

Year 8 – HT4



Knowledge Organisers

Name:

Team:

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:

- Convert between FDP less than and more than 100
- Increase or decrease using multipliers
- Express an amount as a percentage
- Find percentage change

Keywords

- Percent:** parts per 100 – written using the % symbol
- Decimal:** a number in our base 10 number system. Numbers to the right of the decimal place are called decimals
- Fraction:** a fraction represents how many parts of a whole value you have
- Equivalent:** of equal value
- Reduce:** to make smaller in value
- Grow:** to increase/ to grow
- Integer:** whole number, can be positive, negative or zero
- Invest:** use money with the goal of it increasing in value over time (usually in a bank)



Convert FDP

70/100 → This also means 70 - 100 → 70 out of 100 squares → 70 'hundredths' = 7 'tenths' = 0.7 → 70 hundredths = 70%

Using a calculator: $\frac{70}{100} = 0.7$

Convert to a decimal: $\frac{70}{100} = 0.7$

Be careful of recurring decimals: e.g. $\frac{1}{3} = 0.3333333$. The dot above the 3.

This will give you the answer in the simplest form

$\times 100$ converts to a percentage

Fraction/ Percentage of amount

Find $\frac{3}{5}$ of £60

Remember $\frac{3}{5} = 60\%$

10% of £60 = £6
50% of £60 = £30
60% of £60 = £36

Remember $\frac{3}{5} = 60\% = 0.6$

60% of £60 = $0.6 \times 60 = £36$

Career Focus - Where could this take

I am a financial analyst. I use my knowledge of fractions and percentages to understand and explain how money moves and grows.

Retrieval Practice

Which of the lines is the steepest?
Circle your answer.

$y = 2x + 1$ $y = -3x + 3$
 $y = -5 + 5x$ $y = 10 + \frac{1}{4}x$

Convert FDP < and > 100%

100 hundredths = 10 tenths = 100%

40 hundredths = 4 tenths = 40%

140 hundredths = 14 tenths = 140%

$100\% + 40\% = 1 + 0.40 = 1.40$

Percentage decrease: Multipliers

100% → Decrease by 58% → 42%

$100\% - 58\% = 42\%$

$100 - 0.58 = 0.42$

Multiplier Less than 1

Percentage increase: Multipliers

100% → Increase by 12% → 112%

$100\% + 12\% = 112\%$

$100 + 0.12 = 1.12$

Multiplier More than 1

Express as a % - Non-calculator

7 per every 10 are orange → $\frac{7}{10}$ → This means that 70 per every 100 are orange → $\frac{70}{100}$ → 70%

27 per every 50 shaded → $\frac{27}{50}$ → 54 per every 100 shaded → $\frac{54}{100}$ → 54%

Denominator 100 Equivalent fractions

Express as a % - Calculator

Rosie: $\frac{13}{30}$ → $\frac{13}{30} \times 100 = 43.3333...%$ → 43%

Can't use equivalence easily to find 'per hundred'

This is the same as 13 ÷ 30

Decimal percentages are still a percentage

Challenge Activities

Work out the value of each symbol.

▲ + ★ + ◆ = 100

▲ + ◆ = 67

★ - ◆ = 18

Topic Links

This topic links to:

- Decimals, interest, ratios

Additional Resources

Corbettmaths

To further practise and develop your knowledge see:

- Videos: 125 – 131, 234, 235, 237, 238, 239,

Percentage change

I bought a phone for £200. A year later sold it for £125

Percentage loss: $\frac{75}{200} \times 100 = 37.5\%$

All values of change compare to the ORIGINAL value

I bought a house for £180,000, I later sold it for £216,000

Percentage profit: $\frac{36000}{180000} \times 100 = 20\%$

Difference in value / Original value × 100

Choose appropriate method

The language and wording of the question is the key

Have you represented the question in a bar model?
Can you use a calculator?



What do I need to be able to do?

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

- Write numbers in standard form and as ordinary numbers
- Order numbers in standard form
- Add/ Subtract with standard form
- Multiply/ Divide with standard form
- Use a calculator with standard form

Keywords

Standard (index) Form: A system of writing very big or very small numbers
Commutative: an operation is commutative if changing the order does not change the result
Base: The number that gets multiplied by a power
Power: The exponent – or the number that tells you how many times to use the number in multiplication
Exponent: The power – or the number that tells you how many times to use the number in multiplication
Indices: The power or the exponent
Negative: A value below zero.



Career Focus - Where could this take



I am a financial analyst. I use my knowledge of fractions and percentages to understand and explain how money moves and grows.

Retrieval Practice

The table shows the number of pets owned by 25 people.

| | | | | | |
|----------------|---|---|---|---|---|
| Number of pets | 0 | 1 | 2 | 3 | 4 |
| Frequency | 8 | 9 | 4 | 2 | 2 |

- How many people have exactly two pets? _____
- How many people have less than three pets? _____
- How many pets do the 25 people have altogether? _____

Challenge Activities



She cuts out a 4 cm x 4 cm square from the centre.



The area of the blue region is 65 cm².
What is the length of the large blue square?

Topic Links

This topic links to:

- Multiplying and dividing by powers of ten

Additional Resources

Corbettmaths



To further practise and develop your knowledge see:

- Videos: 99, 100, 301 - 303

Positive powers of 10

1 billion = 1 000 000 000
 $10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 \times 10 = 10^9$

Addition rule for indices $10^a \times 10^b = 10^{a+b}$

Subtraction rule for indices $10^a \div 10^b = 10^{a-b}$

Standard form with numbers > 1

Any number between 1 and less than 10 $\rightarrow A \times 10^n$ ← Any integer

Example

3.2×10^4
 $= 3.2 \times 10 \times 10 \times 10 \times 10$
 $= 32000$

Non-example

$(0.8) \times 10^4$
 $5.3 \times 10^{0.7}$

Negative powers of 10

| | | | |
|---------------------------|----------------|-----------------|------------------|
| 0.001 | $\frac{1}{10}$ | $\frac{1}{100}$ | $\frac{1}{1000}$ |
| $1 \times \frac{1}{1000}$ | 10^0 | 10^{-1} | 10^{-2} |
| 1×10^{-3} | 0 | 0 | 0 |

Any value to the power 0 always = 1

Negative powers do not indicate negative solutions

Numbers between 0 and 1

| | | | |
|-----------------------|----------------|-----------------|------------------|
| 0.054 | $\frac{1}{10}$ | $\frac{1}{100}$ | $\frac{1}{1000}$ |
| -5.4×10^{-2} | 10^0 | 10^{-1} | 10^{-2} |
| 0 | 0 | 5 | 4 |

A negative power does not mean a negative answer – it means a number closer to 0

Order numbers in standard form

6.4×10^{-2} 2.4×10^2 3.3×10^0 1.3×10^{-1}
0.064 **240** **1** **0.13**

Look at the power first will the number be $>$ or $<$ than 1
 Use a place value grid to compare the numbers for ordering

Mental calculations

$6.4 \times 10^2 \times 1000$ **Not in Standard Form**
 $= 6.4 \times 10^2 \times 10^3$ **Use addition for indices rule**
 $= 6.4 \times 10^5$

$(2 \times 10^{-2}) \div 4$ **Divide the values**
 $= (2 \div 4) \times 10^{-2}$
 $= 0.5 \times 10^{-2}$

$(8 \times 10^5) \times (5)$ **Not in Standard Form**
 $= 24 \times 10^5$ **Use addition for indices rule**
 $= 2.4 \times 10^1 \times 10^5$
 $= 2.4 \times 10^6$

Remember the layout for standard form
 Any number between 1 and less than 10 $\rightarrow A \times 10^n$ ← Any integer

Addition and Subtraction

Tip: Convert into ordinary numbers first, and back to standard form at the end

$6 \times 10^5 + 8 \times 10^5$

Method 1
 $= 600000 + 800000$
 $= 1400000$
 $= 1.4 \times 10^6$

Method 2
 $= (6 + 8) \times 10^5$
 $= 14 \times 10^5$
 $= 1.4 \times 10^1 \times 10^5$
 $= 1.4 \times 10^6$

More robust method
 Easier to do calculations with negative indices
 Can use for different powers

Only works if the powers are the same

Multiplication and division

$\frac{1.5 \times 10^5}{0.3 \times 10^3}$ **Division questions can look like this**
 $(1.5 \times 10^5) \div (0.3 \times 10^3)$
 $(15 \div 0.3) \times 10^5 - 10^3$
 $= 5 \times 10^2$

For multiplication and division you can look at the values for A and the powers of 10 as two separate calculations

Revisit addition and subtraction laws for indices – they are needed for the calculations

Division for indices $a^m \times a^n = a^{m+n}$

Subtraction for indices $a^m \div a^n = a^{m-n}$

Using a calculator

$14 \times 10^5 \times 3.9 \times 10^{-3}$ **Use a calculator to work out the question to a suitable degree of accuracy**

Input 14 and press $\times 10^5$ Then press 5 (for the power)
 Press \times
 Input 3.9 and press $\times 10^3$ Then press 3 (for the power)
 Press $=$

This gives you the solution

Click calculator for video tutorial

To put into standard form and a suitable degree of accuracy
 Press **SHIFT** **SETUP** and then press 7 for sci mode.
 Choose a degree of accuracy so in most cases press 2

Answer: 5.5×10^4

What do I need to be able to do?

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

- Round numbers to powers of 10 and 1 sf
- Round numbers to any dp
- Estimate solutions
- Calculate using order of operations
- Calculate with money, units of measurement and time

Keywords

- Significant:** Place value of importance
- Round:** Making a number simpler but keeping its value close to what it was
- Decimal:** Place holders after the decimal point
- Overestimate:** Rounding up – gives a solution higher than the actual value
- Underestimate:** Rounding down – gives a solution lower than the actual value
- Metric:** A system of measurement
- Balance:** The amount of money in a bank account
- Deposit:** Putting money into a bank account

Career Focus - Where could this take



I am a financial analyst. I use my knowledge of fractions and percentages to understand and explain how money moves and grows.

Retrieval Practice

A café meal deal offers the following options.

| | | |
|--------------------------------------|---------------------------------|--------------------------------|
| Main Sandwich or Pasta Pot | Snack Fruit or Crisps | Drink Juice or Water |
|--------------------------------------|---------------------------------|--------------------------------|

Continue this list of all the possible combinations of meal deals:

Sandwich, Fruit, Juice, _____

Challenge Activity

One fifth of a number is 12
What is a half of the number?

Topic Links

This topic links to: bounds and error intervals

Additional Resources

Corbettmaths

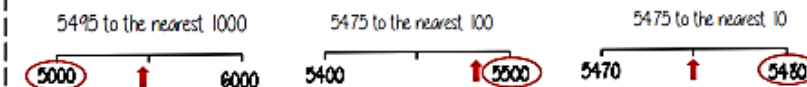


To further practise and develop your knowledge see:

- Videos: 211, 215, 276 - 280

Round to powers of 10 and 1 sig figure

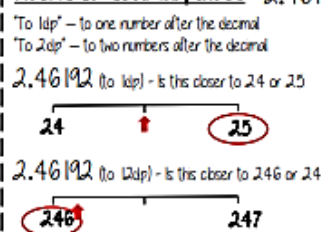
R If the number is halfway between we 'round up'



- 370 to 1 significant figure is 400
- 37 to 1 significant figure is 40
- 3.7 to 1 significant figure is 4
- 0.37 to 1 significant figure is 0.4
- 0.00037 to 1 significant figure is 0.0004

Round to the first non-zero number

Round to decimal places



Estimate the calculation

Round to 1 significant figure to estimate

$4.2 + 6.7 \approx 4 + 7 \approx 11$ This is an **overestimate** because the 6.7 was rounded up more.

$214 \times 3.1 \approx 20 \times 3 \approx 60$ This is an **underestimate** because both values were rounded down.

It is good to check all calculations with an estimate in all aspects of maths – it helps you identify calculation errors.

Order of operations

- Brackets:** Operations in brackets are calculated first
- Other operations:** eg powers, roots
- Multiplication/Division:** They are carried out in the order from left to right in the question
- Addition/Subtraction:** They are carried out in the order from left to right in the question

Calculations with money

Debit - You have £0 or more in an account

Credit - You have less than £0 in an account

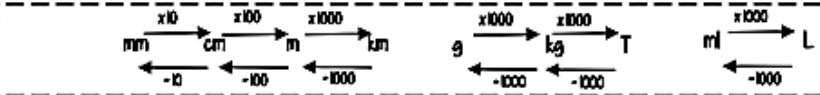
Using a calculator – ensure you are working in the correct units

£1.30 + 50p = 130 + 50 (in pence)
= 130 + 050 (in pounds)

Money calculations are to 2dp

£1 = 100p

Units are important: Useful Conversions



Metric measures of length

Kilo - 1000 x meter Centi - $\frac{1}{100}$ x meter

Milli - $\frac{1}{1000}$ x meter

Time and the calendar

1 Year – the amount of time it takes Earth to go around the sun 365 (and a quarter) days

Leap Year – 366 days (every 4 years)

12 Months – one year = 52 weeks

31 days – Jan, March, May, July, Aug, Oct, Dec

30 days – April, June, Sept, Nov

28 days – Feb (29 leap year)

1 Week – 7 days

Monday, Tuesday, Wednesday, Thursday, Friday, Saturday, Sunday

1 day – 24 hours

1 hour – 60 minutes

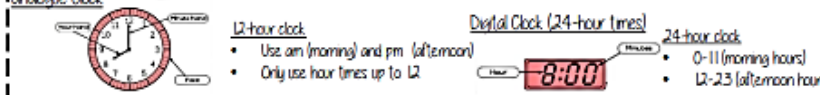
1 minute – 60 seconds

Use a number line for time calculations!

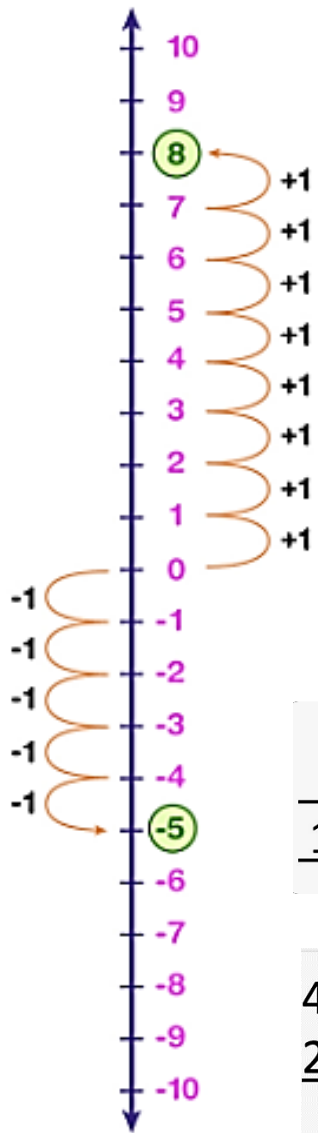
Units of weight/capacity

Weight – g, kg, t

Capacity (volume of liquid) – ml, L



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

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

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

$$8 \overline{) 045} \\ \underline{36} \\ 80$$

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

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

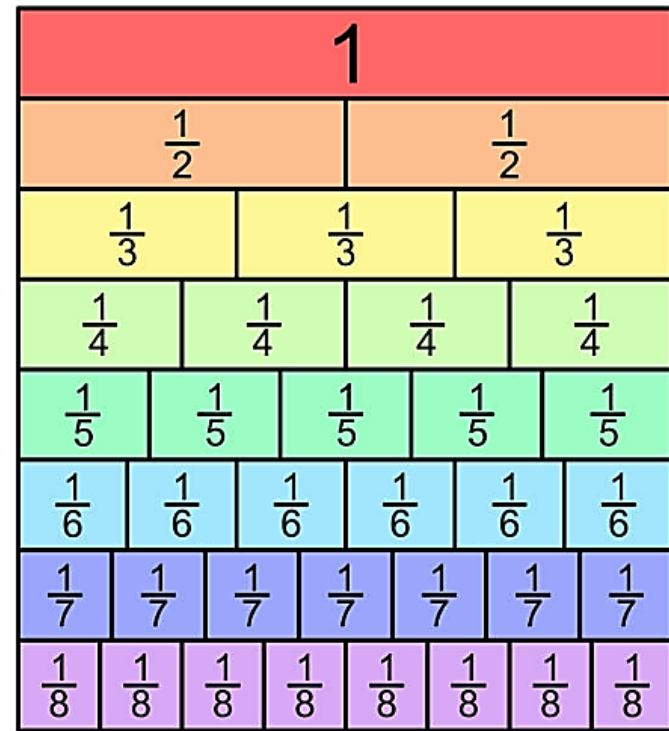
| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 | 33 | 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 |

1 P Parentheses
2 E Exponents
3 M Multiply
D Divide
4 A Add
S Subtract

() e^2 (×) (÷) (+) (-)

Left to Right (whichever comes first) Left to Right (whichever comes first)

| | | | |
|---|--|--|---|
| 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 |

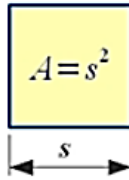
| | | | |
|----------|---------------|----------|---------|
| Triangle | Quadrilateral | Pentagon | Hexagon |
| Heptagon | Octagon | Nonagon | Decagon |

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

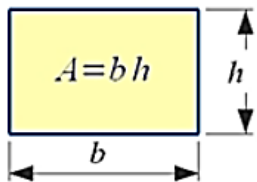
| Length | | | | | |
|----------------|----------------|----------------|--------------|--------------|--------------|
| cm | mm | m | cm | km | m |
| $\times 10$ | $\times 100$ | $\times 1,000$ | $\div 10$ | $\div 100$ | $\div 1,000$ |
| Mass | | | | | |
| g | mg | kg | g | t | kg |
| $\times 1,000$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

Maths: Quick Reference: Geometry (Areas & Volumes)

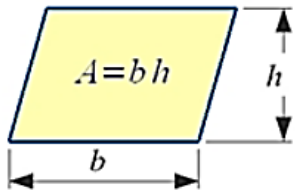
Square



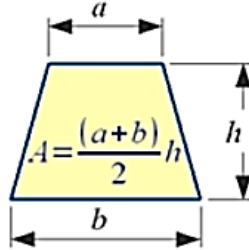
Rectangle



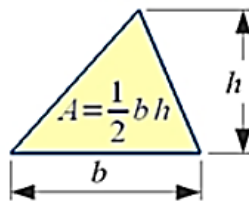
Parallelogram



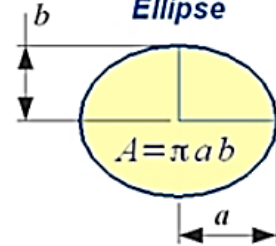
Trapezoid



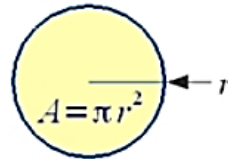
Triangle



Ellipse


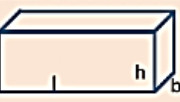




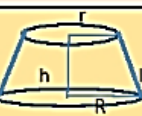


Circle



electronics-micros.com

Area and volume of 3d figures

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

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

b = 9

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

Solving Equations

$$6x - 5 = 7$$

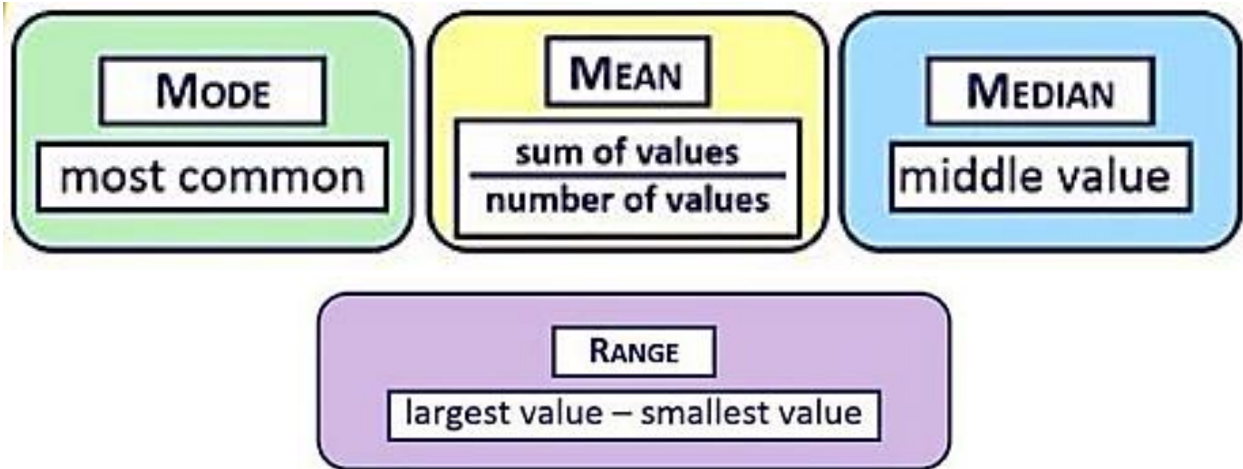
$$\boxed{+ 5} \qquad \boxed{+ 5}$$

$$6x = 12$$

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

$$x = 2$$

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

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

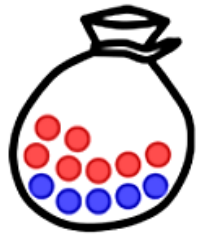
Example:

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

← 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)



| 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% |

Sample Space Diagrams

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



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.

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

- Recognise different genres and conventions of writing
- Reference the text and use evidence
- Analyse writer's methods of language and form

• Demonstrate understanding of 'Genre, Audience and Purpose'

- Be able to craft both creative and persuasive writing to engage the audience
- Use sentences for effect

| Keyword | Definition |
|--------------------------|---|
| Tragedy | A play dealing with tragic events and having an unhappy ending. |
| Antithesis | direct opposite of something else |
| Oxymoron | figure of speech - contradictory terms (cold fire, pretty ugly) |
| Imagery | visually descriptive language |
| Sonnet | a poem of 14 lines using a formal rhyme scheme |
| Iambic Pentameter | a line of verse with 5 metrical feet -one stressed, one unstressed syllable. |
| Rhyming Couplet | A pair of lines that are successive ad rhyme. |
| Protagonist | Leading character |
| Antagonist | Character who actively opposes or is hostile to someone. |
| Foreshadowing | A warning or indication of a future event |
| Simile | Comparison using 'like' or 'as' |
| Metaphor | A word/phrase is applied to an object which isn't literal |
| Soliloquy | The act of speaking one's thoughts aloud on stage |
| Dramatic Irony | When the audience are aware of more than the actors/characters |
| Unrequited love | love that is not mutual or reciprocated; one person loves someone who does not love them back |

Key Concepts – Romeo and Juliet

Shakespeare's Time – Shakespeare wrote his plays at the time of two monarchs: Queen Elizabeth I and James I. *Romeo and Juliet* was written relatively early in Shakespeare's career (the bulk of his tragedies were written in the 17th century) yet was extremely popular in his lifetime, as it is now. Shakespeare borrowed heavily from two texts: *The Tragical History of Romeo and Juliet* (1562) and *Palace of Pleasure* (1567)



Religion – The heavy religious presence is evident across several parts of *Romeo and Juliet*. This is reflective of a society across Europe that was deeply religious (predominantly catholic or protestant). Several characters demonstrate their commitment to the church, such as Romeo and Juliet who choose to marry rather than fornicate, and the Capulets, who are quick to contemplate that Juliet is in a better place (heaven) after she is found 'dead.'



Astrology the Supernatural – At the time of Shakespeare, the belief in both astronomy and the supernatural was far more preeminent than in society today. The reference to 'star-cross'd lovers' demonstrates the large role of horoscopes and planet positions in being used to predict fate. Also, Romeo and Juliet make reference to the fact that they feel they are being guided by a supernatural force (e.g. 'fortune's fool').



Elizabethan England and Italy – Shakespeare frequently engaged with Italy in his plays, leading many to believe that he travelled there between the late 1580s and early 1590s. Italy was a place that Shakespeare's contemporaries would have had a keen interest in; it was already an advanced and beautiful place for travel. Shakespeare's depictions of many areas of Italian life at the time are deemed largely accurate.



Patriarchal Society – Society throughout the Middle Age and at Shakespeare's time was patriarchal – women were considered inferior to men. This was also the case in much of Europe, including Italy. Women belonged to their fathers (or brothers if their fathers had died) and then their husbands, so Juliet would be expected to obey her father. Women were not permitted to own land or enter most professions. They were instead expected to bear children, be gentle and womanly.



Healthcare and Medicine – Healthcare and medicine were not as advanced in Shakespeare's age as they are today – there were numerous ailments and diseases that were not yet understood. This makes it much more believable for both the Capulets and Romeo that Juliet could have died so suddenly and so young. The high death count in the play would seem slightly more common in those days!



Themes – A theme is an idea or message that runs throughout a text.

Love – In *Romeo and Juliet*, love is an extremely overpowering force that supersedes all other values, emotions, and loyalties. Through their love, Romeo and Juliet conspire to go against the forces of their entire social world. Romeo returns to visit Juliet at points, even though he is well aware of the threat of death. At times, love is presented as fickle (Mercutio's speeches, Romeo + Rosaline).

Individual vs Society – Romeo and Juliet are forced to undermine the oppressive rules of society at the time. For example, rules of the patriarchal family force Juliet to be subservient to her parents, rules of religion mean that they must marry in haste, and rules of masculinity force Romeo into conflict with Tybalt.

Violence – Extreme violence takes place sporadically throughout the play. The feud between the two families is so bitter that the mere sight of each other can be the cause of a fight to the death. Unchecked violence is personified through the character of Tybalt. The violence culminates in Act 3 Scene 1, in which both Mercutio and Tybalt are murdered.

Fate – In the first address to the audience, the Chorus states that Romeo and Juliet are 'star-cross'd' lovers, meaning that fate had intended for their paths to cross, and that fate controls their actions. A series of unfortunate accidents towards the end of the play thwart Friar Laurence's plan and eventually manifest in both Romeo and Juliet committing suicide, thus adding to the sense of fate.


| Dramatic Devices in Romeo and Juliet | Features of a Tragedy in Romeo and Juliet | |
|--------------------------------------|--|---|
| Dramatic Irony | Mercutio and Benvolio think Romeo is still pining over Rosaline, but the audience knows he has moved on to Juliet. A2 S1 | Tragic Hero - A main character cursed by fate and possessed of a tragic flaw (Romeo, and to an extent Juliet). |
| Soliloquy | Juliet's opening speech in A3 S2 in which she pours her heart out over her love for Romeo. | Hamartia - The fatal character flaw of the tragic hero (his passion and impulsiveness). |
| Aside | Juliet secretly hopes for the 'villain' Romeo: <i>Villain and he be many miles asunder. God pardon him!</i> A3 S5 | Catharsis - The release of the audience's emotions through empathy with the characters. |
| Foreshadowing | Friar Laurence: <i>These violent delights have violent ends, And in their triumph die, like fire and powder.</i> A2 S6 | Internal Conflict - The struggle the hero engages in with his/her fatal flaw. |





- Recognise different genres and conventions of writing
- Reference the text and use evidence
- Analyse writer's methods of language and form

- Be able to craft both creative and persuasive writing to engage the audience
- Use sentences for effect

| Retrieval Practice  | |
|--|--|
| Questions | Answers |
| At the beginning of this tragic tale, who is the girl that Romeo is 'love sick' over? | Rosaline |
| How soon do Romeo and Juliet fall in love? | At first sight |
| How soon do they get married? | The next day |
| To whom do Romeo and Juliet go to get married? | Friar Lawrence |
| After getting married, Romeo tries to stop a fight between Mercutio and Tybalt. Who kills who first? | Tybalt kills Mercutio |
| Where did Shakespeare get his inspiration from? | Arthur Brooke's The Tragical History of Romeus and Juliet (1562). |
| What is the Great Chain of Being? | A belief system which underpinned Elizabethan society and taught that there was a hierarchical ordering of all creation |
| What is Petrarchan love? | Love that is unrequited. |
| What is Courtly Love? | Courtly love incorporates ideas such as love at first sight and dying for one's true love. It was a Medieval ideal or, at least, an ideal which was imposed in the Middle Ages |

Career Focus - Where could this take you?



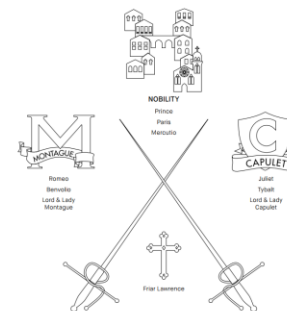
I am a playwright. I write stories that are meant to be performed on a stage by actors. I create the words that the actors say and the actions they take, kind of like a director for a movie. It's like writing a book, but instead of people reading it, it's brought to life by actors performing it in front of an audience.

Challenge Activities

Re-write Act 2, Scene 3:

Imagine how the conversation sound today?
Re-write this scene using modern language

Create a character map:



Topic Links Additional Resources

This topic links to:

- History - Jacobean Era, Tragedy
- Geography - Italy, Verona
- Drama - performance of a play, audience

To further practise and develop your knowledge see:

- Quick summary
- <https://www.youtube.com/watch?v=sj0LpiU-dVQ>
 - Top Quotes <https://www.youtube.com/watch?v=0lPUtwhKTJE>
 - BBC Bitesize - <https://www.bbc.co.uk/bitesize/topics/z8642p3>



Our students will:

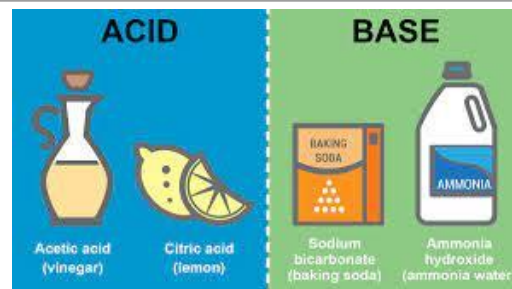
- develop **scientific knowledge and conceptual understanding** through the specific disciplines of biology, chemistry and physics
- develop understanding of the **nature, processes and methods of science** through different types of science enquiries that help them to answer scientific questions about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

- Identify acids and alkalis using the pH scale
- Explain how neutralisation is used to make salts

| Keyword | Definition |
|------------------|---|
| Physical changes | When a substance changes state. It does not make any new chemical substances forming. |
| Chemical changes | When a chemical reaction occurs leading to the formation of new elements or compounds. |
| Acid | A sour tasting substance with a pH 1-6. |
| Alkali | A soapy substance with a pH 8-14 (liquid) |
| Base | A soapy substance with a pH 8-14 (solid) |
| Neutral | A substance that is neither acidic or alkaline with a pH of 7 |
| Strong acid | An acid with a pH of 1-3 |
| Weak acid | An acid with a pH of 4-6 |
| Strong alkali | An alkali with a pH of 11-14 |
| Weak alkali | An alkali with a pH of 8-10 |
| pH scale | A scale used to indicate how acidic or alkaline a substance is. |
| Indicator | A substance that changes colour in the presence of a chemical i.e. acid or alkali. |
| Neutralisation | A reaction between an acid and an alkali to produce salt and water (neutral substance). |

Key Concepts

Acids and Alkalis



Acids are a group of chemicals that contain a H⁺ ion examples of which are vinegar, Hydrochloric acid and Sulphuric acid. Citric acid is found in citrus fruit and is an example of a weak acid.

Alkalis are a group of chemicals that contain the OH⁻ ion and have a soapy feel. An example is Sodium Hydroxide. In solid form they are called bases and in solution alkalis.

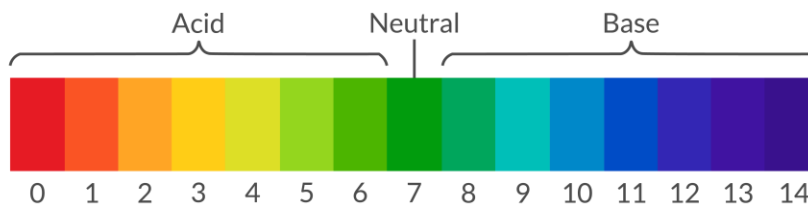
The pH scale

The pH scale is a number scale from 0 to 14. It tells us how acidic or alkaline an *aqueous solution* is. The pH scale is used to classify *solutions* as acidic, alkaline or neutral.

Neutral solutions are exactly pH 7.

Acidic solutions have pH values less than 7. The closer to pH 0, the more acidic a solution is.

Alkaline solutions have pH values more than 7. The closer to pH 14, the more alkaline a solution is.



The pH Scale

Neutralisation


A chemical reaction happens if you mix together an acid and a base (alkali). The reaction is called a neutralization because a neutral solution is made if you add just the right amounts. The products are salt and water.



Salts have scientific names such as sodium chloride (table salt). The names of salts can be worked out from the acid and the alkali that react to make them.

1. The first word is the metal taken from the name of the alkali.
2. The second word ends with ide or ate and is taken from the name of the acid. Hydrochloric acid = chloride, Sulphuric acid = sulphate, Nitric acid = nitrate.

- Identify acids and alkalis using the pH scale
- Explain how neutralisation is used to make salts

| Retrieval Practice  | |
|--|--|
| Questions | Answers |
| What is a physical change? | When a substances change state; solid, liquid or gas (reversible) |
| What is a chemical change? | When substances react to form new substances (irreversible) |
| What is an acid? | A sour tasting substance with a pH 1-6. |
| What is an alkali? | A soapy substance with a pH 8-14 |
| What is the difference between a base and an alkali? | A base is a solid and an alkali is a liquid (base dissolved in water) |
| What is the difference between a dilute or concentrated solution? | A dilute solution has more water added so it is weaker. Vice versa. |
| What is an indicator? | A substance that changes colour in the presence of a chemical i.e. acid or alkali. |
| What colour/number is a strong acid on the pH scale? | Red-Orange, pH 1-3 |
| What colour/number is a strong alkali on the pH scale? | Purple, pH 12-14 |
| What colour/number is a weak acid on the pH scale? | Yellow, pH 4-6 |
| What colour/number is a weak alkali on the pH scale? | Blue, pH 8-10 |
| What colour/number is neutral on the pH scale? | Green, pH 7 |
| What is a neutralisation reaction? | The reaction between an acid and an alkali to produce a neutral solution. They produce water and a salt. |

Career Focus - Where could this take you?



I am an environmental chemist so I need to understand the fate and behaviour of chemicals in the environment. I have to evaluate their effects (hazards) and risks to human health and other organisms in the environment. My work is done through desk-based research, fieldwork and/or laboratory work, including measurements, data interpretation and computer modelling. Environmental chemists may be exposed to contaminants and hazardous conditions in the course of their work and wear appropriate personal protective equipment.

Challenge Activities

1. Produce a poster to show the pH scale: acids and alkalis, with examples of substances for each pH.
2. Produce flash cards to describe the key terms: reversible, irreversible, chemical change and physical change.
3. Make a model of atoms, elements, compounds and mixtures.
4. Antacid tablets are taken to relieve indigestion, the tablets contain alkalis such as calcium hydroxide.
5. Describe how you think antacid tablets may work.

Topic Links

This topic links to:

- States of matter
- Chemical Reactions
- Energy

We will also be practising how to

- Carry out practical work safely using the scientific method
- Calculate the rate of a reaction

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/zyzsgk7>
 YouTube Cognito - <https://www.youtube.com/watch?v=vt8fB3MFzlk>

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

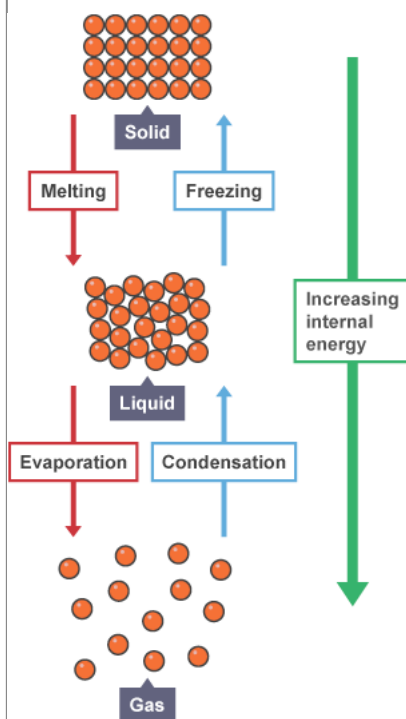
- Describe internal energy
- Explain how energy transferred via conduction, convection and radiation

| Keyword | Definition |
|----------------------|---|
| Temperature | How hot a substance is |
| Energy | The ability for something to do work. Measured in Joules (J) |
| Internal energy | The total kinetic and potential energy of particles in an object. |
| Chemical store | Organ systems all working together to form a living organism. |
| Thermal energy | Heat energy |
| Conduction | The transfer of thermal energy through a material |
| Convection | The transfer of thermal energy through a heated fluid |
| Fluid | A substance that can flow (liquid and gas) |
| Density | The mass of a substance per unit of volume |
| Infrared radiation | When energy is transferred by radiation (waves) |
| Emit | To give off, or discharge. |
| Electromagnetic wave | A wave that travels through space and carry energy. |

Temperature

The hotter an object, the more energy it has in its *thermal energy store*.
The average speed of particles in a hot substance is greater than in a cold substance.
Temperature is how hot a substance is. Temperature is commonly measured in degrees Celsius (°C) using a thermometer.
Temperature depends on the average speed of the particles in a substance.

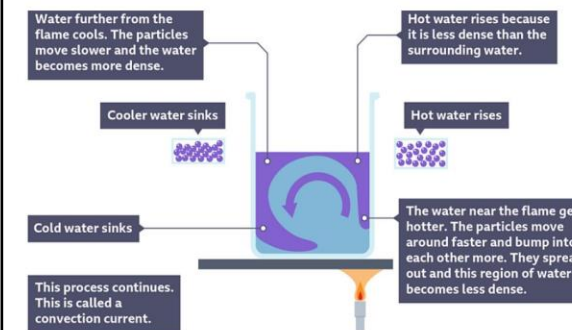
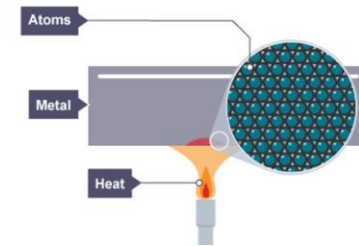
Internal Energy



When a material is heated or cooled, two changes may happen to the particles within the material:
Chemical bonds between the particles may form, break or stretch. There is a change in the chemical potential store of energy in the material.
The material will heat up or cool down as the particles within it gain or lose speed. There is a change in the thermal store of energy within the material.

Conduction and Convection

Conduction is where energy is transferred by the vibrating particles in a substance. The energy is transferred from a hotter region to a cooler region.
Conduction happens fastest in solids because the particles are close together.



Convection occurs in fluids; a fluid is a substance that can flow. Both liquids and gases are fluids.
The particles in a fluid can move around from one place to another.
Hotter fluids are less dense and rise upward, cooler fluids are denser and sink downwards.

Radiation



All objects transfer energy to their surroundings by *infrared radiation*. The hotter the object, the more infrared radiation it emits.
Infrared radiation is a type of electromagnetic wave. Unlike conduction and convection, there are no particles involved. This means that energy can be transferred by radiation when there are no particles, like the vacuum of space.

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

- Describe internal energy
- Explain how energy transferred via conduction, convection and radiation



Retrieval Practice

| Questions | Answers |
|--|---|
| What equipment do we use for measuring temperature? | Thermometer |
| What does temperature depend upon? | The average speed of the particles in a substance. |
| What changes occur when a substance is heated or cooled? | Chemical bonds may break, form or stretch. The particles change speed. |
| Which substances have the most internal energy? | Gases |
| Which substances have the least internal energy? | Solids |
| What is conduction? | When energy is transferred through vibrating particles in a substance. |
| Which substances conduct heat the fastest? | Solids because the particles are close together. |
| What is convection? | When heat is transferred through a fluid. |
| What is a fluid? | A substance that can flow. This is gases and liquids. |
| What happens to fluids when they are heated? | They become less dense and particles rise. |
| What happens to fluids when they cool? | They become more dense and particles sink. |
| What is radiation? | When objects transfer energy to their surroundings. |
| What is the electromagnetic spectrum? | The range of all types of electromagnetic radiation including infrared radiation. |

Career Focus - Where could this take you?




I am a heat engineer. I install and service heating and air conditioning systems in buildings like offices, schools and hospitals. I can also find and fix faults as well as carry out routine maintenance on systems. Doing a college course helped me learn some skills to get a trainee engineer apprenticeship. These skills include knowledge of building and construction, problem solving skills, analytical thinking skills and the ability to use my initiative.

Challenge Activities



1. Make flashcards for the definitions and retrieval practice questions.
2. Make a mind map for this topic. Remember to include keywords and the links between information.
3. Research the different ways heat is transferred in the home. Produce a leaflet to inform people how this works.
4. Produce a Venn diagram to compare conduction, convection and radiation.
5. Find out more about them and what they do. What qualifications would you need for this career? What current research is being done? What is the salary?
6. Construct a fact file about a famous historical scientist that helped us to understand more about how heat energy is transferred.

Topic Links



This topic links to other science topics such as

- Energy
- Particle model

We will also be practising how to

- Collect data and analyse data collected during investigations

Additional Resources



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

YouTube Cognito – https://www.youtube.com/watch?v=Eizsm5V8c_c
<https://www.youtube.com/watch?v=je-qc7sxYZU>



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

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

- Explore changes and continuity in Britain between 1750 and 1900.
- Explain why British Industry was so successful.

- Analyse a variety of sources to explain what life was like for children working in the mills.
- Evaluate positive and negative features of working in the Mill Industry.

| Keyword | Definition |
|-----------------------|---|
| Industrial Revolution | A time of great change in Britain between 1750 to 1900. |
| Population | Number of people living in a particular place. |
| Invention | Something new which is created - it can be an object or an idea. |
| Economy | System of how money is used within a particular country. |
| Agriculture | Process of producing food by farming of certain plants or raising animals. |
| Poverty | Lack of basic human needs such as clean water, nutrition, healthcare, education and shelter. |
| Industry | Process of making products by using machines and factories. |
| Factory | Place where machines are used to produce goods |
| Mass production | Production of many products in one go, e.g. textiles |
| Patent | Gives the inventor the right to exclude others from making, using or selling their invention for a certain time period. |
| Rural | Countryside living with not many houses or people. |
| Urban | Towns and cities where many people live and work. |
| Orphan | A child who has lost both parents. |
| Apprentice | A young person who works for someone in order to learn their skill. |
| Parliament | Lawmaking group, in the UK government. |

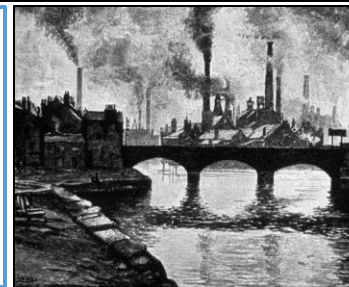
Key Concepts

Industrial Changes Overview:

Britain was the leader of the Industrial Revolution and 1750 to 1900 saw major changes:

Transport moved from horse power to steam power.

Production moved from things being made in houses (domestic) to being made in **factories**. People moved from the **countryside** to the **city**. **Inventions** improved production in factories. Britain became the centre of the trading world.



Reasons for the Industrial Revolution:

Population increase = demand for more food and clothes.

Clothes made quicker on machines = factories built.

Use of coal for steam = power for machines.

Transport gets quicker = easier to get goods to shops.

Rise of key people = inventions and money invested in machines.

All of this means more industrial change.



Changes in agriculture

1750 farms were still using medieval ways of planting crops and rearing animals. As population increased, new machines, crops and ways of farming were introduced, e.g. bigger animals and steam powered threshers for wheat. Small fields were replaced and hedges removed. This meant farm workers lost their jobs and many had to move to towns and cities.



Changes in population:

In 1750, the total population of the UK was about 11 million. This grew to about 42 million by 1900!

Moving from rural to urban areas also saw a huge rise; in 1750, only 20% of the population lived in towns, but by 1900 it was 70%. This meant far more people were working in new industries but this also caused problems because they all needed food and homes. As a result, poverty increased, overcrowding was an issue and by 1900, London alone, had 4.5 million inhabitants.



Factory working conditions

Long working hours: Shifts were usually 12-14 hours a day, 6 days a week and sometimes half day on a Sunday.

Low wages: A typical wage for male workers was about 15 shillings (75p) a week, but women and children were paid much less, with children only receiving three shillings (15p). For this reason, employers preferred to employ women and children. An even better option was to take on an apprentice, as they didn't receive any wages, but were given lodgings, food and clothing instead.

Cruel discipline: People were beaten, whipped and hit with sticks or a leather strap. Other punishments included nailing children's ears to the table and dowsing them in water to keep them awake. Fines and not allowing toilet breaks were also common.

Accidents: Children crawling into dangerous, unguarded machinery led to many accidents including loss of limbs and death.

Health: The air was full of dust, which led to chest and lung diseases. The loud noise made by machines also damaged workers' hearing.

The Steam Engine – 1717: Thomas Newcomen invented the first steam engine. It would later be improved by James Watt which meant steam engines could replace water and horsepower in a wide variety of industries, which allowed more factories to be built.

Some inventions of the Industrial Revolution

The Water Frame -1769:

Richard Arkwright invented a machine, powered by water, to spin cotton into yarn, quickly and easily. His machines did not need skilled operators so anybody could work on them.

The Locomotive – 1814:

Richard Trevithick was a pioneer in early steam engine technology. He developed a new high-pressure steam engine which could be used to reliably move goods and passengers. This invention made transport much easier and quicker.

- Explore changes and continuity in Britain between 1750 and 1900.
- Explain why British Industry was so successful.

- Analyse a variety of sources to explain what life was like for children working in the mills.
- Evaluate positive and negative features of working in the Mill Industry.

| Retrieval Practice | |
|--|---|
| Questions | Answers |
| Explain how education changed between 1750 and 1900? | Education changed by the implementation of schools; schools were built near factories in order to encourage people to move to areas where there were factories. |
| Name one improvement in health and medicine in Britain by the 1900s: | The Industrial Revolution between 1750 and 1900 brought on major advances in medicine, especially in the fields of hygiene and vaccinations for previously deadly diseases. |
| Explain what is meant by the term 'raw materials'? | Raw materials are resources that are extracted from the earth in order to make products. They can also be taken from plants and animals. |
| Why was British industry so successful? Give two reasons. | The British Industry was successful because the bigger population meant more workers for the factories. Food became cheaper so people's diets improved so less people died. There were more people to buy the goods and to work, due to more raw materials, coal, iron, clay, etc. Industry could thrive. Improvements in transport, like, ships and the railway. |
| How did Richard Arkwright's waterframe help factories and production? | The water frame allowed for the mass production of cotton thread as it allowed production to be quicker and the thread stronger, which in turn led to the proliferation of factories and the rise of the industrial economy. |
| Tell me two ways you could become a child worker in the mills | You could become a child worker as if you were poor, you would be sold into it, or if your family lived in the housing on site of the factory you would work there after finishing school. |
| What job roles were children given in the mills? Give two examples | Children would be scavengers picking up material, thread and clearing dirt and dust. They could also work as piecers, who stood at the spinning machines and repaired broken thread. |
| What were working conditions like in the mills and factories? | Long working hours, low wages, cruel discipline, fierce systems of fines, accidents, risks to health. |
| How did the Factory Act of 1819 improve conditions in the mills? | No child under the age of nine to work. Children between the ages of nine and 13 years: 48-hour week; must go to school part-time. This Act applied to cotton factories. Once again there was no formal way to enforce this act as no inspectors were created to investigate factories. |
| In your opinion, what was the most significant change during the Industrial Revolution in Britain and why? | I believe the most significant change was the invention of machines in factories to do the work of hand tools because it meant more items could be produced. |

Career Focus - Where could this take you?



I am a Novelist: My job is to write books of fiction, and sometime non-fiction, creating characters and plots that may be imaginary or based on real events. I have to make sure I have researched the area I want to focus on and plan my ideas, plots and characters. I will then draft, write, edit and proof-read my work.

Challenge Activities

1. Research the History of local mills in Huddersfield or surrounding areas (within Kirklees, Calderdale and Bradford) and produce a PowerPoint to explain your findings. You must include key information about the mill then and now and include images.
2. Design a board game based around 'factory working conditions'. This should include clues, questions for players to ask, stumbling blocks along the way and then a puzzle to solve to find the winner.
3. Imagine it is the early 1800s; write a report to Parliament explaining why the working day and conditions for people in Britain are unfair. Especially highlight what needs to change for children working in the mills and factories.

Topic Links Additional Resources

This topic links to other humanities topics such as:

- The Slave Trade
- Jack the Ripper
- The making of the UK
- Twentieth Century World

We will also be practicing how to:

- Use statistical data as a source
- Write a piece of Historical Fiction

To further practise and develop your knowledge see:

<https://www.calderdale.gov.uk/wwt/timeline/1810-1850/1810-1850-1.html>

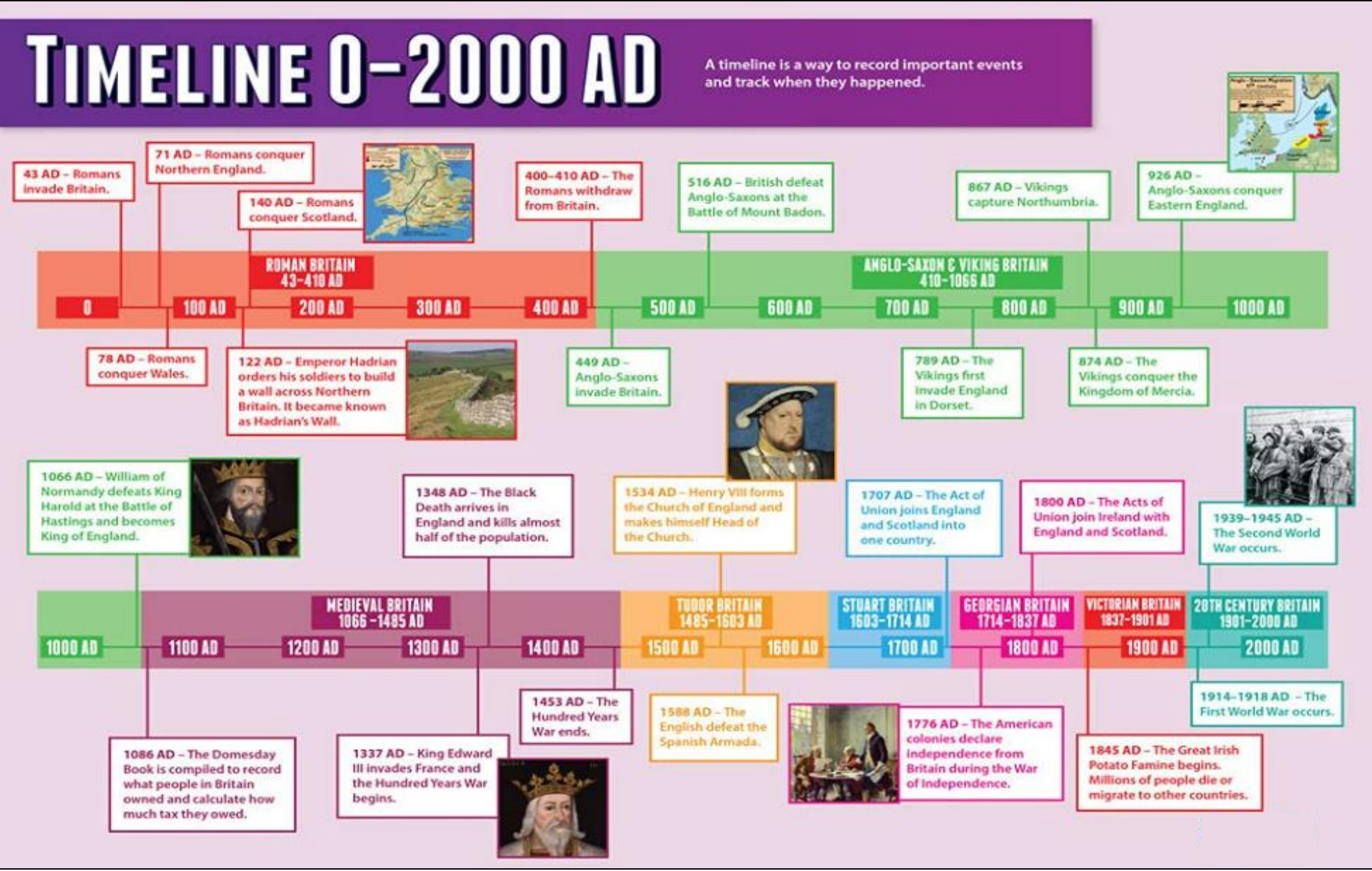
<https://yorkshire.u08.eu/halifax/>

<https://yorkshire.u08.eu/huddersfield/>

https://huddersfield.exposed/wiki/Newsome_Mills,_Hart_Road,_Newsome



Timeline



- The aims of the sequence of learning are to ensure that all students:
- Name the countries, and their capitals of the Horn of Africa
 - Describe the Horn of Africa's main physical features
 - Describe the climate patterns in the Horn of Africa.

- Explain how people live and earn money in the Horn and be able to give facts on jobs people do
- Explain how Djibouti's location has supported its development

| Keyword | Definition |
|--------------|--|
| Agriculture | The practice of growing crops or animals |
| Civilisation | The society, culture, and way of life of a particular area |
| Conflict | An extended struggle or battle |
| Economy | All the business activity going on in a country |
| Depression | An area of sunken land |
| Fair trade | Trade between companies in developed countries and producers in developing countries in which fair prices are paid to the producers. |
| Grazing | Land with vegetation on where animals feed |
| Hostile | Unfriendly and not liking something |
| Nomadic | People with no fixed home who travel to find grazing land |
| Region | An area having definable characteristics but not always fixed boundaries |
| Relief | The difference in height from the surrounding terrain |
| Rural | Countryside, where people live in farms or in small villages |
| Semi-nomadic | People living usually in portable or temporary housing who farm animals and crops |

Key Concepts

The Horn of Africa is a region and it has 4 countries



Coffee and Salt

Ethiopia is the home of coffee, around 15 million Ethiopians depend on it (farming or involved in the selling of it) for a living. Around £50 billion is spent on it globally a year

Salt is mined in the Danakil Depression; in the past the Red Sea flooded the area. When the waters fell the water in the Depression slowly evaporated leaving thick beds of salt. You might have had some on your food?

Horn of Africa's physical geography.

The Ethiopian Highlands are the largest area of highland in Africa
The Danakil Depression is 100m below sea level
Lake Assal in the Afar Triangle is the lowest point in



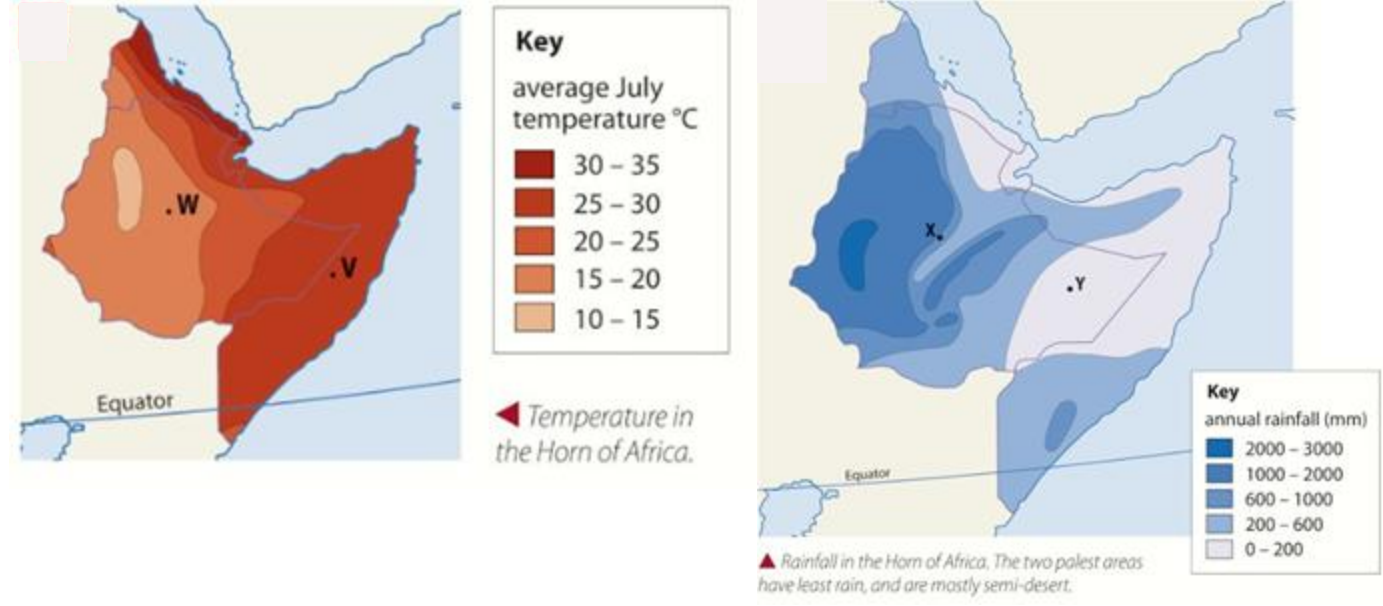
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- Explain how Djibouti's location has supported its development



Key Concepts

Horn of Africa Climate



Nomads

In the Horn of Africa nomads live in the dry areas where there is too little rain for crops. They follow the rains to find grass and vegetation.

There are many nomads in the region and Somalia is the home of many nomads.




Djibouti



Djibouti is a tiny country, with a population of only 1.1 million. It has few natural resources but it is in a great location.

It sits at the entrance to the Red Sea, so half the world's container ships pass it on journeys from Africa, Asia and Europe. The port is where ships

| | Djibouti | Eritrea | Ethiopia | Somalia | UK |
|---|----------|---------|----------|---------|----------|
| Population (millions) | 0.9 | 5.9 | 85.2 | 9.8 | 64 |
| % aged 14 or under | 34 | 41 | 44 | 44 | 17 |
| % living in towns and cities | 77 | 21 | 17 | 38 | 80 |
| How long a new baby is likely to live for (years) | 62 | 63 | 60 | 51 | 80 |
| % of population with access to clean safe water | 92 | 61 | 44 | 29 | 100 |
| What % of workforce are farmers? | under 30 | 80 | 85 | 71 | 1.4 |
| GDP per person (PPP) (in dollars) | \$2700 | \$800 | \$1200 | \$600 | \$37 500 |

| Retrieval Practice  | |
|--|---|
| Questions | Answers |
| Name the 4 countries in the Horn of Africa | Djibouti, Ethiopia, Eritrea and Somalia |
| What is the capital city of Ethiopia? | Addis Ababa |
| Name 2 rivers in the Horn of Africa | Blue Nile and Awash |
| How far below sea level is the Danakil Depression | 100m |
| Which area of the Horn of Africa receives most rainfall and why? | The Ethiopian Highlands because the higher you go the air cools causing precipitation (rain) to develop |
| How does Djibouti earn money? | The port with ships loading and unloading cargo and it has foreign military bases |
| Why do nomads move around? | To follow rainfall and find grazing land for their animals |
| How was salt formed in the Danakil Depression? | The Red Sea flooded the area. When the waters fell the water in the Depression slowly evaporated leaving thick beds of salt |
| What % of people in Somalia have access to safe, clean water? | 29% |





Career Focus - Social Researcher



I am a social researcher. I study people and the way they interact with each other. I might ask questions, observe behaviour, or do experiments to learn more about how people behave in different situations. I use this information to try to understand why people do the things they do and how we can make the world a better place for everyone. It's kind of like being a detective, but instead of solving crimes, I try to solve puzzles about how people think and act.

Challenge Activities

- Write a song, poem or rap about nomads and their lifestyle. You can then perform and film/record this
- Create a poster or information leaflet about Fairtrade products and why people should buy them
- Research and write travel guide to Ethiopia - Include details on the climate, physical features, cities, population and what people could see or do there

| Topic Links  | Additional Resources  | |
|--|--|--|
| This topic links to themes in: <ul style="list-style-type: none"> • History - slavery and empire • Music - African music • Science - Biomes | Horn of Africa  | Africa  |

- Describe one religious perspective on abortion
- Should Carla Foster be sent to prison?

| Keyword | Definition |
|-------------------------|--|
| Fetus | A developing baby |
| Abortion | The intentional ending of a pregnancy |
| Age of consent | Age at which it is legal to have sex (16 in the UK) |
| Infertility | The inability to be able to produce children |
| Miscarriage | Natural ending of a pregnancy before the Fetus is viable |
| Pregnancy | The state of having a fetus within the uterus. |
| Conscientious Objection | A moral objection to something |
| Sanctity of life | All human life is sacred and a gift from God |

Key Concepts

The Law on Abortion in the UK

Abortion is lawful in England, Scotland, and Wales provided the criteria in the Abortion Act 1967 are met. In all other circumstances, administering or procuring an abortion is a crime.

Abortion is lawful in Northern Ireland provided the criteria in the Abortion Regulations 2020 are met.

Unless abortion is necessary to save a woman's life or prevent grave permanent injury, doctors have a right of conscientious objection under the Abortion Act or the Abortion (Northern Ireland) Regulations. At the same time, patients have a right to receive objective and non-judgmental care. Doctors with a conscientious objection should inform patients as soon as possible and must tell them about their right to see another doctor, making sure they have enough information to exercise that right. If it is not practical for a patient to arrange to see another doctor, the doctor must make sure that arrangements are made for another suitably qualified colleague to take over care of the patient.

As with all other medical procedures, patients must give the appropriate consent for abortion.

Under-16s can consent to an abortion if they are competent to do so. Those with parental responsibility for minors lacking competency can consent to treatment in their best interests on their behalf.

Patients, both adult and child, have the right to confidentiality. This cannot be overridden except in exceptional circumstances.

Religious Perspective

ISLAM: Muslims regard abortion as wrong and haram (forbidden), but many accept that it may be permitted in certain cases. All schools of Muslim law accept that abortion is permitted if continuing the pregnancy would put the mother's life in real danger. This is the only reason accepted for abortion after 120 days of the pregnancy. Different schools of Muslim law hold different views on whether any other reasons for abortion are permitted, and at what stage of pregnancy if so.

Judaism does not forbid abortion, but it does not permit abortion on demand. Abortion is only permitted for serious reasons. Judaism expects every case to be considered on its own merits and the decision to be taken after consultation with a rabbi competent to give advice on such matters.

Strict Judaism permits abortion only in cases where continuing the pregnancy would put the mother's life in serious danger. In such circumstance (where allowing the pregnancy to continue would kill the mother) Judaism insists that the foetus must be aborted, since the mother's life is more important than that of the foetus.

The Church of England encourages people to think through the issue of abortion very carefully and recognises that each individual will have differing views on the subject.

The Church of England shares the Roman Catholic view that abortion is 'gravely contrary to the moral law'.

The Church of England is keen to ensure that as many abortions as possible are carried out as early as possible. However, in the rare exceptions that a termination has to be carried out beyond 24 weeks, it should only take place where there is a serious foetal disability and survival will be for a very short period of time.



- Describe one religious perspective on abortion
- Should Carla Foster be sent to prison?



The Case Study of Carla Foster

Carla Foster had admitted to illegally procuring her own abortion when she was between 32 and 34 weeks pregnant.

A judge told her last month she would serve half her 28-month term in custody and the remainder on licence, however the Court of Appeal reduced the term to 14 months suspended.

Dame Victoria Sharp, sitting with Lord Justice Holroyde and Mrs Justice Lambert at the London court on Tuesday, called it "a very sad case".

"It is a case that calls for compassion, not punishment," Dame Victoria said.

Foster appeared at the hearing via a video link from Foston Hall prison, Derbyshire. The mother-of-three from Staffordshire was jailed at Stoke-on-Trent Crown Court on 12th June 2023.

The court heard she had moved back in with her ex-partner at the start of lockdown, while pregnant by another man.

Dame Victoria told the court there was "no useful purpose" served by detaining Foster in custody, and added her case had "exceptionally strong mitigation".

Foster's barrister Barry White said there had been a lack of "vital reports" into his client's mental health and the pandemic had added to her existing anxiety.

The Court of Appeal also heard the prison had not allowed Foster any communication with her children during her 35-day incarceration, one of whom is autistic. Mr White highlighted Foster had voluntarily revealed her actions to police, adding: "Had she not done that, it is highly unlikely that she would have ever been prosecuted." Robert Price, from the Crown Prosecution Service, said the original sentence was not "manifestly excessive" and the judge had "correctly made allowances for mitigating factors in this unusually sensitive case".

As well as the 14-month suspended prison sentence, Foster will also have to complete up to 50 days of activity.

She procured pills by post from the British Pregnancy Advisory Service (BPAS) after providing information that led staff to believe she was seven weeks pregnant.

Although abortion is legal up to 24 weeks, after 10 weeks the procedure is carried out in a clinic.

On 11 May 2020, after she took the abortion pills, emergency services received a call to say she had gone into labour.

The baby was born not breathing during the call and pronounced dead about 45 minutes later.

Foster was initially charged with child destruction, which she denied.

She later pleaded guilty to an alternative charge of section 58 of the Offences Against the Person Act 1861, administering drugs or using instruments to procure abortion, which was accepted by the prosecution.



In response to the verdict, chief executive of the BPAS Clare Murphy said she was "delighted" the mother would be released from prison and called for a change to the law.

"The court of appeal has today recognised that this cruel, antiquated law does not reflect the values of society today," she said.

"Now is the time to reform abortion law so that no more women are unjustly criminalised for taking desperate actions at a desperate time in their lives."

Right to Life UK, however, urged the government to reject legislation changes and called for a "full inquiry" into how BPAS had come to dispatch Foster's abortion pills.

"Campaigners, led by BPAS... are using this tragic case to call for the removal of more abortion safeguards and the introduction of abortion up to birth across the United Kingdom," said spokesperson Catherine Robinson.

"At at least 32 weeks or around eight months' gestation, [the baby] was a fully formed human child. If her mother had been given an in-person appointment by BPAS, she would still be alive," she added.

- Describe one religious perspective on abortion
- Should Carla Foster be sent to prison?



Retrieval Practice

| Questions | Answers |
|--|---|
| What is abortion? | Decision to terminate a pregnancy |
| What is the UK law on abortion? | Abortion is legal up to 24 weeks of pregnancy, unless the mother is at risk. |
| What religions believe that abortion is morally wrong? | All religions believe that abortion is morally wrong. |
| What is the Sanctity of Life? | The belief that all life, no matter at what stage, is sacred and a gift from God. |
| Who was Carla Foster? | Carla Foster was a British woman who aborted her baby between 32-34 weeks of pregnancy during the 2020 covid pandemic lockdown. She was sent to prison and many ethical debates were raised surrounding this issue. |
| Who can issue an abortion? | It can only be a doctor. There would be a proves before one can have an abortion. |

Career Focus - Where could this take you?



I am a doctor. I help those who are injured but also may have to help those who seek help for their babies. Understanding the law and moral and ethical debates like abortion is essential when I perform medical procedures on patients and give them medical advice.

Challenge Activities



- Explain in your own words, what two religions believe about when life begins.
- Research different case studies of abortion cases in the media.

Topic Links



This topic links to other RE topics such as

- Euthanasia
- Christianity (and other religions)

This topic links with other subjects such as:

- PME
- Science

We will also be practising how to

- Argue a point and practise our Voice 21
- Participate in debates

Additional Resources



To further practise and develop your knowledge see:

<https://www.bbc.co.uk/ethics/abortion/religion/religion.shtml>







<https://www.nhs.uk/conditions/abortion/>

https://www.bbc.co.uk/ethics/abortion/child/alive_1.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

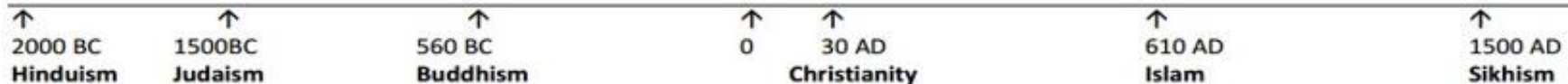
Atheist = Someone that doesn't believe in God

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.

- describe where they and others live.
- talk about the weather.
- Explain what there is to do in their area.

- talk about helping at home
- Use reflexive verbs to describe their daily routine

| Keyword | Definition |
|--|---|
| <u>Où</u> habites-tu? | <u>Where</u> do you live? |
| Elle est <u>comment</u> ta région? | <u>What</u> is your area like? |
| Qu'est-ce qu'on peut faire à Huddersfield? | What can you do in Huddersfield? |
| Quel temps fait-il à Huddersfield? | What is the weather like in Huddersfield? |
| Qu'est-ce qu'on doit faire pour aider à la maison? | What do you have to do to help at home? |
| Tu te lèves à quelle heure?. | What time do you get up at? |
| Qu'est-ce que tu fais le matin? | What do you do in the morning? |
| Que penses-tu de ta région? | What do you think about your area? |

| | | |
|--------------------|---------------|--|
| J'habite I live | dans - in | un village - a village une ville - a town le désert - the desert |
| | à la - in the | campagne - countryside |
| | au - at | bord de la mer - the seaside |
| | sur - on | une île - an island |
| | en - in | France /Suisse - France/Switzerland |
| | au - in | Maroc - Morocco |

Key Concepts

Saying where I live

Elle est comment, ta région?

| | | | |
|--------------------------------|------------------------|-------------------------------|--|
| Dans ma région In my region | il y a there is/are | plein de plenty of | touristes tourists |
| | | peu de little, not many | magasins shops |
| | | trop de too much/many | |
| In my region | | un a | champ - field lac - lake jardin public - park |
| | | une a | montagne - mountain plage - beach rivière - river |
| | | il y'a pas de there are no | bâtiments - buildings plages - beaches voitures - cars |

Qu'est-ce qu'on peut faire à Huddersfield?

| | |
|--------------------|---|
| On peut You can | manger des crêpes - eat pancakes visiter les monuments historiques - visit historic monuments visiter des grottes - visit caves aller au cinéma / à la plage / en ville - go to the cinema/beach/town faire les magasins - go shopping faire des randonnées - go for walks faire du canoë-kayak - go canoeing faire du ski - go skiing |
|--------------------|---|

Phonics and Vocabulary

oi - (wa)

| | | |
|---|---|---|
|  poisson |  Je dois |  froid |
|---|---|---|

Ma routine

| | |
|--|---|
| je me lève je prends le petit déjeuner je me douche je me coiffe je m'habille je me lave les dents je quitte la maison je me lave je me couche | I get up I have breakfast I have a shower I do my hair I get dressed I clean my teeth I leave the house I have a wash I go to bed |
|--|---|

Qu'est-ce qu'on doit faire pour aider à la maison?

| | |
|---|---|
| Je dois - I must Tu dois -you must Il doit - he must | faire la cuisine - do the cooking faire la vaisselle - do the washing up faire la lessive - do the washing nourrir les animaux - feed the animals garder ma sœur - look after my sister garder mon frère - look after my brother ranger ma chambre - tidy my room |
|---|---|

- describe where they and others live.
- talk about the weather.
- Explain what there is to do in their area.

- talk about helping at home
- Use reflexive verbs to describe their daily routine

Retrieval Practice



| Questions | Answers |
|--|--|
| Où habites-tu? | J'habite à Huddersfield dans le nord de l'Angleterre. C'est une grande ville. |
| Elle est comment ta région? | C'est très joli . Il y a beaucoup de champs et il y a aussi des montagnes . Il n'y a pas de lac . |
| Qu'est-ce qu'on peut faire à Huddersfield? | À Huddersfield on peut visiter les monuments ou on peut voir un match de foot . Je pense que c'est super! |
| Quel temps fait-il a Huddersfield? | En été il y a du soleil et il fait chaud . En hiver il fait froid et il pleut . |
| Qu'est-ce qu'on doit faire pour aider à la maison? | Je dois faire la vaisselle tous les jours. C'est null! |
| Tu te lèves à quelle heure?. | Normalement, je me lève à sept heures . |
| Qu'est-ce que tu fais le matin? | Je me lève et puis je prends le petit déjeuner . À huit heures je vais au collège . |
| Que penses-tu de ta région? | Ma région est très belle . Il y a plein de magasins et restaurants . |

Career Focus - Where could this take you?



I am a tour guide. I work with people from all over the world and travel to lots of different cities. It helps me that I can speak another language, because I can communicate with people who live in the country I am touring. I can also give tours in different languages.

Challenge Activities



1. Research a French town or region. Where is it? What is it famous for? Find out as many details as possible.
2. Make a tourist map of Huddersfield and label things in French.
3. Complete the activities on Language nut.

Topic Links



This topic links to:

- Holidays
- All about me.
- Hobbies
- Time

Additional Resources



To further practise and develop your knowledge see:

- Language nut
- Active learn.

avoir (to have)

j'ai I have
 tu as you (sing) have
 il/elle/on a he/she has /we have
 nous avons we have
 vous avez you (plural/polite) have
 ils/elles ont they have (m/f)

être (to be)

je suis I am
 tu es you (sing) are
 il/elle/on est he/she is /we are
 nous sommes we are
 vous êtes you (plural/polite) are
 ils/elles sont they are (m/f)



Les quatre saisons

Le printemps spring
 l'été summer
 l'automne autumn
 L'hiver winter

janvier
 février
 mars
 avril
 mai
 juin
 juillet
 août
 septembre
 octobre
 novembre
 décembre

The perfect (past) tense

Use this tense to talk about what you did or have done

1. j'ai or je suis **c'était** = it was
2. Past participle
 Hier, j'ai bavardé avec mon meilleur ami sur mon portable. Après, j'ai bu un thé. C'était relaxant.



Past participles

1. -er verbs → remove **er** + **é** = regarder → regard- → regardé
2. -ir verbs → remove **ir** + **i** = vomir → vom- → vomé
3. -re verbs → remove **re** + **u** = perdre → perd- → perdu

Negatives in the perfect tense

Put **ne...pas** around the part of **avoir** or **être**

Remember **ne** shortens to **n'** before a vowel.

Je **n'ai pas** regardé la télé
 Je **ne suis pas** allé(e) en vacances

Saying "to" or "in" with countries

- Most countries are **feminine**: **en** Tunisie; **en** France; **en** Australie
- A few countries are **masculine**: **au** Canada; **au** Maroc
- A small number of countries are **plural**: **aux** États-Unis
- With **islands** use **à** Vanuatu

Key Verbs

avoir = to have
 être = to be



Key irregular verbs in the past tense

J'ai bu = I drank
 J'ai fait = I did
 J'ai vu = I saw
 J'ai pris = I took
 Je suis allé(e) = I went

The near future tense

Use this to talk about what you are going to do.

aller + infinitive

Je vais nous allons
 Tu vas vous allez
 Il/elle va ils/elles vont



Negative expressions

ne...pas = not
 ne...jamais = never
 ne...rien = nothing
 *ne shortens to n' in front of a vowel

Possessive adjectives

mon/ma/mes = my
 ton/ta/tes = your
 son/sa/ses = his/hers

The comparative

Use the comparative to compare two or more things

- plus + adjective + que = more ... than ...
- moins + adjective + que = less... than ...

Le ski est plus amusant que le cyclisme
 Skiing is more fun than cycling

• The adjective must agree with (match) the first noun
 La voile est plus fatigante que le tennis
 Sailing is more tiring than tennis

- With plural nouns use **sont** (are) and not **est** (is)

Present tense

d'habitude = usually
 normalement = normally

Present tense

d'habitude = usually
 normalement = normally

Narrative words

d'abord firstly
 puis then
 ensuite next
 après afterwards
 finalement finally

Intensifiers

assez quite
 très very
 trop too
 un peu a little/bit
 complètement completely
 vraiment really

Connectives

et and
 aussi also
 ou or
 mais but
 avec with

Use the QR codes to revise key vocabulary



The year



-er past tense



Irregular past



Questions



Key verbs



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 the Kodu tool bar by describing what each button does
- Demonstrate knowledge of using Kodu by describing how to accurately use a range of different features

- Apply knowledge of creating rules and using tools in Kodu to develop a range of games
- Apply knowledge from this unit to accurately describe some keywords

| Keyword | Definition |
|-------------------------|---|
| Script | The set of instructions used to program in Kodu, usually presented as a collection of tiles that connect with one another using "rules". |
| Rule | Each line of a Kodu program is called a rule. Every rule has a WHEN part and a DO part. |
| Action | The first tile in the DO part of a rule is the action. Examples include "move" and "eat". |
| Object | A 3D graphic that can be programmed in the Kodu world. |
| Tile | Each rectangle that appears in a rule is called a tile. A tile contains a picture and an associated word or phrase. |
| Sequencing | The specific order in which instructions are performed in a program. If the sequence is incorrect, it may cause errors in a program. |
| Variable | A variable represents a location in memory. It is used to hold a value which you assign to it. This can change as you play your game e.g. 'Points' = 10 |
| Creatable | Characters that do not exist when you start the game. Instead, they are programmed and spawned by other characters as needed. |
| Iteration (Loop) | The repetition of a sequence of instructions e.g. use of 'Always' tile in 'WHEN' part of a rule. |
| Condition | The first tile in the WHEN part of a rule is the condition. Examples include "see" and "bump". Conditions can either be true or false, depending on the state of the world. |

Key Concepts

Kodu Toolbar

- Home
- Move Camera
- Path Tool
- Play
- Object Tool
- Ground Brush

Mouse Controls

- Up/Down
- Create Valleys
- Delete Tool
- Flatten
- Water
- World Settings

Object Wheel

- rock
- Kodu
- flower
- apple
- underwater
- pipe
- tree

Mouse Control Labels:

- Moves Land
- Zoom in/out
- Rotates Camera





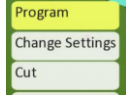




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- Demonstrate knowledge of the Kodu tool bar by describing what each button does
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- Apply knowledge of creating rules and using tools in Kodu to develop a range of games
- Apply knowledge from this unit to accurately describe some keywords



Retrieval Practice

| Questions | Answers |
|---|---|
| Describe how to add more land (terrain) on the Kodu world |  <p>Find the tool bar at the bottom of the screen and click on the 'Ground Brush' tool. Select the land type and then left-click to add land.</p> |
| Describe how to add objects on to your terrain |  <p>Find the tool bar at the bottom of the screen and click on the 'Object Tool'. Click on terrain where you would like to add the object before selecting the object.</p> |
| Describe how to program an object in Kodu |  <p>Make sure you have clicked on the 'Object Tool' before right-clicking on the object that you would like to program. Press the 'esc' key on the keyboard to return back to the Kodu world</p> |
| Describe how to play the game that has been created in Kodu |  <p>Find the tool bar at the bottom of the screen and click on the 'Play' tool.</p> |
| Describe what the 'Path tool' can be used for on Kodu | <p>The path tool can be used to create different types of paths on the Kodu terrain or alternatively an invisible path that moving objects can be programmed to follow</p> |
| Describe what is meant by the term 'iteration' and how to add iteration (loops) in a Rule. |  <p>When programming an object click on the '+' button on the 'WHEN' section of a Rule (programming line). Select the 'Always' tile to create a loop.</p> |
| Describe how to program what happens when objects touch a specific type of land on the Kodu world |   <p>When programming an object click on the '+' button on the 'WHEN' section of a Rule. Select the 'On Land' tile and land type before adding tiles to the 'DO' section of a Rule.</p> |

Career Focus - Where could this take you?



I am a **Gameplay designer** and work in a team that is responsible for the central part of the game experience – how it plays. My job involves defining the game's structure, its rules, characters, and different modes of play, like story mode or multi-player.

Challenge Activities



1. Create a multiplayer game in Kodu that uses all of the tiles, scripts and techniques you have covered in this unit. Also, research the internet and include the use of new tiles and scripts that have not been covered in this unit.
2. Create a poster on MS PowerPoint that includes one or all of the following details: how to use variables, iteration, and conditional statements on Kodu to create games
3. Create a short vlog about the types of careers you could get into within the gaming industry. Explain what you would need to study at college and university to pursue these career paths

Topic Links



- This topic links to:
- Computing Curriculum: Understand how instructions are stored and executed within a computer system
 - Mathematics: use of logical inference, problem-solving skills and simple algebra

Additional Resources



- To further practise and develop your knowledge see:
- <https://www.kodugamelab.com/>
 - <https://www.youtube.com/@KoduTeam>

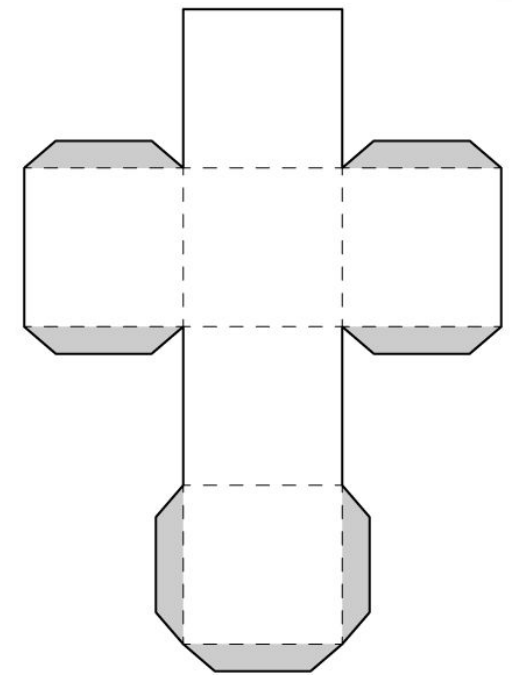
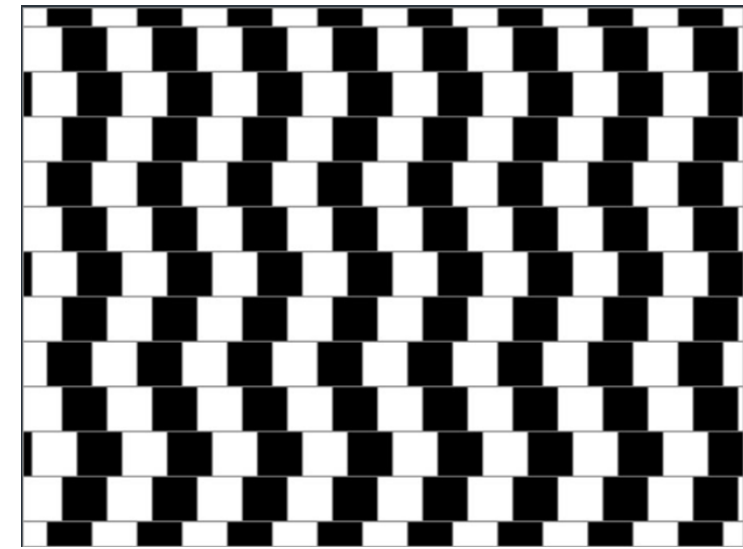
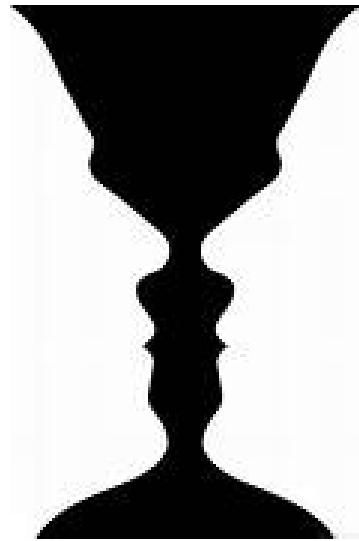
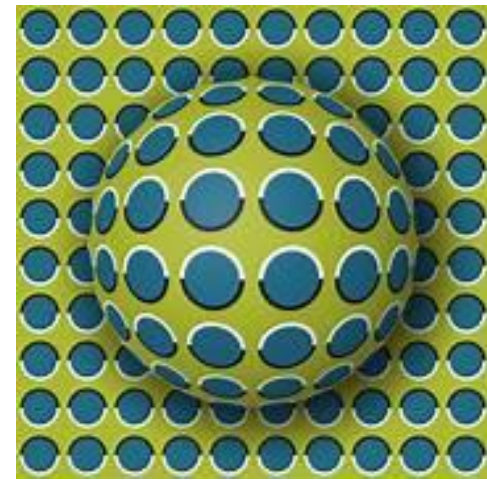



Our students will:

- 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.

| Keyword | Definition |
|---------------|--|
| Optical | To do with the eye. Relating to sight. |
| Illusion | an image that has the power to trick our minds into thinking we're seeing something that is different than what is really there. |
| Movement | The act, process or result of moving |
| Precision | Being exact and accurate. |
| Monochromatic | Containing or using only one colour. |
| Net | The 'net' of a shape is a term used to describe what a 3D shape would look like if it was opened out and laid flat. |
| Bridget Riley | British painter known for her Op Art. Lives and works in London. |

Key Concepts




| Retrieval Practice  | |
|--|---|
| Questions | Answers |
| What is Optical Art? | Op art, short for optical art, is a style of visual art that uses optical illusions. Op artworks are abstract, and they give the viewer the impression of movement, hidden images, flashing and vibrating patterns, or swelling or warping. |
| When did Op Art emerge? | In the 1960s. Victor Vasarely is known to be the father of Op Art. |
| What is perspective drawing? | A technique that gives the illusion of spatial depth, or perspective, to drawings and paintings |
| What is negative space? | In art and design, negative space is the empty space around and between the subject(s) of an image. |


Career Focus - Where could this take you? 





My job is an **architect**. I transform building designs into reality, ensuring functionality, safety, and creative vision. I collaborate with engineers and develop concepts for structures that meet project goals and operational standards.

Challenge Activities 

- Learn to draw optical patterns;
[\(31\) 6 EASY Optical illusion drawings/patterns/tricks/abstract drawings | Part-3 - YouTube](#)
- Learn to draw a 3D hole:
[\(31\) Op-Art Hole to the Deep - How to Draw 3D Hole - Optical Illusion - YouTube](#)



| Topic Links  | Additional Resources  |
|--|--|
| This topic links to: <ul style="list-style-type: none"> • Mathematics – accurate measuring of lines and shapes. | To further practice and develop your knowledge see: <p style="text-align: center;">Op art Tate</p> |

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

- Demonstrate safe use of tools and equipment.
- Explain a range of Regenerated fibre properties
- Rank fibres in order of environmental impact.

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

| Keyword | Definition |
|-------------------|--|
| Conductive | Having the property of conducting something (especially heat or electricity). |
| Fabric | Cloth or other material produced by weaving or knitting fibres. |
| Synthetic | Made by chemical synthesis, especially to imitate a natural product. |
| Fibres | A thread or filament from which a vegetable tissue, mineral substance, or textile. |
| Electric | Worked by, charged with or producing electricity |
| Textiles | A type of cloth or woven/ knitted fabric. |
| Aesthetics | A set of principles concerned with the nature and appreciation of beauty. |
| Solder | Solder is a fusible metal alloy used to create a permanent bond between metal. |
| 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. |
| Diode | Electronic component that conducts current primarily in one direction. |
| Positive | Electric charge of a positive point charge |
| Negative | Electric field of a negative point charge |
| Laser | A laser is a device that emits <u>light</u> through a process of <u>optical amplification</u> |
| Equipment | Equipment most commonly refers to a set of <u>tools</u> or other objects |
| Battery | A device that provides electrical power |

Key Concepts

Types of Fibres



NATURAL FIBRE

NATURAL FIBRES COME FROM NATURAL SOURCES FROM PLANTS OR ANIMALS. COTTON AND LINEN ARE FROM PLANTS, WOOL FROM SHEEP, SILK FROM SILK WORMS. THESE FIBRES ARE RENEWABLE SOURCES, THE FIBRES ARE BIODEGRADABLE AND CAN BE RECYCLED. NATURAL FIBRES ARE SUSTAINABLE, THEY ARE ALSO ABSORBENT, STRONG WHEN DRY BUT HAVE POOR RESISTANCE TO BIOLOGICAL DAMAGE

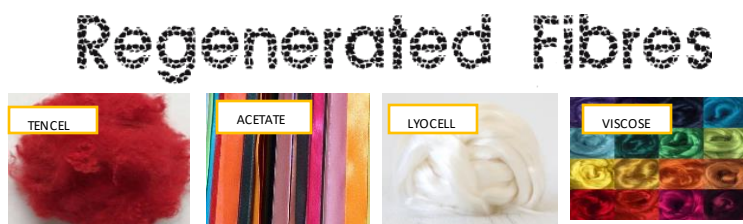
SYNTHETIC FIBRE

SYNTHETIC FIBRES ARE MAN MADE, THEY ARE MADE FROM POLYMERS WHICH ARE LONG CHAINS OF PLASTIC MOLECULES. THESE MOLECULES ARE DERIVED FROM COAL OR OIL. POLYESTER, LYCRA AND ACRYLIC ARE PRODUCED FROM OIL AND NYLON IS PRODUCED FROM COAL. SYNTHETIC FIBRES ARE NON RENEWABLE SOURCES, THEY ARE RESISTANT TO BIOLOGICAL DAMAGE, CAN BE CHANGED BY HEAT TO FORM DIFFERENT SHAPES AND TEXTURES, HOWEVER THEY ARE NOT VERY ABSORBENT AND CAN BE HARD TO DYE.

REGENERATED FIBRE

REGENERATED FIBRES ARE MADE FROM NATURAL MATERIALS SUCH AS CELLULOSE FROM WOOD PULP. THEY ARE CHEMICALLY TREATED TO PRODUCE FIBRES. DIFFERENT FIBRES ARE MADE USING DIFFERENT CHEMICALS, FIBRES HAVE A RENEWABLE ORIGIN, BUT ARE MADE USING SYNTHETIC CHEMICALS, WHICH MAKE THEM LESS SUSTAINABLE THAN NATURAL FIBRES. REGENERATED FIBRES TEND TO HAVE SIMILAR PROPERTIES TO NATURAL FIBRES.

Regenerated Fibres



TENCEL ACETATE LYOCELL VISCOSE

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 CUSTOMERS 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 PRODUCTS 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 DESIGNERS CHOICE OF MATERIAL HAVE ON THE ENVIRONMENT? WOULD A DIFFERENT MATERIAL MAKE IT BETTER? WHAT MATERIAL HAS IT BEEN MADE FROM?

Smart Textiles



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

- Demonstrate safe use of tools and equipment.
- Explain a range of regenerated fibre properties
- Rank fibres in order of environmental impact.
- Annotate 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 regenerated fibre? | Made from a plant | Made in a factory | Coal & oil | A fibre made from cellulose (wood pulp) | A fibre made from Animals |
| B. Which fibres are Regenerated? (select more than 1) | Wool | Lyocell | Acetate | Cotton | Polyester |
| 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. Which fibres are Synthetic? (select more than 1) | Polyester | Nylon | Cotton | Bamboo | Viscose |
| E. What is a light emitting Diode? | A type of disco ball | A Type of switch | A type of resistor | LED Light | A type of battery |
| F. What advantages are they in using a laser cutter? (select more than 1) | Fast | Accurate | Less material wastage | Cuts multi materials (except metal) | Cuts complex shapes and fine detail |
| Questions you got wrong | Quick Corrections (bridge learning gaps & misconceptions) | | | | |
| | | | | | |
| | | | | | |

Career Focus - Where could this take you?




A Lab Technician performs tests and analyses in a laboratory. Lab technicians work in a variety of different fields such as medicine, textiles and Engineering.




Huddersfield University offer an MA degree in Textile Technology, and you will need an Honours degree (2:2 or above) in a relevant subject or an equivalent professional qualification.

Salaries usually range from £18,000 - £38,000

Challenge Activities

Can you Identify these E-Textile Symbols and Explain when they do?




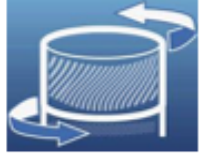

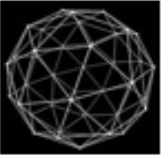


| Topic Links  | Additional Resources  |
|---|--|
| <p>This topic links to:</p> <ul style="list-style-type: none"> • Science- How electronics can be used within textiles and the development of Smart Fibres • English- Subject specific Vocabulary knowledge, understanding and spelling. | <p>To further practise and develop your knowledge see:</p>  |

| Keyword | Definition |
|----------------------|---|
| Gears | One of a set of toothed wheels that work together to alter the relation between the speed of a driving mechanism |
| Compression | The action of compressing or being compressed. |
| Tension | The state of being stretched tight: |
| Pinewood | An evergreen coniferous tree that has clusters of long needle-shaped leaves |
| PVA | Polyvinyl acetate used to glue materials |
| Scroll saw | A scroll saw is a small electric or pedal-operated <u>saw</u> used to cut intricate curves in wood, |
| Shear | is a process that cuts stock without the formation of chips or the use of burning or melting |
| Laser | A laser is a device that emits <u>light</u> through a process of <u>optical amplification</u> |
| Safety Goggles | Protective eyewear to stop fragments entering the eye. |
| Timber | Timber is wood that has been processed into uniform and useful sizes |
| Specification | A design specification is a detailed document that sets out exactly what a product or a process should present |
| 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. |
| Iconic Design | someone or something that is seen as a <u>cultural icon</u> |
| Product Lifecycle | is the process of managing the entire lifecycle of a product from its inception through the <u>engineering</u> , <u>design</u> and <u>manufacture</u> , |
| Corrugated Cardboard | is a type of packaging material consisting of a <u>fluted corrugated</u> sheet and one or two flat linerboards |

Key Concepts

FORCES

| | |
|--|---|
| Tension Being stretched |  |
| Bending A motion or action that bends |  |
| Compression Putting pressure on an object |  |
| Torsion Twisting |  |
| Shear Cutting |  |
| Triangulation Forming rigid triangles together |  |

Tools

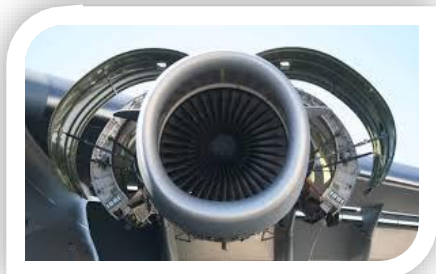


Materials & End Products

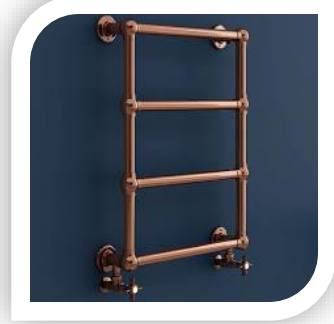
Stainless Steel Spoon








Aluminium Aircraft Fitting



Copper Tubing

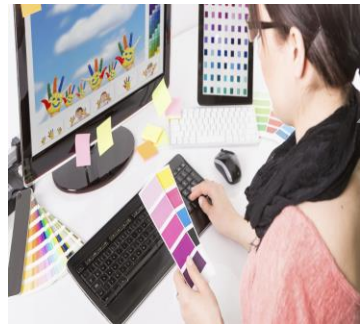


Retrieval Practice

| Question | A1 | A2 | A3 | A4 | A5 |
|---|---|---|---|--|---|
| A. What is an Acrylic? | Wood | Metal | Plastic | LED | Film |
| B. What is a product analysis? | A Detailed look at a specification | A quick look at a product | A Detailed look at a shoe | A Detailed look at a car | A Detailed look at a product |
| C. What is Shear referring to? | Sewing | Drawing | Jumping | Cutting | Dancing |
| D. Which are iconic designs? (select more than one) |  |  |  |  |  |
| E. What is a scroll saw? | A bladed machine for cutting wood. | A drill part | A paper cutter | A saw for cutting Glass | A machine for drilling holes |
| F. What is Timber? | A type of wood | A type of plastic | A type of metal | A type of glass | A type of Fabric |

| Questions Which you got wrong | Quick Corrections (bridge learning gaps & misconceptions) |
|-------------------------------|---|
| | |
| | |

Career Focus - Where could this take you?





Engineers, as practitioners of engineering, are professionals who invent, design, analyse, build and test machines and complex systems.

Kirklees College offer an Engineering and Manufacturing course level 2 and you will need A minimum of 4 GCSEs with the following grades: English at 3 or above and maths at 3 or above and 2 other GCSEs at 3 or above including a science or technology course.


Salaries usually range from £36,000-£48,000

Challenge Activities- Match the Product to the Designer.

| | | | | |
|---------------------------------|--|---|--|---|
| Charles Rennie Macintosh |  |  | Phillipe Starck |  |
| | | Tesla |  | James Dyson |

| Topic Links  | Additional Resources  |
|--|---|
| This topic links to: <ul style="list-style-type: none"> • History- Iconic Design • English- Subject specific Vocabulary knowledge, understanding and spelling. • Maths- Measurements in cm. | To further practise and develop your knowledge see: <ul style="list-style-type: none"> https://youtu.be/9wHlJXnx0bM https://youtu.be/b36Lt9bXFsk https://youtu.be/qHzlWl7CS8E |

- Demonstrate knowledge of food provenance
- Be able to discuss confidently a range of manufacturing processes

| 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 **Food Standards Agency (FSA)** is responsible for food safety and food hygiene in England, Wales and Northern Ireland. It works with local authorities to enforce food safety regulations and its staff work in meat plants to check the standards are being met.

Food Standards Act 1999

The Act was introduced in the House of Commons in 1999.

It sets out our main goal to protect public health in relation to food. It gives us the power to act in the consumer's interest at any stage in the food production and supply chain.

Food Safety Act 1990

The main responsibilities for all food businesses covered by the Act are to ensure that:

- businesses do not include anything in food, remove anything from food or treat food in any way which means it would be damaging to the health of people eating it
- the food businesses serve or sell is of the nature, substance or quality which consumers would expect
- the food is labelled, advertised and presented in a way that is not false or misleading



The scheme gives businesses a rating from 5 to 0 which is displayed at their premises and online so you can make more informed choices about where to buy and eat food.

5 – hygiene standards are very good
 4 – hygiene standards are good
 3 – hygiene standards are generally satisfactory
 2 – some improvement is necessary
 1 – major improvement is necessary
 0 – urgent improvement is required



- 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

Scones



Ingredients:

85g diced butter
350g self-raising flour
¼ tsp salt
1 ½ tsp bicarbonate of soda
4 tbsp caster sugar
200ml milk, warmed to room temperature, plus a splash extra
Crushed sugar cubes, to decorate.

*** Container with a lid ***

Method:

1. Heat oven to 200C/180C fan/gas 6.
2. Whizz butter into flour.
3. Tip into a bowl and stir in salt with bicarbonate of soda and sugar.
4. Using a cutlery knife, quickly stir in milk – don't over-mix.
5. Tip out onto a lightly floured surface and turn over a couple of times to very gently bring together with your hands.
6. Gently pat to about 1in thick, then stamp out rounds with a floured cutter.
7. Pat together trimmings to stamp out more.
8. Brush the tops with a splash more milk, then scatter with crushed sugar cubes.
9. Bake on a baking sheet for 10-12 mins until risen and golden.

Equipment

- Baking tray
- Cutlery
- Mixing bowl
- Rounded knife
- Fork
- Measuring bowl
- Weighting scales

Adaptions:

- Choose 2 from:
- 10 glace cherries
- 50g raisins/sultanas/ dates
- 50g coconut
- 1 eating apple
- 1tsp cinnamon

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



- Demonstrate knowledge of food provenance
- Be able to discuss confidently a range of manufacturing processes

Chicken / Vegetable Curry



Equipment:

- Chopping board
- Vegetable knife
- Large pan
- Wooden spoon
- Cutlery

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

Ingredients:

- 2 chicken breasts
 - 1 red onion
 - ½ red or green pepper
 - 1 tin of chopped tomatoes
 - 2 tsp curry powder or paste
 - 1 tbsp. tomato puree
 - 4 button mushrooms
 - 25g natural yoghurt or single cream (optional)
 - 2tsp vegetable oil
- Replace chicken with either: 100g green or red lentils, Quorn pieces, potato, spinach or mushroom combination.

Method:

1. Chop any vegetables and place in pan with vegetable oil.
2. Put pan on low heat stir with wooden spoon.
3. Chop chicken into pieces.
4. Add chicken to pan being careful to avoid cross contamination.
5. Stir chicken with wooden spoon and turn to medium heat.
6. Add curry powder and continue to cook ensuring chicken doesn't stick to pan.
7. Once chicken is cooked through (no longer pink in the middle) stir in tin tomatoes and puree.
8. Continue to cook on medium heat to low heat (simmer).
9. Stir in yoghurt or cream.
10. Turn off heat and transfer to container.

| 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 |

RECIPE

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

- Use the blues scale and chords to create a Blues style composition
- Perform the 12-bar blues and blues scale using correct technique

- improvise and sing, using the blues scale and blues melodies
- demonstrate understanding of the stylistic features and context of Blues music through a range of listening activities

| Keyword | Definition |
|---------------|---|
| 12 bar blues | Traditional style of music using 3 chords over a 12-bar cycle |
| Walking bass | The bass part in the Blues 'walks' up and down the keyboard creating a bass line |
| Syncopation | Where music is played off beat (not played on the main beat of the bar) |
| Improvisation | Music that is made up on the spot by the performer, often based on specific set of notes |
| Swing rhythm | When playing quavers, the first note is held slightly longer and the second shorter, to give a swinging feel |
| Guitars | The original blues instrument. It plays chords and melodies, often improvised. the bass guitar (or double bass) plays the bass line |
| Horn section | This is often made up of saxophones, trumpets and trombones |
| Keyboards | The piano/organ is often used for both melodies and chords |
| Drum kit | Use to play the rhythm in Blues bands – often playing a swing rhythm |

Key Concepts

C chord
C, E, G

F chord
F, A, C,

G chord
G, B, D

BLUES SCALE – a scale used for improvising

Swing rhythm

Improvising – making up music on the spot

Blues Lyrics follow AAB structure

A Mmmm, standin' at the crossroad, I tried to flag a ride
A Standin' at the crossroad, I tried to flag a ride
B Didn't nobody seem to know me, everybody pass me by

Walking Bass Line – uses the most important notes from the chords

- The aims of the sequence of learning are to ensure that all students can:
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12 Bar Blues with a walking bass line

Play the chord with your right hand



- C = C E G**
- F = F A C**
- G = G B D**

| | | | |
|---------------------|----------------------|---------------------|----------------------|
| C C E G A | C Bb A G E | C C E G A | C Bb A G E |
| F F A C D | F Eb D C A | C C E G A | C Bb A G E |
| G G B D B | F F A C A | C C E G E | G G B D B |

Play the bass line with your left hand

Career Focus - Where could this take you?



I am a composer for film and TV programmes. I write in a variety of different styles to suit the job that I am commissioned to do. I use a range of musical skills but mostly my keyboard and music technology skills are used. I have an excellent understanding of composing devices and how musical cliches work.

Challenge Activities



Practise playing the 12 bar blues at home. You can try the simple or the more difficult bass line.
Have a go at improvising over the blues scale – watch this video for some inspiration:
<https://www.youtube.com/watch?v=RJu-wptS6Ng>
Or if you would rather sing, this is a great lesson on using the Blues scale with vocals
<https://www.youtube.com/watch?v=S7Tc0HEiuVs>

Topic Links



This topic links to:

- History – there is such a history to Blues music and we will be learning about this in class and how it links to the slave trade you learn about in history lessons
- Geography – Blues is an important style that originated in various states in America - see if you can find New Orleans and Chicago on the map. Two important cities in the Blues movement. Also, what states are they in?

Additional Listening



- [BB KING - The Thrill is Gone](#)
- [Robert Johnson - Crossroads](#)
- [Memphis Minnie - Hoodoo Lady Blues](#)
- [Bessie Smith - St. Louis Blues](#)
- [Miles Davis - Kinda Blue \(full album\)](#)

- 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 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)

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

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

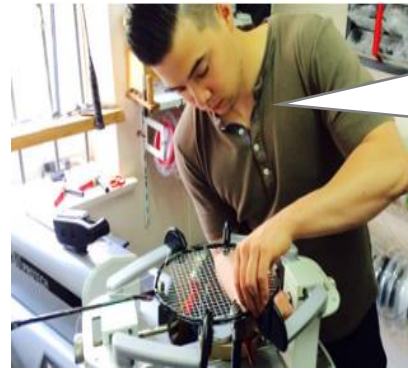
A point is scored when you successfully hit the shuttlecock over the net and land it in your opponent's court before they hit it. A point can also be gained when your opponent hits the shuttlecock into either the net or outside the parameters

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 athlete's 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/>

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

- demonstrate the: set up, completion and interpretation of fitness tests.
- understand the components of fitness and how they can be trained
- Identify which components of fitness are important to specific types of athlete.
- complete training sessions to train specific components of fitness.
- understand how to live a healthy, active lifestyle.









| Keyword | Definition |
|--------------------------|--|
| Power | The maximum strength and maximum speed of your muscles in order to move an object or yourself forward. Power = strength x speed. |
| Co-ordination | The ability for muscles to work together in pairs to move different body parts in time. |
| Reaction Time | The time taken for a person to react to a stimulus. |
| Agility | The ability to change direction at speed without making a mistake in your performance. |
| Balance | The ability to maintain your centre of mass and control without falling over. |
| Speed | To moves as fast as possible over a distance in the shortest time. Speed=distance/time. |
| Cardiovascular endurance | The ability for the heart and blood vessels to transport oxygenated blood to the working muscles in sports performance so a person can work for a long time without getting tired. |
| Muscular strength | The maximum force that your muscles can make to move an object. |
| Muscular endurance | Your muscles can work continuously at moderate intensity 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 persons 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

TRAINING METHODS

Different sports require different training methods. As a result, sports performers must select training methods that are specific or can be adapted to their chosen activity.

| | |
|--|---|
|  <p>CONTINUOUS</p> <ul style="list-style-type: none"> • Long periods of moderate work, without rest. • Improves cardiovascular fitness and muscle endurance. • Suitable for distance runners and tri-athletes. |  <p>FLEXIBILITY/MOBILITY</p> <ul style="list-style-type: none"> • Stretching methods including static, dynamic and Proprioceptive Neuromuscular Facilitation (PNF). • Improves range of movement, reducing the chance of injury. • Beneficial for all sporting activities, in particular gymnastics and dance. |
|  <p>FARTLEK (SPEED PLAY)</p> <ul style="list-style-type: none"> • A continuous workout, involving changes in speed and/or terrain. • Improves recovery time and both aerobic and anaerobic fitness. • Suitable for cross country runners and team games involving changes in speed. |  <p>WEIGHT TRAINING</p> <ul style="list-style-type: none"> • A workout using weights as a form of resistance. • Can be tailored to improve muscular endurance, power and strength. • Suitable for all activities and general fitness/toning. |
|  <p>CIRCUIT</p> <ul style="list-style-type: none"> • A series of exercises performed in a circuit. • Improves cardiovascular endurance and muscular endurance. • Excellent for general fitness and can be structured to suit most sports. |  <p>PLYOMETRICS</p> <ul style="list-style-type: none"> • A series of explosive movements such as jumps, bounds, hops etc. • Improves power. • Excellent for activities that require explosive strength, e.g. long/high jump. |
|  <p>INTERVAL</p> <ul style="list-style-type: none"> • Involves alternating periods of work and rest. • Can be used to improve speed, recovery time, and aerobic and anaerobic fitness. • Suitable for team games involving short bursts of speed. |  <p>SAQ (SPEED, AGILITY, QUICKNESS)</p> <ul style="list-style-type: none"> • Exercises aimed at activating neural pathways. • Improves speed, agility and quickness. • Suitable for team games involving changes in direction. |

daydream



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

- demonstrate the: set up, completion and interpretation of fitness tests.
- understand the components of fitness and how they can be trained
- Identify which components of fitness are important to specific types of athlete.

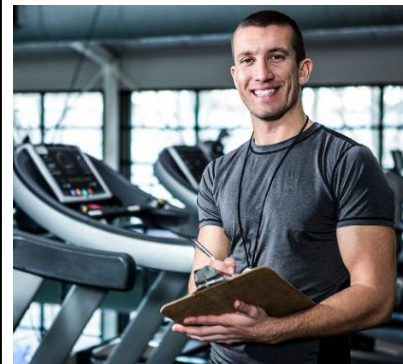
- complete training sessions to train specific components of fitness.
- understand how to live a healthy, active lifestyle.

Retrieval Practice:
Unscramble the component of fitness keywords and match them to the correct definitions



| COMPONENT OF FITNESS | DEFINITION |
|----------------------|---|
| SHGTERNT | When one or muscles contract repeatedly when lifting or moving, for a certain length of time. |
| CAEIBRO EECNDANUR | The amount of body fat compared to muscle in the body. |
| WEPOR | When the body has to exert a force against resistance. |
| IBILEXILTYF | How fast the body can move from A to B or perform an action until it's complete. |
| LACEBAN | The amount/range of movement around a joint. |
| LIYAGIT | The time it takes for the body to respond to a stimulus. |
| NOCARDINTIO | When a sequence of movements are performed smoothly and accurately together. |
| CREATION MEIT | The rate at which work is performed often strength x speed = this |
| PESED | The ability to maintain your centre of gravity when standing still or moving. |
| BOYD MOPOSTINICO | Being able to change direction whilst keeping the body under control. |
| MULSCURA EECNDANUR | When the body is working at a level that demands the need for more oxygen. |

Career Focus - Where could this take you?



I am a personal trainer. My job is to carry out various tasks, starting from assessing my clients' physical condition and creating unique workout routines for them. I explain the exercises in a clear and efficient way, while demonstrating how to use the training equipment safely and how to avoid injuries. I also help with giving advice on lifestyle choices linked to nutrition and healthy eating habits.

Challenge Activities



Design a training programme:-

Can you create a 4-week training programme that shows 5 different exercises that get progressively harder each week. Use the example provided on the previous page for guidance.

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



- This topic links to:
- RSHE – Understanding how physical activity can reduce stress and anxiety and promote 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.

Additional Resources



To further practise and develop your knowledge see:
<https://www.topendsports.com/testing/tests/>
<https://www.teachpe.com/training-fitness/fitness-testing>

Username and Passwords

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