

Gloucester Academy

Unit 1 - 23/24

Year 11

Knowledge Organiser

CORE SUBJECTS

Knowledge is power. Information is liberating.

Logins:

School email



Username: _____@gloucesteracademy.co.uk

Password: _____

School computer



Username: _____

Password: _____

sparx.co.uk

sparx

Username: _____

Password: _____

Contents:

Homework Guidance:	3
Example page:	4
Homework Timetable:	5
Maths Homework – Sparx Maths	5
Science Knowledge Organiser - Mondays	6
Maths Knowledge Organiser Foundation - Mondays	9
Maths Knowledge Organiser Higher - Mondays	13
English Literature Knowledge Organiser - Tuesdays	17
Character Education	21

Homework Guidance:

Knowledge Organiser homework is based on self-quizzing. It is expected that you complete one page of self-quizzing, every day. This should take around 30 minutes. You should not leave blank lines on the page, including in between pieces of information (if you are self-quizzing diagrams, you can use more than one line to copy the diagram into your practice book). The information you self-quiz should be numbered in your practice book with the same numbers used on the Subject Knowledge Organiser. Tutors will check your practice book. They will be looking for a full page of self-quizzing on the correct numbers of the Subject Knowledge Organiser, as well as for purple pen ticks/corrections and good presentation (including your H/W, Title and Date underlined with a ruler). Your writing needs to be neat and legible. If we feel that any of these elements are not up to standard, you will be issued with a same day detention.

A demonstrational video can be found here:

<https://www.gloucesteracademy.com/students/homework-and-revision-guidance/knowledge-organisers>

These are the steps you should follow to complete effective self-quizzing:

look □ repeatedly say aloud □ cover □ write □ check

1. **Identify** the Subject Knowledge Organiser segment for the day from your homework timetable.
2. **Open up your practice book** and on the top line, write 'H/W' in the margin. On the other side of the margin line, write the Title (the subject you are completing) the Week (which week you are completing). Write the Date on the right hand side. Underline everything with a ruler.
3. **Place your Subject Knowledge Organiser segment in front of you.** Start with the first numbered piece of information within the weekly segment. Read and memorise the information - we recommend saying it aloud. Repeat the process several times, until you are confident to write the knowledge point down.
4. **Close your Subject Knowledge Organiser** or cover up the piece of information, and try to recall the knowledge. On the line directly beneath your H/W, Title and Date, write the correct number from the Subject Knowledge Organiser and the piece of information from memory, ensuring there are no blank lines.
5. **Check it and correct any mistakes.** Open up your Subject Knowledge Organiser and look at the piece of information – using a purple pen tick the piece of information in your practice book if you have recalled it correctly (word for word, correctly spelled). If you have incorrectly recalled or missed any part of the information, use your purple pen to put a cross next to that knowledge point.
6. **If you recalled the piece of information incorrectly,** go back to step 3 and **in purple pen,** repeat the process again for the same piece of information (cover up previous attempts in your practice book as well as the piece of information in your Subject Knowledge Organiser). When you have recalled the information correctly, tick the attempt and move on to the next piece of information within the weekly segment.
7. **Repeat the steps above** until you have recalled and written down all pieces of information within the weekly segment. If this has not filled one full page of your practice book, go back to the first piece of information within the weekly segment and repeat the process again, until you have filled an entire page.

Example page:

H/W Science week 3

21 September 2020

1. A cell. This is the simplest unit of a living organism. ✓
2. Cell membrane. This is a ~~partaly~~ partially permeable barrier and controls what goes in and out of the cell. X
2. Cell membrane. This is a partially permeable barrier and controls what goes in and out of the cell. ✓
3. Cytoplasm. This is a jelly-like substance in cells where chemical reactions occur. ✓
4. Nucleus. This contains DNA and controls the cell. ✓
5. Mitochondion. A sub-cellular structure where respiration takes place to make energy. X
5. Mitochondrion. A sub-cellular structure where respiration takes place to make energy. ✓
6. Hypothesis. An idea that explains how or why something happens. ✓
7. Prediction. A statement suggesting what you think will happen in an experiment / investigation. ✓
8. Control variable. The variable that must be kept constant so that it doesn't affect the outcome of the investigation. (variable = something that can change in an experiment). ✓
9. Independent variable. The variable that is changed in an experiment / investigation. (variable = something that can change in an experiment). ✓
10. Dependent variable. The variable that is recorded and measured for each change of the independent variable. (variable = something that can change in an experiment) X
10. Dependent variable. The variable that is measured

Homework Timetable:

You are expected to complete at least 30 minutes of homework in your practice book every day as well as three sessions of Hegarty Maths homework per week. Each of these are expected to take up to 30 minutes.

	Monday	Tuesday	Wednesday	Thursday	Friday	Weekend
Knowledge Organiser in your practice book 30 minutes	Science & Maths	English Literature	Choice A _____	Choice B _____	Choice C _____	Choice D _____
Sparx Maths 1 hour						
Seneca 30 mins	English Lit	English Lang	English Lit	English Lang	English Lit	

Maths Homework – Sparx Maths

You will get one sparx.co.uk assignment to complete each week. Your homework is made up of personalised questions that will help you develop your learning in maths. This will include topics you have covered within the past week and some older material for you to revise. The homework may include multiple tasks. We suggest you split it into three manageable chunks and complete this every Wednesday, Friday and Monday.

You should be able to complete all of the questions without too much support, however, if there is a question which you are finding hard to complete, we recommend you watch the video. If you are still unable to solve the question, move on to the next one and talk to your teacher before it's due.

You will need to show your maths teacher your Sparx booklet so your teacher can see your workings. Your teacher will be looking to see that you have:

- Written down the bookwork code
- Written down your workings and answers

Marked your own work in a purple pen, made corrections, and written down your score at the end.

How to log in to Sparx - new students

- Go to sparx.co.uk, click **Log in** and choose **Student login**
- Start typing the name of your school in the **Select Your School** box, making sure you **click on the correct school name** when it comes up. Click **Continue**.
- Click the **New User?** button at the bottom of the box.
- Fill in your **Name and Date of Birth**.
- Click **Submit**. You will be given a username and password - **you must remember it!**
- Click **Finish**. You will be asked to re-enter your username and password. This is to help you remember it.

Now you can log in with your **Username** and **Password** :)

SPARX MATHS

You're logging in to Sparx at St James' Cavan.

Username

Password

New user? **Login**

Fill in the details below in order to find out your Sparx username and password.

First Name:

Last Name:

Date of birth: 14 2009

Submit

sparx

Science Knowledge Organiser - Mondays

Week 1	Piece of Information	Answer
1	Reactivity Series	What is an arrangement of metals in order of reactivity?
2	Displacement Reaction	What is a reaction where a more reactive metal takes the place of a less reactive metal in a compound?
3	Oxidation	Name a reaction in which a substance loses electrons and gains oxygen?
4	Reduction	Name a reaction in which a substance gains electrons and loses oxygen?
5	Ore	What is the name of rock from which a metal can be extracted for profit?
6	Acid	What is a solution with a pH less than 7, which produces Hydrogen ions in water?
7	Aqueous	Describe a state that is dissolved in a solvent like water?
8	Alkali	What is a solution with a pH more than 7, which produces Hydroxide ions in water?
9	H ⁺	What is the chemical formula for a Hydrogen ion?
10	OH ⁻	What is the chemical formula for a Hydroxide ion?

Week 2	Piece of Information	Answer
1	Quadrat	Name a square frame used in biological sampling?
2	Transect	Name a line along which systematic sampling occurs?
3	Producer	Name any organism that photosynthesises at the start of a food chain?
4	Consumer	Name an organism in a food chain which consumes other organisms?
5	Combustion	What is the scientific name for burning?
6	Precipitation	Rain, sleet, snow and hail are all examples of...?
7	Evaporation	Describe a change of state from liquid to a gas?
8	Biodiversity	What is the variety of living organisms in an area called?
9	Acid Rain	Name a type of precipitation that is acidic due to air pollution?
10	Deforestation	What name is given to clearing trees from an area which will then be used for other purposes?

Week 3	Piece of Information	Answer
1	Breeding Programme	Name a conservation method in zoos to breed captive animals together to increase numbers and the gene pool?
2	Population	What is the total number of all organisms of the same species in an area?
3	Community	What is a group of different species living in the same area called?
4	Competition	What is the contest between organisms for resources such as food and shelter?
5	Interdependence	Name the term that describes how species depend on one another?
6	Abiotic Factors	What are the non-living parts of the environment called?
7	Biotic Factors	What are the living parts of the environment called?
8	Invasive Species	What is an organism that is not native to the environment?
9	Ecosystem	Describe the interaction between a community of living organisms and the nonliving components?
10	Structural Adaptation	A type of adaptation based on physical features such as body shape?

Week 4	Piece of Information	Answer
1	Activation energy	What is the minimum energy particles must have to react?
2	Catalyst	What is a substance that lowers activation energy and provides an alternative pathway?
3	Enzymes	Name molecules that act as catalysts in biological systems?
4	Closed system	Name a system where substances cannot escape or enter?
5	Dynamic Equilibrium	The term used to describe the forward and reverse reaction happening at the same rate?
6	Tangent	Name a line drawn on a curve to identify the gradient?
7	Gas Syringe	Name a piece of equipment used to collect gas products?
8	Inverted measuring cylinder	Name an upside down piece of equipment used to measure gas production?
9	Kinetic energy	Name the store of energy found in moving objects?
10	Pressure	What is the force acting over an area as a result of collisions between particles and the walls of their container?

Week 5	Piece of Information	Answer
1	Concentration	What is the number of particles dissolved in a solvent called?
2	Powder	Name a substance with a very high surface area?
3	B x H x L	What is the formula to calculate the volume of a regular object?
4	Mean	What is calculated from: Values added/Total number of values?
5	Linear	Describe a straight section on a graph?
6	Non-linear	Describe a curved section on a graph?
7	Proportional	Describe a graph which shows a linear relationship but does not go through the origin?
8	Directly Proportional	Describe a graph which shows a linear relationship and passes through the origin (0)?
9	Inversely Proportional	Describe a graph which shows that when one variable increases, the other variable decreases, or vice versa?
10	Conical Flask	Name a piece of glassware that can be used for reacting chemicals together safely?

Week 6	Piece of Information	Answer
1	Homeostasis	What is the maintenance of a constant internal environment?
2	Effector	Always a muscle or a gland?
3	Central Nervous System	The brain and the spine are part of the ...?
4	Receptor	Name a group of cells which detect a stimulus and trigger electrical impulses?
5	Sensory Neurone	Name a neurone that carries electrical impulses to the central nervous system?
6	Relay Neurone	Name a neurone that carries electrical impulses within the central nervous system?
7	Motor Neurone	Name a neurone that carries electrical impulses away from the central nervous system to the effector?
8	Synapse	Name the gap between neurons?
9	Reflex Response	Name an automatic response that you do not think about?
10	Reflex Arc	Name the pathway of neurons in a reflex action?

Week 7	Piece of Information	Answer
1	Gland	Name a structure in the body that releases hormones?
2	Pituitary Gland	Name the master gland that affects other glands in the body?
3	Insulin	Name a hormone that lowers blood glucose?
4	Glycogen	Name a storage form of glucose stored in the liver?
5	Type 1 Diabetes	Name a medical condition diagnosed in young people who do not produce insulin?
6	Type 2 Diabetes	Name a medical condition diagnosed later in life preventing the person responding to insulin?
7	Oestrogen	Name a female sex hormone produced in the ovaries?
8	Testosterone	Name a male sex hormone produced in the testes that controls puberty?
9	Ovulation	Name a process that causes the release of an egg from an ovary?
10	Barrier	Name a method of contraception that prevents sperm from reaching an egg?

Week 8	Piece of Information	Answer
1	Pure substance	Name a single element or compound that is not mixed with any other substance?
2	Formulation	Define a mixture that has been designed as a useful product, prepared in carefully measured quantities?
3	Stationary Phase	What is the chromatography paper also known as?
4	Mobile Phase	What is the solvent in chromatography also known as?
5	Rf Value	Distance moved by substance / Distance moved by solvent?
6	Glow splint relights	What is the positive test for Oxygen gas?
7	Squeaky pop	What is the positive test for Hydrogen gas?
8	Limewater turns cloudy	What is the positive test for Carbon dioxide?
9	Bleached white	What is the positive test for Chlorine when using damp litmus paper?
10	Mixture	What type of substance contains more than one element or compound?

Week 9	Piece of Information	Answer
1	Melting point	What is the freezing point the same as?
2	Boiling point	What is the condensation point the same as?
3	Insoluble	When a substance will not dissolve?
4	Soluble	When a substance is capable of dissolving?
5	Solvent	Define a liquid that a solute can dissolve into?
6	Solution	What is formed when a solute dissolves in a solvent?
7	Capillary tube	What is used to add mixtures to chromatography paper?
8	Pencil	What is the baseline in chromatography drawn in?
9	Uncertainty	What is calculated from the range / 2
10	Anomalous result	Name a result that does not fit the general trend or fit on a line of best fit?

Week 10	Piece of Information	Answer
1	Joule	What is the unit of work?
2	Elastic deformation	When an object returns to its original length or shape?

3	Inelastic deformation	When an object remains permanently stretched?
4	Extension	What is the difference between the stretched and unstretched lengths of a spring?
5	Newton	What is the unit for force?
6	Vector	What type of quantity is a force with both a magnitude and direction?
7	Limit of Proportionality	What is the point at which a stretched object has become permanently stretched? Elastic deformation stops and inelastic deformation begins?
8	Elastic potential energy	What is the store of energy in a spring?
9	100cm	How many cm are in 1 metre?
10	Force = Spring Constant x extension $F = k e$	What is the equation for calculating a spring constant using force and extension?

Week 11-13	Use these weeks to complete homework pages of the definitions that you do not know to prepare for your assessments. These will be the definitions you have had to rewrite in purple in your homework book
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Maths Knowledge Organiser Foundation - Mondays

Week 1	Piece of Information	Answer
1	$y = mx + c$	Equation of a straight line
2	The gradient, the steepness of a line.	The "m" in $y = mx + c$
3	The y-intercept, the point at which a line crosses the y-axis.	The "c" in $y = mx + c$
4	Midpoint	The point half way along a line.
5	$2a$	$a + a$
6	a^2	$a \times a$
7	$\frac{2}{x}$	$\frac{1}{x} + \frac{1}{x}$
8	$\frac{1}{x}$	x^{-1}
9	$\frac{1}{x^2}$	x^{-2}
10	Parallel	Two lines that are the same distance apart.

Week 2	Piece of Information	Answer
1	Perpendicular	Two lines that meet at 90°
2	Quadrilateral	A four sided polygon.

3	Parallelogram	A quadrilateral with two pairs of parallel sides.
4	Trapezium	A quadrilateral with one pair of parallel sides.
5	Kite	A quadrilateral with two pairs of adjacent (touching) sides which are equal.
6	Rhombus	A quadrilateral whose four sides all have the same length.
7	Integer	A whole number.
8	Denominator	The bottom part of a fraction.
9	Numerator	The top part of a fraction.
10	Prime number	Has two factors; one and itself

Week 3	Piece of Information	Answer
1	2, 3, 5, 7, 11, 13, 17, 19, 23, 29	First ten prime numbers
2	1, 8, 27, 64, 125	First 5 cube numbers
3	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144	First 12 square numbers
4	8, 16, 24, 32, 40, 48, 56	First 7 multiples of 8.
5	9, 18, 27, 36, 45, 54, 63	First 7 multiples of 9.
6	$y = mx + c$	Equation of a straight line
7	The gradient, the steepness of a line.	The "m" in $y = mx + c$
8	The y-intercept, the point at which a line crosses the y-axis.	The "c" in $y = mx + c$
9	Midpoint	The point half way along a line.
10	$2a$	$a + a$

Week 4	Piece of Information	Answer
1	7, 14, 21, 28, 35, 42, 49	First 7 multiples of 7.
2	2, 4, 6, 8, 10	First 5 even numbers
3	1, 3, 5, 7, 9	First 5 odd numbers
4	Vertex (vertices)	A corner or a point where lines meet.
5	Centre	A point in the middle of the object such as a circle or sphere.
6	a^2	$a \times a$
7	$\frac{2}{x}$	$\frac{1}{x} + \frac{1}{x}$
8	$\frac{1}{x}$	x^{-1}
9	$\frac{1}{x^2}$	x^{-2}
10	Parallel	Two lines that are the same distance apart.

Week 5	Piece of Information	Answer
1	$a^2 + b^2 = c^2$	Pythagoras' Theorem
2	$\frac{\text{opposite}}{\text{hypotenuse}}$	$\sin\theta$
3	$\frac{\text{adjacent}}{\text{hypotenuse}}$	$\cos\theta$
4	$\frac{\text{opposite}}{\text{adjacent}}$	$\tan\theta$
5	$C=2\pi r$	Circumference of a circle when the radius is known.
6	Perpendicular	Two lines that meet at 90°
7	Quadrilateral	A four sided polygon.
8	Parallelogram	A quadrilateral with two pairs of parallel sides.
9	Trapezium	A quadrilateral with one pair of parallel sides.
10	Kite	A quadrilateral with two pairs of adjacent (touching) sides which are equal.

Week 6	Piece of Information	Answer
1	Length x width	Area of a rectangle.
2	Acute angle	An angle less than 90°
3	Obtuse angle	An angle greater than 90° and less than 180° .
4	Reflex angle	An angle between 180° and 360° .
5	180°	Sum of angles on a straight line.
6	Rhombus	A quadrilateral whose four sides all have the same length.
7	Integer	A whole number.
8	Denominator	The bottom part of a fraction.
9	Numerator	The top part of a fraction.
10	Prime number	Has two factors; one and itself

Week 7	Piece of Information	Answer
1	360°	Sum of angles in a full turn.
2	90°	Right angle.
3	Pentagon	A five sided polygon.
4	Hexagon	A six sided polygon.
5	Octagon	An eight sided polygon.
6	2, 3, 5, 7, 11, 13, 17, 19, 23, 29	First ten prime numbers
7	1, 8, 27, 64, 125	First 5 cube numbers
8	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144	First 12 square numbers
9	8, 16, 24, 32, 40, 48, 56	First 7 multiples of 8.
10	9, 18, 27, 36, 45, 54, 63	First 7 multiples of 9.

Week 8	Piece of Information	Answer
1	180° .	Sum of angles in a triangle
2	Hypotenuse	The side opposite the right angle for a right angle triangle. It is the longest side in a right-angle triangle.
3	Isosceles triangle	A triangle with two sides of equal length, and two angles of equal size.
4	Equilateral triangle	A triangle with all the sides the same length, and all angles the same size.
5	Scalene triangle	A triangle with all three sides of different length, and all angles of different size.
6	7, 14, 21, 28, 35, 42, 49	First 7 multiples of 7.
7	2, 4, 6, 8, 10	First 5 even numbers
8	1, 3, 5, 7, 9	First 5 odd numbers
9	Vertex (vertices)	A corner or a point where lines meet.
10	Centre	A point in the middle of the object such as a circle or sphere.

Week 9	Piece of Information	Answer
1	$a^2 + b^2 = c^2$	Pythagoras' Theorem
2	$\frac{\text{opposite}}{\text{hypotenuse}}$	$\sin\theta$
3	$\frac{\text{adjacent}}{\text{hypotenuse}}$	$\cos\theta$
4	$\frac{\text{opposite}}{\text{adjacent}}$	$\tan\theta$
5	$C=2\pi r$	Circumference of a circle when the radius is known.
6	Length x width	Area of a rectangle.
7	Acute angle	An angle less than 90°
8	Obtuse angle	An angle greater than 90° and less than 180° .
9	Reflex angle	An angle between 180° and 360° .
10	180°	Sum of angles on a straight line.

Week 10	Piece of Information	Answer
1	360°	Sum of angles in a full turn.
2	90°	Right angle.
3	Pentagon	A five sided polygon.
4	Hexagon	A six sided polygon.
5	Octagon	An eight sided polygon.
6	180° .	Sum of angles in a triangle
7	Hypotenuse	The side opposite the right angle for a right angle triangle. It is the longest side in a right-angle triangle.

8	Isosceles triangle	A triangle with two sides of equal length, and two angles of equal size.
9	Equilateral triangle	A triangle with all the sides the same length, and all angles the same size.
10	Scalene triangle	A triangle with all three sides of different length, and all angles of different size.

Week 11-13	Use these weeks to complete homework pages of the definitions that you do not know to prepare for your assessments. These will be the definitions you have had to rewrite in purple in your homework book
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Maths Knowledge Organiser Higher - Mondays

Week 1	Piece of Information	Answer
1	$2a$	$a + a$
2	a^2	$a \times a$
3	a^3	$a \times a \times a$
4	1	$\frac{a}{a}$
5	$12a^{13}$	$3a^5 \times 4a^8$
6	1	a^0
7	$\frac{2}{x}$	$\frac{1}{x} + \frac{1}{x}$
8	$\frac{1}{x}$	x^{-1}
9	$\frac{1}{x^2}$	x^{-2}
10	Reciprocals	Two numbers that multiply to make 1. e.g. $1/5$ and 5

Week 2	Piece of Information	Answer
1	$y = mx + c$	Equation of a straight line
2	The gradient, the steepness of a line.	The "m" in $y = mx + c$
3	The y-intercept, the point at which a line crosses the y-axis.	The "c" in $y = mx + c$
4	Midpoint	The point half way along a line.
5	$c^2 = a^2 + b^2$	Pythagoras' Theorem
6	$\frac{\text{opposite}}{\text{hypotenuse}}$	$\sin\theta$
7	$\frac{\text{adjacent}}{\text{hypotenuse}}$	$\cos\theta$
8	$\frac{\text{opposite}}{\text{adjacent}}$	$\tan\theta$

9	$\frac{a}{\sin A} = \frac{b}{\sin B} =$	The sine rule
10	$a^2 = b^2 + c^2 - 2$	The cosine rule

Week 3	Piece of Information	Answer
1	$\frac{1}{2}ab\sin C$	Area of a triangle when SAS is known
2	$\frac{1}{2} \times \text{base} \times \text{perpendicular height.}$	Area of a triangle when two perpendicular sides are known
3	$x = \frac{-b \pm \sqrt{b^2}}{2a}$	Quadratic Formula
4	$A = \pi r^2$	Area of a circle
5	$C = 2\pi r$	Circumference of a circle when the radius is known.
6	$2a$	$a + a$
7	a^2	$a \times a$
8	a^3	$a \times a \times a$
9	1	$\frac{a}{a}$
10	$12a^{13}$	$3a^5 \times 4a^8$

Week 4	Piece of Information	Answer
1	Acute angle	An angle less than 90°
2	Obtuse angle	An angle greater than 90° and less than 180°
3	Reflex angle	An angle between 180° and 360°
4	180°	Sum of angles on a straight line.
5	360°	Sum of angles in a full turn.
6	1	a^0
7	$\frac{2}{x}$	$\frac{1}{x} + \frac{1}{x}$
8	$\frac{1}{x}$	x^{-1}
9	$\frac{1}{x^2}$	x^{-2}
10	Reciprocals	Two numbers that multiply to make 1. e.g. $\frac{1}{5}$ and 5

Week 5	Piece of Information	Answer
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1	180°	Sum of angles in a triangle
2	Hypotenuse	The side opposite the right angle for a right angle triangle. It is the longest side in a right-angle triangle.
3	Isosceles triangle	A triangle with two sides of equal length, and two angles of equal size.
4	Equilateral triangle	A triangle with all the sides the same length, and all angles the same size.
5	Scalene triangle	A triangle with all three sides of different length, and all angles of different sizes.
6	$y = mx + c$	Equation of a straight line
7	The gradient, the steepness of a line.	The "m" in $y = mx + c$
8	The y-intercept, the point at which a line crosses the y-axis.	The "c" in $y = mx + c$
9	Midpoint	The point half way along a line.
10	$c^2 = a^2 + b^2$	Pythagoras' Theorem

Week 6	Piece of Information	Answer
1	1000	Metres (m) in a kilometre (km).
2	10	Millimetres (mm) in a centimetre (cm).
3	100	Centimetres (cm) in a metre (m).
4	52	Weeks in a year
5	Add them up and divide them by 2.	How to find the middle of two numbers
6	$\frac{\text{opposite}}{\text{hypotenuse}}$	$\sin\theta$
7	$\frac{\text{adjacent}}{\text{hypotenuse}}$	$\cos\theta$
8	$\frac{\text{opposite}}{\text{adjacent}}$	$\tan\theta$
9	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	The sine rule
10	$a^2 = b^2 + c^2 - 2bc \cos A$	The cosine rule

Week 7	Piece of Information	Answer
1	Mean	The sum of all the values, divided by the total number of values in the set.
2	Median	The "middle" of a sorted list of numbers.
3	Mode	The value that appears most frequently in a data set.
4	Range	The difference between the lowest and highest values in a data set.
5	$IQR = UQ - LQ$	Interquartile range formula
6	$\frac{1}{2}ab \sin C$	Area of a triangle when SAS is known
7	$\frac{1}{2} \times \text{base} \times \text{perpendicular height}$	Area of a triangle when two perpendicular sides are known

8	$x = \frac{-b \pm \sqrt{b^2}}{2a}$	Quadratic Formula
9	$A = \pi r^2$	Area of a circle
10	$C=2\pi r$	Circumference of a circle when the radius is known.

Week 8	Piece of Information	Answer
1	Prime number	Has two factors; one and itself
2	2, 3, 5, 7, 11, 13, 17, 19, 23, 29	First ten prime numbers
3	1, 8, 27, 64, 125	First 5 cube numbers
4	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144	First 12 square numbers
5	1, 3, 6, 10, 15, 21	First 6 triangle numbers
6	Acute angle	An angle less than 90°
7	Obtuse angle	An angle greater than 90° and less than 180°
8	Reflex angle	An angle between 180° and 360°
9	180°	Sum of angles on a straight line.
10	360°	Sum of angles in a full turn.




Week 9	Piece of Information	Answer
1	180°	Sum of angles in a triangle
2	Hypotenuse	The side opposite the right angle for a right angle triangle. It is the longest side in a right-angle triangle.
3	Isosceles triangle	A triangle with two sides of equal length, and two angles of equal size.
4	Equilateral triangle	A triangle with all the sides the same length, and all angles the same size.
5	Scalene triangle	A triangle with all three sides of different length, and all angles of different sizes.
6	1000	Metres (m) in a kilometre (km).
7	10	Millimetres (mm) in a centimetre (cm).
8	100	Centimetres (cm) in a metre (m).
9	52	Weeks in a year
10	Add them up and divide them by 2.	How to find the middle of two numbers

Week 10	Piece of Information	Answer
1	Mean	The sum of all the values, divided by the total number of values in the set.




2	Median	The "middle" of a sorted list of numbers.
3	Mode	The value that appears most frequently in a data set.
4	Range	The difference between the lowest and highest values in a data set.
5	$IQR = UQ - LQ$	Interquartile range formula
6	Prime number	Has two factors; one and itself
7	2, 3, 5, 7, 11, 13, 17, 19, 23, 29	First ten prime numbers
8	1, 8, 27, 64, 125	First 5 cube numbers
9	1, 4, 9, 16, 25, 36, 49, 64, 81, 100, 121, 144	First 12 square numbers
10	1, 3, 6, 10, 15, 21	First 6 triangle numbers




Week 11-13	Use these weeks to complete homework pages of the definitions that you do not know to prepare for your assessments. These will be the definitions you have had to rewrite in purple in your homework book
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English Literature Knowledge Organiser - Tuesdays

Week 1	Piece of Information	Answer	
1	penury	the state of extreme poverty (<i>pennilessness</i>)	ACC
2	ignorance	lack of knowledge or information (<i>inexperience</i>)	ACC
3	1843	Dickens writes <i>A Christmas Carol</i> in December of this year	ACC
4	New Poor Laws	In 1834 a set of laws which placed further restrictions on the poor	ACC
5	Victorian era	the period when <i>A Christmas Carol</i> was written; Victoria was queen	ACC
6	socialism	A political system that believes production should be owned by the general community, not individuals.	AIC
7	capitalism	A political system that believes production should be owned by individuals, not the community.	AIC
8	"pink and intimate"	The stage directions for the lighting before the Inspector arrives 	AIC
9	"brighter and harder"	The stage directions for the lighting when the inspector arrives 	AIC
10	"unsinkable, absolutely unsinkable [...]" silly little war scares"	Mr Birling's opinion on the titanic and the future in 1912 	AIC




Week 2	Piece of Information	Answer	
1	misanthropic	having a dislike of other people (<i>unsociable</i>)	ACC
2	avaricious	having extreme greed for money or material gain (<i>greedy</i>)	ACC
3	miserly	someone who keeps their wealth and spends little (<i>cheapskate</i>)	ACC
4	covetous	a great desire to possess things owned by others (<i>grasping</i>)	ACC
5	apathetic	showing no interest, enthusiasm or concern (<i>uninterested</i>)	ACC
6	1912	The year the events of <i>An Inspector Calls</i> take place	AIC





7	1946	The year <i>An Inspector Calls</i> was first performed in Britain	AIC
8	"Is it the one you wanted me to have?"	A question asked by Sheila to Gerald about her ring 	AIC
9	"As if we were all mixed up together, like bees in a hive"	A comment made by Mr Birling about the idea of community 	AIC
10	"sharp ring" "massiveness, solidity and purposefulness"	The stage direction for the Inspector's arrival and his appearance 	AIC




Week 3	Piece of Information	Answer	
1	Ebenezer Scrooge	A miserly misanthrope who lives an isolated and reclusive life	ACC
2	Bob Cratchit	Scrooge's employee who has a large family and lives in poverty	ACC
3	Jacob Marley	Scrooge's former business partner who visits him as a ghost	ACC
4	Fred	Scrooge's nephew who celebrates Christmas and family	ACC
5	Belle	Scrooge's ex-fiance who left him due to his love of money	ACC
6	Fezziwig	Scrooge's first boss who was kind, welcoming and generous	ACC
7	socialism	A political system that believes production should be owned by the general community, not individuals.	AIC
8	"But these girls aren't cheap labour - they're <i>people</i> "	A statement made by Sheila towards her father about his actions 	AIC
9	"mummy" "daddy" "mother" "father"	The changing terms Sheila uses for her parents 	AIC
10	"No, he's giving us the rope – so that we'll hang ourselves"	Sheila's comment about the inspector's intentions 	AIC

Week 4	Piece of Information	Answer	
1	Thomas Malthus	An economist who believed that due to the growing population, disease and starvation would be a natural way to curb overcrowding	ACC
2	Industrial revolution	Movement from rural areas to cities due to engines and factory growth	ACC
3	Ragged schools	A charity education system for the poor (Dickens supported this)	ACC
4	The hungry forties	The name for the 1840s as increas population lead to the poor suffering	ACC
5	repentance	a real feeling of regret that leads you to wish away your past wrongs	ACC
6	remorse	deep regret or guilt for a wrong committed (<i>guilt</i>)	AIC
7	redemption	the action of being saved from sin, error or evil (<i>saving</i>)	AIC
8	"I didn't install her there so that I could make love to her"	Gerald's comment about his relationship with Daisy/Eva 	AIC
9	"Go and look for the father of the child. It's his responsibility"	Mrs Birling's comment about who the inspector should speak to 	AIC
10	"alone, friendless, almost penniless, desperate"	The inspector's description of Eva/ Daisy's situation 	AIC




Week 5	Piece of Information	Answer	
1	Tiny Tim	Bob Cratchit's disabled son; represents the struggle of the poor	ACC
2	Mrs Cratchit	Bob Cratchit's wife who believes Scrooge is an "ogre"	ACC
3	Ghost of Christmas Past	The first spirit represents memory; it has a light on its head	ACC
4	Ghost of Christmas Present	The second spirit represents Christmas; like father Christmas	ACC
5	Ghost of Christmas Yet to Come	The third spirit represents Death; it is cloaked, dark, and silent	ACC
6	patriarchal	A society in which power and status is given to men	AIC




7	misogyny	Prejudice towards women as a group		AIC
8	"that state when a chap easily turns nasty - and I threatened to make a row"	Eric's confession around the night he met Eva		AIC
9	"I liked her – she was pretty and a good sport"	Eric's view of Eva and her personality		AIC
10	"used her [...] as if she was an animal, a thing, not a person"	The inspector's comments on how Eric treated Eva		AIC




Week 6	Piece of Information	Answer		
1	remorse	deep regret or guilt for a wrong committed (<i>guilt</i>)		AIC
2	redemption	the action of being saved from sin, error or evil (<i>saving</i>)		AIC
3	philanthropic	someone seeking to promote the welfare of others (<i>charitable</i>)		ACC
4	benevolent	wanting to do good for others (<i>warm-hearted</i>)		ACC
5	compassionate	showing concern or sympathy for others (<i>considerate</i>)		ACC
6	remorse	deep regret or guilt for a wrong committed (<i>guilt</i>)		AIC
7	"There are millions and millions and millions of Eva Smiths"	The inspector's view of how many people live like Eva		AIC
8	"We are members of one body. We are responsible for each other"	The inspector's view on how society should behave		AIC
9	"They will be taught it in fire and blood and anguish"	The inspector's view about what will happen in the future		AIC
10	"pleased with themselves" "leaving them staring, subdued and wondering"	Stage directions to signify the family's changing behaviour		AIC

Week 7	Piece of Information	Answer		
1	misanthropic	having a dislike of other people (<i>unsociable</i>)		ACC
2	avaricious	having extreme greed for money or material gain (<i>greedy</i>)		ACC
3	penury	the state of extreme poverty (<i>pennilessness</i>)		ACC
4	redemption	the action of being saved from sin, error or evil (<i>saving</i>)		ACC
5	philanthropic	someone seeking to promote the welfare of others (<i>charitable</i>)		ACC
6	'Exposure'	A group of soldiers suffer through the cold weather conditions.		P&C
7	futility	Something that appears to have no purpose (<i>pointlessness</i>)		P&C
8	"merciless iced east winds that knife us"	Personification used to describe nature in the opening line		P&C
9	"slowly our ghosts drag home"	A metaphor during the poem to show the soldiers' loss of life		P&C
10	"but nothing happens"	A refrain, and the final line, used to indicate boredom in war		P&C

Week 8	Piece of Information	Answer		
1	noble	Having high moral principles or morality (<i>honourable</i>)		MAC
2	inferior	lower in rank, status or quality (<i>subordinate</i>)		MAC
3	tyrannical	exercising power in a cruel way (<i>dictatorial</i>)		MAC
4	ruthless	showing no pity or compassion for others (<i>merciless</i>)		MAC
5	impulsive	acting or doing something without thinking (<i>spontaneous</i>)		MAC
6	'Bayonet Charge'	A single soldier goes over the top and questions his purpose		P&C

7	patriotic	Love and loyalty for your country (<i>nationalist</i>)	P&C
8	"sweating like molten iron"	A simile from the first stanza highlighting the intensity of war 	P&C
9	"King, honour, human dignity, etcetera/ Dropped like luxuries"	A simile illustrating how his list of reasons to fight are pointless 	P&C
10	"terror's touchy dynamite"	Chremamorphism in the final line - the soldier is an object 	P&C

Week 9	Piece of Information	Answer	
1	manipulative	exercising control or influence over someone or something (<i>cunning</i>)	MAC
2	ambitious	having a strong desire to succeed or achieve something (<i>determined</i>)	MAC
3	duplicitous	being guilty of misleading others and being dishonest (<i>deceitful</i>)	MAC
4	emasculating	to weaken a man by questioning his male role or identity (<i>weaken</i>)	MAC
5	fragile	when a person is seen as delicate or vulnerable (<i>frail</i>)	MAC
6	'Charge of the Light Brigade'	A group of soldiers ride into a valley of inevitable death	P&C
7	noble	Having high moral principles or morality (<i>honourable</i>)	P&C
8	"Into the jaws of Death,/ Into the mouth of Hell"	Two repeated metaphors which illustrate the battlefield 	P&C
9	"Theirs not to reason why,/ Theirs but to do and die"	A phrase with anaphora to indicate the soldiers' lack of choice 	P&C
10	"noble" "hero" "glory"	A semantic field of heroism used to describe the soldiers 	P&C

Week 10	Piece of Information	Answer	
1	sceptical	not easily convinced or uncertain about something (<i>doubtful</i>)	MAC
2	equivocate	using vague language to conceal the truth (<i>ambiguity</i>)	MAC
3	inexplicable	unable to be explained or accounted for (<i>incomprehensible</i>)	MAC
4	malevolent	having or showing a wish to do evil to others (<i>spiteful</i>)	MAC
5	paradoxical	something with two meanings that don't make sense together	MAC
6	'War Photographer'	A photographer returns home and struggles to process his memories	P&C
7	impassively	giving no sign of feeling or emotion (<i>expressionless</i>)	P&C
8	"spools of suffering set out in ordered rows"	A juxtaposing phrase in stanza one indicating a lack of control 	P&C
9	"Home again/ to ordinary pain"	An oxymoron to show how war leads to everyone suffering 	P&C
10	"blood stained into foreign dust"	A metaphor which highlights the permanent impact of war 	P&C

Week 11-13	Use these weeks to complete homework pages of the definitions that you do not know to prepare for your assessments. These will be the definitions you have had to rewrite in purple in your homework book
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Character Education

Our vision

Character Education will help you to develop your confidence, compassion, and enable you to contribute effectively to society, be a successful learner and a responsible citizen. By focusing on these character challenges you will also develop self esteem and a better understanding and respect for others, as well as an awareness of wider spiritual and cultural issues. The challenges and experiences listed below will ensure you are able to climb your own personal mountain to the very best universities and professions.

How to earn and record your badges

- For each badge you complete you will need to have them signed off by a member of staff.
- Remember for some of your badges you will need to provide evidence.
- You will update your main Character booklet each week in tutor time.
- You will need to achieve each badge before being awarded the next, for example; you cannot achieve gold if you have not completed the bronze or silver in that badge category.

Ambition - Excellence - Pride

Ambition				
Badge	Badge Level	You must...	Achieved?	Staff Signature
Culture <i>This is a demonstration of ambition because you are working outside of your comfort zone.</i>	Bronze	Perform your creative talent at school.		
	Silver	Take part in three different events within the following: school drama performance, dance performance, art exhibition, orchestra/ band or a sporting tournament.		
	Gold	Take part in ten or more different events listed above.		
Academia <i>This is a demonstration of ambition because you are exploring opportunities available to you after Gloucester Academy.</i>	Bronze	Attend 3 external Higher Academic Events (careers lectures/college/sixth form/university visit).		
	Silver	Visit a Russell Group University.		
	Gold	Successfully secure an offer at a sixth form or college to complete A-Levels / Apprenticeship.		

Futures <i>This is a demonstration of ambition because you are climbing your own personal mountain to the very best universities and professions.</i>	Bronze	Take part in a one-to-one interview with a career's advisor.		
	Silver	To produce a high-quality CV checked by SLT/Careers adviser.		
	Gold	To secure a professional work experience placement.		
Literacy <i>This is a demonstration of ambition because you are expanding your vocabulary.</i>	Bronze	To read 25 books and complete book reviews.		
	Silver	To read 50 books and complete book reviews.		
	Gold	To read 150 books and complete book reviews.		

Ambition - Excellence - Pride

Excellence				
Badge	Badge Level	You must...	Achieved?	Staff Signature
Sport <i>This is a demonstration of excellence because you are representing your school.</i>	Bronze	Play in 10 competitive sports matches or competitions for the school team.		
	Silver	Play in 25 competitive sports matches or competitions for the school team.		
	Gold	Play in a competitive sports match or competition regionally or nationally.		
Community <i>This is a demonstration of excellence because you are helping others.</i>	Bronze	Be an active member of an in-school community for one unit; GA prep, an enrichment activity or homework support.		
	Silver	Write and propose a new community project to key stakeholders.		
	Gold	Organise and deliver a community project event.		
Leadership <i>This is a demonstration of excellence because you are being a role model to others.</i>	Bronze	Be on the student leadership team (sports captain, Character representative, mentor or ambassador).		
	Silver	Have impacted change or improvement as a leader (provide evidence of what you have achieved).		
	Gold	Create and lead your own leadership event.		
Adventure	Bronze	Complete a school residential / Outdoor Adventure Activity.		

<i>This is a demonstration of excellence because you have challenged yourself.</i>	Silver	Complete the Duke of Edinburgh BRONZE Award.		
	Gold	Complete the Duke of Edinburgh SILVER Award or Ten Tors challenge.		

Ambition - Excellence - Pride

Pride				
Badge	Badge Level	You must...	Achieved?	Staff Signature
Charity <i>This is a demonstration of pride because you have helped others.</i>	Bronze	Volunteer 10 hours to the local community or charity.		
	Silver	Organise a charity event and raise more than £100.		
	Gold	Organise a charity event and raise more than £500.		
Commitment <i>This is a demonstration of pride because you have dedicated time and effort to something you enjoy.</i>	Bronze	Visit one of the following; art gallery, theatre, museum, concert, ballet, or similar. Or have 100% attendance at an enrichment activity for a unit.		
	Silver	Visit two different places from the above list. Or have 100% attendance at two different enrichment activities for two units.		
	Gold	Visit five of the following; art gallery, theatre, museum, concert, ballet, or similar. Or have 100% attendance at three different enrichment activities for three units.		
Environment <i>This is a demonstration of pride because you are making the world more eco friendly.</i>	Bronze	Take part in an event which improves your school environment.		
	Silver	Organise an event which improves your local environment.		
	Gold	Contribute to a national event, or movement which aims to improve the environment.		
Diversity <i>This is a demonstration of pride because you have celebrated all things that make us unique.</i>	Bronze	Take part in one event; assembly or festival which celebrates diversity (race, religion, LGBTQI+).		
	Silver	Take part in two events that celebrate two different types of diversity.		
	Gold	Organise an event, festival or assembly which celebrates diversity.		