



WOOTTON PARK

'Ipsum quod faciendum est diutius'

Year 8 Knowledge Maps

Term 2

Your Name	
Your Email Address	

Plot Summary: What happens in the play?

Four lovers, having an argument in the **Athenian woods** at midnight, are confused by fairies who are only trying to help. Throw in some magic, a custody battle over a little boy, and an amateur actor who unsuspectingly becomes the fairy queen's love interest... oh and a magic set of ass's ears... and there you have it - *A Midsummer Night's Dream*, a **comedy!**

- Hermia runs away with Lysander instead of marrying Demetrius.
- The King and Queen of the fairies fight over a little boy.
- Puck muddles up the lovers and causes havoc with a love potion.
- Bottom gets the ears of an ass and Titania falls in love with him.
- Oberon puts things right and wins the little boy from Titania.
- The lovers get married. Bottom's friends put on a play to celebrate.
- The play is about Pyramus and Thisbe.
- The fairies bless the marriages.

Characters

All of the characters come from Athens, Greece. The main characters in *A Midsummer Night's Dream* can be put into three groups:

- **The Fairies**
- **The Mechanicals**
- **The Mortals**

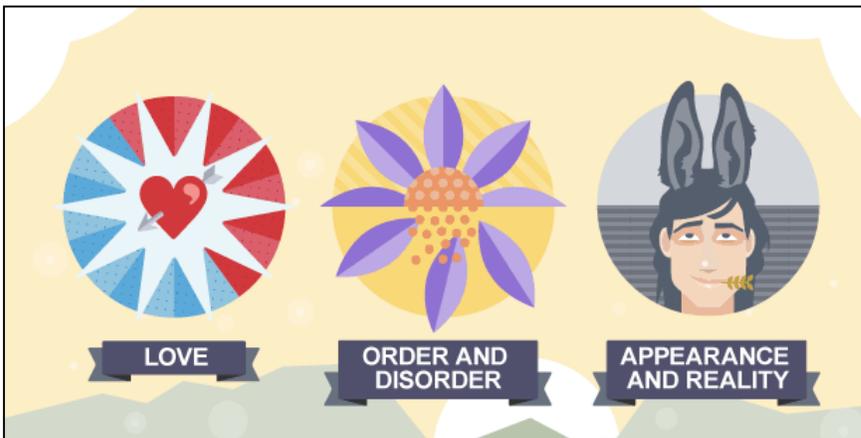
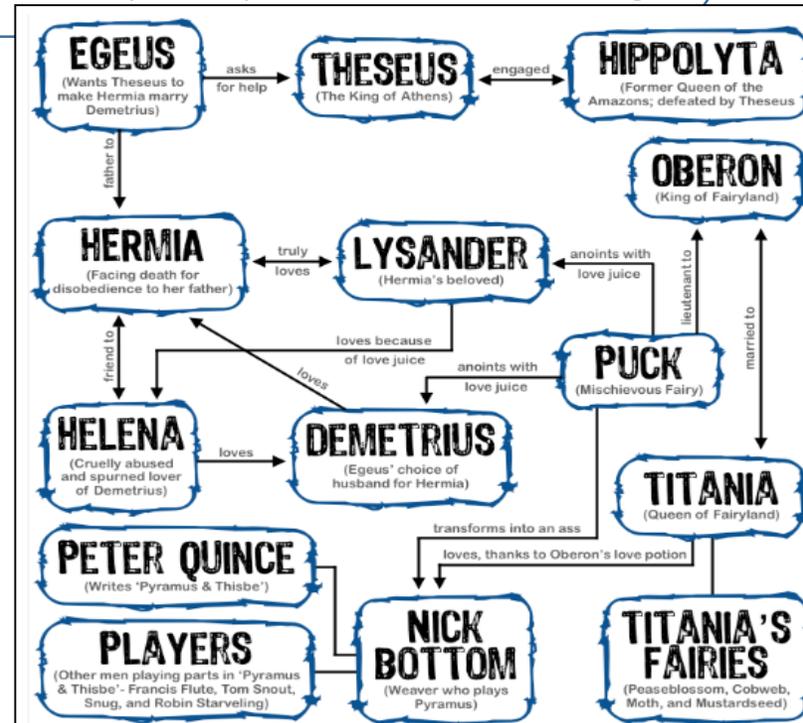
The Fairies live in the woods and control most of the events in the story through their magic. The Mechanicals are a group of workers who are trying to rehearse a play in the woods to celebrate Duke Theseus's wedding. They are truly comic characters, a bit like clowns. The Mortals are the human characters of the story. Within this group there are four young lovers who find their lives turned upside down by the fairy world in the middle of the night.

The play is one of Shakespeare's 'Comedies'!

Key Themes

Themes are the overarching idea and issues presented by Shakespeare in the play. You might be asked a question such as: "How is the theme of love presented in the play?"

- Love
- Power
- Order & Disorder
- Appearance and Reality
- Magic
- Dreams



Studying Shakespeare's Language: Key Terms

Shakespeare's language can be quite tricky to understand, especially when you start to analyse it. Here are a few important key terms you will need to use when studying Shakespeare's language.

- Alliteration:** A sequence of repeated sounds in a passage of language
- Blank verse:** unrhymed iambic pentameter: a line of five iambs
- Dramatic irony:** This occurs when the audience know more about what is happening than some of the characters themselves know
- Hyperbole:** A figure of speech that relies on exaggeration
- Iamb:** The most common metrical foot in English verse, a weak stress followed by a strong stress E.g. I am I am I am I am I am ('am' being the stressed syllable)
- Iambic pentameter:** A line of five iambic feet. The most common metrical pattern found in English verse
- Metre:** this is the pattern of stressed and unstressed syllables in a line of verse
- Oxymoron:** A figure of speech in which contrasting terms are brought together
E.g. 'sweet sorrow'
- Poetic verse:** A style of speech in Shakespeare's plays using rhyming couplets and a strong rhythmic pulse to the line
- Prose:** Any language that is not patterned by the regularity of some kind of metre
- Pun: a play on words:** two different meanings are drawn out of a single word, usually for comedy
- Rhyming couplet:** A pair of rhymed lines, of any metre
- Simile:** A figure of speech in which one thing is compared to another, indicated by 'like' or 'as'
- Soliloquy:** A dramatic convention which allows a character in a play to speak directly to the audience-as if thinking aloud about motives, feelings and decisions

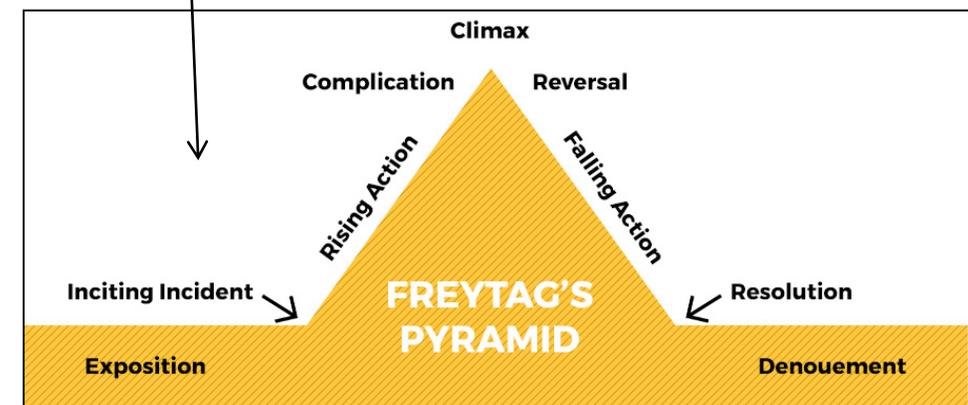
Key Vocabulary:

Comedy
Romance
Magic
Identity
Transformation
Renaissance
Athenian
Carnavalesque
Ambiguity
Individuality



Narrative Structure

Freytag's Pyramid to the right is a simple way of remembering how Shakespeare structured his plays to engage the Elizabethan audience.



Overview

In this term, learners will be studying up to three units which will include statistical data analysis, expressions and equations and real-life graphs.

Key Terms:

Unit 3:
Pie Chart
Sector
Radius
Stem & Leaf

Correlation
Line of Best Fit
Two-Way Table

Unit 4:
Indices
Factorising
Function
Equation

Unit 5:
Conversion
Gradient
Trend
Interpret
Linear

Key skills

Unit 3 Statistics, graphs and charts

- 3.1 Pie charts
- 3.2 Using tables
- 3.3 Stem and leaf diagrams
- 3.4 Comparing data
- 3.5 Scatter graphs
- 3.6 FINANCE: Misleading graphs
- 3 Check up
- 3 Strengthen
- 3 Extend
- 3 Unit test

Unit 4 Expressions and equations

- 4.1 Algebraic powers
- 4.2 Expressions and brackets
- 4.3 Factorising expressions
- 4.4 One-step equations
- 4.5 Two-step equations
- 4.6 The balancing method
- 4 Check up
- 4 Strengthen
- 4 Extend
- 4 Unit test

Unit 5 Real-life graphs

- 5.1 Conversion graphs
- 5.2 Distance-time graphs
- 5.3 Line graphs
- 5.4 Complex line graphs
- 5.5 STEM: Graphs of functions
- 5.6 More real-life graphs
- 5 Check up
- 5 Strengthen
- 5 Extend
- 5 Unit test

Unit 3:

Worked example

Work out the mean of 102, 105, 95, 100, 92 using an assumed mean.

$$\begin{array}{r}
 102 \ 105 \ 95 \ 100 \ 92 \\
 \text{differences from } 100 \ +2 \ +5 \ -5 \ 0 \ -8 = -6 \\
 \phantom{\text{differences from } 100} = -12 \\
 100 + -1.2 = 98.8
 \end{array}$$

The values are all close to 100, so assume the mean is 100.
Work out the differences from 100.

Add up the 5 differences and divide by 5 to find the mean difference.

Add the mean difference to the assumed mean.

Worked example

Draw a pie chart to show this data on students' lunch choices.

Lunch choice	Frequency
sandwiches	35
salad bar	15
hot meal	22

Total number of students = $35 + 15 + 22 = 72$

72 students is 360°
1 student is $360^\circ \div 72 = 5^\circ$

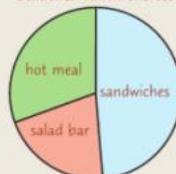
Sandwiches $35 \times 5 = 175^\circ$

Salad bar $15 \times 5 = 75^\circ$

Hot meal $22 \times 5 = 110^\circ$

Check: $175 + 75 + 110 = 360$

Students' lunch choices



The total number of students is the total frequency.

Work out the angle for one student.

Work out the angle for each lunch choice.

Check that the angles add up to 360° .

Draw the pie chart.
Label each section or make a key (you do not have to label the angles).
Give your pie chart a title.

Worked example

Jack asked students in his class how many pets they had. Here are his results. Work out the mean.

Number of pets	Frequency	Total number of pets
0	7	$0 \times 7 = 0$
1	8	$1 \times 8 = 8$
2	6	$2 \times 6 = 12$
3	3	$3 \times 3 = 9$
4	1	$4 \times 1 = 4$
Total	25	33

mean = $33 \div 25 = 1.32$

mean = total number of pets \div number of people

Add a column to the table to work out the total numbers of pets.

Work out the total frequency (number of people in the survey) and the total number of pets.

Unit 4:

Worked example

Find the common factor of the terms 6 and $3a$.

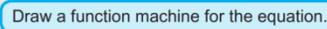
$6 = 3 \times 2$, so 3 and 2 are factors of 6.

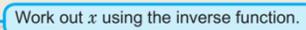
$3a = 3 \times a$, so 3 and a are factors of $3a$.

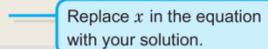
The common factor is 3.

Worked example

Solve the equation $x + 3 = 7$. Check your solution.

$x \rightarrow +3 \rightarrow 7$  Draw a function machine for the equation.

$4 \leftarrow -3 \leftarrow 7$  Work out x using the inverse function.

$x = 4$ Check: $x + 3 = 4 + 3 = 7$ ✓  Replace x in the equation with your solution.

Worked example

Solve the equation $x + 3 = 8$.

$x + 3 = 8$  Visualise the equation as balanced scales.

$x + 3 - 3 = 8 - 3$  The inverse of $+3$ is -3 . Do this to both sides.

$x = 8 - 3$  Simplify both sides to find x .

$x = 5$

Check: $x + 3 = 5 + 3 = 8$ ✓

Worked example

Solve the equation $\frac{2a + 1}{3} = 5$.

$(2a + 1) \div 3 = 5$  $\frac{2a + 1}{3}$ can be written $\frac{(2a + 1)}{3}$ or $(2a + 1) \div 3$.

$(2a + 1) \div 3 \times 3 = 5 \times 3$  $\times 3$ is the inverse of $\div 3$.

$$2a + 1 = 15$$

$$2a + 1 - 1 = 15 - 1$$

$$2a = 14$$

$$2 \times a \div 2 = 14 \div 2$$

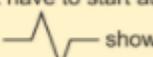
$$a = 7$$

Websites and further reading

- Pearson Active Learn: <http://pearsonactivelearn.com>
- Maths Watch: <http://mathswatch.co.uk/>
- BBC Bitesize: <http://www.bbc.co.uk/education/subjects/zqhs34j>
- Numeracy and Foundation level practice questions and answers: <https://corbettmaths.com/5-a-day/gcse1/>
- Maths quiz: <http://www.educationquizzes.com/ks3/maths/>
- KS3 online tests: <http://www.romsey.hants.sch.uk/maths/ks3onlinetests.htm>

Unit 5:

Key point

Graph axes do not have to start at zero. A zigzag line  shows values have been missed out.

Key point

Some graphs are more accurate and realistic when the points are joined with a smooth curve rather than straight lines.

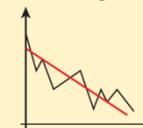
Key point

Line graphs can help you identify **trends** in the data. The trend is the general direction of change, ignoring individual ups and downs.

The graph shows an increasing trend



The graph shows an decreasing trend



Key point

A **distance–time graph** represents a journey. The vertical axis represents the **distance** from the starting point. The horizontal axis represents the **time** taken.

Key point

On a distance–time graph the **gradient** (steepness) of the line represents the **speed** of the journey.

Key point

A **linear graph** is a graph that is made up of a straight line.

Unit 3 - Key skills:

Unit 3 Statistics

- 3.1 Data collection sheets
- 3.2 Interpreting bar charts
- 3.3 Drawing bar charts
- 3.4 STEM: Pie charts

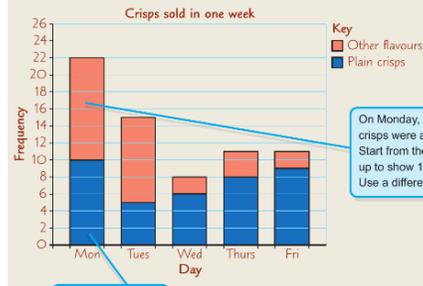
A **data collection sheet** is a table or chart for collecting **data**. It has a tally column and a frequency column.

Worked example

This frequency table shows the numbers of packets of different flavour crisps sold in one week.

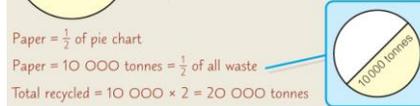
	Mon	Tues	Wed	Thurs	Fri
Plain crisps	10	5	6	8	9
Other flavours	12	10	2	3	2

Draw a compound bar chart to show this data.



Worked example

This **pie chart** shows the types of waste recycled in one town. The town recycles 10 000 tonnes of paper. How many tonnes of waste does it recycle in total?



Mean
 = total number of homeworks missed \div total number of students

The **modal class** is the group of data with the highest frequency.

Range = largest value – smallest value

Key Terms – Can you add the definitions (meanings)?

Mode: _____

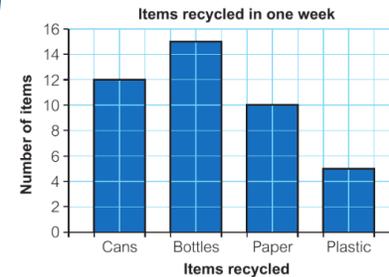
Mean: _____

Inverse: _____

Simplify: _____

Unit 3 - Test Your Understanding

The bar chart shows the number of items recycled by a family in one week.

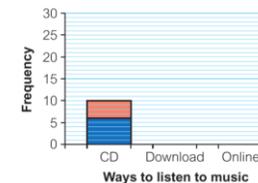


- a How many cans were recycled?
- b How many plastic items were recycled?
- c How many items were recycled in total?
- d How many more bottles were recycled than paper items?

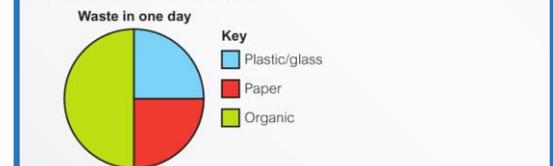
Robin asked 20 Year 8 students and 20 Year 9 students how they usually listen to music.

	CD	Download	Online
Year 8	6	12	10
Year 9	4	10	14

- a Copy and complete this compound bar chart for the data.
- b What is the most popular way of listening to music for Year 9s?



Real In one day, John recorded the number of items he threw away. Here is a pie chart of his data.



- a What fraction of his waste was paper?
- b What fraction was organic?
- c He threw away 40 organic items. How many items did he throw away altogether?
- d How many plastic items did he throw away?

Copy and complete this tally chart.

Favourite sport	Tally	Frequency
football		14
tennis		9
basketball		
netball		
golf		12
badminton		4

Which sport is the mode?

Websites and further reading

- Pearson Active Learn: <http://pearsonactivelearn.com>
- Maths Watch: <http://mathswatch.co.uk/>
- BBC Bitesize: <http://www.bbc.co.uk/education/subjects/zqhs34j>
- Numeracy and Foundation level practice questions and answers: <https://corbettmaths.com/5-a-day/gcse1/>

Unit 4 - Key Skills:

Unit 4 Expressions and equations

- 4.1 Simplifying expressions
- 4.2 Functions
- 4.3 Solving equations
- 4.4 Using brackets

Key point

The function +5 adds 5 to a number.

2 → (+5) → 7

2 ← (-5) ← 7

The **inverse function** is -5 because it reverses the effect of adding 5.

Worked example

Solve the equation $x + 7 = 12$.

$x \rightarrow (+7) \rightarrow 12$ — Draw a function machine for the equation.

$5 \leftarrow (-7) \leftarrow 12$ — Draw the inverse function machine to work out the value of x .

$x = 5$

Check: $x + 7 = 5 + 7 = 12$ ✓ — Check by substituting $x = 5$ back into $x + 7$.

Worked example

Simplify

a $3 \times 4y$

b $10x \div 2$

a $3 \times 4y = 12y$

b $10x \div 2 = 5x$

Worked example

Work out $4 \times (10 + 6)$

$4 \times (10 + 6) = 4 \times 10 + 4 \times 6$
 $= 40 + 24$
 $= 64$

$3(10 + 7)$ means $3 \times (10 + 7)$.
 You don't need to write the \times sign.

Unit 4 - Test Your Understanding

Match each yellow card with its correct simplified blue card.

$2x + 5x$	$8x - 2x$	$3x + x$	$12x - 7x$
$4x$	$5x$	$6x$	$7x$

Write down the missing function for each **inverse function** machine.

a $1 \rightarrow (+9) \rightarrow 10$ b $2 \rightarrow (\times 6) \rightarrow 12$

$1 \leftarrow (\square) \leftarrow 10$ $2 \leftarrow (\square) \leftarrow 12$

Solve these equations. Check your **solutions**.

a $x + 4 = 10$ b $y + 3 = 15$

c $z + 9 = 11$ d $n - 1 = 5$

e $m - 3 = 7$ f $p - 10 = 6$

Simplify

a $5 \times 2x$ b $4 \times 6y$

c $3p \times 5$ d $9t \times 7$

Work out by multiplying out the brackets.

a $5 \times (3 + 9)$ b $2 \times (8 + 5)$

Unit 5:

Work out

a $21.54 + 9.34$ b $9.8 + 12.17$

Key point

$0.5 = \frac{1}{2}$, so multiplying by 0.5 is the same as multiplying by $\frac{1}{2}$, which is the same as dividing by 2.

For example,
 $14 \times 0.5 = 14 \times \frac{1}{2} = 14 \div 2 = 7$

Work out

a 16×0.5 b 24×0.5

c 38×0.5 d 0.5×62

Key point

When rounding to 2 decimal places, look at the thousandths:

- for 0.005 and above, round up
- for 0.004 and below, round down.

← rounds down rounds up →

8.16 8.165 8.17

Round each number to 2 decimal places.

a 7.926

b 9.353

c 4.325

Overview

In this term, learners will be studying up to two units, which include looking at inequalities, equations and formulae; as well as data collection and handling.

Key skills

Unit 3 Inequalities, equations and formulae

- 3.1 Inequalities
- 3.2 Using index laws
- 3.3 Solving equations
- 3.4 Changing the subject
- 3.5 Algebraic fractions

Key Terms:**Unit 3**

Solve
Equation
Expression
Greater than
Less than
Equal to
Indices
Simplify
Rearrange
Change the subject of

Unit 3:**Key point**

You can solve inequalities in a similar way to solving equations.

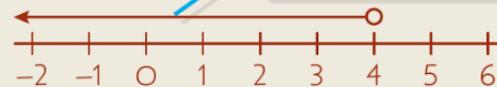
Worked example

Use a number line to show the values that satisfy these **inequalities**.

a $x < 4$

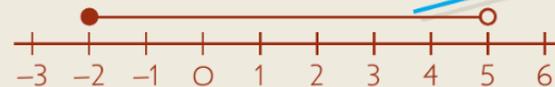
b $5 > y \geq -2$

a $x < 4$



This includes all the numbers less than 4 (excluding 4).

b $5 > y \geq -2$



This includes all the numbers less than 5 (excluding 5) and greater than or equal to -2 (including -2).

Worked example

Simplify $\frac{20x^5}{4x^8}$.

Write your answer as a negative power and as a fraction.

$$\frac{20x^5}{4x^8} = \frac{20}{4} \times \frac{x^5}{x^8}$$

$$\frac{20}{4} \times \frac{x^5}{x^8} = 5 \times x^{-3} = 5x^{-3}$$

$$5x^{-3} = 5 \times \frac{1}{x^3} = \frac{5}{x^3}$$

Worked example

$$\frac{1}{x} = y + 5$$

Make x the subject.

$$1 = x(y + 5)$$

$$\frac{1}{y + 5} = x$$

$$x = \frac{1}{y + 5}$$

Key point

You can show **inequalities** on a number line.

An empty circle \circ shows that the value is not included.

A filled circle \bullet shows that the value is included.

An arrow $\circ \rightarrow$ shows that the solution continues to plus or minus infinity.

Make x the subject of this formula.

$$ax + 7 = bx + c$$

$$ax + 7 = bx + c$$

$$ax - bx = c - 7$$

$$x(a - b) = c - 7$$

$$x = \frac{c - 7}{a - b}$$

Worked example

Solve the equation $\frac{3x + 6}{3} = \frac{x - 4}{2}$

$$\frac{6(3x + 6)}{3} = \frac{6(x - 4)}{2}$$

To remove the fractions, multiply both sides of the equation by the LCM of 2 and 3, which is 6.

$$\frac{2(3x + 6)}{1} = \frac{3(x - 4)}{1}$$

Cancel the denominators. $6 \div 3 = 2$ and $6 \div 2 = 3$.

$$2(3x + 6) = 3(x - 4)$$

Expand the brackets.

$$6x + 12 = 3x - 12$$

Collect like terms.

$$6x - 3x = -12 - 12$$

$$3x = -24$$

$-24 \div 3 = -8$

$$x = -8$$

Check: LHS: $\frac{3x + 6}{3} = \frac{3 \times (-8) + 6}{3} = \frac{-18 + 6}{3} = \frac{-12}{3} = -4$

RHS: $\frac{x - 4}{2} = \frac{-8 - 4}{2} = \frac{-12}{2} = -6$

Check the solution is correct by substituting $x = -8$ into both sides of the equation.

Overview

In this term, learners will be studying up to two units, which include looking at inequalities, equations and formulae; as well as data collection and handling.

Key skills

Unit 4 Collecting and analysing data

- 4.1 STEM: Data collection
- 4.2 Presenting and comparing data
- 4.3 Estimating statistics
- 4.4 Box plots
- 4.5 Cumulative frequency graphs
- 4.6 Histograms

Key Terms:

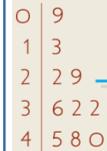
Unit 4

- Mean
- Median
- Mode
- Range
- Estimating
- Box plot
- Cumulative Frequency
- Histogram
- Continuous data

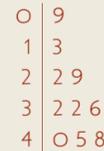
Unit 4:

Worked example

Here are the lengths of some earthworms (in cm).
4.5 1.3 0.9 3.6 3.2 2.2 4.8 4.0 3.2 2.9
Construct a **stem and leaf diagram** for this data.



Decide on a stem. For decimals use the whole-number part. Write in the leaves as you work along the data list.



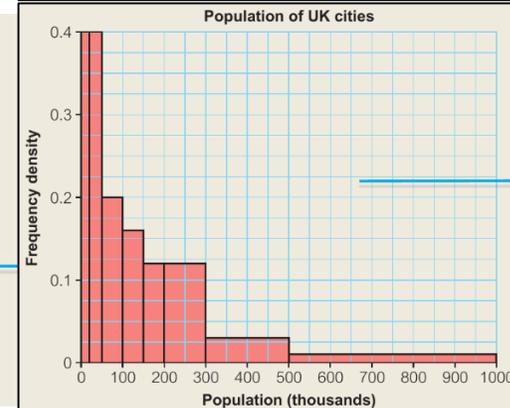
Write out your diagram again, putting the leaves in order.

Key: 1 | 3 means 1.3 cm

Worked example

This table shows the population of cities in the UK (excluding Birmingham and London). Draw a histogram to show the data.

Population, P (thousands)	Frequency	Class width	Frequency density
$0 < P \leq 20$	8	20	0.4
$20 < P \leq 50$	12	30	0.4
$50 < P \leq 100$	10	50	0.2
$100 < P \leq 150$	8	50	0.16
$150 < P \leq 200$	6	50	0.12
$200 < P \leq 300$	12	100	0.12
$300 < P \leq 500$	6	200	0.03
$500 < P \leq 1000$	5	500	0.01

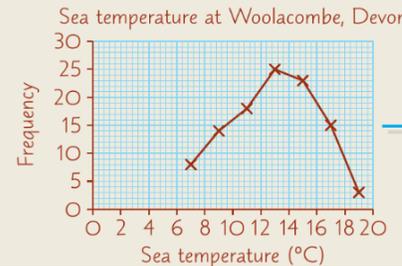


Worked example

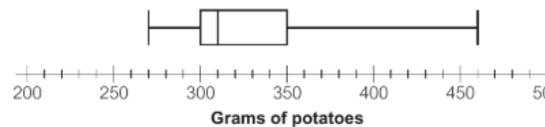
This table shows the sea temperature in Woolacombe in Devon. Draw a **frequency polygon** for this data.

Temperature, T (°C)	Frequency	Midpoint
$6 < T \leq 8$	8	7
$8 < T \leq 10$	14	9
$10 < T \leq 12$	18	11
$12 < T \leq 14$	25	13
$14 < T \leq 16$	23	15
$16 < T \leq 18$	15	17
$18 < T \leq 20$	3	19

Work out the midpoint of each group.



6 This **box plot** shows the number of grams of potatoes the Frost family eat per day in one week.

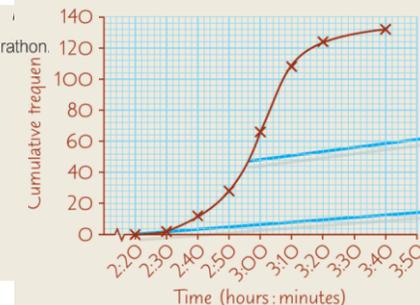


- a Work out
- i the median
 - ii the lower quartile
 - iii the upper quartile
 - iv the range
 - v the interquartile range.

Worked example

The table shows the times taken by female athletes to run a marathon. Draw a **cumulative frequency graph** to represent this data.

Time, T (h : min)	Frequency	Cumulative frequency
$2 : 20 < T \leq 2 : 30$	1	1
$2 : 30 < T \leq 2 : 40$	10	11
$2 : 40 < T \leq 2 : 50$	18	29
$2 : 50 < T \leq 3 : 00$	36	65
$3 : 00 < T \leq 3 : 10$	43	108
$3 : 10 < T \leq 3 : 20$	15	123
$3 : 20 < T \leq 3 : 30$	9	132



5.3 Elements

5.3.1 Elements

5.3.2 Atoms

5.3.3 Compounds

5.3.4 Chemical formulae

5.3.5 Polymers

5.4 Periodic Table

5.4.1 The Periodic Table

5.4.2 The elements of group 1

5.4.3 The elements of group 7

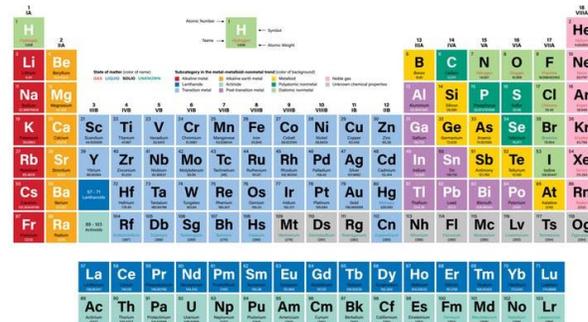
5.4.4 The elements of group 0

5.3.1 Elements

Elements are substances made of **one type of atom**. They cannot be broken down into other substances. All elements are all displayed in the **Periodic Table**.

Every element is represented using a one or two letter **chemical symbol**. The chemical symbols from some elements come from their Latin name.

Periodic Table of the Elements

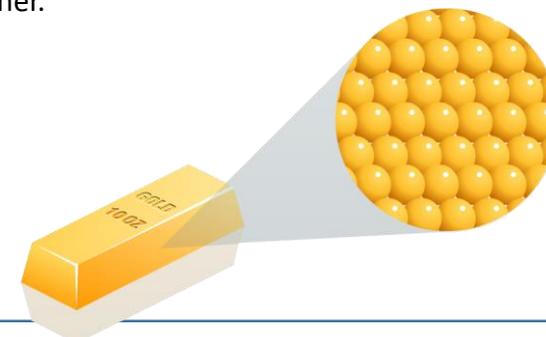


5.3.2 Atoms

An atom is the **smallest part** of an element that can exist.

Every element is made up of one type of atom so there is the same number of atoms as there are elements.

One atom on its own does not have the properties of the element, the properties of an element are the properties of **many atoms** joined together.



5.3.4 Chemical formulae

The chemical formula shows the elements present in a compound. It also shows how many of one type of atom there are compared to another.

The number of each element is displayed as a small number to the right of the chemical symbol e.g. Carbon dioxide is represented as **CO₂**, this means there is one carbon atom and 2 oxygen atoms in each molecule.

Rules for naming compounds:

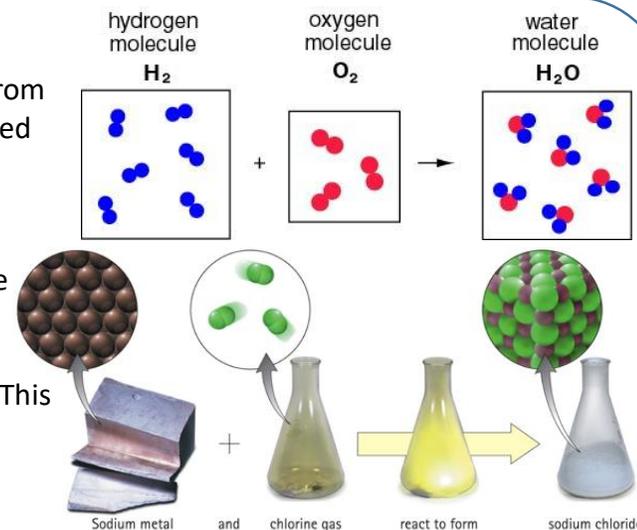
Elements	Compound name
Oxygen plus another element e.g. zinc	"Other element" oxide e.g. zinc oxide
Hydrogen and oxygen	Hydroxide
Nitrogen and oxygen	Nitrate
Sulfur and oxygen	Sulfate
Carbon and oxygen	Carbonate

5.3.3 Compounds

A compound is a pure substance made up of atoms from two or more elements. These atoms are strongly joined together.

E.g. 1 Water is a compound made from oxygen and hydrogen atoms. Both are gases at room temperature but when they join to form water their properties change so they are liquid at room temperature.

E.g. 2 The scientific name for salt is sodium chloride. This compound is made of sodium and chlorine atoms. Sodium is a shiny metal and chlorine is a green gas. When they join together form white salt crystals.



6.3 Types of reactions

6.3.1 Atoms in chemical reactions

6.3.2 Combustion

6.3.3 Thermal decomposition

6.3.4 Conservation of mass

6.4 Chemical energy

6.4.1 Exothermic and endothermic reaction

6.4.2 Energy level diagrams

6.4.3 Bond energies

Reactions: 6.3.1 Atoms in chemical reactions

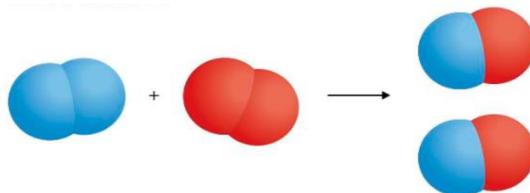
Chemical reactions involve a transfer of energy between the reacting substances and the surroundings.

Word equations can show those reactions:



The number of atoms remains the same on the products side and the reactants side. The number of atoms is **conserved**.

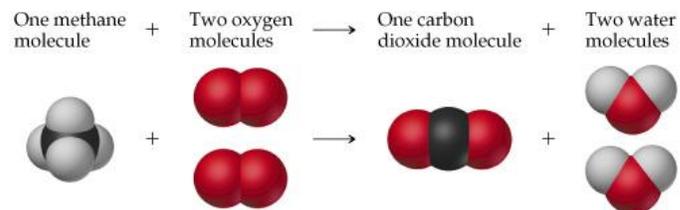
See diagram:



Reactions: 6.3.2 Combustion

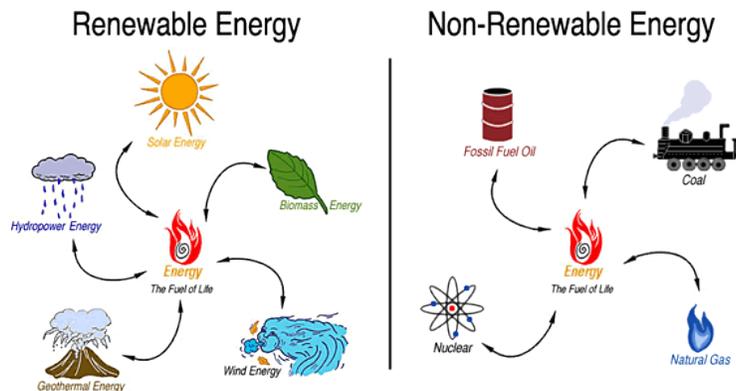
Methane is a **fuel**, a fuel which has stored energy that we want to use. To release that energy we can use **combustion**, more commonly known as burning. To combust a fuel you must react it with oxygen.

Methane + Oxygen \rightarrow Carbon Dioxide + Water



Most of our fuels are **non-renewable** which means they will run out.

We need to spend time discovering **renewable** fuels.



Year 8 Term 2 Keywords

Elements
Atoms
Compounds
Chemical formulae
Polymers
Alkali metals
Halogens
Noble gases
Displacement reactions
Conservation of mass
Combustion
Thermal decomposition
Exothermic reaction
Endothermic reaction

6.3 Types of reactions

6.3.1 Atoms in chemical reactions

6.3.2 Combustion

6.3.3 Thermal decomposition

6.3.4 Conservation of mass

6.4 Chemical energy

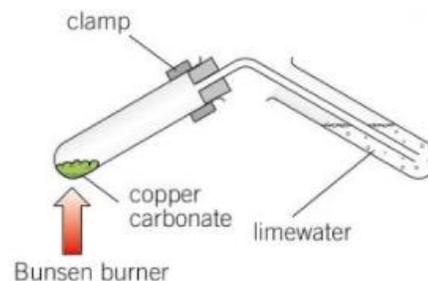
6.4.1 Exothermic and endothermic reaction

6.4.2 Energy level diagrams

6.4.3 Bond energies

Reactions: 6.3.3 Thermal decomposition**Thermal** means heat.**Decomposition** means breaking down

Thermal decomposition therefore means when one reactant is broken down into more than one product using heat.

**Reactions: 6.3.4 Conservation of mass**

Conservation of mass means that the mass of the reactants in a chemical reactions is equal to the mass of the product that is made. Example:



Mass of magnesium = 24 g

Mass of magnesium oxide = 0.40 g

Total mass of reactants = total mass of products

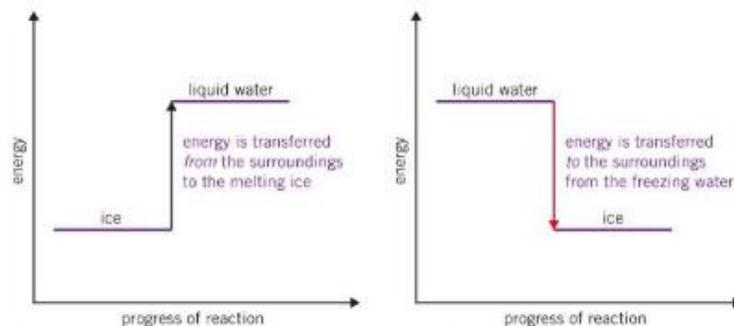
$$0.24 \text{ g} + \text{mass of oxygen} = 0.40 \text{ g}$$

$$\text{Mass of oxygen} = 0.40 \text{ g} - 0.24 \text{ g}$$

$$\text{Mass of oxygen} = 0.16 \text{ g}$$

Reactions: 6.4.1 Exothermic and endothermic reactions**Endothermic reaction** – energy is transferred *from* the surroundings *to* substances that are reacting, changing state or dissolving. E.g. some chemical reactions, melting and boiling and some things dissolving in water.**Exothermic reaction** – energy is transferred *to* the surroundings *from* substances that are reacting, changing state or dissolving. E.g. Some chemical reactions (combustion), freezing and condensing and dissolving some things in water.**Reactions: 6.4.2 Energy level diagrams**

Energy level diagrams represent a change of state. The diagrams below show that liquid water stores more energy than the same amount of ice. Diagram 1 shows energy ice taking in energy from the surroundings as it melts. Diagram 2 shows water giving energy out to the surroundings as it is freezing, freezing is exothermic.

**Reactions: 6.4.3 Bond energies**

To make or break a chemical compound we need energy. Energy is required to make the bonds in the compound and break them up. Different bonds need different amounts of energy.

The energy required to break bonds in H_2 and Cl_2 is:
(436 + 243) = 679 KJ/mol

The energy released to the surroundings to make bonds in HCl is:

$$(2 \times 432) = 864 \text{ KJ/mol}$$

Less energy is needed to break bonds than is released when making them. So the energy is exothermic.

Bond	Bond energy (kJ/mol)
H-H	436
Cl-Cl	243
H-Cl	432



Key question 1: What are plate tectonics?

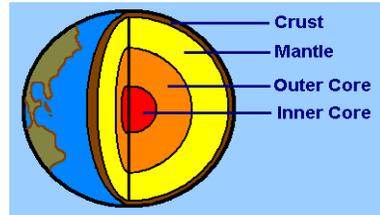
Crust: The thin outer layer of the earth

Mantel: The layer of the earth between the core and the crust

Core: The very hot central part of the earth. *Can be split into the inner and outer core.*

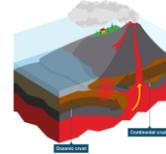
Plates: Large sections of the earth crust.

Convection currents: The process that moves the tectonic plates. This takes place due to the heat from the core.

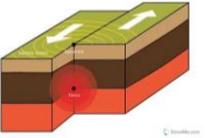


Key question 2: What causes earthquakes, volcanoes and tsunamis ?

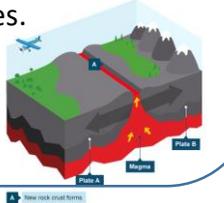
Conservative plate boundary: A conservative plate boundary, occurs where plates slide past each other in opposite directions, or in the same direction but at different speeds. Friction is eventually overcome and the plates slip past in a sudden movement. The shockwaves created produce an earthquake.



Destructive plate boundary: This occurs when oceanic and continental plates move together. The oceanic plate is forced under the lighter continental plate. Friction causes melting of the oceanic plate and may trigger earthquakes.



Constructive plate boundary: A constructive plate boundary, occurs when plates move apart. Volcanoes are formed as magma wells up to fill the gap, and eventually new crust is formed.



Key question 3: What are the costs of tectonic hazards?

Here you need to understand how and why tectonic hazards are so disastrous. There are a number of ways that they affect us:

- Impact on people = Social costs
- Impact on money = economical costs
- Impact on the local area = environmental costs



You also need to know why tectonic hazards are worse in poor (Less developed) countries.

Case studies:

- The Haiti Earthquake 2010
- The Icelandic Volcanic Eruption 2010
- The Japanese Tsunami 2011

Websites and further reading:

<http://www.bbc.co.uk/education/guides/zyhv4wx/revision>

<http://exploreg Geography.net/earthquake-case-studies-gcse/>

<http://www.bbc.co.uk/education/guides/zvnbkqt/revision/4>

http://www.bbc.co.uk/bitesize/ks3/geography/physical_processes/plate_tectonics/revision/3/



Key vocabulary to define and learn:

- | | | | | | |
|------------|---------------|----------------|-----------------|---------------------|---------------------|
| Inner core | outer core | mantel | crust | convection currents | plates conservative |
| | constructive | destructive | shield volcano | composite volcano | earthquake |
| tsunami | super volcano | active volcano | dormant volcano | | extinct volcano |

Key concept 1: What is crime and punishment?

What is a criminal?

A person who has committed a crime.

What is crime?

An action which breaks the law and is punishable.



Why do people commit crimes?

- Opportunity
- Greed
- Power
- A person’s psychological make
- Poverty (being poor)
- Boredom

Key concept 2: Punishment through prison

Prisons have four major purposes: **retribution, incapacitation, deterrence** and **rehabilitation**.

-  **Retribution** means punishment for crimes against society. Taking away criminals’ freedom is a way of making them pay a debt to society for their crimes.
-  **Incapacitation** refers to the removal of criminals from society so that they can no longer harm innocent people.
-  **Deterrence** means the prevention of future crime. It is hoped that prisons provide warnings to people thinking about committing crimes, and that the possibility of going to prison will discourage people from breaking the law.
-  **Rehabilitation** refers to activities designed to change criminals into law abiding citizens in the future. Prisons try to offer education so prisoners can succeed when the leave.

Key concept 3: Should we use the death penalty (Capital punishment) for serious crimes?

Points for the death penalty:

- Preventing others getting harmed, putting others of committing the crime
- The large costs of prisons
- An eye for an eye, a tooth for a tooth – if you take someone's life should you loose your life?

Some examples of where the death penalty is used.

China	USA
India	Russia

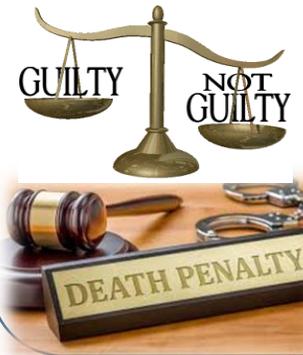
Points against the use of the death penalty:

- What if the person was innocent?
- What if it was an accidental crime?
- If you kill someone for serious committing a crime then you should be killed – it never ends.

Some examples of where the death penalty is not used.

UK	France	Germany
----	--------	---------

Websites and further reading:



- <http://www.bbc.co.uk/education/subjects/zh3rkg>
- <http://www.bbc.co.uk/ethics/introduction/>
- <http://www.bbc.co.uk/schools/gcsebitesize/rs/go/knowledgerev1.shtml>



Key vocabulary to define and learn:

Punishment	Corporal punishment	Capital punishment	Law	Human rights	justice
reformation	innocent	morals	ethics	criminal	guilty
trials	jury	judge	Police	Treason	prison
				murder	

Key concept 1: Who were the Tudors?

Who were the Tudors?

The **Tudors** were a Welsh-English family that ruled England and Wales from 1485 to 1603. The **Tudors** ruled for 118 years and **Tudor** England saw two of the strongest monarchs ever to sit on the English throne: King Henry VIII and his daughter Queen Elizabeth I.



Key concept 2: Main Issues during the Tudor period

- Succession** – Henry VIII only son died early, the age of the Queen regnant was born!
- Religion** – Henry VIII wanted to divorce his first wife, but the **Catholic Church** and the Pope won't let him. So Henry changes the ENTIRE church to suit his needs... The **Protestant Church of England** is created.



Key concept 3: Catholic Vs. Protestant

The Reformation

Henry VIII broke away from the **Catholic Church** in Rome and closed the monasteries. To help him in his struggle with the Catholic Church, Henry needed help from **Protestants**. He then created the **Church of England** which he became the leader of. Although the **reformation** started with Henry VIII but his children kept changing the religion of the country from Protestant to Catholic and back again!



Websites and further reading:



- <http://www.primaryhomeworkhelp.co.uk/timeline/tudors.htm>
- <http://www.bbc.co.uk/education/topics/zynp34j>
- http://www.bbc.co.uk/bitesize/ks3/history/tudors_stuarts/reformation/revision/4/
- <http://www.historyonthenet.com/the-tudors-monarchs/>

Key vocabulary to define and learn:

Tudor	Succession	Religion	Reformation	Church of England	Protestants	Catholic
	beheaded	Divorced	heir	Reign	Rule	

Key Content 1 – Ma journée! (*My day!*)

Using time to talk about daily routine

Describing the sequence of a day

Sequencing ideas

Describing what you do at school

Key Content 2 – Miam Miam (*Yum yum – talking about food*)

Giving likes and dislikes

Talking about food and drink 

Saying what you eat & drink at school

Key Content 3 – Mon collègue idéal (*My ideal school*)

Describing school facilities

Key Content 4 – Mes Matières (*My subjects!*)

Saying what you study

Comparing schools in France and UK

Using time and understanding timetables

Key Content 5 – Mes Profs (*My teachers*)

Using the verb to have – AVOIR

Using the verb to be – ÊTRE

Giving justified opinions

Describing character

Activities

- Surveying others
- Creating a timetable
- Designing an ideal school
- Creating a teacher profile
- Writing a school review

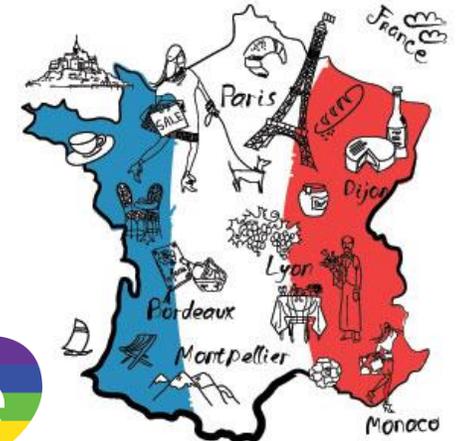
Websites and further reading:

Search on www.quizlet.com for 'Studio 1, M2'

Use the first module in your textbook and on www.pearsonactivelearn.com

Use www.French-games.net to practise and play language games

Use www.languagesonline.org and go to the French Grammar section to practise AVOIR and ETRE and the regular present tense and extend your knowledge – self-marking exercises.

C'est perso!**Key Vocabulary (See Textbook pages 46 & 47)** *For revision you need to be able to understand all the texts on the double pages*

Practise vocabulary at home and/or with a friend at school

Tick off the modules above as you complete them, and make sure you can still do these topics for the End of Unit test. Look over your learning and complete anything missing at home each week: **Look, cover, write, check...**

You need: **School Subjects** **Opinions** **Food & drink** **School facilities** **Comparison** **The verb to have 'AVOIR'** **Using the time in French** **The verb to be 'ETRE'**

High Frequency Words: *J'étudie (I study) Je préfère (I prefer), Je pense que (I think that), Quelle heure est-il? (What time is it?), Premier (first), puis (then), après (after) finalement (finally)*

Les matières scolaires • School subjects

le français	French
le théâtre	drama
la géographie/la géo	geography
la musique	music
la technologie	technology
l'anglais (m)	English
l'EPS (f)	PE
l'histoire (f)	history
l'informatique (f)	ICT
les arts plastiques (m)	art
les mathématiques/maths (f)	maths
les sciences (f)	science

Les opinions • Opinions

Tu aimes/Est-ce que tu aimes ... ?	Do you like ... ?
J'aime ...	I like ...
J'aime beaucoup ...	I like ... a lot.
J'aime assez ...	I quite like ...
J'adore ...	I love ...
Je n'aime pas ...	I don't like ...
Je déteste ...	I hate ...
C'est ma matière préférée.	It's my favourite subject.
Moi aussi.	Me too.
T'es fou/folle.	You're crazy.

Les raisons • Reasons

C'est ...	it's ...
intéressant	interesting
ennuyeux	boring
facile	easy
difficile	difficult
génial	great
nul	rubbish
marrant	fun/funny
On a beaucoup de devoirs.	We have a lot of homework.
Le/La prof est sympa.	The teacher is nice.
Le/La prof est trop sévère.	The teacher is too strict.

Quelle heure est-il? • What time is it?

Il est ...	It's ...
huit heures	eight o'clock
huit heures dix	ten past eight
huit heures et quart	quarter past eight
huit heures et demie	half past eight
neuf heures moins vingt	twenty to nine
neuf heures moins le quart	quarter to nine
midi	midday
minuit	midnight
midi/minuit et demi	half past twelve (midday/midnight)

L'emploi du temps • The timetable

le lundi	on Mondays
le mardi	on Tuesdays
le mercredi	on Wednesdays
le jeudi	on Thursdays
le vendredi	on Fridays
À [neuf heures]	At [nine o'clock]
j'ai [sciences].	I've got [science].
le matin	(in) the morning
l'après-midi	(in) the afternoon
le mercredi après-midi	on Wednesday afternoon
la récréation/la récré	breaktime
le déjeuner	lunch

La journée scolaire • The school day

On a cours (le lundi).	We have lessons (on Mondays).
On n'a pas cours ...	We don't have lessons ...
On commence les cours à ...	We start lessons at ...
On a quatre cours le matin.	We have four lessons in the morning.
On étudie neuf matières.	We study nine subjects.
À la récré, on bavarde et on rigole.	At break, we chat and have a laugh.
On mange à la cantine.	We eat in the canteen.
On finit les cours à ...	We finish lessons at ...
On est fatigués.	We are tired.

Qu'est-ce que • What do you eat?/ tu manges? • What are you eating?

Je mange ...	I eat/I'm eating ...
du fromage	cheese
du poisson	fish
du poulet	chicken
du steak haché	beefburger
du yaourt	yoghurt
de la pizza	pizza
de la purée de pommes de terre	mashed potatoes
de la glace à la fraise	strawberry ice-cream
de la mousse au chocolat	chocolate mousse
de la tarte au citron	lemon tart
des crudités	chopped, raw vegetables
des frites	chips
des haricots verts	green beans
Bon appétit!	Enjoy your meal!

Les mots essentiels • High-frequency words

à	at
et	and
aussi	also
mais	but
très	very
trop	too
assez	quite
un peu	a bit
pourquoi?	why?
parce que	because
beaucoup (de)	a lot (of)
tous les jours	every day
aujourd'hui	today
pardon	excuse me
merci	thank you
est-ce que (tu) ... ?	do (you) ... ?
qu'est-ce que (tu) ... ?	what do (you) ... ?
avec	with

Je me prépare • I get myself ready

Je me douche.	I have a shower.
Je me fais une crête.	I make my hair spiky.
Je me parfume.	I put on perfume/ aftershave.
Je m'habille.	I get dressed.
Je me brosse les cheveux.	I brush my hair.
Je me lave les dents.	I clean my teeth.
Je me regarde dans la glace.	I look in the mirror.
Je me rase.	I shave.
Je me maquille.	I put on make-up.



Subject: Spanish

Term: 2

Topic: Viva 2; Módulo 2– Todo Sobre Mi Vida (*All about my life*)

Key Content 1 – Mi vida; mi móvil (*My life; my mobile*)

Using VERBS – practising grammar and present/past conjugation

Talking about how you and others use phones/technology

Using FREQUENCY



Key Content 2 – ¿Qué tipo de música te gusta? (*What type of music do you like?*)

Saying what type of music you like

Understanding and giving opinions

Adding reasons to opinions and adding extra detail

Developing cultural awareness of Spanish music/artists



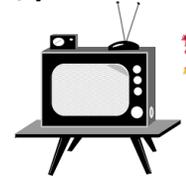
Key Content 3 – ¿Qué te gusta ver en la tele? (*What do you like to watch on TV?*)

Types of TV programme, days of the week

Talking about and explaining preferences

Adding complexity to opinions and justifications

Using the comparative



Key Content 4 – ¿Qué hiciste ayer? (*What did you do yesterday?*)

Use the preterite tense to build descriptions of activities in the past

Connect and sequence ideas to build narrative description

Give opinions in the past and talk about/understand what others do



Activities

- Taking part in a dialogue/interview asking and answering questions in the past and present
- Matching and adapting questions and answers
- Creating and delivering a presentation about your free time activities and preferences
- Complex reading including authentic texts
- Reviewing music/TV in writing giving complex opinions
- Using tenses together
- Creating a Free Time diary or storyboard



Websites and further reading:

Search on www.quizlet.com for 'Viva 2, M2' or 'tiempo libre' Use the second module in your textbook and on www.pearsonactivelearn.com

Use www.languagesonline.org and use the Grammar sections (The Present Tense) and (The Preterite).

Use www.language-gym.com and do the 'grammar workouts' for preterite and present indicative and the vocabulary activities for 'Leisure' – explore other options too!

If you need even more verb practice – www.conjuguemos.com – grammar practice – you don't need to sign up – use as a guest.

Key Vocabulary (See Textbook pages 46 & 47) *For revision you need to be able to understand all the texts on the double pages*

Practise vocabulary at home and/or with a friend at school

Tick off the modules above as you complete them, and make sure you can still do these topics for the End of Unit test. Look over your learning and complete anything missing at home each week: **Look, cover, write, check...**

You need: **Music types** **TV programmes** **Online/phone activities** **Past hobbies/activities** **Sequence/Time phrases** **Opinion phrases** **Days of the week**

High Frequency Words: *Veo (I watch), Escucho (I listen to) Hago (I do), Voy (I go), Juego (I play), Mi (my), Tu (Your), Su (his/her), para (for/to), más...que (more than), menos...que (less than), por la mañana (in the morning), por la tarde (in the afternoon), Hice (I did), Fui (I went), Vi (I watched), Escuché (I listened to), Jugué (I played), es (it is), fue (it was), pienso que (I think that), nunca (never), a veces (sometimes), todos los días (everyday), mucho (a lot), muy (very), un poco (a little), y (and), también (also), pero (but), cuando (when), si (if)*

¿Qué haces con tu móvil? What do you do with your mobile?

Chateo con mis amigos.	I chat with my friends.	Juego.	I play.
Comparto mis vídeos favoritos.	I share my favourite videos.	Leo mis SMS.	I read my texts.
Descargo melodías o aplicaciones.	I download ringtones or apps.	Mando SMS.	I send texts.
Hablo por Skype.	I talk on Skype.	Saco fotos.	I take photos.
		Veo vídeos o películas.	I watch videos or films.

¿Con qué frecuencia? How often?

todos los días	every day	a veces	sometimes
dos o tres veces a la semana	two or three times a week	de vez en cuando	from time to time
		nunca	never

¿Qué tipo de música te gusta? What type of music do you like?

el rap	rap	¿Qué tipo de música escuchas?	What type of music do you listen to?
el R'n'B	R'n'B	Escucho rap.	I listen to rap.
el rock	rock	Escucho la música de...	I listen to... 's music.
la música clásica	classical music	Escucho de todo.	I listen to everything.
la música electrónica	electronic music		
la música pop	pop music		

Opiniones Opinions

Me gusta (mucho)...	I like... (very much)	¿Te gusta la música de...?	Do you like... 's music?
Me encanta...	I love...	Me gusta la música de...	I like... 's music.
No me gusta (nada)...	I don't like... (at all)	mi canción favorita	my favourite song
la letra	the lyrics	mi cantante favorito/a	my favourite singer
la melodía	the tune	mi grupo favorito	my favourite group
el ritmo	the rhythm	En mi opinión...	In my opinion...
porque es guay/triste/horrible	because it is cool/sad/terrible		

Me gustan las comedias I like comedies

un programa de música	a music programme	el telediario	the news
un programa de deportes	a sports programme	más... que...	more... than...
un concurso	a game show	divertido/a	funny
un documental	a documentary	informativo/a	informative
un reality	a reality show	interesante	interesting
una comedia	a comedy	aburrido/a	boring
una serie policíaca	a police series	emocionante	exciting
una telenovela	a soap opera		

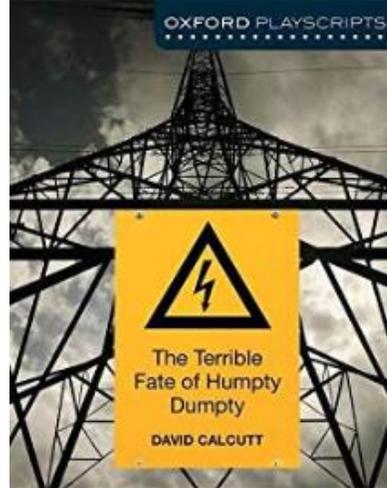
¿Qué hiciste ayer? What did you do yesterday?

Bailé en mi cuarto.	I danced in my room.	Vi una película.	I watched a film.
Fui al cine.	I went to the cinema.	Salí con mis amigos/as.	I went out with my friends.
Hablé por Skype.	I talked on Skype.	No hice los deberes.	I didn't do my homework.
Hice gimnasia.	I did gymnastics.	ayer	yesterday
Hice kárate.	I did karate.	luego	later, then
Jugué en línea con mis amigos/as.	I played online with my friends.	por la mañana	in the morning
Jugué tres horas.	I played for three hours.	por la tarde	in the afternoon
Monté en bici.	I rode my bike.	un poco más tarde	a bit later



Key Concept 1: Text in Practice

- To know and understand the characteristics and context of the whole play.
- Conventions of a script
- Use of performance space and spatial relationships on stage
- Interpretation of the text
- Create and communicate meaning

**Key Concept 2: Using the Stage**

Hundreds of years ago stages were raked. This means that the back of the stage was higher than the front. The audience would be seated or standing on a flat level which mean the whole stage could be seen. How does this differ to modern day stages? What other types of staging do we use in modern theatre?

**Key Terminology**

- Upstage Right
- Upstage Centre
- Upstage Left
- Centre Stage Right
- Centre Stage
- Centre Stage Left
- Downstage Right
- Downstage Centre
- Downstage Left
- Audience

Key Concept 3: Communicating A Character

Physical Skills: body language, posture, gesture, co-ordination, stillness, timing, control; facial expression; eye contact, listening, spatial awareness; interaction with other performers

Vocal Skills: pace, pause, timing and projection

Websites and further reading:

BBC Bitesize:

<https://www.bbc.co.uk/bitesize/guides/zxpc2hv/revision/1>

Youtube: History of Drama <https://www.youtube.com/watch?v=Yzcxdt8tsJ3Q>

Youtube: The Importance of Drama (Transferable Skills)

<https://www.youtube.com/watch?v=q3DGHtpuV28>

Key vocabulary

Still Image	Facial Expressions	Mime	Body Language	
	Thought Tracking	Intention		
Levels	Thought Tunnel	Communication	Pace	Projection
	Timing			

Performance Challenge:

Create a short performance using a range of theatrical skills based on the set text. You have become the playwright and you are creating the next scene. What happens next?

Key question 1: What is Illustration?

An illustration is a decoration, interpretation or visual explanation of a text, concept or process. This is done through a variety of media and styles. Who is your favourite illustrator? What do you like about their work? Can you identify features of their drawing style?

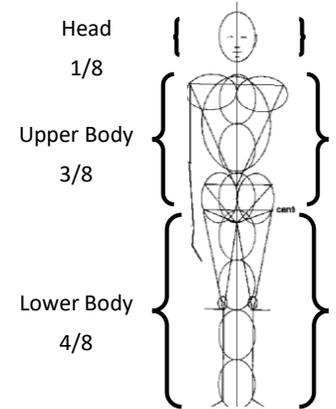
**Key question 2: How to draw the human structure?**

You will learn how to draw the structure of the human body through using simple shapes, lines and proportions. These rules can then be applied to show movement.

Can you use the proportions provided to create a different "pose" (running/ sitting). Could you add muscle structure/ clothing to begin creating your own character?

Use this video to help guide you.

https://www.youtube.com/watch?v=85A_F7_N3t0&t=52s

**Key question 3: What is the character design?**

Character design has four main stages; research, development, refine, and deliver. This is achieved through a series of projects which lead to a final piece. The images show stage 1 and stage 4. How do you think the illustrator gets from stage 1 to stage 4?

**Websites and further reading:**

Artists: Quentin Blake, Perry Maple, Axel Scheffler, Cressida Cowell, E.H Shepard, Peter Ramsey, Chris Riddell

BBC Bitesize:

<http://www.bbc.co.uk/schools/gcsebitesize/art/practicalities/elementsart4.shtml>

Pinterest: Search "illustration character"

Youtube: <https://www.youtube.com/watch?v=XxNUIRVOMMw&t=612s>

Illustration Challenge:

Use the skills you are practicing in lessons to produce an illustration inspired by the word *DREAMS*. This can include an original character, setting or background, or typography. It can be created using your preferred method but must show an awareness of the skills on this page.

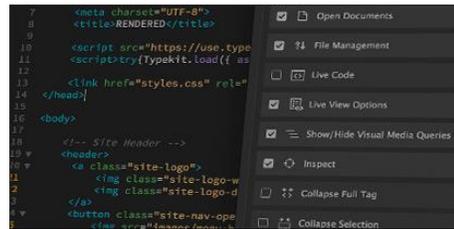
If you wish to partake, entries must be submitted to Miss Garrett by the last day of term.

Key vocabulary to define and learn

Proportions	Angles	Style	Position
Movement	Structure	Tone	Form
	Identity		Design Process

Key topic 1.1: Website creation using Dreamweaver

- 2.1.1 Say what a web graphic is and how they are used by businesses. Investigate vector and bitmaps. Plan the design of a web graphic.
- 2.1.2 Editing graphics using Adobe fireworks or similar to change the shape, text, colour and alignment.
- 2.1.3 Introduction to Dreamweaver;
- Understand the different choices for businesses that are available for website creation
 - Develop basic Dreamweaver skills such as text alignment, changing colour, inserting pictures and table creation
- 2.1.4 Making hyperlinks with text, images and images hotspots
- 2.1.5 Investigating interactive features on a website;
- Rollover images
 - Animated banners
- 2.1.6 Making a website using Dreamweaver

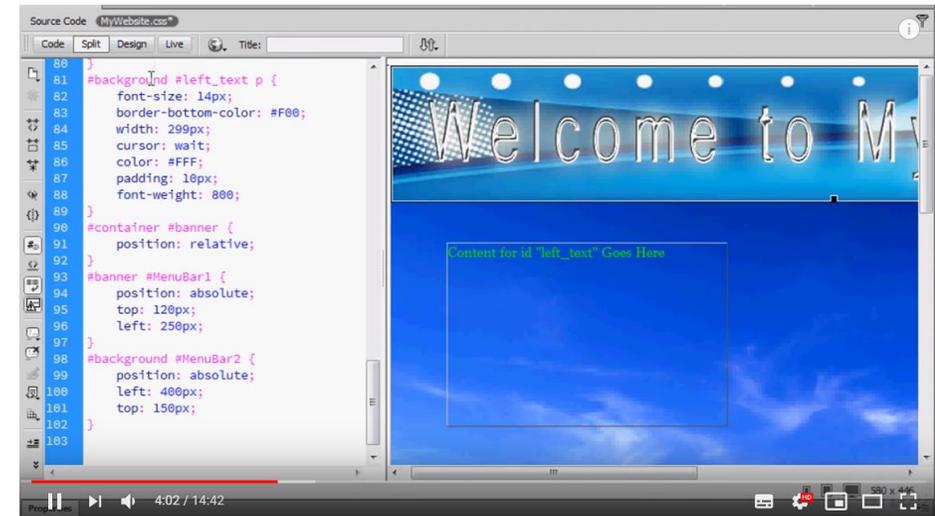


Websites and further reading:

What is dreamweaver: <https://helpx.adobe.com/uk/dreamweaver/how-to/what-is-dreamweaver.html>

What is fireworks: <https://www.adobe.com/uk/products/fireworks.html>

Dreamweaver tutorial: <https://www.youtube.com/watch?v=D-5xpY4zH2c>



Key vocabulary to define and learn:

Vector

Bitmap

Alignment

Website

Hyperlink

Hotspot

Banner

Animation