HALF TERM

5

SUCCESS PACK Year 9

Big Ideas, Key Words, and What You *Really* Need to Know

NOTTINGHAM ACADEMY

NOTTINGHAM ACADEMY

CONTENTS

HT 5

Your Sticky Knowledge Booklet

What is Sticky Knowledge?

Sticky knowledge is the essential information, facts, and vocabulary that you need to remember and use confidently across your subjects. It's the knowledge that will *stick* with you and help you build strong foundations for future learning.

Why Is It Important?

- It helps you make connections between different topics and subjects.
- It gives you the tools to be more confident in lessons.
- It prepares you for end-of-topic tests, assessments, and your journey to GCSEs.

How to Use This Booklet

1. **Read through each subject section carefully.** Highlight or underline key points.
2. **Use it for revision.** Test yourself regularly using flashcards, mind maps or quizzes.
3. **Bring it to school.** Teachers may refer to it in lessons or use it for quizzes and starters.
4. **Share it at home.** Ask family or carers to quiz you on your knowledge.

Top Tips to Make It Stick

- Revisit knowledge little and often – 10 minutes a day is enough!
- Use retrieval practice: cover up the facts and try to recall them.
- Talk about what you've learned with someone else – teaching helps remembering!

Let's Get Started!

Turn the page to begin your subject-by-subject journey into this half term's most important knowledge.

ART & DESIGN

Art and Design
HT5- ASSESSMENT
Year 9

Graffiti Art

In this unit, Year 9 explore the origins and culture of graffiti, learning how artists use tags, lettering styles, colour and composition to express identity. Pupils study Banksy's stencil techniques and social messages before developing and refining their own graffiti tag designs. The project builds skills in typography, symbolism, blending, scaling and creating a polished A3 final outcome.

How I'll be assessed...
- **Formative:** Graffiti Tag Designs
- **Summative:** Final Graffiti Tag Outcome

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*

- What are the origins of **graffiti** and how did it develop in 1970s New York?
- What is a **tag**, and why do artists create them?
- How do artists express **identity** through lettering and visuals?
- What is the difference between tags, throw-ups and pieces in graffiti culture?
- How do different **fonts**, **typefaces** and **styles** affect a design's impact?
- How does **composition** influence the readability and visual flow of graffiti?
- Who is Banksy, and why does he use **anonymity** and **stencil** techniques?
- How does Banksy use **symbols** and humour to make social commentary?
- What is **colour contrast**, **gradient**, and **blend**, and why are they important in graffiti art?
- What is the debate between graffiti as art and graffiti as **vandalism**?

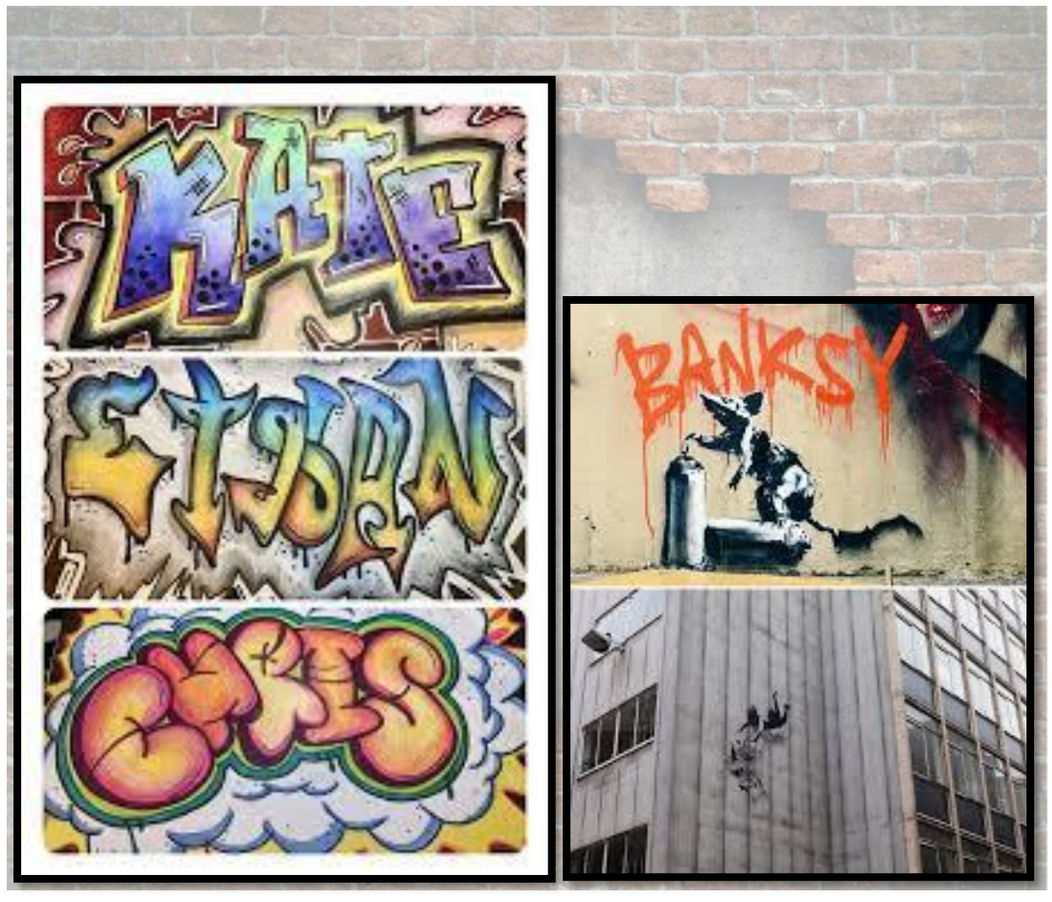
⚙️ Key Processes *(Things You Should Be Able to Do)*

- Analyse graffiti artwork and identify **composition**, **style**, and **symbol** use.
- Draw a range of graffiti **fonts** such as bubble, block, outline and stylised lettering.
- Develop and refine several **tag** ideas before selecting a final design.
- Incorporate Banksy-inspired **stencil** or **symbolic** elements into their work.
- Use paint confidently to create smooth **blends** and **gradients**.
- Add clean **outlines**, **shadows**, and **highlights** to improve clarity and depth.
- Scale up a small sketch accurately to A3 using correct **proportions**.
- Apply **colour theory** to create a coherent colour scheme.
- Combine **foreground**, **background**, and text elements effectively in their final composition.
- Critique their work using BOOST feedback and justify choices in **style**, **colour**, and **identity**.

NOTTINGHAM ACADEMY

Key Spellings & Definitions

Anonymity – When an artist hides their identity, so their work speaks for itself.
Background – The part of the artwork behind the main subject.
Blend – When colours are mixed smoothly so the transition looks gradual.
Composition – How visual elements are arranged to create impact.
Contrast – Differences in colour or tone that make parts of the artwork stand out.
Font – A set of letters in a specific style or design.
Foreground – The part of the artwork closest to the viewer.
Gradient – A smooth change from one colour or tone into another.
Graffiti – Visual art created in public spaces, often using spray paint.
Highlight – The lighter areas added to make parts of the artwork look 3D.
Identity – The qualities, interests or personality an artist expresses through their work.
Outline – A line drawn around shapes or letters to define them clearly.
Proportion – The size relationship between different parts of a design.
Shadow – A darker area added to suggest depth or light direction.
Stencil – A cut-out shape used to repeat an image by painting over it.
Style – The distinct visual qualities that make an artist's work recognisable.
Symbol – An image that represents an idea or message.
Tag – A graffiti artist's personalised signature or name.
Typeface – A design of lettering; similar to font but broader in style category.
Vandalism – Damaging property, including illegal graffiti.



COMPUTING

COMPUTING
HT5- ASSESSMENT

Year 9

Video Editing

Building on their previous experience with Microsoft Clipchamp, students will learn advanced video editing skills. They will import media, add text-to-speech, organize timelines, and incorporate video effects and transitions. The term culminates in producing a promotional video for the "Summer at Greenwood" camp using provided assets.

How I'll be assessed...
Formative: Skill application in ClipChamp

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*

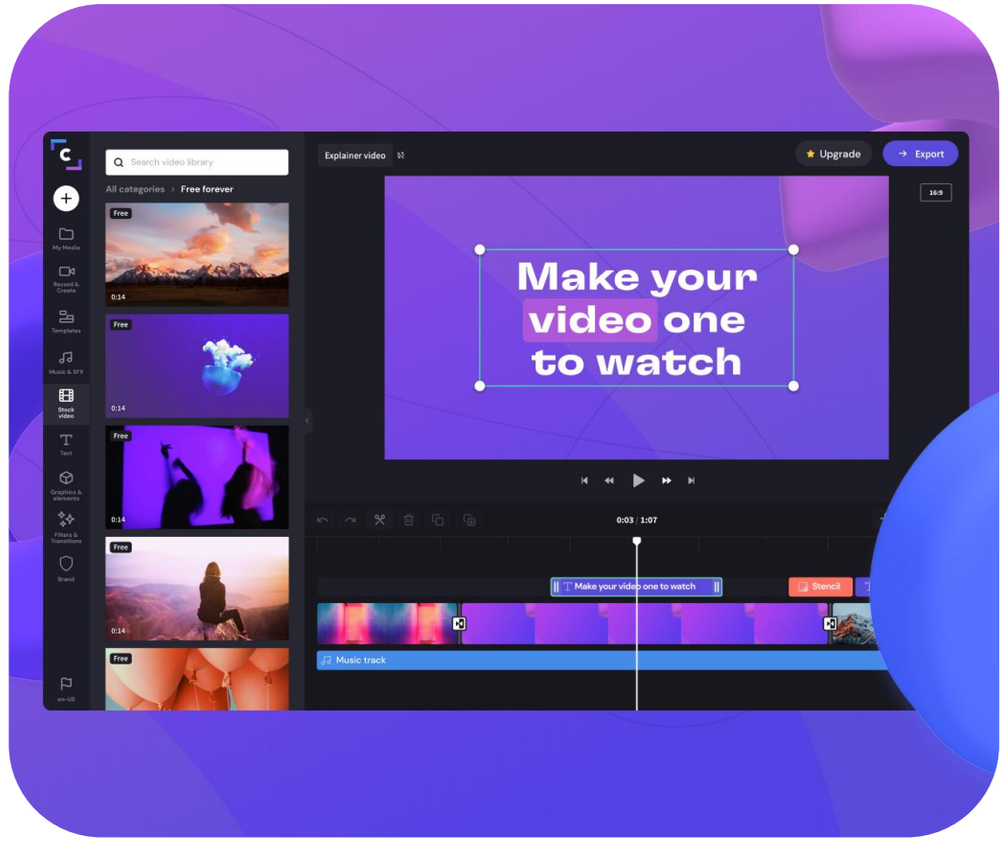
1. **What is video editing and why is it important?**
   → *It's the process of arranging and enhancing video clips to create a polished final product.*
2. **How does a timeline help in video editing?**
   → *The timeline organises clips, audio, and effects in the correct sequence.*
3. **What are transitions and why use them?**
   → *Transitions smooth the change between clips, making the video look professional.*
4. **How do text-to-speech and titles improve a video?**
   → *They add information, clarity, and engagement for the viewer.*
5. **Why is planning important before editing?**
   → *Planning ensures the video meets the purpose, audience needs, and project goals.*

⚙️ Key Processes *(Things You Should Be Able to Do)*

- **Import media** into a new **Clipchamp project** and organise it on the **timeline**.
- Add **text-to-speech**, **titles**, and **captions** to enhance communication.
- Apply **video effects**, **filters**, and **transitions** for a polished look.
- Use **audio tracks** and adjust **volume levels** for balance.
- Export the final video in the correct **format** and **resolution** for sharing.

Key Spellings & Definitions

- **Audio** – The sound in a video, such as music, voice, or effects.
- **Clip** – A short section of video or audio used in editing.
- **Editing** – Changing or improving video by cutting, adding, or adjusting elements.
- **Effect** – A visual or audio change added to make the video more interesting.
- **Export** – Saving the finished video in a format that can be shared or played.
- **Overlay** – Adding one piece of media (like text or image) on top of another in a video.
- **Split** – Cutting a clip into two parts for easier editing.
- **Timeline** – The area in editing software where clips are arranged in order.
- **Transition** – A visual effect that smoothly moves from one clip to another.
- **Trim** – Removing the beginning or end of a clip to keep only what you need.



ENGLISH

NOTTINGHAM ACADEMY

English

HT5- ASSESSMENT

Crime Fiction – Sherlock Holmes

Year 9

Embark on a thrilling and mysterious investigation alongside the legendary detective Sherlock Holmes. Students will unravel complex cases, analyse clues, and delve into the psychology of crime. This unit will deepen their understanding of the genre of crime fiction while exploring timeless themes of mystery, deduction, and justice.

How I'll be assessed...

- **Formative:** Sherlock Holmes Reading
- **Summative:** Summative 2

Key Spellings & Definitions

Detective fiction – A genre centred on the solving of a crime through investigation and logical thinking.
Deduction – Using evidence and reasoning to reach a logical conclusion.
Inference – A conclusion reached by using clues and prior knowledge.
Narrative voice – The perspective from which a story is told (e.g. first person).
Protagonist – The main character in a story (Sherlock Holmes).
Antagonist – A character who opposes the protagonist (often the criminal).
Foreshadowing – Hints or clues that suggest what will happen later.
Red herring – A misleading clue designed to distract the reader.
Victorian context – The social and historical background of late 19th-century Britain.
Justice – Fair punishment or resolution at the end of a crime narrative.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*

1. What are the key conventions of crime fiction?
2. How does Sherlock Holmes solve crimes using observation and deduction?
3. Why is Dr Watson used as the narrator?
4. How does Arthur Conan Doyle create mystery and suspense?
5. How does the Victorian context influence crime and justice in the stories?
6. How do clues and red herrings affect the reader's response?

Key Processes *(Things You Should Be Able to Do)*

1. **Identify** features of crime fiction in Sherlock Holmes stories.
2. **Explain** how Holmes uses deduction and inference to solve crimes.
3. **Analyse** language and structure used to create suspense.
4. **Evaluate** the effectiveness of Watson as a narrator.
5. **Explore** how context influences characters, crimes and resolutions.
6. **Write** an analytical paragraph using evidence (What? How? Why?) to support ideas.

DRAMA

NOTTINGHAM ACADEMY

Drama
HT5- ASSESSMENT Year 9

DNA by Dennis Kelly

You will begin by reading *DNA* by Dennis Kelly, exploring its themes, characters, and the moral issues it raises. Alongside this, you will be introduced to the work of Konstantin Stanislavski, a key theatre practitioner known for developing realistic acting techniques. Through discussion and analysis, you will learn how Stanislavski's methods–such as objectives, emotional memory, and the "magic if"–can help actors create truthful and believable characters.

How I'll be assessed...
•**Summative** APerformance of an extract of DNA.

Key Spellings & Definitions

- **Character development** – The process an actor uses to understand and build a believable character.
- **Duologue** – A scripted scene performed by two characters.
- **Facial expression** – Using the face to show emotion, intention or reaction.
- **Interpreting script** – Making acting choices based on what the script suggests about character, emotion and situation.
- **Naturalism/realism** – A performance style that aims to present believable, realistic characters and situations.
- **Page to Stage** – The process of taking a written script and transforming it into a live performance.
- **Pauses** – Moments of silence used deliberately to create tension, meaning or realism.
- **Plot** – The sequence of events that make up the story of the play.
- **Practitioner** – A theatre-maker whose methods and ideas influence acting and performance.
- **Reading the punctuation** – Using punctuation in the script to guide vocal delivery and emotional tone.
- **Stanislavski** – A theatre practitioner whose techniques help actors create realistic and truthful characters.
- **Vocal expression** – How voice is used to show character, emotion and intention (tone, pitch, pace, volume).

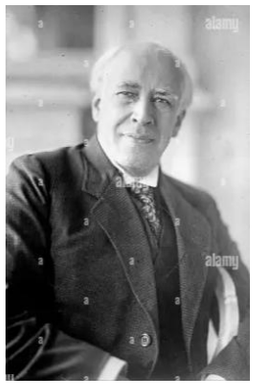
STICKY KNOWLEDGE

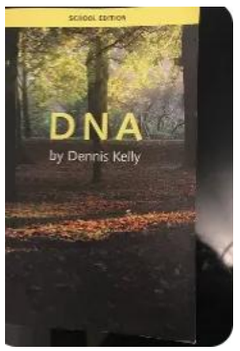
Key Questions *(Things You Should Know)*

- What is **Naturalism** and why is it important in Stanislavski's style of theatre?
- Who was **Stanislavski**, and what impact did he have on modern acting?
- What is meant by a theatre **practitioner**?
- What is the **plot** of *DNA* and how does it develop across the play?
- How should actors approach **interpreting a script**?
- What are the differences between a **monologue** and a **duologue**?
- How does **Page to Stage** describe the journey from script to performance?
- Why are **pauses** significant in creating tension or realism in drama?
- How can **vocal expression** change the meaning of a line in *DNA*?
- Why is **facial expression** important in communicating character and emotion?

Key Processes *(Things You Should Be Able to Do)*

- Use **character development** techniques to create a believable character.
- . Work with a partner to perform a **duologue** using Stanislavski's techniques.
- Analyse and **interpret a script** to make informed acting choices.
- Demonstrate **Naturalism** through body language, voice and behaviour.
- Apply the **Page to Stage** process when rehearsing performance scenes.
- Use **pauses** effectively to create tension or meaning in performance.
- Use **reading the punctuation** to guide vocal delivery.
- Develop strong **vocal expression** to show mood, character and status.
- Communicate emotion through controlled **facial expression**.





HISTORY

HISTORY
HT5- ASSESSMENT Year 9

The Treaty of Versailles

For this assessment, you will explain why Germans hated the Treaty of Versailles and decide which clause they would have hated the most (and explain why). This important question is vital to our understanding of how Hitler was able to gain support and come to power in 1933, eventually leading to WWII in 1939.

How I'll be assessed...

- **Summative:** How did the Treaty of Versailles punish Germany, and why did the Germans hate the treaty so much?

Key Spellings & Definitions

1. **Diktat:** A **peace** dictated to/forced on Germany, as German delegates were **not allowed to negotiate or defend themselves** at the Treaty.
2. **War Guilt (Article 231):** The clause that forced Germany to accept **full blame for WWI**, which Germans felt was **unfair** as other countries shared responsibility.
3. **Reparations: £6.6 billion compensation payments** imposed on Germany, creating a **crippling debt** that caused fear and economic insecurity.
4. **Ring of Hostility:** The feeling of being **surrounded by enemies**, especially France and the USSR, leaving Germany feeling **isolated and vulnerable**.
5. **Disarmament:** Severe military restrictions, including an army of **only 100,000 men** and **no tanks, submarines, or air force**, making Germany feel **defenceless**.
6. **Demilitarised Rhineland:** An area of Germany bordering France, where **no troops were allowed**, increasing fears of **invasion**, especially from France.
7. **Self-Determination:** The idea that people should rule themselves, which Germans felt was **ignored** as **nearly 6 million Germans** now lived under foreign rule.
8. **National Humiliation:** Strong feelings of **shame and injustice**, caused by blame, territorial losses, military limits, and exclusion from negotiations.
9. **League of Nations Control (Saar):** The **Saar coal-rich region** was taken from Germany and placed under **League of Nations control for 15 years**, weakening German industry and pride.

STICKY KNOWLEDGE

Key Question: *How did the Treaty of Versailles punish Germany?*

Key knowledge:

Blame: Article 231 forced Germany to take full responsibility for starting the war.

Reparations: – set at £6.6 billion, a crippling debt, that would have taken Germany until 1988 to pay off.

Army: Only 100,000 men allowed, no tanks, submarines or air force. The Rhineland was demilitarised.

Territory: Alsace-Lorraine given to France; Polish corridor to Poland (splitting Germany in two) all colonies lost.

Ships: only 6 battleships allowed

Additional knowledge:

- Germans called the Treaty a 'shameful diktat'
- Germany was forbidden from uniting with Austria.
- The Saar, a German area rich in coal and factories, was given to the League of Nations for 15 years.
- Nearly 6 million Germans now lived in different countries.

Key Processes: *Explain why the Germans hated the Treaty of Versailles*

1. Begin by choosing <u>one</u> way that Germans felt:

A. Germans felt alone in a ring of hostility, fearing an attack from France and from the USSR in the east.
B. Germans now living in hostile countries faced great uncertainty and feared persecution.
C. There was great doubt about being able to pay back the reparations, which was a crippling debt.
D. Germans felt it was not fair that Britain and France took no share of the blame. They felt that the causes of WWI, such as the arms race or empire building, were not Germany's fault alone.
E. Germany lost 13% oh her land, 16% of her coal, 48% of steel, damaging its industry and its economy.
F. The German representatives were not allowed to negotiate or defend Germany at the Treaty.

2. LINK it to a way it made Germans feel - choose from...

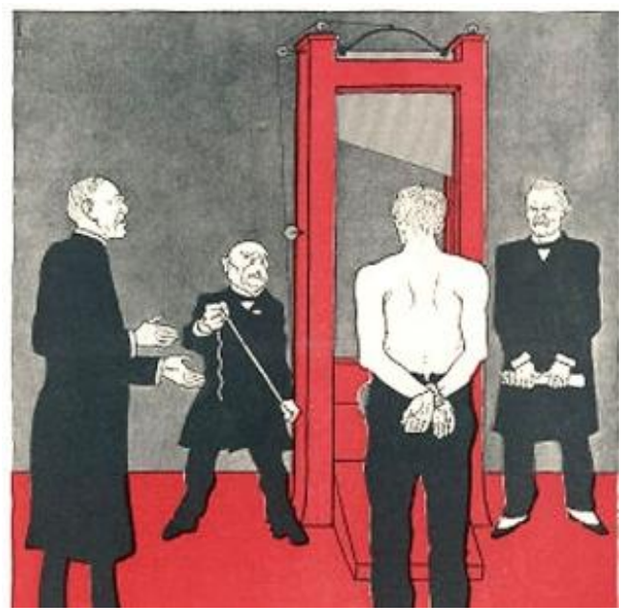
- Humiliated
- Defenceless
- Fearful
- Resentful
- Vulnerable

3. SUPPORT it with a relevant piece of factual detail from the 'Key Questions' side of this table.

E.g. Germans felt alone in a ring of hostility, fearing an attack from France and from the USSR in the east. As a result, they felt vulnerable and defenceless. This is because their army had been reduced to 100,000 men and they were not allowed to have any tanks, submarines or airplanes.

Helping you to think deeper

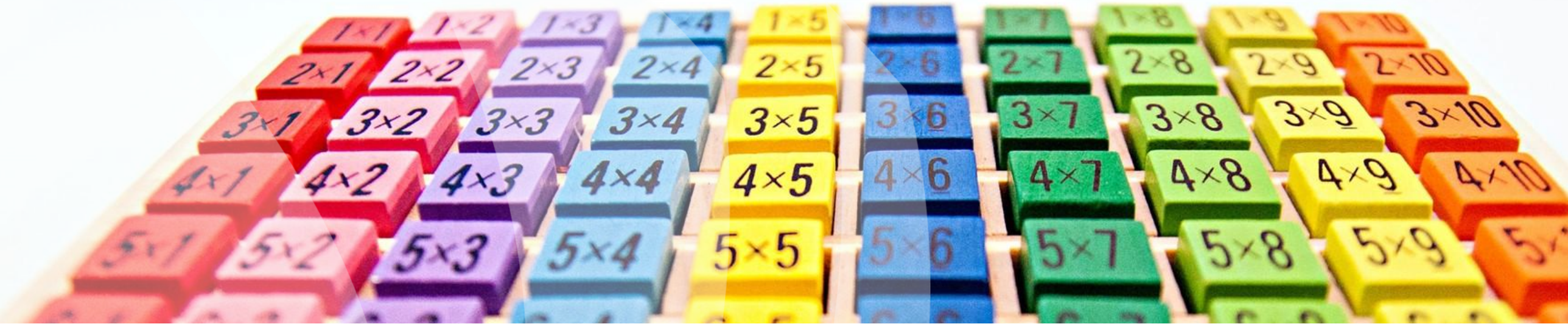
Why is the German shirtless?
How would being naked make the German feel?
What makes the German appear defenceless and vulnerable?



Germans weren't executed. So why does this German feel his life is about to end?

How would this German feel about the Big Three around him?

How is the guillotine a metaphor for the Treaty of Versailles?



MATHEMATICS

MATHEMATICS
HT1- ASSESSMENT

Year 9 – Foundation & Higher

Primes, Factors and Multiples

This unit explores concepts such as identifying prime numbers, finding factors and multiples and using Venn diagrams to determine the highest common factor and lowest common multiple.

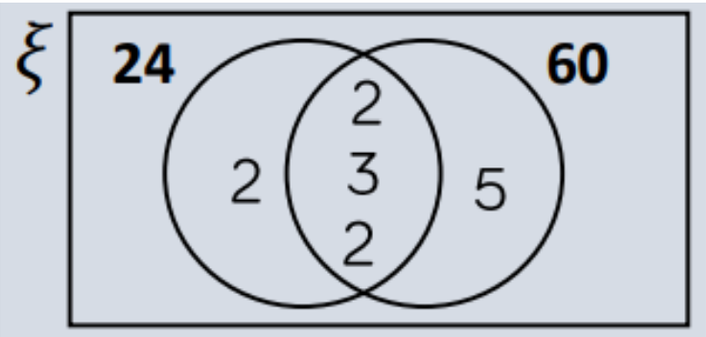
How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

- **Prime Number** - A number greater than 1 that has no positive divisors other than 1 and itself.
- **Factor** - A number that divides another number exactly without leaving a remainder.
- **Multiple** - The result of multiplying a number by an integer.
- **Divisibility** - The ability of one number to be divided by another without leaving a remainder.
- **Common Factor** - A factor that two or more numbers have in common.
- **Highest Common Factor (HCF)** - The largest factor that two or more numbers have in common.
- **Lowest Common Multiple (LCM)** - The smallest multiple that two or more numbers have in common.
- **Composite** Number - A whole number greater than 1 that has more than two different factors.
- **Prime Factorisation** - Expressing a composite number as the product of its prime factors.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What is a prime number, and how can you identify one? *Know that a prime number has exactly two distinct factors: 1 and itself.*	**Identify prime numbers and explain why they are prime.** *Check if a number has only two factors: 1 and itself.*
How do you find all the factors of a number? *List all numbers that divide a given number exactly.*	**Find all the factors of a number.** *List every number that divides the given number exactly.*
What is the difference between a prime number and a composite number? *Understand that composite numbers have more than two factors, unlike prime numbers.*	**Use Venn diagrams to find the HCF and LCM of two numbers.** *Place prime factors into a Venn diagram and use it to calculate the highest common factor and lowest common multiple.*
How can you use a factor tree to find the prime factorisation of a number? *Break down a number into its prime factors using a branching method.*	**Break down numbers into their prime factors using factor trees.** *Represent a number as a product of its prime factors.*
What are common multiples, and how do you find the lowest common multiple (LCM) of two numbers? *List multiples and identify the smallest one shared by both numbers.*	**Apply divisibility rules for 2, 3, 5, and 10 to test if numbers are divisible.** *Use simple rules (like checking the last digit) to quickly test divisibility.*



MATHEMATICS
HT1- ASSESSMENT

Year 9 – Foundation

Algebraic Manipulation

This unit focuses on understanding algebra, including simplifying expressions, solving equations, expanding brackets, and factorising.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*

What is the difference between a term and a coefficient?
Know that a term can include numbers and letters, and a coefficient is just the number part.

How do you simplify an algebraic expression?
Know how to find and combine like terms.

What steps do you follow to solve a linear equation?
Know how to use inverse operations to isolate the variable.

How can you expand brackets in an algebraic expression?
Know how to multiply each term inside the bracket by the number or letter outside.

What does it mean to factorize an expression?
Know how to find common factors and write the expression using brackets.

⚙️ Key Processes *(Things You Should Be Able to Do)*

Simplify expressions by identifying and combining like terms.

Solve equations using inverse operations to find the value of the variable.

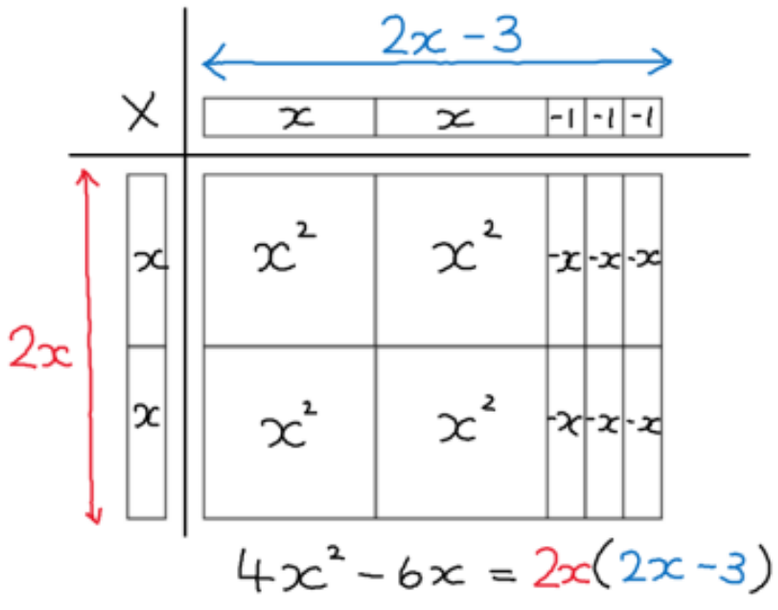
Expand brackets by multiplying each term inside the bracket.

Factorise expressions by finding and using common factors.

Check answers by substituting the solution back into the original expression or equation.

Key Spellings & Definitions

- **Algebraic Expression** – A mix of numbers, letters (variables), and operations like + or ×.
- **Equation** – A math sentence showing two things are equal using an equals sign (=).
- **Variable** – A letter that stands for a number we don't know yet.
- **Coefficient** – The number in front of a letter in an expression (like the 3 in 3x).
- **Constant** – A number that doesn't change.
- **Simplify** – To make an expression shorter by putting together like terms.
- **Expand** – To remove brackets by multiplying what's inside.
- **Factorise** – To put an expression into brackets by finding common factors.
- **Term** – A part of an expression, like 4x or -7.
- **Like Terms** – Terms that have the same letters and powers, like 2x and 5x.



MATHEMATICS
HT1- ASSESSMENT

Year 9 – Foundation

NOTTINGHAM ACADEMY

Introduction to the Language of Statistics

This units looks at the fundamentals of statistics, focusing on how to collect data. It builds an understanding of key statistical concepts such as types of data and designing surveys.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

- **Statistics** – Studying numbers to understand information.
- **Data** – Facts or numbers collected to learn something.
- **Survey** – Asking questions to find out what people think or do.
- **Population** – The whole group you want to learn about.
- **Sample** – A small part of the population used to find out about the whole group.
- **Frequency Table** – A chart that shows how often each number appears.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What is statistics? *Know it's about collecting and understanding data.*	**Make and carry out a survey.** *Write questions and collect answers.*
How do surveys help us collect data? *Know how to ask questions and gather answers.*	**Tell the difference between types of data.** *Sort data into categories like numbers or words.*
What's the difference between a population and a sample? *Know that a sample is a small part of a population.*	**Make a frequency table.** *Count how often each answer appears and organise it.*
Why do we use frequency tables? Students should know they help organize data to see patterns.	**Explain what the data shows.** *Look at results and say what they mean.*

Weight (w)	Frequency
$40 < w \leq 50$	7
$50 < w \leq 60$	23
$60 < w \leq 70$	26
$70 < w \leq 80$	12
$80 < w \leq 90$	2

MATHEMATICS
HT1- ASSESSMENT

Year 9 – Higher

Algebraic Manipulation

This unit focuses on expanding, simplifying and factorising algebraic expression.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

- **Algebra** – A type of maths that uses letters and symbols to represent numbers.
- **Expression** – A mix of numbers, letters, and symbols that show a maths idea (but no equals sign).
- **Expand** – To remove brackets by multiplying what's inside with what's outside.
- **Factorize** – To put an expression back into brackets by finding what's common.
- **Coefficient** – The number in front of a letter (like the 3 in 3x).
- **Variable** – A letter that stands for a number we don't know yet.
- **Term** – A part of an expression, like 4x or -2.
- **Equation** – A maths sentence that says two things are equal (it has an equals sign).
- **Polynomial** – A long expression made of many terms added or subtracted.
- **Distributive Property** – A rule that lets you multiply a number by everything inside brackets.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*

What is an algebraic expression?
Know it's a mix of numbers, letters, and symbols without an equals sign.

How do you expand brackets in algebra?
They should know how to use the distributive property to multiply terms.

What does it mean to factorize an expression?
They should understand how to find common factors and put expressions into brackets.

How can you spot the coefficient in a term?
They should be able to identify the number in front of a variable.

Why is the distributive property useful in algebra?
They should know it helps simplify and solve expressions.

Key Processes *(Things You Should Be Able to Do)*

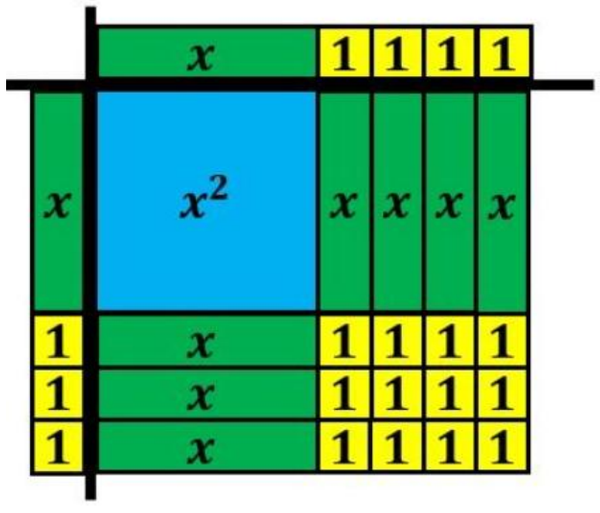
Identify parts of an expression
Find terms, variables, and coefficients in any expression.

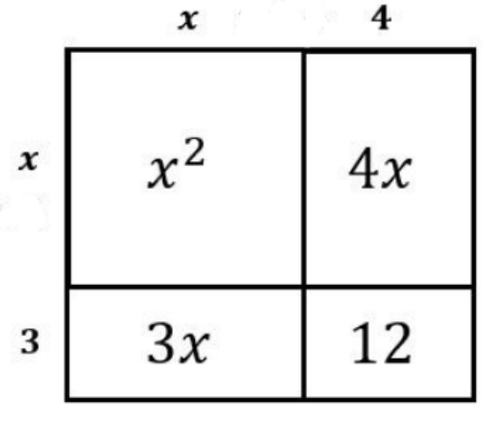
Expand expressions using brackets
Use multiplication to remove brackets correctly.

Factorise simple expressions
Find common factors and rewrite expressions using brackets.

Simplify expressions by collecting like terms
Group and combine terms that have the same variable.

Use algebra words correctly
Explain your working using the right maths vocabulary.





MATHEMATICS
HT1- ASSESSMENT

Year 9 – Higher

Fractions and Decimals

This unit builds a strong foundational understanding of fractional and decimal concepts.

- **Fraction** – A way to show part of a whole using two numbers (like $\frac{1}{2}$).
- **Decimal** – A number with a dot (.) that shows parts of a whole (like 0.5).
- **Numerator** – The top number in a fraction that tells how many parts you have.
- **Denominator** – The bottom number in a fraction that tells how many parts make a whole.
- **Equivalent Fractions** – Fractions that look different but mean the same (like $\frac{1}{2}$ and $\frac{2}{4}$).
- **Simplify** – Making a fraction as small as possible without changing its value.
- **Mixed Number** – A number that has a whole part and a fraction part (like $1\frac{3}{4}$).
- **Improper Fraction** – A fraction where the top number is bigger than the bottom (like $\frac{5}{3}$).
- **Place Value** – The value of a digit depending on where it is in the number (like the 5 in 0.5 means five-tenths).
- **Recurring Decimal** – A decimal that keeps repeating the same number(s) forever (like 0.333...).

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*

What is a fraction and how do you write it?
Understand parts of a whole and how to write them using numerators and denominators.

How can you convert between fractions and decimals?
Know how to change a fraction into a decimal and vice versa.

What does it mean for two fractions to be equivalent?
Recognise and create fractions that have the same value.

How do you simplify fractions?
Learn to reduce fractions to their simplest form.

What are mixed numbers and improper fractions?
Understand the difference and how to convert between them.

Key Processes *(Things You Should Be Able to Do)*

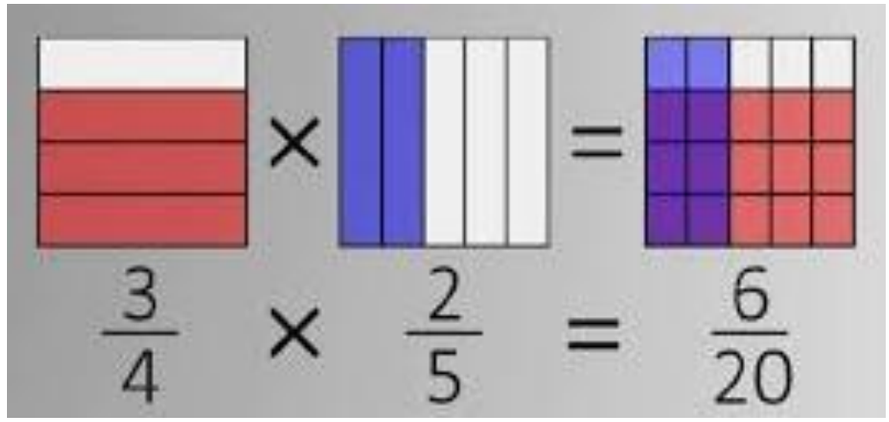
Identify numerators and denominators in fractions.
Label and explain the parts of a fraction.

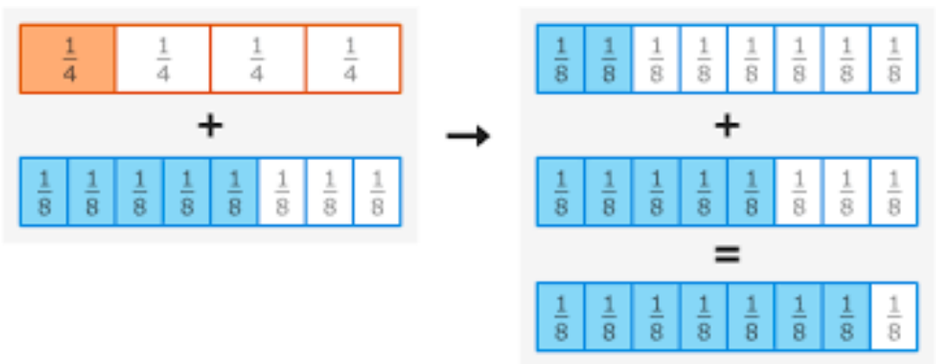
Convert between improper fractions and mixed numbers.
Change one form into the other correctly.

Simplify fractions using common factors.
Reduce fractions by dividing both parts by the same number.

Compare fractions using common denominators or decimals.
Decide which fraction is bigger or smaller.

Add and subtract fractions with different denominators.
Find a common denominator and solve the problem accurately.





MATHEMATICS
HT2- ASSESSMENT

Year 9 – Foundation

NOTTINGHAM ACADEMY

Algebraic Manipulation

Develop algebraic skills to expand and factorise expressions. Look at rearranging formula and substituting into expression.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Expression – A mathematical sentence made up of numbers, letters (like x or y), and symbols (like + or -) but no equals sign.

Quadratic – The name given to this $x^2 + 3x + 2$.

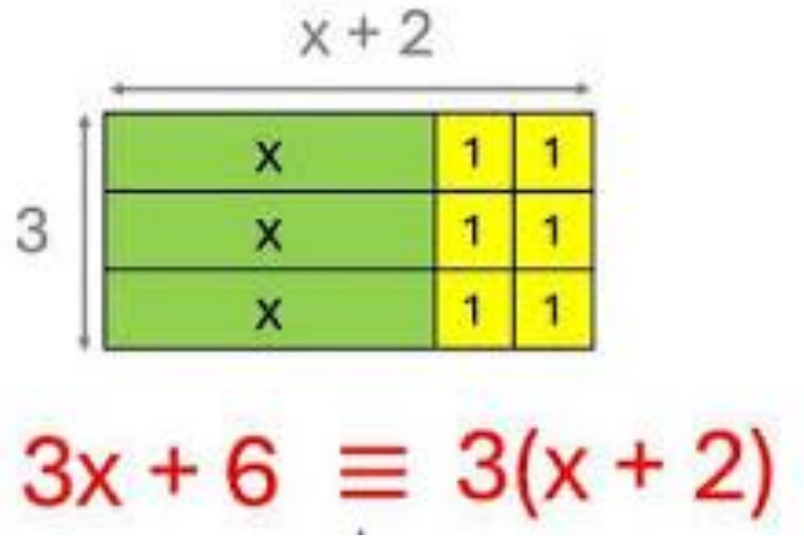
Factorise – Breaking a big expression into smaller parts (called factors) that multiply together to make the original.

Formula – A mathematical rule that shows how to calculate something. It usually has an equals sign.

Coefficient – The number in front of a letter. It tells you how many of the letter you have.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you factorise an expression like $6x^2 + 18$ into a single bracket? How do you factorise a quadratic like $x^2 + 5x + 6$ into double brackets? What is the difference of two squares, and how do you factorise something like $x^2 - 9$? How do you rearrange a formula to make a different letter to subject, like changing $A = lw$ to $w = A \div R$	Rewrite expressions like $6x + 12$ in factorised form. Write a quadratic in factorised form, like $x^2 + 5x + 6$ as $(x + 2)(x + 3)$. Identify the difference of two squares. Manipulate a formula to make a different letter the subject. Turn real-life situations into mathematical rules.



MATHEMATICS
HT2- ASSESSMENT

Year 9 – Foundation

NOTTINGHAM ACADEMY

Accuracy and Rounding

Learn how to round numbers to decimal places and significant figures, including estimating calculations by rounding first. Recall square numbers, understand truncation, and write error intervals to show accuracy.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Estimate – A quick guess or calculation that is close to the exact answer.

Inequality – A way to compare two numbers using symbols like < or <.

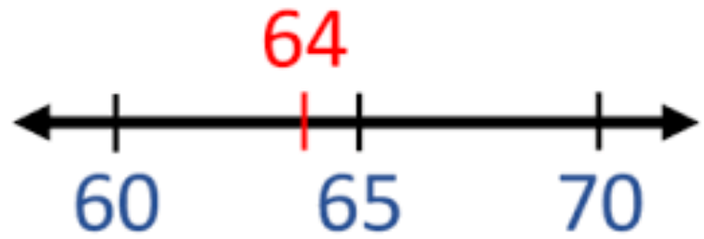
Rounding – Changing a number to make it simpler but still close to the original value.

Bound – The biggest or lowest value something can be.

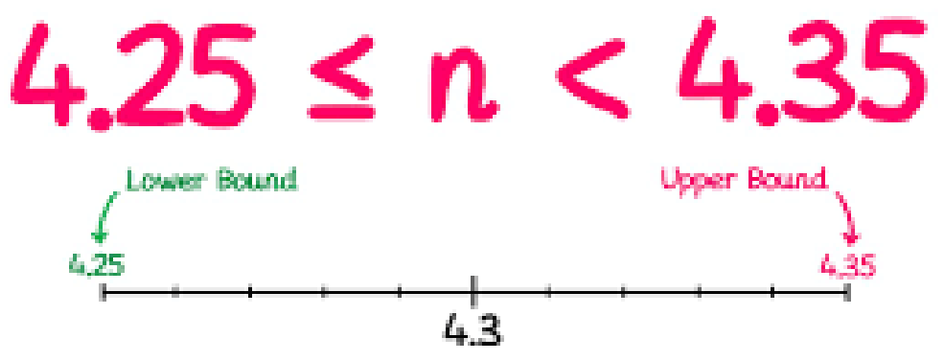
Accuracy – How close a number or answer is to the true or correct value.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you round a number to a given number of decimal places?	Change a number so it has a set number of digits after the decimal point.
What is the difference between rounding to significant figures and truncation?	Simplify a number while keeping its most important digits.
How do you estimate a calculation before working it out?	Round numbers first, then calculate to get a quick, close answer.
What are error intervals and how do they show accuracy?	Show the range of possible values when a number is rounded.
How can you find the upper and lower bounds of a rounded number?	Cut off digits after a certain point without rounding up.



64 rounds to 60



MATHEMATICS
HT2- ASSESSMENT

Year 9 – Foundation

NOTTINGHAM ACADEMY

Mensuration

Learn to calculate the circumference and area of circles. Look at finding the surface area and volume of 3D shapes including prisms and cylinders. Apply Pythagoras' Theorem to calculate lengths in right angled triangles.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Circumference – The distance all the way around a circle.

Radius – The distance from the centre of a circle to the edge.

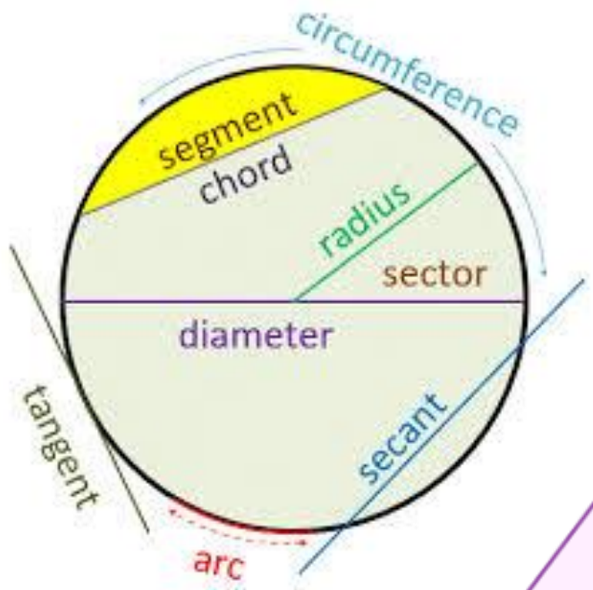
Area – How much space is inside a shape.

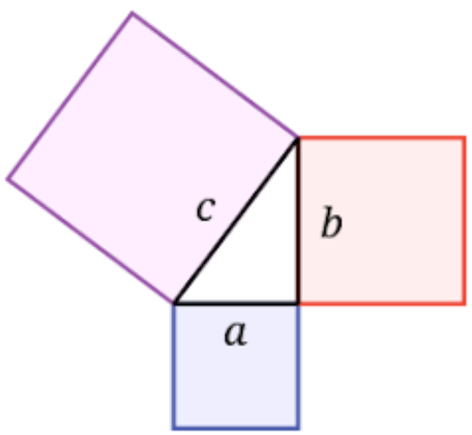
Volume – How much space something takes up in 3D.

Hypotenuse – The longest side of a right-angled triangle.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you calculate the perimeter of a composite 2D shape?	Working out the distance around 2D shapes and parts of circles.
What is the formula for finding the area of a circle or a sector?	Calculating the space inside 2D shapes, including circles and sectors.
How do you work out the surface area and volume of a prism or cylinder?	Working out the total area covering 3D shapes like prisms, cylinders, pyramids, cones, and spheres.
What steps do you follow to calculate the volume of a cone or sphere?	Measuring how much space 3D shapes take up.
How can Pythagoras' theorem help you find the length of a missing side in a right-angled triangle?	Using the relationship between the sides of a right-angled triangle to find missing lengths.





MATHEMATICS
HT2- ASSESSMENT

Year 9 – Higher

NOTTINGHAM ACADEMY

Algebraic Manipulation 2

Learn how to factorise expression, including single terms, perfect squares, and the difference of two squares. Factorise quadratic expressions, even when they involve negative terms or have a coefficient of x^2 greater than 1. Understand how to simplify algebraic fractions.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*	⚙️ Key Processes *(Things You Should Be Able to Do)*
How do you factorise a single term from an expression?	Factorise out a single term for an expression.
What is the method to factorise a perfect square?	Apply the difference of two square rule to factorise expression like $a^2 - b^2$.
How do you factorise the difference of two squares?	Factorise simple quadratic expressions, including those with negative terms.
What steps are needed to factorise a quadratic expression where the coefficient of x^2 is greater than 1?	Factorise quadratics where the coefficient of x^2 is greater than 1, using grouping or other methods.
How do you simplify an algebraic fraction?	Simplify algebraic fractions by cancelling common factors in numerators and denominator.

Key Spellings & Definitions

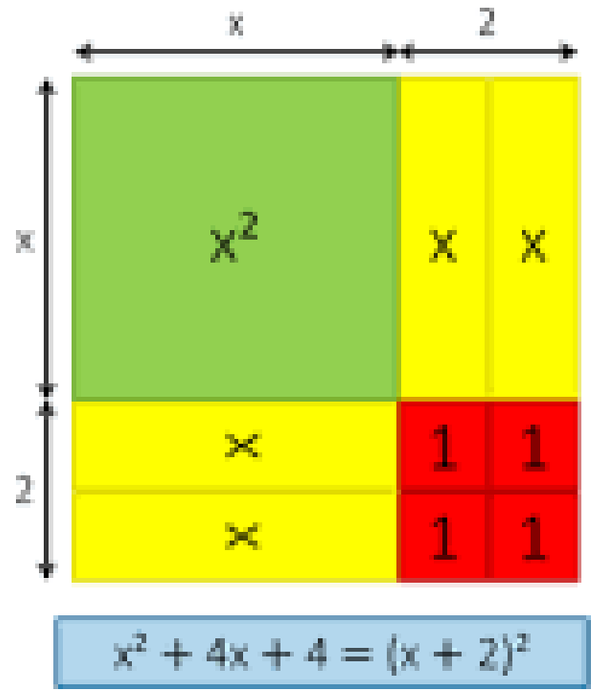
Factorise – Breaking a number or an expression into smaller parts that multiply together to make the original number or expression.

Quadratic – The name given to this expressions $x^2 + 3x + 2$.

Coefficient – The number in front of a letter in algebra. It tells you have many times the letter is multiplied.

Constant – A number that stays the same in an expression or equation.

Variable – A letter or symbol that stands for a number that can change.



MATHEMATICS
HT2- ASSESSMENT

Year 9 – Higher

NOTTINGHAM ACADEMY

Accuracy and Rounding

Learn how to round numbers to decimal places and significant figures, including estimating calculations by rounding first. Recall square numbers, understand truncation, and write error intervals to show accuracy.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Estimate – A quick guess or calculation that is close to the exact answer.

Inequality – A way to compare two numbers using symbols like < or <.

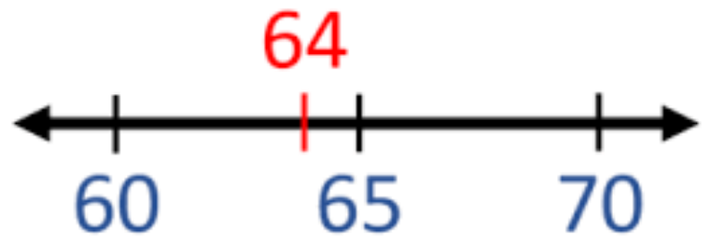
Rounding – Changing a number to make it simpler but still close to the original value.

Bound – The biggest or lowest value something can be.

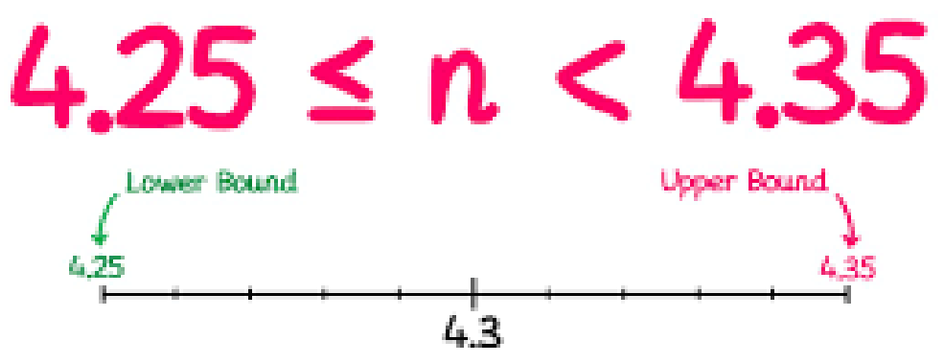
Accuracy – How close a number or answer is to the true or correct value.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you round a number to a given number of decimal places?	Change a number so it has a set number of digits after the decimal point.
What is the difference between rounding to significant figures and truncation?	Simplify a number while keeping its most important digits.
How do you estimate a calculation before working it out?	Round numbers first, then calculate to get a quick, close answer.
What are error intervals and how do they show accuracy?	Show the range of possible values when a number is rounded.
How can you find the upper and lower bounds of a rounded number?	Cut off digits after a certain point without rounding up.



64 rounds to 60



MATHEMATICS
HT2- ASSESSMENT

Year 9 – Higher

NOTTINGHAM ACADEMY

Construction & Loci

Learn how to use a pair of compasses to perform geometric constructions. Construct perpendicular and angle bisectors, draw perpendiculars from points to lines, and create basic loci.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*	⚙️ Key Processes *(Things You Should Be Able to Do)*
What tools are needed to perform accurate geometric constructions? How do you construct a perpendicular bisector of a line segment? How do you construct an angle bisector? How do you construct the perpendicular from a point to a line? What is a locus, and how can it be applied in real-life contexts?	Leave construction lines in place when completing geometric constructions. Use a pair of compasses correctly for all constructions. Construct a perpendicular bisector of a given line segment. Construct an angle bisector to divide an angle into two equal parts. Construct basic loci and apply them to solve real-life problems.

Key Spellings & Definitions

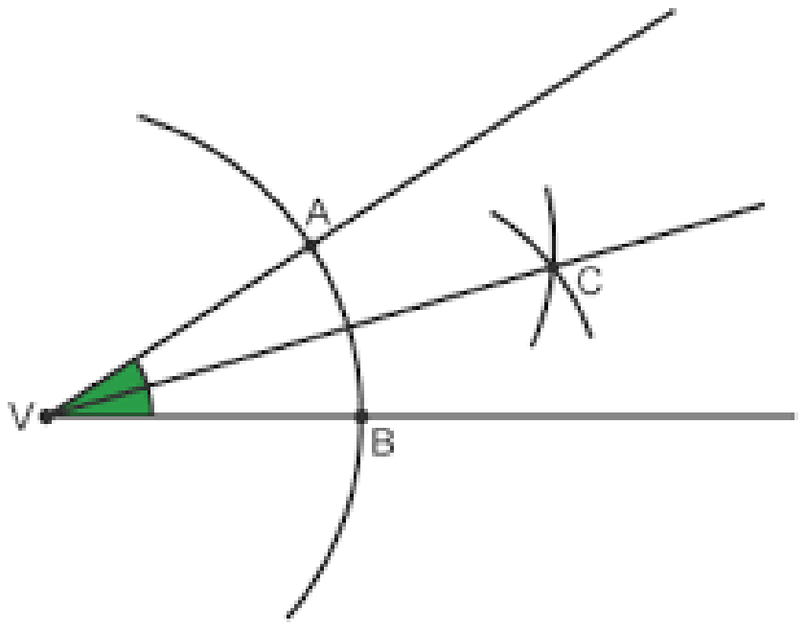
Perpendicular – When two lines meet at a right angle (90°).

Parallel – Two lines that never meet, no matter how far they go.

Vertex – A corner point where two lines or sides meet.

Bisector – A line that cuts something into two equal parts.

Equilateral – A triangle where all three sides are the same length and all angles are equal.



MATHEMATICS
HT2- ASSESSMENT

Year 9 – Higher

NOTTINGHAM ACADEMY

Introduction to the Language of Statistics

Understand different types of data and how to classify them. Look at samples, populations, questionnaires, and distinguish between primary and secondary data. Develop the skills to design data collection tools and clean data to ensure accuracy.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Qualitative – Data that describes things using words.

Quantitative – Data that uses numbers to show amounts or measurements.

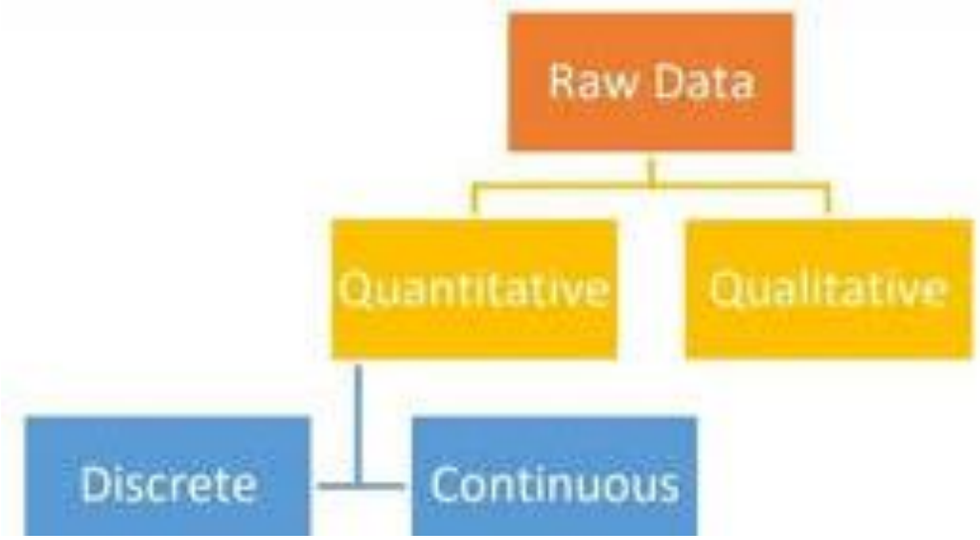
Sample – A small group taken from a bigger group to study.

Population – The whole group you want to learn about.

Questionnaire – A set of questions you give to people to get information.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What is meant by qualitative data? What is meant by quantitative data? What is meant by primary data? What is meany by secondary data? What is meant by a census?	Identify if data is qualitative, quantitative, discrete, or continuous. Identify categorial, ranked, and bivariate data. Design an effective data collection sheet. Design a good questionnaire. Understand what is meant by cleaning data.



Mathematics
HT3- ASSESSMENT

Year 9
Foundation

NOTTINGHAM ACADEMY

Direct and Inverse Proportion

Understand and use rations and proportions in different contexts, including simplifying ratios, dividing quantities, and applying them to recipes and real-life problems. Look at direct and inverse proportion and solve practical problems such as best buys and conversion graphs.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Conversion – A type of graphs that helps you change one unit into another.

Direct – The type of proportion when one thing does up, the other goes up too.

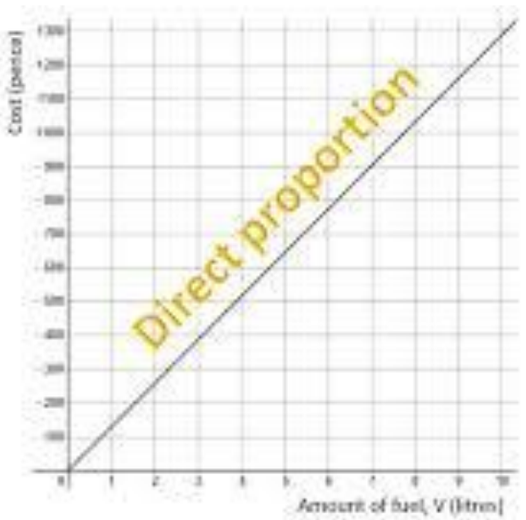
Inverse – The type of proportion when one thing goes up, the other goes down.

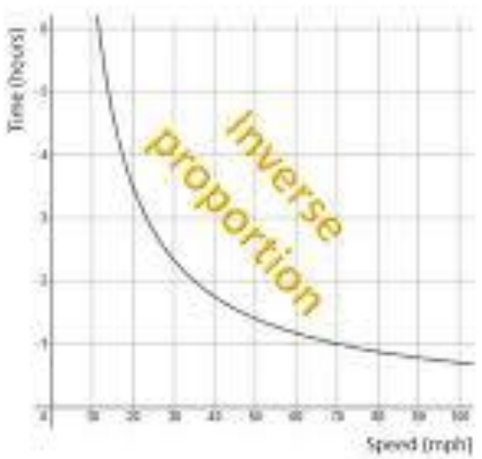
Ratio – Shows how two numbers compare, e.g. 2:3.

Unitary – A method to find the value of one item first, then many.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you simplify a ratio and express it in its simplest form?	Reduce ratios to their simplest form, including when units are different.
How do you divide a quantity into a give ratio?	Share amounts correctly according to a ratio.
What does direct proportion mean, and how do you solve problems using it?	Solve problems where quantities increase or decrease together (direct) or one increases when the other decrease (inverse).
What is the proportionality symbol and the constant of proportionality?	Calculate the constant (k) and write an equation linking two quantities.
How do you recognise and solve problems involving inverse proportion?	Use proportion for practical task like recipes, best buys, and conversion graphs.





Mathematics
HT3- ASSESSMENT

Year 9
Foundation

NOTTINGHAM ACADEMY

Geometric Constructions and Calculations

Construct geometric figures using a ruler, protractor, and compass, including perpendicular and angle bisectors, perpendiculars from points, and basic loci. Look at angle properties and reasoning, such as sums on lines, around points, in polygons, and within special triangles and quadrilaterals.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Angle – The space between two lines that meet at a point.

Parallel – Lines that never meet, no matter how far they go.

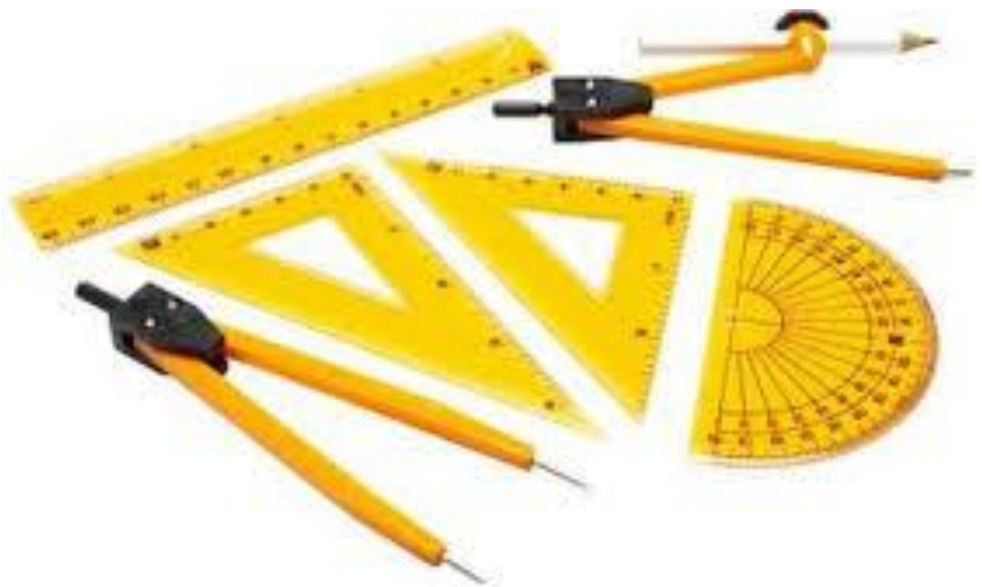
Perpendicular – Two lines that meet at a right angle.

Polygon – A flat shape with straight sides.

Vertex – A point where two or more lines or edges meet.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you construct a perpendicular bisector of a line segment using a compass and ruler?	Construct a perpendicular bisector of a line segment using a compass and ruler.
What is an angle bisector, and how do you construct one?	Construct an angle bisector accurately with a compass and ruler.
What is the locus of a point, and how can you construct basic loci?	Draw a perpendicular from a point to a line using compass and straightedge.
What is the sum of angles on a straight line and around a point, and how can you use these facts to find missing angles?	Apply angle sum rules (straight line = 180°, around a point = 360°) to find missing angles.
What are the properties of special triangles and quadrilaterals, and how do you use them to calculate missing angles?	Use properties of triangles and quadrilaterals to calculate unknown angles and explain reasoning.



Mathematics
HT3- ASSESSMENT

Year 9
Foundation

NOTTINGHAM ACADEMY

Starting the Data Handling Cycle

Understand different sampling methods and their advantages, as we as interpreting and constructing various data representations. Look at forming hypotheses, considering constraints in investigations and applying these skills to analyse and present data effectively.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Frequency – How many times something happens or appears.

Hypothesis – A smart guess you make before checking the facts.

Populations – The whole group of people or things you want to learn about.

Qualitative – Data that is in word form.

Quantitative – Data that is in number form.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What is a hypothesis and what should you consider when writing one?	Write a clear hypothesis and identify factors that affect testing it.
What are the main sampling methods and how do you carry them out?	Carry out different sampling methods correctly.
What are the advantages and disadvantages of random and stratified sampling?	Construct and interpret data displays.
How do you interpret and construct common data representations?	Calculate proportion, frequencies, and angles for charts.
How can population pyramids and choropleth maps be used to compare and interpret data?	Complete and interpret two-way tables to compare data.

Mathematics
HT3- ASSESSMENT

Year 9
Higher

NOTTINGHAM ACADEMY

Straight Line Graphs

Understand and work with straight line graphs. Learn how to substitute values into linear equations, create tables of results, plot coordinates to draw straight lines, and interpret the gradient and intercept in the form $y = mx + c$.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Equation – A maths sentence that shows two things are equal using an equals sign.

Gradient – Tells us how steep a line is on a graph.

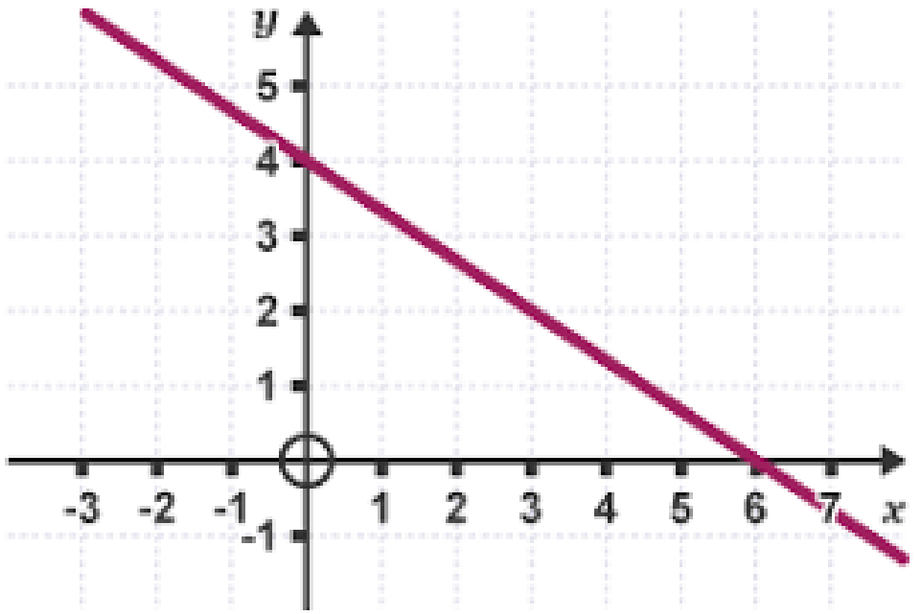
Intercept – Where a line crosses an axis on a graph.

Linear – Means "in a straight line".

Quadrant – One of the four sections on a graph.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What doe the equation $y - mx + c$ represent? What do m and c mean in the equations $y = mx + c$? How do you substitute a value into a linear equation? How do you calculate the gradient of a straight line? How do you plot a straight linen using a table of values?	Substitute values into a linear equation. Complete a table of values. Plot coordinates and draw a straight line. Calculate the gradient of a straight line. Interpret the gradient and intercept from a graph.



Mathematics
HT3- ASSESSMENT

Year 9
Higher

NOTTINGHAM ACADEMY

2D and 3D Representations

Represent 3D shapes using plans, elevation, and scale drawings, and calculate angles from these views. Apply Pythagoras' theorem and trigonometric ratios to solve problems involving lengths and angles in triangles. Use bearings and accurate diagrams to solve real-word problems.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Cylinder – A 3d shape with two circles at the ends and a curved surface connecting them.

Elevation – A flat drawing that shows the front or side view of an object.

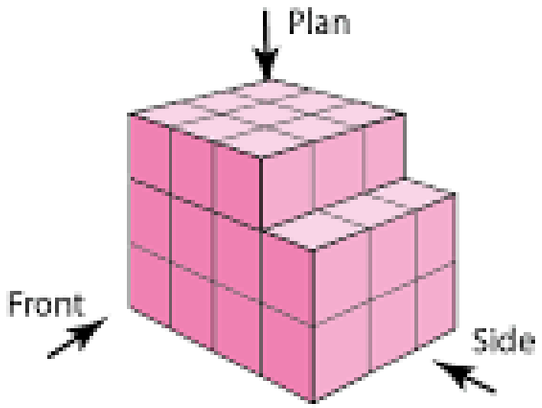
Isometric – A way to show 3D objects on paper using angles so you can see three sides at once.

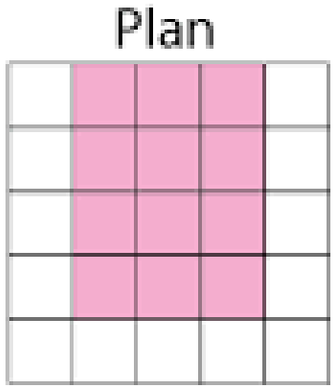
Plan – A flat drawing that shows what something looks like from above.

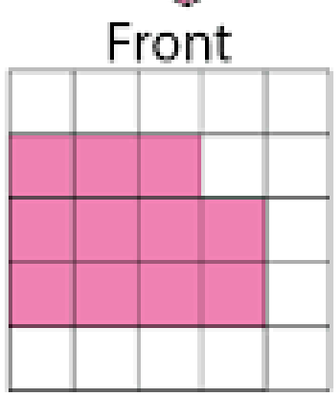
Scale – A type of drawing that is a smaller or bigger version of something, drawn so that all parts are in the right proportion.

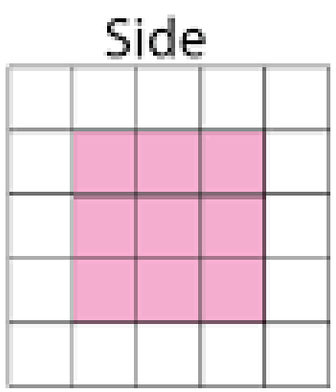
STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you represent 3D solids using plans and elevations?	Draw or interpret top, front, and side views of solids.
How can you calculate angles using 2D representations of 3D shapes?	Use diagrams to find missing angles.
How do you apply Pythagoras' theorem and trigonometry to solve problems?	Find lengths in right-angled triangles.
How do you draw and interpret bearings?	Calculate unknown sides and angles in triangles.
How can you solve real-life problems involving these concepts?	Represent directions using angles from North.









Mathematics

HT3- ASSESSMENT

Year 9

Higher

NOTTINGHAM ACADEMY

Starting the Data Handling Cycle

Understand different sampling methods and their advantages, as we as interpreting and constructing various data representations. Look at forming hypotheses, considering constraints in investigations and applying these skills to analyse and present data effectively.

How I'll be assessed...

- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Frequency – How many times something happens or appears.

Hypothesis – A smart guess you make before checking the facts.

Populations – The whole group of people or things you want to learn about.

Qualitative – Data that is in word form.

Quantitative – Data that is in number form.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What is a hypothesis and what should you consider when writing one?	Write a clear hypothesis and identify factors that affect testing it.
What are the main sampling methods and how do you carry them out?	Carry out different sampling methods correctly.
What are the advantages and disadvantages of random and stratified sampling?	Construct and interpret data displays.
How do you interpret and construct common data representations?	Calculate proportion, frequencies, and angles for charts.
How can population pyramids and choropleth maps be used to compare and interpret data?	Complete and interpret two-way tables to compare data.

Mathematics
HT4- ASSESSMENT

Year 9
Foundation

NOTTINGHAM ACADEMY

Percentage Change

This unit teaches students how to understand and calculate percentage changes, including both increase and decreases. It emphasises converting between fractions, decimals and percentages and solving problems using multipliers.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Decrease – When something gets smaller or goes down.

Depreciation – When something loses value over time

Increase – When something gets bigger or goes up.

Interest – Extra money earned or paid when borrowing or saving money.

Multiplier – A number you multiply by to increase or decrease another number.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do I change a fraction into a percentage or decimal?	Convert fractions to decimals and percentages
What steps do I follow to find a percentage increase?	Calculate percentage increase and decrease
How can I work backwards to find the original price after a discount?	Find original values using reverse percentage calculations
Why can percentages be more than 100% and what does that mean?	Spot and fix mistakes in percentage problems
How do I use multipliers to solve percentage problems?	Apply percentage skills to real-life problems like discounts and interest

Mathematics
HT4- ASSESSMENT

Year 9
Foundation

NOTTINGHAM ACADEMY

Financial Capability

Develop financial literacy skills such as completing bills and bank statements and calculating both simple and compound interest. Explore how VAT affects prices, the difference between salary and wages and how to calculate income tax.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Credit – Money added to your account (like when you get paid or receive money)

Debit – Money taken out of your account (like when you spend or pay a bill).

Exchange – A rate which is the value of one country's money compared to another's.

Income – The money you earn from work, like a salary or wage.

Principal – The original amount of money you borrow or invest, before any interest is added.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What's the difference between simple interest and compound interest? How do I calculate the total value of an investment using simple interest? What information do I need to complete a bill or bank statement? How does VAT change the price of something I buy? What's the difference between a salary and a wage?	Work out how much interest is earned using simple or compound interest. Fill in a bill or bank statement correctly. Add or remove VAT from a price. Convert money between different currencies. Solve real-life money problems using the information given.

Date	Description	Credit (£)	Debit (£)	Balance (£)
1st April	Starting balance			50.80
2nd April	Wages	74.00		
2nd April	Mobile phone bill		60.00	

Mathematics
HT4- ASSESSMENT

Year 9
Foundation

NOTTINGHAM ACADEMY

Fractions and Decimals

Learn how to work with fractions, decimals, and percentages by converting between then, ordering them and finding equivalent forms. Perform calculations involving mixed numbers, improper fractions, negative number and fractions of quantities.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Decimal – Another way to show part of a whole using a dot.

Fraction – Shows a part of a whole.

Percentage – Tells you how many parts out of 100.

Recurring – A decimal where the same digit or groups of digits repeats forever.

Terminating – A decimal that ends.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How can you find an equivalent fraction for $\frac{3}{4}$? How do you convert $\frac{7}{3}$ into a mixed number? Which is bigger: 0.6, $\frac{2}{3}$, or 65%? Explain how you know. If you have 24 sweets and eat $\frac{1}{3}$ of them, how many sweets are left? How can you express $\frac{5}{8}$ as a decimal without a calculator?	Change factions to decimals and percentages and convert improper fractions to mixed numbers (and vice versa). Arrange fractions, decimals, and percentages in size order and compare their values. Add, subtract, multiply and divide fractions, including mixed numbers and negative fractions. Work out a fraction of a given number and express on quantity as a fraction of another. Carry out short and long division, including dividing decimals by decimals without a calculator.

$$\frac{1}{3}+\frac{3}{5}=\frac{5}{15}+\frac{9}{15}$$

$$=\frac{5}{15}+\frac{9}{15}=\frac{14}{15}$$

Mathematics

HT4- ASSESSMENT

Year 9

Higher

NOTTINGHAM ACADEMY

Percentage Change

This unit teaches students how to understand and calculate percentage changes, including both increase and decreases. It emphasises converting between fractions, decimals and percentages and solving problems using multipliers.

How I'll be assessed...

- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Decrease – When something gets smaller or goes down.

Depreciation – When something loses value over time

Increase – When something gets bigger or goes up.

Interest – Extra money earned or paid when borrowing or saving money.

Multiplier – A number you multiply by to increase or decrease another number.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do I change a fraction into a percentage or decimal?	Convert fractions to decimals and percentages
What steps do I follow to find a percentage increase?	Calculate percentage increase and decrease
How can I work backwards to find the original price after a discount?	Find original values using reverse percentage calculations
Why can percentages be more than 100% and what does that mean?	Spot and fix mistakes in percentage problems
How do I use multipliers to solve percentage problems?	Apply percentage skills to real-life problems like discounts and interest

Mathematics
HT4- ASSESSMENT

Year 9
Higher

NOTTINGHAM ACADEMY

Average and Range

Learn how to calculate and interpret key statistical measures, such as averages, range from raw grouped and tabulated data. Develop the skills to read, draw, and compare data using cumulative frequency diagrams, and box plots to understand and describe distributions.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Cumulative – Keep a running total . Every time move to the next number, you add it to the total so far.

Distribution – How data is spread out or arranged.

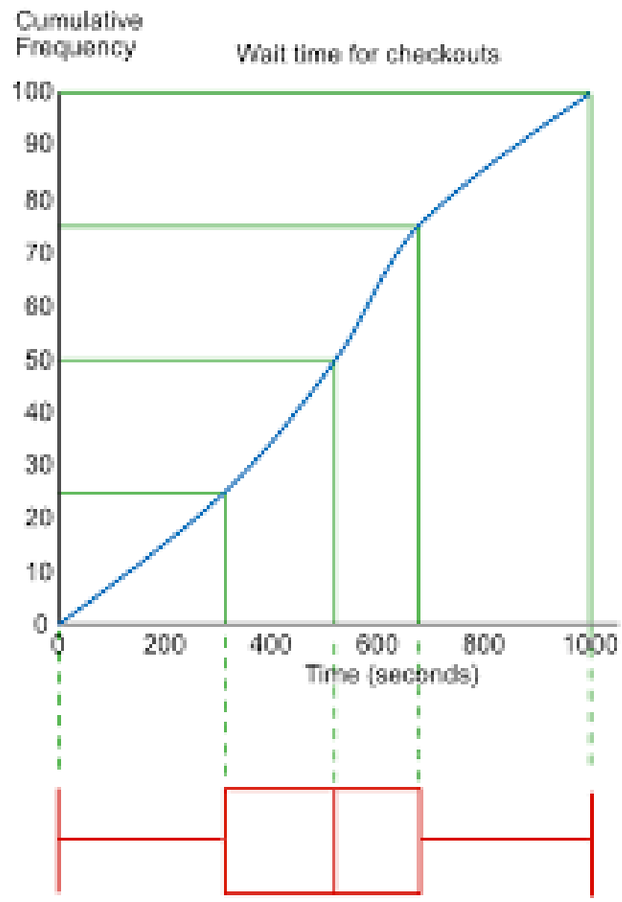
Frequency – How many times something happens.

Median – The middle number when the numbers are put in order.

Quartiles – Found when the data is split into four equal parts.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you find the mode, median, and mean from raw data? How do you read and interpret a frequency table (including finding averages)? How do you find the modal class, median class, and estimated mean from a grouped frequency table? How do you calculate and compare the range (and other averages) to describe different distributions? How do you read, draw and interpret cumulative frequency graphs and box plots?	Calculate averages (mode, median, mean) from different types of data. Calculate and used measures of spread (especially the range). Read, draw and interpret statistical graphs such as cumulative frequency polygons, and box plots. Estimate key values from grouped data. Compare distributions using averages and range.



Mathematics
HT4- ASSESSMENT

Year 9
Higher

NOTTINGHAM ACADEMY

Direct and Inverse Proportion

Develop your understanding of ratio, solve direct and inverse proportion problems. Understand the proportion equations and interpret proportion graphs.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Constant – A fixed value or symbol that remains the same throughout.

Direct – The type of proportion where one value increases, the other increases at the same rate (e.g. double one, double the other).

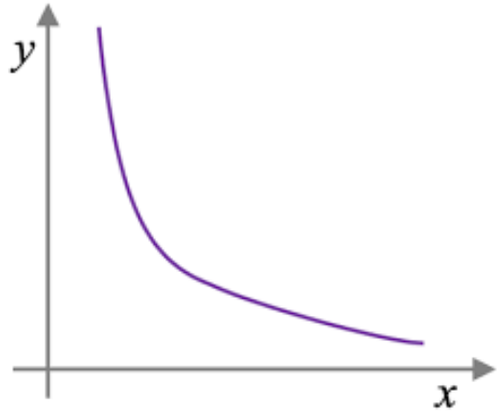
Inverse – The type of proportion where one value increases, the other decreases so their product stays the same.

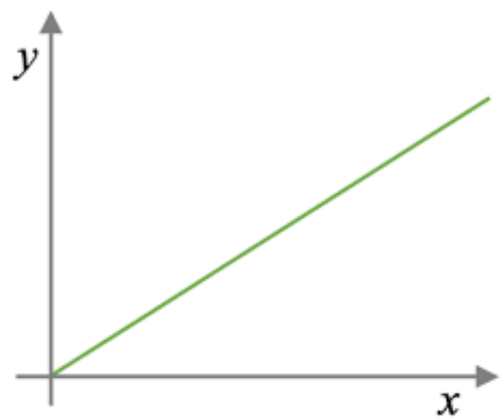
Proportionality – The consistent relationship between two amounts.

Ratio – A way to compare two or more amounts, showing how much of one thing there is compared to another.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
What is a ratio and how do I simplify it?	Simplify ratios and write them in different forms like 1:n.
How do I write a ratio in the form 1:n?	Convert between different units of measurement.
What does the symbol '∝' mean in maths?	Split a quantity into parts using a given ratio.
How can I split a total amount into parts using a ratio?	Write and solve equations for direct and inverse proportion.
What's the difference between direct and inverse proportion?	Interpret graphs that show proportional relationships.





∝

Mathematics

HT5- ASSESSMENT

Year 9 Foundation

Solving of Equations

Learn how to solve and represent equations and inequalities, including those with the unknown on both sides, while keeping equations balanced and using the correct symbols. Learn how to show solutions on a number line using open or solid does and standard inequality notation.

How I'll be assessed...

- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*	⚙️ Key Processes *(Things You Should Be Able to Do)*
What must you do to both sides of an equation to keep it balanced?	Isolating the Variable - Using inverse operations to get the variable on its own.
How can you tell whether to use an open dot or a solid dot on a number line?	Balancing Both Sides - Doing the *same thing* to both sides of an equation or inequality to keep it fair.
What steps would you take to solve an equation where the variable appears on both sides?	Collecting Like Terms - Bringing together similar terms (e.g., all the x's, all the numbers) to simplify expressions.
How do you know whether an inequality's solution is a single number or a range of numbers?	Moving Terms Across the Equals/Inequality Sign - Adding, subtracting, multiplying, or dividing to rearrange and simplify equations with variables on both sides.
What does each inequality symbol (<, >, ≤, ≥) tell you about the size of the numbers being compared?	Representing Solutions on a Number Line - Using open or solid dots and arrows to show all possible solutions.

NOTTINGHAM ACADEMY

📝 Key Spellings & Definitions 📚

Constant – A number that does not change.

Inequality – A maths sentence that shows one value is bigger or smaller than another.

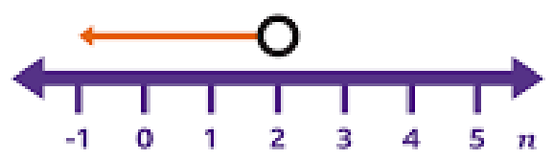
Inverse – An operation that undoes another one.

Solution – The number that makes an equation or inequality true.

Variable – A letter that stands for an unknown number.

$$2y + 5 = 7$$
$$-5 \qquad -5$$
$$2y = 2$$
$$\div 2 \qquad \div 2$$
$$y = 1$$

$$n < 2$$



Mathematics

HT5- ASSESSMENT

Year 9 Foundation

Probability

Learn how to describe and calculate probabilities using words, fractions, decimals, percentages, tables, trees, sample spaces and Venn diagrams. Explore the difference between theoretical and experimental probability by comparing expected results with actual outcomes.

How I'll be assessed...

- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

🔍 **Key Questions** *(Things You Should Know)*	⚙️ **Key Processes** *(Things You Should Be Able to Do)*
How can we describe how likely an event is using words, fractions, decimals, or percentages?	Describing probability – using words like likely, unlikely, certain and impossible to talk about how chance works.
What is the difference between theoretical probability and experimental probability?	Representing probability – using fractions, decimals and percentages to show how likely something is.
How can two-way tables, frequency trees, and sample space diagrams help us work out probabilities?	Organising information – using tables, frequency trees, sample spaces and Venn diagrams to sort and display data.
What do the different regions of a Venn diagram tell us about sets and outcomes?	Calculating probability – working out the chance of an event happening using the formula: Probability = number of desired outcomes ÷ total number of outcomes.
How can we compare expected frequencies with what actually happens in a real experiment?	Comparing results – checking how well theoretical probability (what should happen) matches experimental probability (what actually happens).

NOTTINGHAM ACADEMY

Key Spellings & Definitions

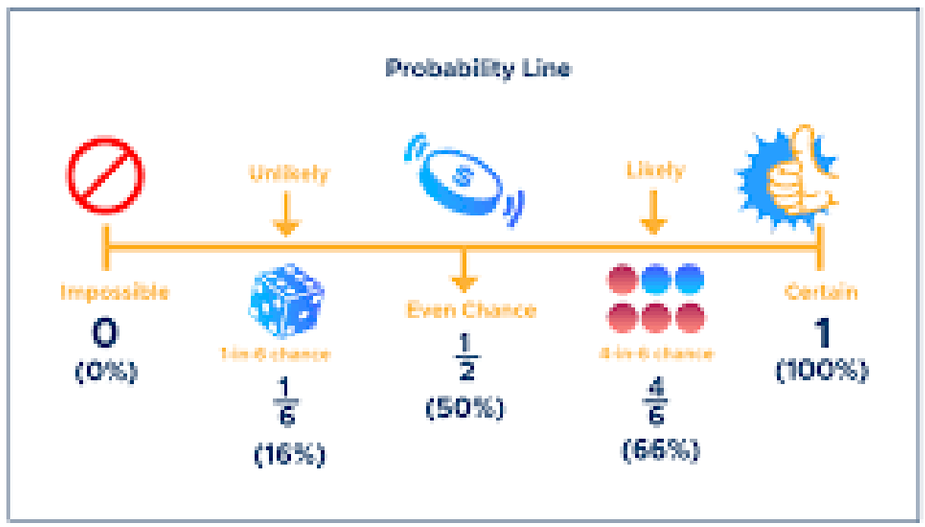
Certain – Something that will definitely happen.

Event – Something you are looking for in a probability question.

Frequency – How many times something happens.

Impossible – Something that cannot happen.

Outcome – A single result of an activity, for example a 4 when you roll a dice.



NOTTINGHAM ACADEMY

Mathematics
HT5- ASSESSMENT

Year 9
Higher

Algebraic Solution of Equations and Inequalities

Learn how to solve different types of equations, including linear, quadratic, and simultaneous using methods like balancing, factorising, completing the square, and applying the quadratic formula.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

Key Spellings & Definitions

Coefficient - The number in front of a letter.

Factorise – Break a big expression into smaller parts that multiply together.

Quadratic – An equation such as $x^2 + 3x + 2 = 0$

Simultaneous – Two or more equations that you solve at the same time.

Unknown – The number we do not know yet. It is often shown as a letter.

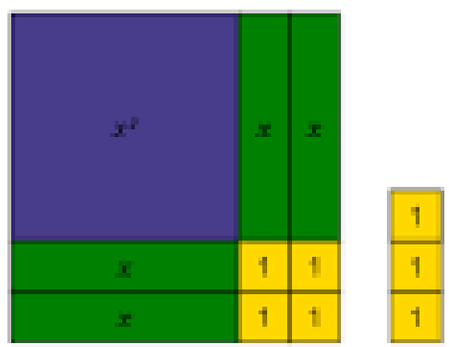
STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*	Key Processes *(Things You Should Be Able to Do)*
How do you solve linear equations? How can you interpret the solution in an equation in a real-life context? How do you factorise a quadratic equation? How can you use the quadratic formula to find solutions? How do you solve simultaneous equations using substitution or elimination?	Re-arrange equations by changing the order of the terms to isolate the unknown. Use the balance method by keeping both sides equal when adding, subtracting, multiplying, or dividing. Fractorise quadratics by breaking in down into two brackets. Complete the square by rewriting a quadratic expression. Solve simultaneous equations by replacing or removing variables.

$$6x^2 - 17x + 12 = 0$$

$$X = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$x^2 + 4x + 7 = (x + 2)^2 + 3$$



Mathematics
HT5- ASSESSMENT

Year 9
Higher

Pythagoras and Trigonometry

Learn how to identify the sides of a right-angled triangles and use Pythagoras' theorem and trigonometric rations (SOH, CAH, TOA) to find missing lengths and angles. Apply these skills to real-life problems and 3D shapes, including using exact trig values for key angles.

How I'll be assessed...
- **Formative:** Low stakes and topic tests
- **Summative:** OCR exam builder

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*	⚙️ Key Processes *(Things You Should Be Able to Do)*
How can you identify the hypotenuse in any right-angled triangle?	Identify the triangle and label the sides -Find the right angle, then label the hypotenuse, opposite side, and adjacent side.
How does Pythagoras' theorem help you find a missing side in a right-angled triangle?	Choose the correct method - Decide whether to use Pythagoras' theorem (for side lengths) or trigonometry (SOH CAH TOA for angles or sides).
What does SOH CAH TOA stand for, and when do you use each ratio?	Substitute the numbers into the formula - Put the side lengths or angles into the correct formula.
How can you find a missing angle in a right-angled triangle using trigonometry?	Calculate the answer - Work out the value carefully, including using a calculator for trig ratios if needed.
How might Pythagoras or trigonometry be used to solve a real-life problem (e.g., finding a height or distance)?	Check the result - Make sure the answer is sensible – e.g., the hypotenuse should be the longest side, and angles should be less than 90° in a right-angled triangle.

NOTTINGHAM ACADEMY

Key Spellings & Definitions

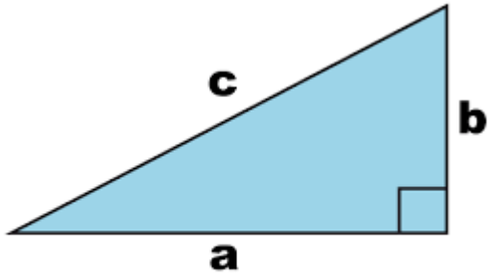
Adjacent – The side next to the angle you are using in a right-angled triangle (but not the longest side).

Exact - A trigonometric value that is written using square roots instead of decimals.

Hypotenuse – The longest side of a right-angled triangle, the one opposite the right angle.

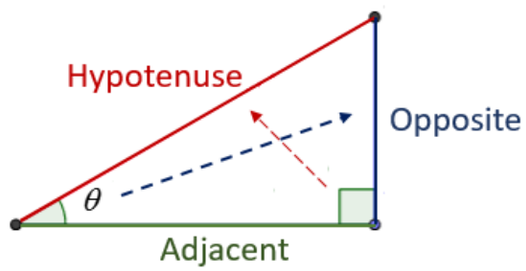
Opposite – The side across from the angle you are using.

Round - Means changing a number to a nearby numbers that is easier to work with.



$a^2 + b^2 = c^2$

SOHCAHTOA



SOH $\sin\theta = \frac{\text{Opposite}}{\text{Hypotenuse}}$

CAH $\cos\theta = \frac{\text{Adjacent}}{\text{Hypotenuse}}$

TOA $\tan\theta = \frac{\text{Opposite}}{\text{Adjacent}}$

MUSIC

Music

HT5- ASSESSMENT

Year 9

Responding To A Brief: Performance

You will create your own pop song arrangements, developing small ensemble skills using rhythmic notation. You will learn how to organise rehearsals, practise effectively, and perform different parts together in time to one pulse on tuned instruments. This unit develops creativity, teamwork, and confident ensemble performance.

How I'll be assessed...

- **Formative:** Performance

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*

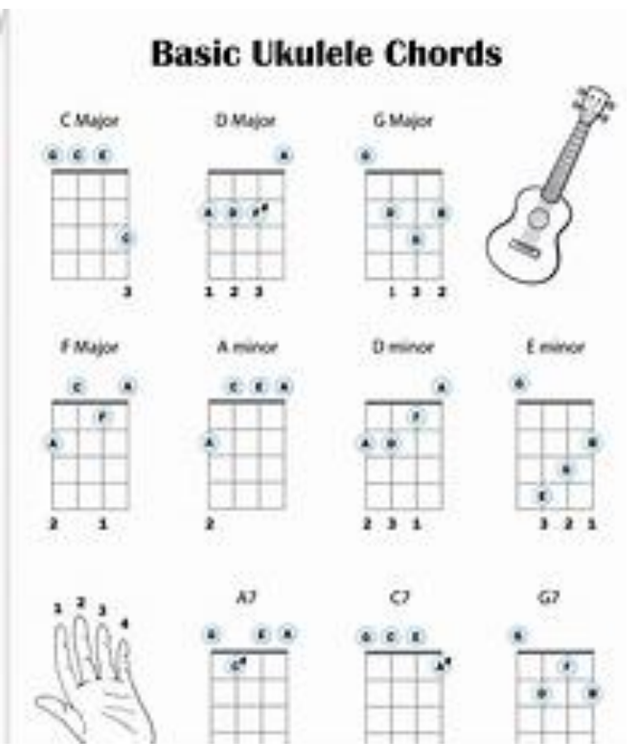
1. What is an **arrangement** and why is it important in performance?
2. How does working in an **ensemble** improve musical skills?
3. Why is **rehearsal** essential before a performance?
4. What is **pulse** and how do musicians stay in time together?
5. What is the difference between **practice** and rehearsal?
6. How can a **chart** help musicians perform accurately?
7. How are **chords** used in pop music?
8. What role does the **drum** play in an ensemble?
9. How can the **keyboard** support harmony and melody?
10. Why is the **ukulele** suitable for pop song arrangements?

⚙️ Key Processes *(Things You Should Be Able to Do)*

1. Create an **arrangement** that suits the instruments available.
2. Perform confidently as part of an **ensemble**.
3. Take part in focused and organised **rehearsal** sessions.
4. Keep a steady **pulse** while playing with others.
5. Use effective **practice** strategies to improve performance.
6. Follow a **chart** to play the correct chords and rhythms.
7. Play **chords** accurately on ukulele or keyboard.
8. Maintain rhythm and structure when playing the **drum** part.
9. Use the **keyboard** to support melody, chords, or bass lines.
10. Manage a student-led rehearsal schedule and contribute positively to the group.

Key Spellings & Definitions

- **Arrangement** – A version of a song where parts are organised or changed to suit the performers or instruments.
- **Chart** – Written music showing chords, rhythms, or structure to help performers play together.
- **Chord** – Two or more notes played together to create harmony.
- **Drum** – A percussion instrument that provides rhythm and pulse.
- **Ensemble** – A group of musicians performing together.
- **Keyboard** – A tuned instrument used to play melody, chords, or bass parts.
- **Practice** – Repeating musical skills to improve accuracy and confidence.
- **Pulse** – The steady beat of the music.
- **Rehearsal** – A planned session where musicians practise together to improve performance.
- **Ukulele** – A small stringed instrument commonly used to play chords in pop music.



PF

PE

NOTTINGHAM ACADEMY

HT5- ASSESSMENT

Year 9

Invasion games – Basketball

In this unit, you will build on your year 8 skills by performing more advanced football techniques with greater accuracy, control, and consistency. You'll apply complex tactics such as switching play and pressing, develop key physical attributes like speed and agility, and take on leadership roles in lessons. You'll also reflect on performance through analysis to improve both your own and others' gameplay.

How I'll be assessed...

- **Formative:** Assessed during lessons on your skills, fitness, and understanding of the game.
- **Summative:** You'll be marked on your ability to perform skills, apply tactics, communicate effectively, and lead aspects such warm-ups or coaching tasks.

STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*	⚙️ Key Processes *(Things You Should Be Able to Do)*
• How can I use tactics like screening and fast breaks to gain an advantage? • What are the roles of different positions and how do they affect team play? • How can I adapt my technique under pressure in competitive games? • What strategies help teams transition quickly from defence to attack? • How do I analyse my performance and give feedback to others? • What leadership skills can I use to support my team during training and matches?	•**Advanced techniques** – Applying screens, fast breaks, and rebounding in gameplay. •**Strategic combination** – Using tactical and technical skills in competitive scenarios. •**Game strategy** – Demonstrating zone defence, transition play, and shot selection. •**Fitness integration** – Enhancing agility, endurance, and decision-making through training. •**Team leadership** – Leading drills, warm-ups, and tactical discussions with confidence. •**Performance evaluation** – Analysing team and individual performance using key criteria.

Key Spellings & Definitions

- **Screen** – Blocking a defender to help a teammate get free.
- **Transition** – Quickly switching from defence to attack.
- **Rebound** – Gaining possession after a missed shot.
- **Zone defence** – Defending an area instead of a specific player.
- **Fast break** – Quickly attacking after winning the ball.
- **Triple threat** – A stance where a player can dribble, pass, or shoot.
- **Shot clock** – The time limit to take a shot during possession.
- **Evaluation** – Judging performance to find ways to improve.

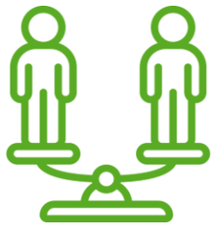
RELIGIOUS EDUCATION

NOTTINGHAM ACADEMY

Religious Studies

HT5- ASSESSMENT

Year 9



Why do religious believers work for social justice?

In this unit, we will examine prophets, sacred texts, and practices to uncover how religions confront ableism, racism, sexism, and poverty. We'll explore how believers are inspired to uphold human dignity, challenge injustice, and shape their communities today.

How I'll be assessed...

•Why do religious groups work to end racism?

Key Spellings & Definitions

Human Rights	The basic freedoms and protections every person should have, like safety, education, and free speech.
Social Justice	Fair treatment of all people in society, especially those who have been treated unfairly in the past.
Prejudice	Judging someone unfairly before knowing them, often based on things like race, religion, or gender.
Discrimination	Treating someone badly or unfairly because they are different in some way.
Ableism	Discrimination against people with disabilities or thinking they are less capable.
Racism	Treating someone unfairly or thinking they are less because of their race or skin colour.
Equality	Everyone being treated the same and having the same rights and opportunities.
Poverty	Not having enough money or resources to meet basic needs like food, shelter, and education.
Sexism	Discrimination based on a person's gender, often against women and girls.
Xenophobia	Fear or dislike of people from other countries or cultures.

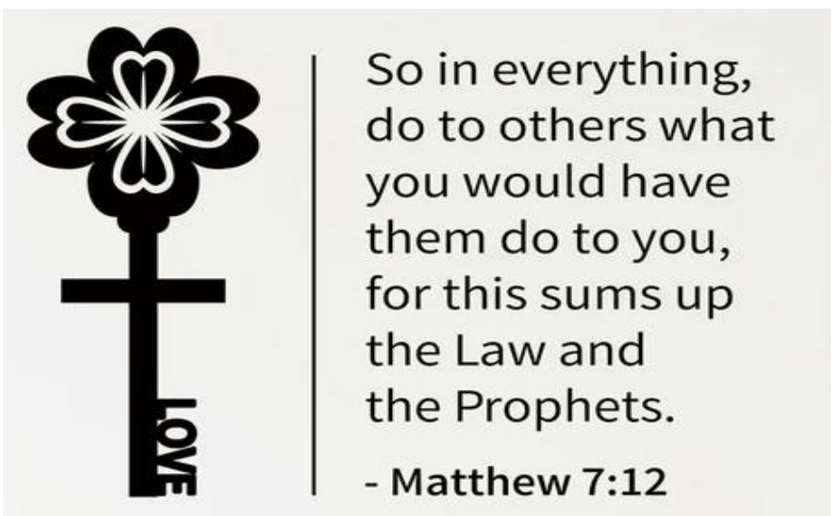
STICKY KNOWLEDGE

🔍 Key Questions *(Things You Should Know)*

- What are social justice and human rights, and why do religious believers consider them important?
- How do religions teach followers to respond to prejudice, discrimination, and ableism?
- How have religious individuals and communities opposed racism historically and today?
- How can modern culture (e.g., music, activism) express religious ideas about equality and justice?
- What do different religions teach about gender roles, sexism, and equality?
- How do sacred texts, leaders, and traditions influence beliefs about justice and identity?
- How do religious and non-religious values shape responses to injustice in society?

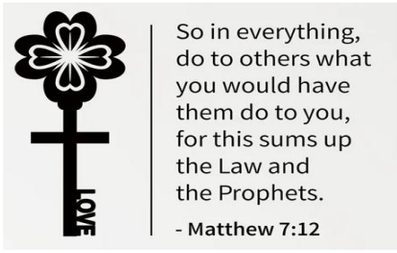
⚙️ Key Processes *(Things You Should Be Able to Do)*

- Use key vocabulary accurately (justice, human rights, prejudice, discrimination, ableism, equality, sexism).
- Explain how religious teachings motivate action against injustice.
- Analyse case studies, stories, and figures (e.g., MLK, Malcolm X, Guru Nanak, Stormzy).
- Compare how different religions respond to racism, sexism, and social inequality.
- Interpret religious texts and apply their teachings to modern ethical issues.
- Construct balanced written arguments using evidence from lessons and key readings.

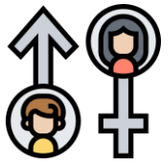


Unit 3 – Year 9 - KS3 Religious Studies – Why do religious people work for social justice?

In this unit, we will examine prophets, sacred texts, and practices to uncover how religions confront ableism, racism, sexism, and poverty. We'll explore how believers are inspired to uphold human dignity, challenge injustice, and shape their communities today.



Key Words	
Human Rights	The basic freedoms and protections every person should have, like safety, education, and free speech.
Social Justice	Fair treatment of all people in society, especially those who have been treated unfairly in the past.
Prejudice	Judging someone unfairly before knowing them, often based on things like race, religion, or gender.
Discrimination	Treating someone badly or unfairly because they are different in some way.
Ableism	Discrimination against people with disabilities or thinking they are less capable.
Racism	Treating someone unfairly or thinking they are less because of their race or skin colour.
Equality	Everyone being treated the same and having the same rights and opportunities.
Poverty	Not having enough money or resources to meet basic needs like food, shelter, and education.
Sexism	Discrimination based on a person's gender, often against women and girls.
Xenophobia	Fear or dislike of people from other countries or cultures.
Disability	A physical or mental condition that makes it harder to do some everyday activities.
Justice	Fairness and making sure people are treated rightly and equally under the law.
Injustice	When people are treated unfairly or denied their rights.
Barriers	Things that stop people from having equal chances, like lack of money, support, or access.
Caste	A social system that divides people into groups by birth, often used in parts of South Asia.
Exploitation	Taking advantage of someone, often by making them work too hard for too little pay or respect.



	Ableism	Racism & Xenophobia	Sexism	Poverty
What is it?	Discrimination against people with disabilities	Discrimination based on race, ethnicity or nationality	Prejudice or unequal treatment based on gender	Lack of resources for basic needs
Why might a religious person oppose it?	Every person is sacred and created by God	All humans are siblings and must love one another	All genders are made in Gods image and equally loved by him	Compassion demands help for the needy
How might a religious person challenge it?	Ensure accessibility; include disabled leaders; offer support groups	Host interfaith events; condemn racism in sermons; back antiâ€‘bias laws	Promote equal roles; provide gender sensitivity training; mentor women	Run food banks and clinics; practice almsgiving; advocate living wages
Teachings which link to this topic	Christianity: The story of the Good Samaritan says "Love thy neighbour as thyself"	Judaism: "Love the stranger as yourself. Remember you were once a stranger in Egypt" Islam: We made you different peoples to know one another. Hinduism: noble thoughts come from every side.	Christianity and Judaism: "God created humans in his image, male and female"… "There is no male or female you are all one in Christ Jesus." Islam: Paradise lies at the feet of your mother	Christianity: "When I was hungry and you gave me food" Hinduism: "those who give wealth have their reward"

SCIENCE

Science

HT5- ASSESSMENT

Year 9

Energy & Chemical Bonding

Students will explore how bonding relates to structure and the properties of substances including allotropes of carbon. They will continue to learn about energy transfers and energy resources, including development of renewable energy use.

How I'll be assessed...

- **Formative:** Drawing diagrams and defining key words
- **Summative:** Exam style questions

Key Spellings & Definitions

- Ion – An atom or group of atoms with a positive or negative charge due to loss or gain of electrons.
- Compound – A substance made from two or more different elements chemically bonded together.
- Ionic – A type of bonding where electrons are transferred between a metal and a non-metal.
- Covalent – A type of bonding where non-metal atoms share electrons.
- Valence – The number of electrons an atom uses, loses, or gains to form bonds.
- Conductor – A material that allows heat or electricity to flow through it easily.
- Insulator – A material that resists the flow of heat or electricity.
- Specific heat – The energy needed to raise the temperature of 1 kg of a substance by 1°C.
- Latent heat – Energy used to change a substance's state without changing its temperature.

STICKY KNOWLEDGE

Key Questions *(Things You Should Know)*

Ion – Ions are formed by gaining or losing electrons and the charge depends on electrons lost or gained.
Compound – A compound contains two or more different elements chemically bonded in fixed proportions.
Ionic – Ionic bonding involves electron transfer between a metal and a non metal, forming charged ions.
Covalent – Covalent bonding occurs when non metal atoms share electrons.
Valence – Valence shows how many electrons an atom uses to form bonds and links to group number.
Conductor – Conductors allow electricity or heat to flow due to free moving electrons.
Insulator – Insulators do not allow electricity or heat to flow easily because electrons are not free to move.
Specific heat – Specific heat capacity is the energy needed to raise 1 kg of a substance by 1 °C.
Latent heat – Latent heat is the energy needed to change state without changing temperature.

Key Processes *(Things You Should Be Able to Do)*

Ion – Identify ions and explain how gaining or losing electrons changes charge.
Compound – Distinguish a compound from a mixture and write simple chemical formulae.
Ionic – Explain ionic bonding using electron transfer and charged ion attraction.
Covalent – Draw or describe covalent bonds as shared pairs of electrons.
Valence – Use valence (group number) to predict how many bonds an atom forms.
Conductor – Predict and explain whether a material will conduct electricity or heat.
Insulator – Explain why a material is an insulator and suggest practical uses.
Specific heat – Compare materials and calculate energy changes using specific heat capacity.
Latent heat – Explain Energy used to change a substance's state without changing its temperature.