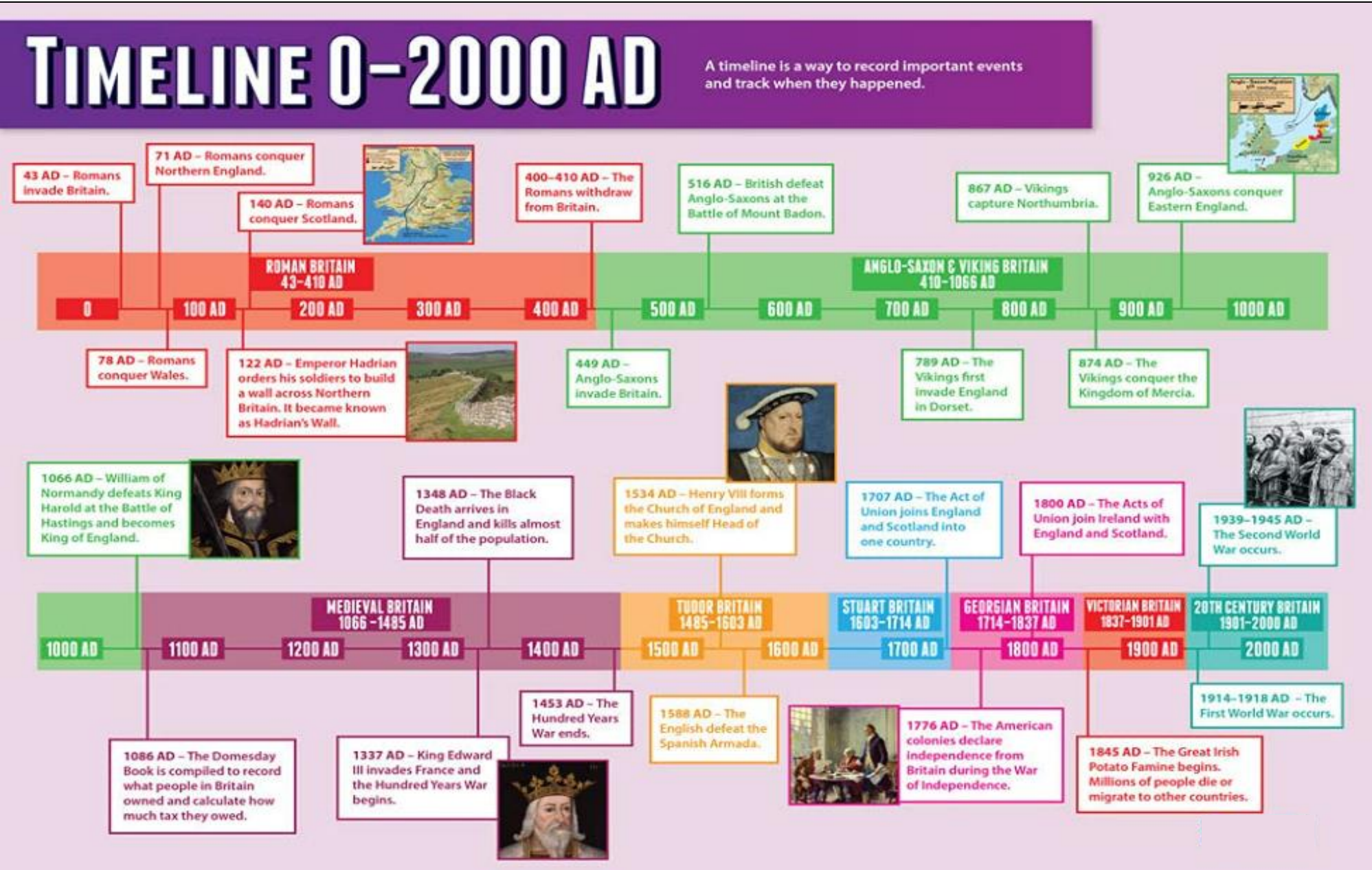
Challenge Activities

1. Research and create a booklet on any aspect of Roman Society. This could include; women, slaves, children, food, the Government. It must have information of your own and pictures included.
2. Instead of Roman Society, you might decide to base your research and create a booklet on a famous Roman. Some examples of famous Emperors are Marcus Aurelius, Nero, Claudius, Caligula and Commodus. Other famous people from the Roman times include Julius Caesar, Boudica (a British woman who rebelled against the Romans and burnt London!), Cicero, Vercingetorix and Togodumnus.
3. Create a food menu based on what the Romans liked to eat – you will need a Starter, First Course, Second Course, Third Course and a Dessert. They enjoyed food!

Topic Links 	Additional Resources 
<p>This topic links to other humanities topics such as:</p> <ul style="list-style-type: none"> • Roman Army • Medieval Britain • The Slave Trade • Tectonics <p>We will also be practising how to:</p> <ul style="list-style-type: none"> • Create a balanced argument • Make a judgement as a Historian 	<p>To further practise and develop your knowledge see:</p> <p>https://www.historyonthenet.com/roman-society-and-social-classes</p> <p>https://www.bbc.co.uk/bitesize/topics/zwmpfg8/articles/z2sm6sg</p> <p>https://www.youtube.com/results?search_query=roman+society+ks3</p>



Timeline



Year 7 UNDERSTANDING OUR LOCAL AREA

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

- Construct and analyse graphs
- Write a report on how the local area can be improved
- Evaluate the methods used to conduct an enquiry

Keyword	Definition
Analysis	Studying or examining something in detail to discover or understand more about it, or your opinion and judgment after doing this
Brownfield Site	Areas that were once built on but are now derelict
Community	All the people living in a particular place
Congestion	Overcrowding or an excessive amount of people and traffic in a place
Density	A measurement of how many people are in an area
Development	The process of improving an area
Sustainable	Meeting the needs of people today without spoiling things for people in the future
Questionnaire	A set of questions with a choice of answers, devised for a survey
Neighbourhood	The area in which we live and share with our community
Urban	An area which has a lot of buildings
Vegetation	The amount of plants in an area

Key Concepts

How to draw a bar graph:

We need to follow the steps given below.

Step 1: First, decide the title of the bar graph.

Step 2: Draw the horizontal axis and vertical axis. (For example, answers given)

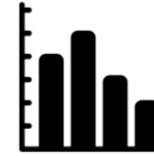
Step 3: Now, label the horizontal axis.

Step 4: Write the names on the horizontal axis, .

Step 5: Now, label the vertical axis. (For example, Shop, Post Office)

Step 6: Finalise the scale range for the given data.

Step 7: Finally, draw the bar graph that should represent each category of the pet with their respective numbers.



Improving Areas

Suggesting how to improve an area, means understanding what is there and what the people need. It needs to be sustainable and not only support people now but what they might need in the future.



Conducting Environmental Surveys

An environmental quality survey uses an observer's judgement to assess environmental quality against a range of indicators. Often, they work on a sliding scale of quality (like 1 to 5).

It is based on personal judgements, so the data collected using environmental quality surveys is **subjective**.

Urban Studies- An Environmental Quality Index

Area _____

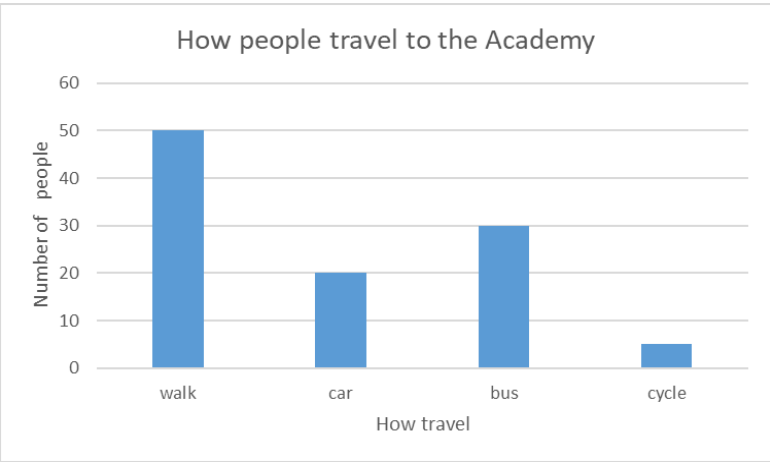
	Hint	Score
Paving and Road		
• No damage or broken paving, no uneven slabs, road surface in good repair	10	
• Some paving damaged, road showing some signs of need of repair	5	
• 50% or more paving or road surface in need of repair	0	
Litter		
• Completely clean, no litter	10	
• Some litter but not obtrusive	8	
• Litter over 50% of the area	5	
• Litter over 25% of the area	0	
Dereliction		
• Little evidence of dereliction	5	
• Extensive dereliction	2	
• Massive dereliction (Danger to children, cars, etc.)	0	
Street furniture (includes bollards, telephones, street lighting, litter bins, pillar boxes and road signs)		
• All items in good working order and maintenance	10	
• Some items in need of maintenance	5	
• A lot of items in need of maintenance	3	
• 100% derelict	0	
Advertisements		
• No advertisements in the street	5	
• Over 15 advertisements per 100m of street	0	
Air pollution		
• No pollution	5	
• Some pollution when wind is in right direction	4	
• Moderate pollution	2	
• Massive pollution- unbearable, unhealthy	0	
Nuisance		
• No appreciable noise	5	
• Some noise at certain times	4	
• Major noise problem	1	
• Intolerable noise	0	
Landscape/Vegetation		
• One mature tree or 3 shrubs per 20m of pavement	10	
• One mature tree or 3 shrubs per 40m of pavement	8	
• One mature tree or 3 shrubs per 80m of pavement	4	
• Less than one tree/shrub per 100m of pavement	0	
Traffic parking (parking should be carried out at different times of the day ideally to assess the total situation)		
• No parked cars	5	
• Up to 4 parked cars per 100m of street	3	
• Over 10 parked cars per 100m of street	0	
Note: 1 commercial van = 1.5 cars 1 lorry = 2 cars. 1 articulated lorry = 3 cars		
Traffic safety (vehicles and pedestrians)		
• Complete segregation of traffic and people- no danger	10	
• Cut-throat or play street	8	
• Light traffic in both directions	6	
• Moderate traffic	4	
• Heavy traffic	2	
• Major through route-very heavy traffic	0	
Building Condition (walls and roof)		
• All buildings well maintained	5	
• Half the buildings in the street well maintained	3	
• Over 20% of the buildings semi-derelict (very poor structural order, ready for demolition and clearance)	0	
Condition of boundary walls and fences		
• All in well maintained condition	5	
• 20% need maintenance	3	
• Over half in need of repair and maintenance	0	
General Housekeeping (condition of gardens, forecourts, cleanliness of paintwork, windows and curtains)		
• All well maintained and tidy	5	
• All in reasonable condition	4	
• 25% badly maintained	2	
• Over 50% badly maintained	0	

Total Environmental Quality Score = _____

- Construct and analyse graphs
- Write a report on how the local area can be improved
- Evaluate the methods used to conduct an enquiry



Retrieval Practice

Questions	Answers										
What is a brownfield site?	Areas that were once built on but are now derelict										
What is the first step when drawing a bar graph?	Creating a title for the graph										
What is used to gather data on an area?	An environmental survey										
What does sustainable mean?	Meeting the needs of people today without spoiling things for people in the future										
In the space show the following data in a bar graph for how people travel to the academy: Walk: 50 Car: 20 Bus: 30 Cycle: 5	 <p>How people travel to the Academy</p> <table border="1"> <thead> <tr> <th>How travel</th> <th>Number of people</th> </tr> </thead> <tbody> <tr> <td>walk</td> <td>50</td> </tr> <tr> <td>car</td> <td>20</td> </tr> <tr> <td>bus</td> <td>30</td> </tr> <tr> <td>cycle</td> <td>5</td> </tr> </tbody> </table>	How travel	Number of people	walk	50	car	20	bus	30	cycle	5
How travel	Number of people										
walk	50										
car	20										
bus	30										
cycle	5										



Career Focus - Town Planner



As a town planner, you may work on projects to assess the effect of new rail links or roads, plan for houses and renewable energy generation, redesign urban spaces and develop parks. You could develop local or national planning policies for government, developers and the public.

Challenge Activities



- Design and explain how Newsome Mill could be developed to serve the needs of the local community.
- Create a mood to highlight Newsome and how it could be developed in the future
- Research Newsome or Newsome Mill write a report on how the area (land use/buildings/people) has changed over time.

Topic Links



This topic links to:

- Maths
- Science

Additional Resources



To further practise and develop your knowledge see:

Urban Change



Graphs






Key Concepts: World – Countries and Oceans





- Discuss why there is such a focus on the three avatars of God
- Describe how going to a Mandir is the best way for a Hindu to show their faith

Keyword	Definition 
Hinduism	A religion which has cultural traditions which developed from Vedic religion.
Samskaras	A ceremony or a rite, which marks a major event in the life of a Hindu.
Sacred	Something that is dedicated or set apart for the services or worship of a deity; is considered worthy of spiritual respect or devotion.
Ceremony	A set of acts, often traditional or religious, performed at formal occasions. In Hinduism rituals are performed to bring spirituality into human life.
Symbolism	Hinduism is rich on symbolism. Many acts of worship, such as puja are symbolic. Symbolism is the idea that things represent other things.
Pilgrimage	A journey, especially a long one, which is made to some sacred place as an act of religious devotion. Pilgrimage in Hinduism is the practice of journeying to sites where religious powers, knowledge, or experience have been marked or been present.

Key Concepts

Samskaras

Religious people often have ceremonies to mark changes in their life. Hindu rites of passage cover a person's birth to their death through various traditions and customs.

Hindu sacraments are called 'samskaras'

The sacraments performed at the time of a wedding are called 'Vivah Sanskar'. This sanskar marks the start of the second and the most important stage of life called the 'Grihस्था Ashrama' which involves setting up of a new family unit.



Sacred Thread ceremony (Upanayana)

The Sacred Thread ceremony is a ceremony for boys in some Hindu communities to confirm they are of an age to take on religious responsibility.

Girls are sometimes honoured in the same way, but it is rare for them to receive and wear the thread.

In some Hindu communities, the male participant's head is shaved for the ceremony, symbolising a cleansing from their old ways of living. New clothes are put on after bathing. Gifts and blessings from family and friends are often received.

In some communities, the person asks family and friends for **alms** to show that they no longer expect the family to automatically provide for them now they are an adult.

Features of the Sacred Thread ceremony include:

- The **Janoi** is made up of three strands, representing purity of thought, words and actions
- The cotton strands go over the left shoulder and under the right arm
- Janoi wearers may chant a special **mantra** when putting on and taking off their sacred thread
- Vows are made to obey all aspects of the first **ashrama**
- Some young Hindus also accept a **Guru** at this point and start their study of **scripture**. It is increasingly common for young Hindus in the UK and in urban India to have the ceremony at different ages.





Key Concepts

Puja Tray



The Puja Tray

- On the puja tray there is
- A pot of water for ritual cleansing.
- A bell to call the family to worship.
- A tiny pot of red gum paste to mark the forehead. This mark means that a woman's soul (her husband) is with her.
- An Aarti lamp for the Aarti ceremony.
- An incense burner or jos stick holder.



Holi

A Hindu festival that celebrates spring, love, and new life. Some families hold religious ceremonies, but for many Holi is more a time for fun. It's a colourful festival, with dancing, singing and throwing of powder paint and coloured water. **Holi is also known as the "festival of colours".**



Kumbh Mela

One of the most important pilgrimages in Hinduism is **Kumbh Mela**. This is the largest gathering of people in the world. Millions of people attend and bathe in the Ganges (in North India). The main Kumbh Mela gathering takes place every 12 years, with other events taking place every three years at four different sites (a different site is used every three years).


Hindu Pilgrimage

Hindu practices allow those who follow the religion to demonstrate their commitment to the faith and this includes worshipping in temples and at shrines. Hindu practices might also involve showing a commitment to the wider community, such as pilgrimage and charity work.

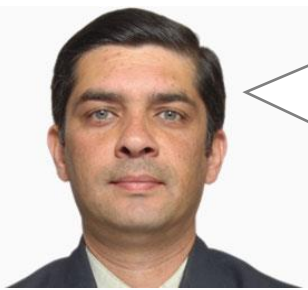
Varanasi

The most sacred city in Hinduism is **Varanasi**, as it is one of the oldest and most respected cities. It is believed to be the city where **Shiva**, the god of destruction, lived a long time ago. The **River Ganges**, which is one of the most sacred rivers in the world, runs through the city and is important as it is where Hindus bathe in the hope, they can wash their sins away. A lot of Hindus believe that people who die in the city of Varanasi can achieve moksha.

- Discuss why there is such a focus on the three avatars of God
- Describe how going to a Mandir is the best way for a Hindu to show their faith

Retrieval Practice 	
Questions	Answers
What are Samskaras?	Samskaras are rites of passage within Hinduism. Marking important event within their life.
Why is the thread ceremony important within Hinduism?	The Sacred Thread ceremony is a ceremony for boys in some Hindu communities to confirm they are of an age to take on religious responsibility. This represents a new beginning as well as maturity to help and provide for their family.
Whose story lies between the festival of Holi?	The story of Holika and Prahlad. The story behind Holi is about good triumphing over evil.
What do Hindus use in worship?	Hindus use a puja tray, when they are worshipping.
Where do Hindus go for pilgrimage?	Hindus go to Varanasi, as this is the sacred site in Hinduism.
Why is Varanasi a sacred site for Hindus?	It is believed to be the city where Shiva , the god of destruction, lived a long time ago. The River Ganges , which is one of the most sacred rivers in the world, runs through the city and is important as it is where Hindus bathe in the hope, they can wash their sins away. A lot of Hindus believe that people who die in the city of Varanasi can achieve moksha.
Why do Hindus celebrate Navratri?	Navratri is a time when Hindus celebrate the goddess Durga for killing the demon, Mahishasura. Nav means nine and Ratri means nights . Hindus celebrate Navratri by dancing and different colours which symbolises one of her distinct characteristics. Many Hindus wear a different coloured traditional outfit each day to reflect this.

Career Focus - Where could this take you?



Global coordinator for Hindu Swayamsevak Sangh: "I love to help around and look after the plants and the world around us, there is a famous slogan which states 'Service to Mankind is Service to God' this motivates me to help the people and the communities around me."

"Religious education has given me skills to understand the world we live in now, how animals and humans need to be looked after, as well as the world around us. Our community projects have included; Voluntary work at Old People Homes, Blood Donation, Distribution of fruit to local hospitals, trees planting, careers fair etc."

Challenge Activities

- Explain the stories behind the festivals of Holi and Navratri. Why are they important to Hindus today?
- Can you name any other sacred events within a life of a Hindu?
- Create a leaflet for someone to explain the key practices of Hinduism.
- Research the different Gods/Goddesses in Hinduism and create flash cards.
- Make your own puja tray and take a picture of it.

Don't forget!
Point
Explain
Evidence (Quote)

Topic Links

This topic links to other RE topics such as

- Sikhism
- Buddhism

Cross curricular subjects include:

- Geography

We will also be practising how to



- Argue a point and practise our Voice 21
- Participate in debates
- Write PEE sentences/how to answer exam questions

Additional Resources

To further practise and develop your knowledge see:

<https://www.bbc.co.uk/bitesize/topics/zh86n39/articles/z4qqy9q>







<https://www.bbc.co.uk/religion/religions/hinduism/ritesrituals/weddings.shtml>



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

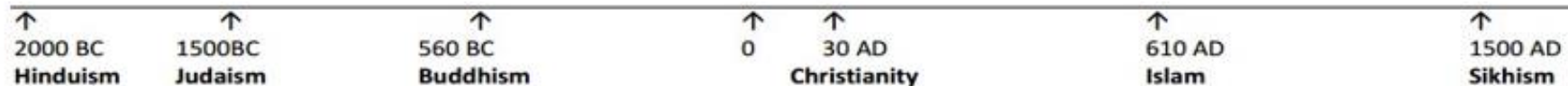
Atheist = Someone that doesn't believe in God

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.

- Recognise some differences between school in France and the UK.
- Express simple opinion
- Describe school uniform
- Pick out opinions from short reading texts
- Pick out opinions from short listening passages
- Translate sentences from English to French including adjectives

Keyword	Translation
Au collège.....	At school.....
Comment s'appelle ton collège?	What is your school called?
Qu'est-ce que tu as aujourd'hui?	What do you have today?
Qu'est-ce que tu penses de tes matières?	What do you think about your subjects?
Car Parce que	Because
Qu'est-ce que tu portes?	What do you wear?
Qu'est-ce que tu penses de ton uniforme?	What do you think about your uniform?
Ta journée scolaire est comment?	What is your school day like?
À quelle heure?	At what time?

Essential vocabulary and grammar.


School subjects

 le français	 le théâtre	 la géographie	 la technologie
 la musique	 l'anglais	 l'EPS	 l'informatique
 l'histoire	 les maths	 les sciences	 les arts plastiques

Telling the time

 Une heure	 Deux heures	 Trois heures	 Sept heures	 Huit heures	 Neuf heures
 Quatre heures	 Cinq heures	 Six heures	 Dix heures	 Onze heures	 Douze heures / Midi

Essential Phonics

Silent final 'e'	Silent 'h'	'th'
quatre 4	heures 	maths + × - ÷










Expressing opinions

aimer, adorer and **détester** are **-er** verbs.

Tu aimes ...?	Do you like ...?
Oui, ...	Yes, ...
j'adore ...	 I love ...
j'aime ...	 I like ...
j'aime assez ...	 I quite like ...
Non, ...	No, ...
je n'aime pas ...	 I don't like ...
je déteste ...	 I hate ...

Describing your uniform.

un	pantalon / pull / sweat / polo	noir / bleu / vert / gris / blanc / violet / rouge / rose / jaune
une	jupe / veste / chemise / cravate	noire / bleue / verte / grise / blanche / violette / rouge / rose / jaune
des	chaussettes / chaussures / baskets	noires / bleues / vertes / grises / blanches / violettes / rouges / roses / jaunes

a C'est facile. 	b C'est difficile. 	c C'est intéressant. 
d C'est ennuyeux. 	e C'est amusant. 	f C'est créatif. 
g C'est nul. 	h Le /La prof est sympa. 	i Le /La prof est trop sévère. 

- Recognise some differences between school in France and the UK.
- Learn how to say what they like and dislike at school.
- Learn how to describe their school uniform.

- understand and learn how to give some simple opinions about school subjects..
- understand and learn how to tell the time in French.

Retrieval Practice



Questions	Answers
Comment s'appelle ton collègue?	Mon collègue s'appelle Newsome Academy
Qu'est-ce que tu as aujourd'hui?	C'est lundi et j'ai les maths, l'anglais, l'histoire, le dessin et le Français.
Qu'est-ce que tu penses de tes matières?	J'aime les maths mais je n'aime pas la musique.
Pourquoi?	La musique c'est difficile et les maths c'est cool.
Qu'est-ce que tu portes?	Je porte une veste noire, une chemise blanche, un pantalon noir et des chaussures noires.
Qu'est-ce que tu penses de ton uniforme?	Je pense que l'uniforme est confortable
Ta journée scolaire est comment?	J'arrive au collège a neuf heures . A midi je mange et a trois heures je joue au foot.
À quelle heure?	A dix heures, j'ai les sciences.

Career Focus - Where could this take you?



I am a fashion designer. I design and make clothing. I use languages to communicate with customers overseas and I do research to see what sells abroad. I can also travel to the fashion fairs throughout the world.

Challenge Activities



1. Create a graffiti wall about your likes and dislikes at school.
2. Research some differences and similarities about French and British schools.
3. Design your timetable in French. Don't forget the days in French too.
4. Design your ideal school uniform and label it in French.

Topic Links



- This topic links to:
- Colours (describing pets)
 - Numbers
 - Days of the week
 - Expressing opinions

Additional Resources



To further practise and develop your knowledge see:

- Sentencebuilders.com
- Active Learn

Your teacher can remind you of your login.

Year 7 French – Essential Grammar and Vocabulary

Greetings

Bonjour - Good morning
Salut - hello
Bonsoir - good evening

Au revoir - Goodbye
À plus - See you later

Comment tu t'appelles ? What's your name?

Je m'appelle - I am called

Pleasantries

(Comment) ça va? How are you?

ça va très bien merci
- I'm very well thank you

ça va - ok
ça va mal - Bad



3. Qu'est-ce que tu aimes ?

Key verbs - opinions

J'aime - I like
Je n'aime pas - I don't like

J'adore - I love

Je déteste - I hate

Il /elle aime - he/she likes

le sport - sport
le collège - school

la danse - dance
la musique - music

les araignées - spiders
les glaces - ice creams



C'est - it's ...
sympa - nice
cool
moderne
nul - rubbish
triste - sad
démodé - old-fashioned

Let's show off!

J'aimerais avoir - I'd like to have
Je pense que - I think that
A mon avis - In my opinion
Personnellement - personally



2. Qu'est-ce qu'il y a sur la photo?

What's in the photo?

Describing a photo

Il y a -
There is/are

un tableau - a board
un ordinateur - a computer

un/ une professeur - a teacher
une porte - a door
une fenêtre - a window

des tables - some tables
des chaises - some chairs
des élèves - some pupils
des cahiers - some exercise books

5. C'est quand ton anniversaire? When is your birthday ?

Mon anniversaire c'est le... - my birthday is the...



1 premier	11 onze	21 vingt et un
2 deux	12 douze	22 vingt-deux
3 trois	13 treize	23 vingt-trois
4 quatre	14 quatorze	24 vingt-quatre
5 cinq	15 quinze	25 vingt-cinq
6 six	16 seize	26 vingt-six
7 sept	17 dix-sept	27 vingt-sept
8 huit	18 dix-huit	28 vingt-huit
9 neuf	19 dix-neuf	29 vingt-neuf
10 dix	20 vingt	30 trente
		31 trente et un

janvier - January	septembre - September
février - February	octobre - October
mars - March	novembre - November
avril - April	décembre - December
mai - May	
juin - June	
juillet - July	
août - August	

NO capital letters for months in French!

WAGOLL

Look at this model text about yourself - do you think you could replicate it with your own information?

Bonjour, je m'appelle <u>Marc</u> .	Hello. My name is <u>Marc</u> .
et j'ai <u>onze</u> ans.	and I am <u>11</u> years old.
Mon anniversaire est le <u>quatre mai</u> .	<u>Also</u> , my birthday is the <u>4th</u> of <u>May</u> .
Je suis <u>très sympa</u> .	I am <u>very nice</u> .
y a <u>assez intelligent</u> .	and <u>quite clever</u> .
<u>mais</u> je ne suis pas <u>patient</u> .	<u>but</u> I'm not <u>patient</u> .
J'ai <u>une soeur</u> .	I have a <u>sister</u> .
<u>mais</u> elle est <u>méchante</u> .	<u>but</u> she is <u>naughty</u> .
J'aimerais avoir <u>un frère!</u>	<u>I would like to have a brother!</u>
J'adore <u>la danse</u> .	I love <u>dance</u> .
<u>parce que c'est amusant</u> .	<u>because it's fun</u> .
Tu aimes <u>le sport?</u>	<u>Do you like sport?</u>

	indefinite article	definite article
masculine singular	un (a / an) →	le / l' (the)
feminine singular	une (a / an) →	la / l' (the)
plural	des (some) →	les (the)

1. Quel âge as-tu - How old are you?

Tu as des frères ou des sœurs ? - Have you got any brothers or sisters?

Key verbs - avoir

Avoir - to have
J'ai - I have
Tu as - you have
Elle/ il a - she/he has

_____ ans - _____ years old

une soeur - a sister
un frère - a brother
une demi-soeur - a stepsister / half-sister
un demi-frère - a stepbrother / half-brother
trois sœurs - three sisters

Nous avons - we have
Vous avez - you have
Elles/ils ont - they have

Je n'ai pas de frères ou sœurs - I haven't got any brothers or sisters
Je suis fils/fille unique - I am an only child



4. Tu es comment? What are you like ?

Key verbs être

être - to be
Je suis - I am
Tu es - you are
Elle/ il est - she/he is

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

amusant / amusante - fun
arrogant / arrogante - arrogant
méchante / méchante - naughty
patient / patiente - patient
intelligent / intelligente - intelligent
petit / petite - small
grand / grande - tall
bavard / bavarde - chatty
fort / forte - strong
timide - shy

Nous sommes - we are
Vous êtes - you are
Elles/ils sont - they are

Je ne suis pas - I'm not





Computing

Our students will:

- can understand and apply the fundamental principles and concepts of computer science, including abstraction, logic, algorithms and data representation
- can analyse problems in computational terms, and have repeated practical experience of writing computer programs in order to solve such problems
- can evaluate and apply information technology, including new or unfamiliar technologies, analytically to solve problems
- are responsible, competent, confident and creative users of information and communication technology

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

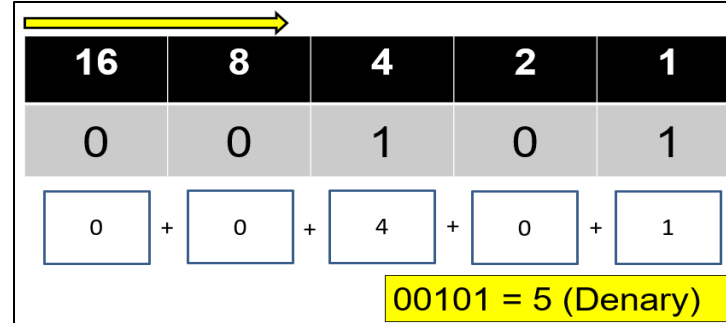
- Demonstrate knowledge of computing fundamentals by describing the history of computers, the IPOS cycle, the role of different component, types of software and different types of printers in use
- Demonstrate knowledge of binary conversion by converting between binary code and denary numbers

- Demonstrate knowledge and understanding of basic programming terms by explaining the connection between algorithms, functions and programming
- Apply knowledge from this unit to accurately describe some keywords

Keyword	Definition
IPOS Cycle	Known as 'information processing cycle', IPOS (input, processing, output, and storage) is a series of events that allow a computer to work like it does.
CPU	The Central Processing Unit. It calculates and processes information (instructions) sent from input/output devices.
Storage Capacity	Storage capacity refers to how much disk space one or more storage devices provides. For example, a 500GB hard drive has a storage capacity of 500 gigabytes.
Computer Component	With hardware, a component or part is one hardware unit designed to connect to and function as part of a larger system. For example, CPU, RAM, SSD drive work together and can be considered as computer components.
System Software	A type of computer program that is designed to control how a computer works. e.g. operating systems and utility programs.
Binary Code	It is a coding system using the binary digits 0 and 1. It can represent a letter, digit, or other character in a computer device. A computer converts every instruction into a binary code.
Bits	A bit (binary digit) is the smallest unit of data that a computer can process and store. A bit is always in one of two physical states (on/off, yes/no, true/false etc...) - represented by a single binary value, usually a 0 or 1.
Bytes	In most computer systems, a byte is a data measurement unit that contains eight bits, or a series of eight zeros and ones. A single byte can be used to represent 256 different values such as lowercase letters, uppercase letters, numbers and symbols etc...
Algorithm	A detailed list of steps to help write a program. This is written in a term known as 'Human Language'.
Programming	Making the switch from listing steps in detail as an algorithm to encoding (creating code) them. This is written in a term known as 'Machine Language'.
Function	Functions are mini programs that you can use over and over inside of your bigger program.

Key Concepts

Binary to Denary Conversion (5-Bit Binary)



1. Make sure you are aware of the number of bits involved in the conversion (count binary length)
2. Write down the decimal number place values above the binary number
3. Convert each binary digital from left to right (starting with largest decimal)
4. Add up the values of the decimal numbers where the binary digital '1' has been used
e.g. $00101 = 4 + 1 = 5$

Algorithm vs Programming

→
R

←
L

↑
U

↓
D

⚡
F

Key

★	1	2	3	
			4	
			5	

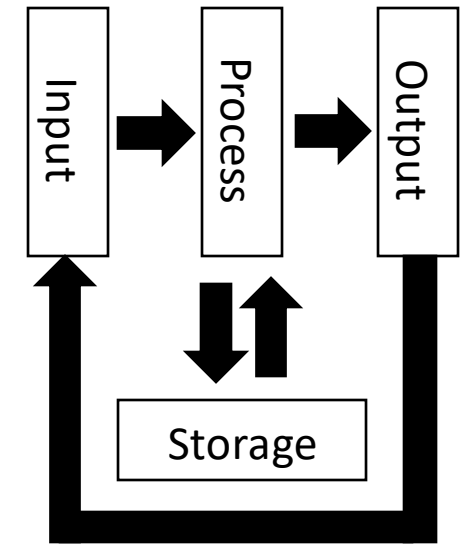
Algorithm (Instructions)

1. Move One Square Right
2. Fill In Square with Colour
3. Move One Square Right
4. Move One Square Down
5. Fill In Square with Colour

Programming (Encoding)

1. [R]
2. [F]
3. [R]
4. [D]
5. [F]

IPOS Cycle



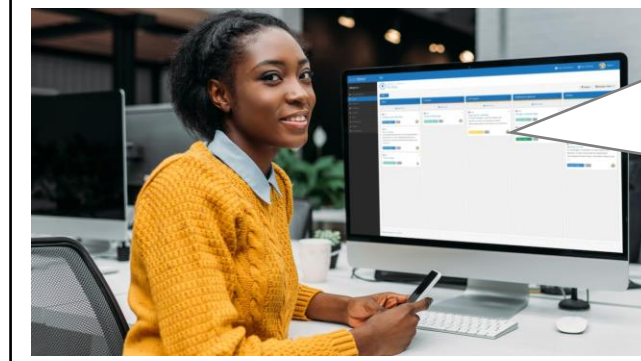
The aims of the sequence of learning are to ensure that all students:

- Demonstrate knowledge of computing fundamentals by describing the history of computers, the IPOS cycle, the role of different component, types of software and different types of printers in use
- Demonstrate knowledge of binary conversion by converting between binary code and denary numbers

- Demonstrate knowledge and understanding of basic programming terms by explaining the connection between algorithms, functions and programming
- Apply knowledge from this unit to accurately describe some keywords

Retrieval Practice	
Questions	Answers
What is the difference between an input and an output device?	An input device is a piece of computer hardware equipment that converts physical input data into binary code for the computer to understand e.g. keyboard An output device is something a computer uses to convert processed instructions into a format a human can see or notice e.g. monitor
What are the roles of a RAM and ROM in a computer	ROM: Read-only memory is non-volatile memory that permanently stores instructions for your computer RAM: Random access memory is volatile (deletes when computer turned off) memory that temporarily stores the files you are working on
Give two examples of Application Software and System software	Application: Word Processing software (e.g. MS Word) and Web Browser (e.g. Google Chrome) System Software: Operating System (e.g. iOS) and Anti-virus software (e.g. McAfee)
Describe three different types of printers	1. Dot-matrix: Pattern of dots used when creating the paper printout 2. Inkjet: The ink-jet squirts tiny droplets of ink onto the surface of the paper 3. Laser: It creates marks on paper using a fine dust called toner. A laser is used to make the toner stick to the required parts of the paper
How does a computer understand the instructions given by different software and applications?	A computer converts every instruction into a binary code. It is a coding system using the binary digits 0 and 1. It can represent a letter, digit, or other character in a computer device
What are the main differences between an 'Algorithm' and 'Programming'?	Algorithms are a detailed list of steps to help write a program. This is known as 'Human Language'. Programming is making the switch from listing steps in detail as an algorithm to encoding (<i>creating code</i>) them. This is known as 'machine language'.
Why are Functions used in a program?	<ul style="list-style-type: none"> • It makes it easier and less time consuming to write larger programs • It reduces the errors in a program as you have to write less new code • It is easier to find errors as you have to test less new code (quicker debugging) • It is easier to link parts of the program to other parts (modules)

Career Focus - Where could this take you?



I am a **Digital Product Owner (DPO)** and lead a team of specialists to build online products and services for customers. One of my responsibilities include looking at user feedback to help improve the product.

Challenge Activities

1. Create a step-by-step tutorial document that explains how to convert from Binary to:
 - A) Denary B) Hexadecimal C) ASCII
2. Create a poster or presentation on MS PowerPoint that provides information about 'IPOS cycle' – including the following points:
 - A) What is the IPOS cycle? B) What does it do? C) Examples of input and output devices
3. Create a short vlog about Netiquette. In the vlog, explain the following:
 - A) What is Netiquette? B) Why it is important? C) Some important rules to follow D) Any other interesting information about Netiquette.

Topic Links

- Computing Curriculum: (3.4) How to carry out simple operations on binary numbers (3.5) How components and systems communicate with each other (3.6) Understand how instructions are stored and executed
- Other links: Math's (Inference & Arithmetic) and English (Promote communication skills & prevent miscommunication)

Additional Resources

To further practise and develop your knowledge see:

- Input, Process, Output and Storage
<https://www.youtube.com/watch?v=DKGZlaPIVLY&t=76s>
- The Binary System
<https://www.youtube.com/watch?v=sXxwr66Y79Y>
- What are Functions?
<https://www.youtube.com/watch?v=5tmtBjdW62w>



Our students will:

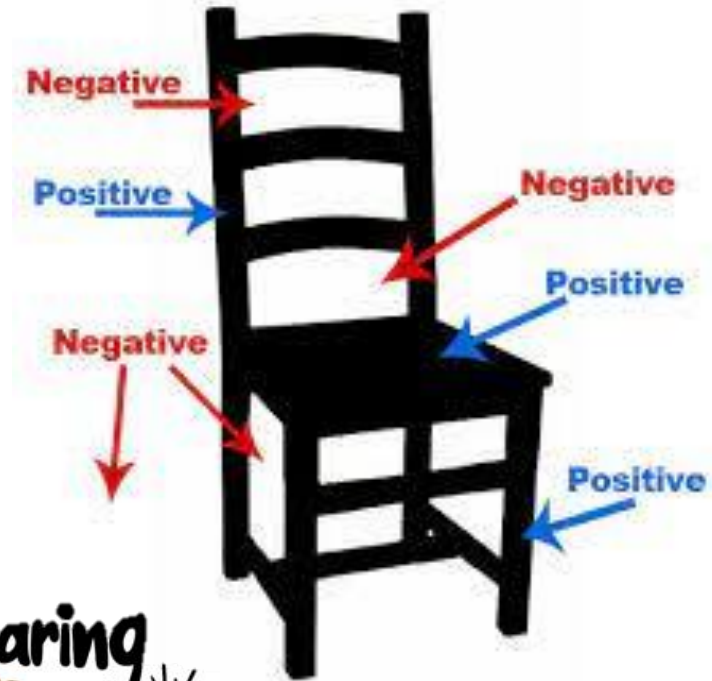
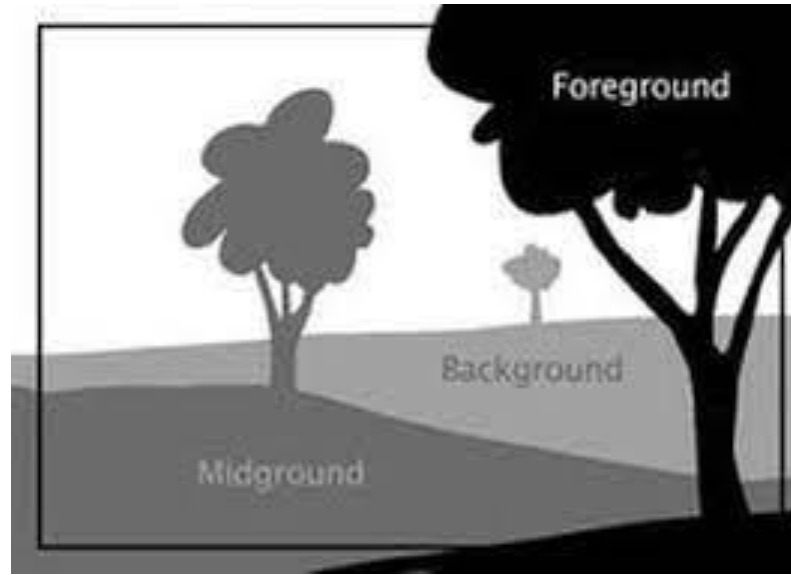
- produce creative work, exploring their ideas and recording their experiences
 - become proficient in drawing, painting, sculpture and other art, craft and design techniques
 - evaluate and analyse creative works using the language of art, craft and design
 - know about great artists, craft makers and 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:
- Learn about the work of Keith Haring.
 - Learn about the work of James Rizzi
 - Learn about focal point and why it is important.

- Learn about foreground, middle ground and background in art.
- Learn about positive and negative shape.
- Learn how to present work in a creative and imaginative way.



Keyword	Definition
Focal point	The area of a picture that attracts the eye.
Positive shape	Positive shapes represent solid objects.
Negative shape	Negative shape is the space around an object.
Foreground	The area of the picture nearest to the viewer.
Middle ground	The space that naturally occurs between the foreground and the background .
Background	The part of an artwork representing what lies behind objects in the foreground.
Pop Art	Movement that emerged in the mid to late 1950s. Artists included imagery from popular and mass culture
Keith Haring	American artist whose work emerged from the New York City graffiti subculture of the 1980s.
James Rizzi	American artist whose work has an instantly recognisable childlike quality.


Key Concepts




- The aims of the sequence of learning are to ensure that all students:
- Learn about the work of Keith Haring.
 - Learn about the work of James Rizzi
 - Learn about focal point and why it is important.


- Learn about foreground, middle ground and background in art.
- Learn about positive and negative space.
- Learn how to present work in a creative and imaginative way.

Retrieval Practice 	
Questions	Answers
What government initiative uses Keith Haring style artwork in its promotional content?	
How would you describe objects that are in the foreground of a piece of artwork?	They are bigger than objects in the middle ground and background. Details can be seen easily and colours are bold.
How do objects in the background of a picture appear?	They are smaller than objects in the middle ground and foreground. Fewer details can be seen and colours are muted.
What are the characteristics of James Rizzi's work?	Much of his work is inspired by New York City. He paints buildings that have human characteristics (faces), and it resembles children's drawings.
What is a landmark?	A building or an object that is instantly recognisable and lets people know where they are. E.g. The Empire State Building in New York City

Career Focus - Where could this take you? 



My job is a **tattoo artist**. I research and produce designs based on clients' ideas. I am a specialist in the application of permanent designs and artwork on the skin using specialized tools, such as tattoo machines or handheld needles.



Challenge Activities 

Try some of these drawing tasks at home:

Watch these dance moves then draw them in the style of Keith Haring
[\(3\) Best of Favorite Dance Moves – YouTube](#)

Create your own positive and negative art pieces
[\(3\) Art lesson online: Make outstanding art with positive & negative space! Great at home or in school. – YouTube](#)

Create a James Rizzi inspired piece of work based on your local area or a city of your choice.

Topic Links 	Additional Resources 
<p>This topic links to:</p> <ul style="list-style-type: none"> • Geography – famous landmarks and buildings. • Food technology – Healthy eating. • Physical Education – Promotion of exercise for maintaining health. 	<p>To further practise and develop your knowledge see:</p> <p>https://www.youtube.com/watch?v=LcjgEopLalk</p> <p>https://www.youtube.com/watch?v=IHBm8_ooPVo</p> <p>https://www.youtube.com/watch?v=5nzdtFBbrCO</p>



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 sustainibility 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

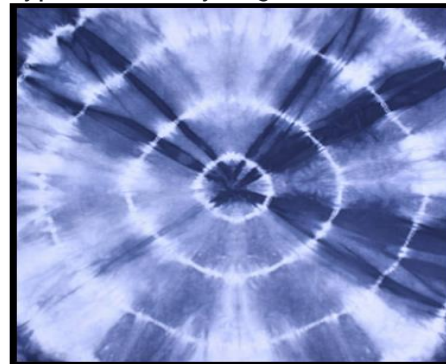
Keyword	Definition
Machine	An apparatus using or applying mechanical power and having several parts.
Fabric	Cloth or other material produced by weaving or knitting fibres
Natural	Existing in or caused by nature; not made or caused by humankind
Fibres	A thread or filament from which a vegetable tissue, 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

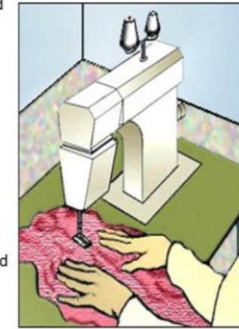


Resist dyeing is a technique of colouring yarn or fabric in order to create a pattern by resisting certain areas, so that only the unblocked areas receive colours. Resist materials including thread, wax, rice or mud paste are used in this dyeing process on the basis of the patterns. Tie-dye method is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

NATURAL FIBRES

Properties Of Fibres Natural - Plant

Linen:

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

Applications
Summer clothing, table cloths etc

Cotton:

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

Applications
Jeans, Towels, T-shirts



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

	<p>Properties</p> <p>_____</p> <p>Suggested Fibre Type</p> <p>_____</p> <p>Product Type</p> <p>_____</p>		<p>Properties</p> <p>_____</p> <p>Suggested Fibre Type</p> <p>_____</p> <p>Product Type</p> <p>_____</p>
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Topic Links Additional Resources

<p>This topic links to:</p> <ul style="list-style-type: none"> • Science- How fibre properties are created and used. • English- Subject specific Vocabulary knowledge, understanding and spelling. • Maths - Material costings and standard measurements in length. 	<p>To further practise and develop your knowledge see:</p> <ul style="list-style-type: none"> • 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
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- Demonstrate safe use of tools and equipment.
- Explain a range of Decorative Techniques
- Rank Smart Fibres in order of environmental impact.
- Annotated a range of design ideas which include moral and cultural issues.
- Demonstrate an understanding of smart materials.

Keyword	Definition
Timber	Timber refers specifically to unprocessed wood fibre, such as cut logs or standing trees that have yet to be cut.
Softwood	Softwood is <u>wood</u> from <u>gymnosperm</u> trees such as <u>conifers</u> .
Hardwoods	Hardwood is <u>wood</u> from <u>dicot trees</u> . These are usually found in broad-leaved temperate and <u>tropical forests</u> .
Butt Joint	A butt joint is a technique in which two pieces of material are joined by simply placing their ends together without any special shaping.
Scroll Saw	A scroll saw is a small electric or pedal-operated <u>saw</u> used to cut intricate curves in wood,
Analysis	is the process of breaking a <u>complex topic</u> or <u>substance</u> into smaller parts in order to gain a better <u>understanding</u> of it.
Design Brief	A design brief is a document for a <u>design</u> project developed by a person or team (the <i>designer</i> or <i>design team</i>) in consultation with the <i>client/customer</i> .
Product Analysis	Product analysis involves examining product features, costs, availability, quality, appearance and other aspects.
Ergonomics	Human factors and ergonomics are the application of psychological and physiological principles to the engineering and design of products.
Dowel	A dowel is a cylindrical <u>rod</u> , usually made of <u>wood</u> , <u>plastic</u> , or <u>metal</u> .
Coping Saw	A coping saw is a type of <u>bow saw</u> used to cut intricate external shapes and interior cut-outs in woodworking or carpentry.
Orthographic	Orthographic projection is a means of representing <u>three-dimensional</u> objects in <u>two dimensions</u> .
Design	A design is a concept of either an object, a process, or a system that is specific and, in most cases, detailed.
Function	Means how a product works, what does it do.
Glass Paper	Thick paper which has tiny glass particles glued to the surface, used to sand down rough surfaces in wood,

Key Concepts

Product Analysis

ACCESS FM

A AESTHETICS

WHERE DID THE DESIGNER GET THEIR INSPIRATION? COULD THE PRODUCT LOOK BETTER?
DO YOU THINK IT LOOKS ATTRACTIVE OR UGLY, WHY?
WHAT DOES THE PRODUCT LOOK LIKE? THINK SHAPE, FORM, MATERIALS, SIZE, BEAUTY, UGLINESS

C COST

IS IT AFFORDABLE TO YOUR CUSTOMER? WILL IT MAKE A PROFIT?
IS IT VALUE FOR MONEY?
HOW MUCH DOES IT COST?

C CUSTOMER

WHAT IMPACT WOULD IT HAVE ON A CUSTOMER'S LIFE?
WHY WOULD A CUSTOMER BUY IT? WHAT MAKES IT SUITABLE FOR THEM?
WHO WOULD BUY IT? WHO WOULD USE IT?

E ENVIRONMENT

WHAT IS THE PRODUCT'S IMPACT ON THE ENVIRONMENT? THINK BATTERIES, RETHINK, REFUSE, REDUCE, REUSE, RECYCLE, LIFE-CYCLE
HOW WOULD THE PRODUCT BE DISPOSED OF?
IS THE PRODUCT NEEDED OR WANTED? HOW LONG WILL IT LAST?

S SAFETY

IS THE PRODUCT HIGH QUALITY? DOES IT MEET SAFETY STANDARDS?
HOW HAS THE DESIGNER CONSIDERED SAFETY?
COULD THE PRODUCT HURT ANYONE? ARE THERE ANY SHARP EDGES?

S SIZE









IS IT AN APPROPRIATE SIZE? WOULD IT WORK BETTER IF IT WAS BIGGER OR SMALLER?
DOES IT COME IN DIFFERENT SIZES?
HOW BIG IS IT?

F FUNCTION

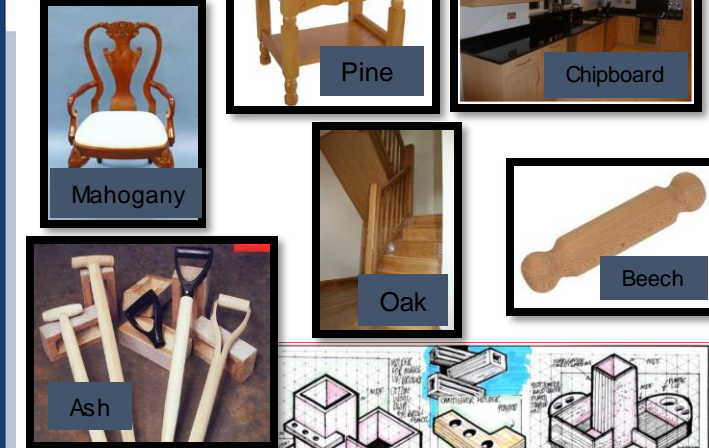
DOES THE PRODUCT WORK? COULD THE PRODUCT WORK BETTER?
HOW DOES THE PRODUCT WORK? WHY IS THE PRODUCT NEEDED?
WHAT DOES THE PRODUCT DO? IS IT EASY TO USE?

M MATERIALS

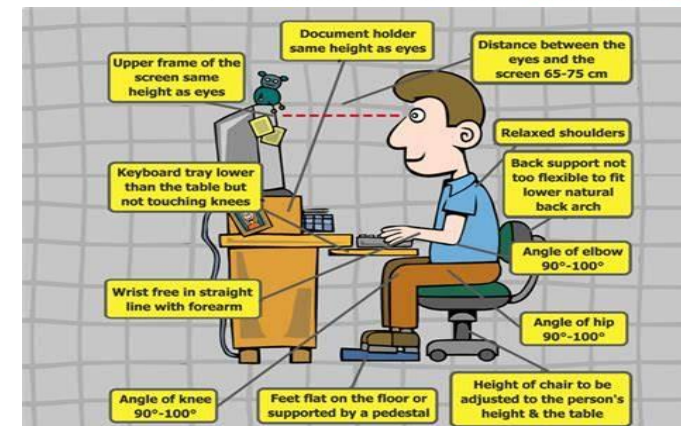
WHAT IMPACT COULD THE DESIGNER'S CHOICE OF MATERIAL HAVE ON THE ENVIRONMENT?
WOULD A DIFFERENT MATERIAL MAKE IT BETTER?
WHAT MATERIAL HAS IT BEEN MADE FROM?

MATERIAL TYPES



Ergonomics





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

- Demonstrate safe use of tools and equipment.
- Explain a range of Decorative Techniques
- Rank Smart Fibres in order of environmental impact.

- Annotated a range of design ideas which include moral and cultural issues.
- Demonstrate an understanding of smart materials.

Retrieval Practice



Question	A1	A2	A3	A4	A5
A. What is a Design Brief	Story	List	Outline	Prices	Function
B. What is a product analysis?	Function	Research	Aesthetics	Disassembling	Fixing
C. Types of Softwood. (select more than one)	Oak	Pine	Spruce	Teak	Balsa
D. Types of Hardwood. (select more than one)	Teak	Pine	Mahogany	Oak	Balsa
E. What is a consumer?	Maker	Buyer	Designer	User	Maintainer
F. What is ergonomics?	Measurements	Human interaction	Environmental	Costs	Protection

Questions Which you got wrong

Quick Corrections (bridge learning gaps & misconceptions)

Career Focus - Where could this take you?



Carpenters apply diverse skills and use various materials and equipment to build or repair houses and other structures, wooden fittings and furniture. If you enjoy creating or restoration work, you may find a career in specialist carpentry a good fit for you.

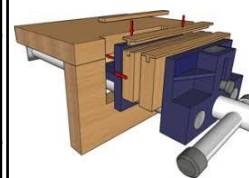
Kirklees college offer an Onsite Construction: Carpentry and Joinery Level 3 you will need 5 GCSE grades 4 or above must include Maths and English.

Salaries usually range from £25,000-£48,000

Challenge Activities



Can you name the selection of equipment and explain how it is used?



Topic Links



This topic links to:

- Science- How trees are made and fiber properties.
- English- Subject specific Vocabulary knowledge, understanding and spelling.
- Maths- Measurements in cm for practical.

Additional Resources



To further practise and develop your knowledge see:

<https://youtu.be/zfK7TLobsv0>

<https://youtu.be/7LBv2UWOI4Y>

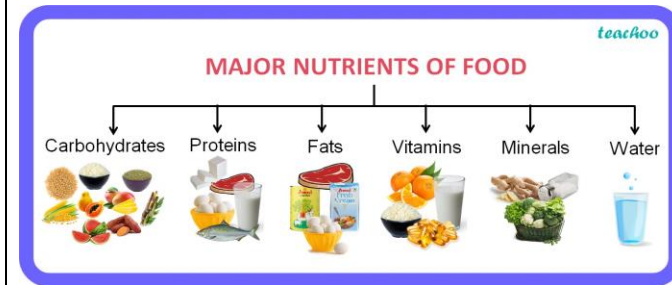
<https://youtu.be/7s-13XOobTM>

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 4Cs 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.



- 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

Key Concepts

Pizza



Ingredients:

- 2 pitta bread or flour tortilla
- 100g cheese
- 1 meat topping i.e. cooked ham or chicken
- 2 vegetable toppings i.e. half an onion/pepper/3 mushrooms

We will be chopping the toppings and grating the cheese in the lesson.

Equipment:

- Grater
- Vegetable knife
- Chopping board
- Baking tray
- Round bladed knife

Practical skills:

- Weighting & Measuring
- Baking: oven skills
- Timing
- Baking
- Knife skills: preparation of fruit and vegetables

KEY NUTRIENTS

- Carbohydrates starch and sugar
- Fat
- Protein
- Vitamins from the fruit

Method:

1. Preheat oven to 180c
2. Select the correct coloured chopping board and chop you veg and meat using correct methods
3. Grate your cheese into a bowl
4. Using a spoon, spread the passata sauce over the top of your bread and sprinkle on some oregano
5. Spread your toppings evenly across your pizza base
6. Add cheese over your toppings
7. Bake in the oven for 10 minutes.

KITCHEN CONVERSIONS

SPOONS & CUPS

TSP	TBSP	FLOZ	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

OZ	ML	CUP	ML
2	60	1/4	60
4	115	1/2	120
6	150	2/3	160
8	230	2/4	180
10	285	1	240
12	340	2	480

GRAMS

OZ	G	LB
2	58	-
4	114	-
6	170	-
8	226	1/2
12	340	-
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

HYGIENE & SAFETY TIPS

- Wash your hands with warm soapy water before you begin.
- Check gas ovens are lit correctly.
- Use oven gloves when you take tray out of the oven

- 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

Apple Crumble



Equipment:

- Weighing scales
- Sieve
- Mixing bowl
- Wooden spoon
- Chopping board
- Knife
- Ovenproof dish or foil tray
- Baking tray

Ingredients:

- 2 large cooking apples
- 50g of other fruit e.g.: raspberries/ raisins etc.
- 50g sugar
- 150g Plain flour
- 50g oats
- 100g butter

Bring oven proof dish

Top Tips:

Be creative and experiment with other fruits, such as blackberries, apricots, raspberries, peaches, nectarines or plums.

Try mixing different fruits, e.g. pear and plum.

You may wish to use canned apple or another type of canned fruit.

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

OZ	ML	CUP	ML
2	60	1/4	60
4	115	1/2	120
6	150	2/3	160
8	230	2/4	180
10	285	1	240
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GRAMS

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1/4 CUP
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FLOUR 64g
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BUTTER 112g



1 CUP
FLOUR 125g
SUGAR 200g
BUTTER 225g

Method:

1. Preheat the oven to 190°C or gas mark 5.
2. Rub in the butter or margarine into the flour until it resembles breadcrumbs. (Do not over rub breadcrumbs as mixture becomes greasy).
3. Stir in the oats and sugar using a wooden spoon.
4. Cut the apples into quarters and remove the core. Slice thinly using the bridge and claw technique. (peeling skin is optional).
5. Arrange the apple slices in the oven-proof dish, and then add the sultanas.
6. Sprinkle the crumble topping over the apple slices.
7. Bake for 25 – 30 minutes, until the apples are soft and the crumble is golden.


Skills:

Meaning:

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

- 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

Retrieval Practice 	
Questions	Answers
What are 8 tips for healthy eating?	<ul style="list-style-type: none"> • Base your meals on higher fibre starchy carbohydrates. • Eat lots of fruit and veg. • Eat more fish, including a portion of oily fish. • Cut down on saturated fat and sugar. • Eat less salt: no more than 6g a day for adults. • Get active and be a healthy weight. • Do not get thirsty. • Do not skip breakfast
Why is weighing and measuring important?	<p>Weighing and Measuring for good results in most recipes, accurate weighing and measuring is essential.</p> <p>When you are baking with flour, sugar and liquids, you must measure accurately, or your cooking will be spoiled. If you weigh out too much sugar or too little raising agent, your cakes will not rise or you could spoil the taste and/or texture.</p> <p>Food can be weighed in Grams (g). 1000g = 1 Kilogram (kg). Liquid is measured in Millilitres (ml) or litres (l). 1000ml = 1 Litre (l)</p>
What are the most important health and safety and personal hygiene rules?	<ul style="list-style-type: none"> • Be aware of sharp equipment such as knives, peelers and graters- store them carefully and use the bridge hold and claw grip when chopping. • Take care with hot equipment and food/ liquids- turn pan handles in, always use oven gloves and avoid splashes when stirring or draining foods. • Wipe up spills quickly so you do not slip over • Be aware of others in the kitchen • Report any accidents to the teacher • Tie hair back • Wash your hands

Career Focus - Where could this take you?



My job is a **food technologist** and I study foods and their nutritional content. I use laboratory skills and techniques to identify nutrients and calorie content of foods.

I need a genuine interest in science and how it is applied to food and cookery, high standards of cleanliness and the ability to adhere to strict hygiene rules.

Challenge Activities

Try some of these recipes at home

Follow the links below:

[Energy Bar](#)

[Home made burgers](#)

[Chapatti recipe](#)

[For Further 30 minute recipes](#)

Food skills are acquired, developed and secured over time

Bridge hold

Claw grip



Topic Links

This topic links to:

- English - relating explicitly to known vocabulary and understanding it with the help of context
- Mathematics - use standard units of mass, length, time, other measures
- Science: Nutrition and digestion RSE - What constitutes a healthy diet
- Physical health and fitness - The characteristics and mental and physical benefits of an active lifestyle.

Additional Resources

To further practise and develop your knowledge see:

[Eat well guide Quiz](#)

[Eat well guide](#)

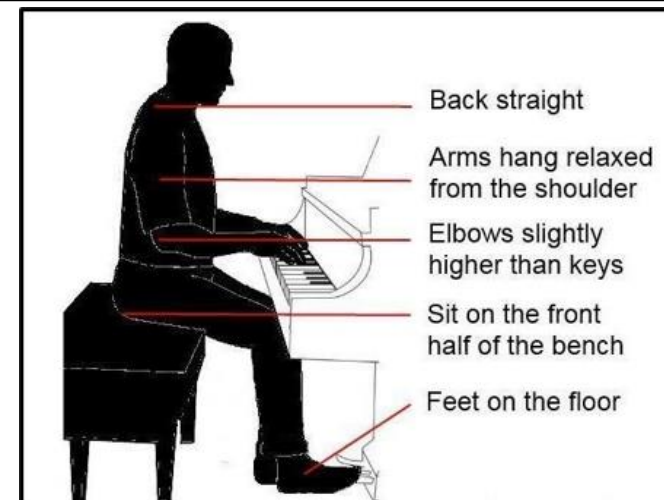
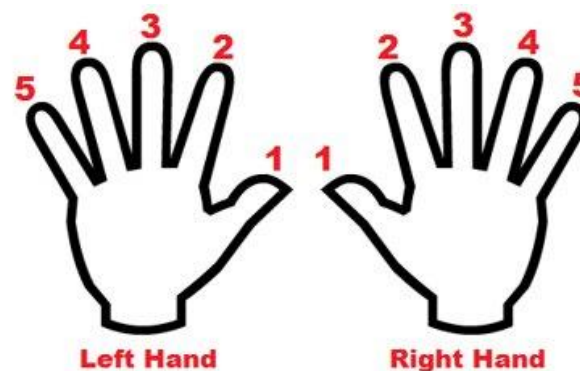
[Eat well video resource](#)

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

- Develop keyboard skills using correct keyboard technique
- Learn the relevant technical musical vocabulary
- Learn how to read basic pitch notation using the treble and bass clef
- Learn to perform a range of keyboard pieces, demonstrating articulation and expression, as well as technique

Keyword	Definition
Keyboard	a set of keys on a piano or similar musical instrument.
Octave	A range of 8 notes e.g. C to C
Technique	The correct way to carry out a task, such as how to play a musical instrument
Ascending	Pitch going up
Descending	Pitch going down
Stave	The five lines and 4 spaces that all western notation is written
Treble Clef	The treble clef is a tool musicians use to notate pitches above middle C on the piano
Tone/Semi-tone	A semitone (or half step) is the distance in pitch between a note and its nearest neighbour. E.g. C to C sharp. A tone is two steps
Scale	An ordered sequence of notes
Fluency	Being able to perform without hesitancy
Sharp	Higher in pitch by one semitone
Flat	Lower in pitch by one semitone

Key Concepts

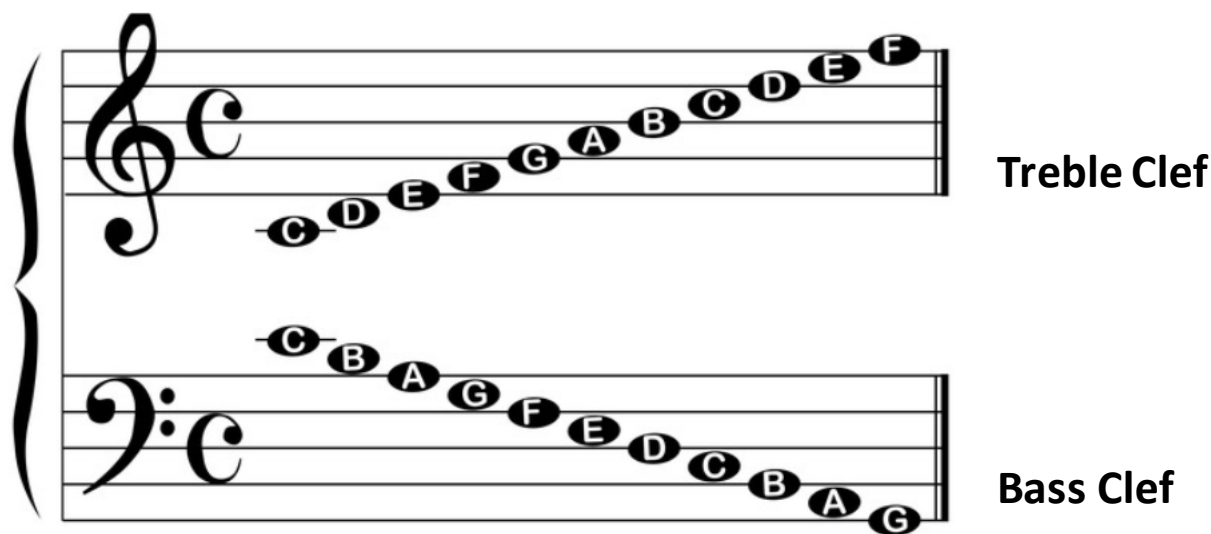
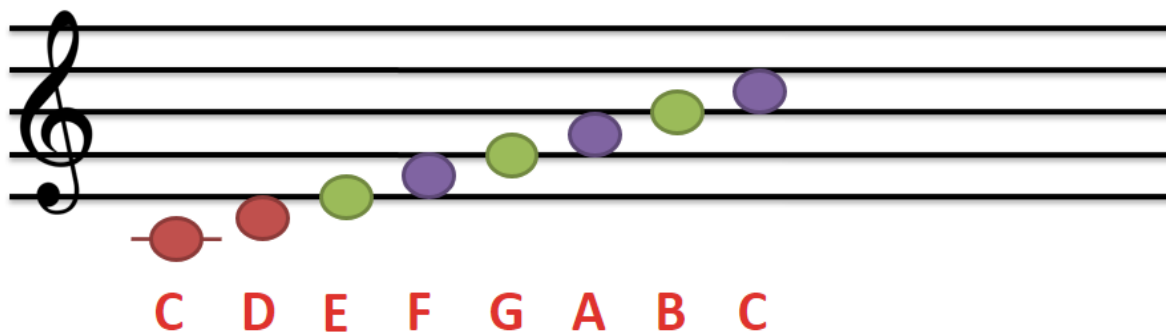


Performing with the correct technique is important as without good technique, you will not be able to play correctly or accurately. Use these images to help you.

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

- Develop keyboard skills using correct keyboard technique
- Learn the relevant technical musical vocabulary
- Learn how to read basic pitch notation using the treble and bass clef
- Learn to perform a range of keyboard pieces, demonstrating articulation and expression, as well as technique

C Major Scale



Career Focus - Where could this take you?



I am a piano tuner. Pianos are made up of hundreds of strings and these strings can become loose and go out of tune. I have a range of tools that helps me to retune the strings in the piano. I can also fix parts of pianos to make them playable again. I also can play the piano and have an excellent ear for pitch.

Challenge Activities



Name that pitch! <https://www.musictheory.net/exercises/note>

Further reading <https://www.musicca.com/notes>

Another quiz! <https://www.musictheoryacademy.com/music-theory-quizzes/>

Topic Links



This topic links to
 Maths – understanding of pitch requires knowledge of half steps and full steps and the ability to count in different intervals
 Science – pitch is a scientific concept. Concert A has a frequency of 440 Hz vibrations per second

Additional Resources



Free sheet music for piano - https://makingmusicfun.net/html/printit_piano_sheet_music_index
 Have a go at writing your own melody - <https://www.bbc.co.uk/bitesize/topics/z3dqhyc/articles/z7n2qp3>

- Can identify at least three core skills required for net and wall games
- Demonstrate core skills in a practice situation
- Demonstrate core skills in a game situation
- Lead a small group of peers in a skill practice session

Keyword	Definition
Racket	A piece of equipment with a handle, frame and head. This is used to hit the shuttle or ball over the net
Shuttle	A cone shaped object with a cork base. This is hit over the net with the racket.
Net	Rectangular net placed across the court. It divides the court in two.
Court	The playing surface area marked out with lines
Table	The playing surface used to play table tennis
Serve	A shot that is selected to start a game in net and wall activities
Forehand shot	Shot taken with the palm of your hand facing the direction of the stroke

Key Concepts You should already know:- The aim of net and wall games
You will be assessed on:- Understanding - Technique in isolation - Technique in game - Leadership - Attitude to learning

Table Tennis Key Concepts

Ready Position

Players should always be in the ready position before receiving the ball.

- Knees bent
- Feet shoulder width apart
- Feet shoulder width apart
- Racket should be level with the table and in front of body



Forehand Drive

- Ready position
- Controlled backswing, with striking arm opening up extending outwards
- Positive forward movement, arm moves forward and weight transfers from right to left foot
- Strike the ball on top of the bounce
- Follow through the shot, moving upwards and finishes in line with your nose

Backhand serve

- Ready position
- The ball rests in the palm of the resting hand
- Arm moves back towards chest
- Toss the ball up (at least 15cm)
- Forward movement comes from the elbow making contact down on the ball so it bounces on your half of the table first
- Head should be over the ball when making contact
- Follow through by returning to the ready position

Backhand push

- Ready position
- Controlled backswing so your elbow bends inwards towards chest (making an L shape)
- Forward movement comes from the elbow making contact underneath the ball
- Finish by extending your arm in the follow through (changing from an L shape to a I shape)

Badminton Key Concepts



The Basics



The aim of badminton is to hit the shuttle with your racket so that it passes over the net and lands inside your opponent's half of the court. Whenever you do this, you have won a rally; win enough rallies, and you win the match.

Your opponent has the same goal. He will try to reach the shuttle and send it back into your half of the court. You can also win rallies from your opponent's mistakes: if he hits the shuttle into or under the net, or out of court, then you win the rally.

Scoring

A point is scored when you successfully hit the shuttlecock over the net and land it in your opponent's court before they hit it. A point can also be gained when your opponent hits the shuttlecock into either the net or outside the parameters

To win a game you must reach 21 points before your opponent. If you do so then you will have won that set. If the scores are tied at 20-20 then it comes down to whichever player manages to get two clear points ahead. If the points are still tied at 29-29 then the next point will decide the winner of the set. Winning the overall game will require you to win 2 out of the 3 sets played.

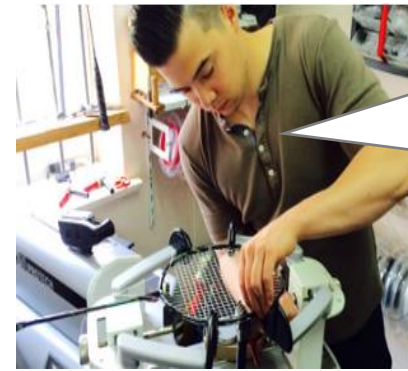
- Can identify at least three core skills required for net and wall games
- Demonstrate core skills in a practice situation
- Demonstrate core skills in a game situation
- Lead a small group of peers in a skill practice session

Retrieval Practice



Questions	Answers
What are some of the core skills needed for attacking in badminton?	<ol style="list-style-type: none"> 1. Smash shot is a core skill. The aim is to hit the shuttle as hard as possible to the oppositions side of the court 2. The long serve is a core skill for attacking in badminton. The aim is to send the opponent to the back of the court.
What are some of the core skills needed for defending in badminton?	<ol style="list-style-type: none"> 1. The overhead clear shot is used in a rally situation so that you force your opponent to move to the back of the court. 2. The drop shot is a gentle forehand or backhand shot that applies little force to the shuttle, so it drops just over the net.
What are some of the core skills needed for attacking in table tennis?	<ol style="list-style-type: none"> 1. Top spin forehand drive shot is a fast open palm shot facing the direction of the stroke. By placing top spin on the ball, the balls rotation means it travels faster. 2. Back spin forehand or backhand shot is a skill that is designed to slow down the speed of a rally in table tennis.
What are some of the core skills needed for defending in badminton?	<ol style="list-style-type: none"> 1. Backhand push shot and the forehand push shot are two skills designed to slow down the speed of a rally in a game. This gives the person more time to react to the next shot.

Career Focus - Where could this take you?



I am a professional badminton racket maker. My main job is to repair and re-string professional athletes' rackets. I have to ensure the quality and accuracy with the weight of the racket, balance point, string tension and hand grip.

Challenge Activities



Design a skill card:

This can be used in a PE lesson to help a student to assess their current ability level. Make the skill card to teach the correct way to Serve in either badminton or table tennis.

Create a rules of the game poster:

This can be used by all students in their PE lessons for badminton or table tennis when their role is umpiring a game so that all games can be played fairly, following RITA values. Your poster should have 3-5 basic rules.

Topic Links



This topic links to:

- Science –The role of the cardiovascular system; the physics of sports
- English –understanding and defining key terminology
- Mathematics –problem solving, recording figures and analysing performance and score keeping
- Voice 21 –coaching peers and explaining rules by officiating

Additional Resources



To further practise and develop your knowledge see:

<https://www.badmintonengland.co.uk/>

<https://www.tabletennisengland.co.uk/>



Keyword	Definition
Power	Power = strength x speed. They are used together to move in sport.
Co-ordination	The ability for muscles to move different body parts in time.
Reaction Time	The time taken for a person to react to the movement in sport.
Agility	The ability to change direction at speed.
Balance	The ability to maintain your centre of mass and control without falling over.
Speed	To move quickly in the shortest time over a distance. Speed=distance/time.
Cardiovascular endurance	The ability for the heart and blood vessels to transport oxygenated blood to the working muscles so they work for a long time.
Muscular strength	The maximum force that your muscles can make to move an object.
Muscular endurance	Your muscles can work continuously at a low to medium level for a long period of time without them getting tired.
Flexibility	This is the range of movement that can be performed around a joint by the muscles.
Body composition	This is the total amount of fat, bone and muscles of a person's body.

Key Concepts You should already know:- Some components of fitness and be able to apply them to a healthy and active lifestyle
You will be assessed on:- Understanding - Technique - Application - Leadership

Health and Fitness Key Concepts

IMPORTANCE OF WARM UP EXERCISES BEFORE WORKOUT

What is a warm-up?*

- A warm-up is a session which takes place prior to doing physical activity
- Usually a warm-up will consist of light cardiovascular exercises combined with stretches

Effects of the warm-up**

- Dilates blood vessels, ensuring that your muscles are well supplied with oxygen
- Raises your muscles' temperature for optimal flexibility and efficiency
- By slowly raising your heart rate, the warm-up also helps minimize stress on your heart

How long should a warm up last? **

- Most warm up sessions last between 20 minutes and half an hour
- The more intense the activity, the longer the warm-up.

Note : Individual results may vary

Information adapted from :
*<http://www.nsmi.org.uk/articles/injury-prevention/warming-up.html>



Retrieval Practice:
Use the missing words to complete the fitness testing protocols for the three different tests below.



What is the test protocol?
(Fill in the missing words)

Missing words:
Between,
Side,
Average,
Static,
Tips

Standing Long Jump test

- The athlete chalks the end of his/her finger tips
- The athlete stands _____ onto the wall, keeping both feet remaining on the ground, reaches up as high as possible with one hand and marks the wall with the _____ of the fingers
- The athlete from a _____ position jumps as high as possible and marks the wall with the chalk on his fingers
- The assistant measures and records the distance _____ the two marks
- The athlete repeats the test 3 times
- The assistant calculates the _____ of the recorded distances and uses this value to assess the athlete's performance.

What is the test protocol?
(Fill in the missing words)

Missing words:
Tips,
Extended
Reaches
Average
Shoes

Sit and reach test

- The athlete warms up for 10 minutes and then removes their _____.
- The assistant secures the ruler to the box top with the tape so that the front edge of the box lines up with the 15cm (6 inches) mark on the ruler and the zero end of the ruler points towards the athlete.
- The athlete sits on the floor with their legs fully _____ with the bottom of their bare feet against the box.
- The athlete places one hand on top of the other, slowly bends forward and _____ along the top of the ruler as far as possible holding the stretch for two seconds.
- The assistant records the distance reached by the athlete's finger _____(cm).
- The athlete performs the test three times.
- The assistant calculates and records the _____ of the three distances and uses this value to assess the athlete's performance.

What is the test protocol?
(Fill in the missing words)

Missing words:
Whistle
Warms up
Go
400m
12 minutes

Cooper 12 min run

- The athlete _____ for 10 minutes.
- The assistant gives the command "_____", starts the stopwatch and the athlete commences the test.
- The assistant keeps the athlete informed of the remaining time at the end of each lap (_____).
- The assistant blows the _____ when the _____ has elapsed and records the distance the athlete covered to the nearest 10 metres.

Career Focus - Where could this take you?



My career is known as a healthy lifestyle coach. I help people with problems linking to their health. I give advice on how people can change their physical, mental and social health by setting goals and targets for people to achieve.
My job is very rewarding as it makes a positive impact on people's lives.

Challenge Activities



- Design a Fitness test knowledge card:-**
Can you create a fitness test card that shows the instructions on how to complete the tests and include a picture and diagram to help with your understanding. This could be completed using a computer or on A4 paper.
- Create a match the keywords to definition poster:-**
Select between four to six different keywords and match them to the correct definition answers. Make sure on the reverse of your skill card you have included the correct answers so students can test and assess themselves and others.

Topic Links	Additional Resources
<p>This topic links to:</p> <ul style="list-style-type: none"> • RSHE – Understanding physical activity can help with physical, mental and social wellbeing • English – understanding and defining key terminology • Mathematics – problem solving, recording figures and analysing performance. • Voice 21 – testing others in the class on keywords and the reasons why it is important to warm up. 	<p>To further practise and develop your knowledge see:</p> <p>https://www.topendsports.com/testing/tests/</p> <p>https://www.teachpe.com/training-fitness/fitness-testing</p>

Username and Passwords
