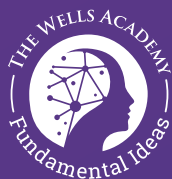


# THE STUDENT BOOK OF FUNDAMENTAL IDEAS



THE WELLS ACADEMY

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## Introduction

Curriculum is incredibly important to us at The Wells Academy. Our curriculum is varied, interesting and packed full of important knowledge to not only challenge you, but also to prepare you for your future.

We believe knowledge is power and that is why we have worked extremely hard as an academy to ensure that our curriculum focuses on the most important knowledge and facts that you need to know.

To ensure we are focusing on what is important, we have developed our own Curriculum – ‘The Wells Academy Fundamental Ideas Curriculum’.

Within each curriculum area we have identified what the most important concepts are, and these are called ‘Fundamental Ideas’. We focus all teaching and learning around what it is that we really want you to learn to make it clear and relevant.

Research tells us that the best way to remember and learn information is to build links between ideas (building schema), and through regular repetition of these ideas. Each of our Fundamental Ideas are repeated many times so that you can learn the subject content in easier to manage sections, whilst helping you link ideas together over time. This makes remembering, recalling and applying your knowledge easier as you work towards your GCSEs and beyond.

This aim of this booklet is to share these Fundamental Ideas with you so that you can understand how your curriculum works in each of your curriculum areas. Your teachers will talk about these as they teach you and using this booklet will help you to make those important links in your learning within curriculum areas, but also across different areas.



Mr Coles (Principal) and Mrs Mason (Assistant Principal - Curriculum)

# Art

## Fundamental Idea 1: Art history and culture

Studying art from different parts of the world is key. It shows us what various cultures find beautiful and important and their customs. It also helps us understand ourselves better.

Artists from the Renaissance (14th-17th centuries), like Michelangelo, learned from Greek and Roman sculptures. African art influences can be seen in the work of Picasso and Matisse.

Nowadays, video game and animation creators make digital worlds, drawing inspiration from global history and cultures.

The way we view and share art has evolved. We can see art in museums, books or online. To create new art, it is crucial to learn from past and present art. This helps artists make meaningful work today.

## Fundamental Idea 2: Artistic practice

Artistic practice is how an artist makes their art, including the ideas, influences, materials, tools and skills they use.

We use tools like brushes, scissors, rollers and techniques like painting, carving and collage to make art. We also use materials such as pencils, paint and clay. By trying out these materials, we can learn many skills.

Artists use these skills to make their art, such as drawings, paintings, sculptures and photographs. Artists can work in different ways and sometimes mix methods.

Making art involves trying things out, learning from mistakes and practice to improve.

## Fundamental Idea 3: Visual literacy

In Art visual literacy is about what we see in all forms of art. We talk about how art is made, how it makes us feel and the artist's message.

Pictures have been used to share ideas for a long time. Understanding these pictures, or visual literacy, has been important for many years. Cave paintings in France (Chauvet caves) and Egyptian hieroglyphics (picture writing) show how people used pictures to communicate, which later became language.

Art can be used to show beauty, sadness, Gods, historical events or everyday life. We use visual literacy to write down our thoughts and connect with the art we make.



# Computing and Information Technology

## Fundamental Idea 1: Media

Media within Computing and Information Technology is not just about learning about digital content, but also how it links to print and offline content.

In media, it is about how to analyse, plan, design, create and evaluate media products. Media involves understanding:

- The way in which the media represents the world we live in
- How media products are aimed at specific audiences
- The nature of media institutions on shaping our tastes through mass media production
- The language the media use to capture and hold consumers attention

This is done by studying various examples of media forms across Television, Radio, Internet, Social media, Print and Cinema.

Using different file types or can be created by combining media types to ensure the best design is achieved.

This involves reflecting on the social and political significance of media and using theoretical frameworks to describe and explain the challenges presented by media forms past, present and future.

## Fundamental Idea 2: Computing

Computing is about learning the basics of how computers work and using them effectively.

To do this, programming languages like Python are used to create simple programmes and games. Computing

includes Hardware, Software and Networks, and understanding how these different parts of a computer system interact is important. Computing involves creating algorithms and making graphics and interactive content for a range of target audiences to solve a problem.

Problem solving is common and means working on projects that involve coding, creating websites, using spreadsheets, databases, and tasks such as world processing, presentations and data analysis.

## Fundamental Idea 3: Information Technology

Information technology is learning and developing an understanding of media codes and conventions which can be appropriately used when producing digital media products. This involves using the correct skills to design, plan and create digital media products that are appropriate for defined target audiences and meet client requirements.

Information Technology helps develop learning and practical skills that can be applied to real life contexts and be used to work in situations where thinking creatively, innovatively, analytically, logically, and critically would be useful.

Information Technology develops independence and confidence in using software skills that would be relevant to the IT and media industry and more widely across non-IT related industries.

Information Technology involves organising files, following copyright laws, and making sure media is user-friendly.

# Drama

## Fundamental Idea 1: Character interpretation

Performers use a range of vocal and physical skills to interpret characters and bring them to life on stage.

They use their voice to provide the audience with information about a character. For example, a performer playing a young child may speak with a higher pitch. The use of voice can also express a character's feelings. For example, a performer may speak with a loud volume and fast pace to show that they are angry.

Performers also need to ensure that they project their voice so the audience can hear what they are saying. This means they speak clearly and loudly.

Performers also use movement to communicate information about their character and how they are feeling. For example, a performer may change their body language by standing with their hands on their hips to show that their character is feeling confident.

## Fundamental Idea 2: Rehearsal strategies

Performers use a range of strategies during rehearsals to help them to create convincing characters. An example of a rehearsal strategy is hot seating. Hot seating is a strategy that allows actors to discover more information about their character. An actor sits in the 'hot seat' whilst others ask questions. As the actor responds to these questions, they delve deeper into their character and their backstory. This process allows the actor to step into the shoes of their character, understanding their motivations and reactions, thereby delivering a more believable performance.

Rehearsal strategies can also be used when making an original piece of drama and can help a performer to come up with ideas.

## Fundamental Idea 3: Characteristics of dramatic performances

Plays contain certain characteristics such as plot, context and themes. The plot is the sequence of events that make up the story within a drama.

Context refers to when a play was written and when a play was set. For example, *An Inspector Calls* was written by JB Priestly in 1945 but is set in 1912.

It is important to know what the world was like when a play was written and when it was set to understand it better.

A theme is a recurring idea that we encounter throughout a play. For example, the main themes in *The Curious Incident of the Dog in the Night-Time* are, 'family', 'honesty and trust' and 'braving the unknown'.

## Fundamental Idea 4: Dramatic technique

A dramatic technique is a device used within drama to help tell the story and make it more interesting and exciting to the audience. For example, slow motion might be used to make a moment more dramatic and tell the audience that it is an important moment within the play.

Another example of a dramatic technique is a soliloquy. A soliloquy is where a character speaks their thoughts directly to the audience while alone or while the other actors are silent.

## Fundamental Idea 5: Theatre design

Theatre design refers to the art and process of designing costumes, set, lighting and sound in theatre.

Costumes are the clothes and accessories that actors wear. Set is the space that actors perform in. Lighting refers to the use of light and sound refers to the use of sound and music.

Theatre design is important because it helps to show the audience where a piece of drama is set and the period of time when the play is set. For example, a play set in the 1940s may use a style of music popular in that period, such as swing, to help transport the audience to that era. Theatre design is also used to help establish the mood and atmosphere of a piece of theatre.



# English

## Fundamental Idea 1: Understanding the human condition through literature

The human condition is the term we use to talk about all the things that make us human. In the books, plays and poems that we read, every character has different adventures, challenges and quests, but they are all trying to work their way through their life: this is what we mean by the human condition. We all live different lives, but we share some common experiences, like being born, growing up, making friends, feeling emotions and dreaming about the future.

Exploring the human condition also includes difficulties, like dealing with problems, feeling pain and figuring out what is right or wrong. Even though we may not have all the answers, thinking about these things is part of what it means to be human. The human condition is all about the shared journey we are all on and it is what connects us to each other, even though we are all unique in our own ways.

## Fundamental Idea 2: Fiction and imaginative writing

Fictional and imaginative writing is when we create a make-believe world with our imagination. It is when we write stories and descriptions about people, places and events that are not real. We invent characters, like superheroes or talking animals and create adventures for them.

The key components of fictional and imaginative writing are:

- Characters: These are the people, animals, or even objects in your story that have their own personalities and feelings.
- Plot: This is the sequence of events that happen in the story.
- Setting: It's where and when your story takes place.
- Theme: The theme is the big idea or message of the story.
- Conflict: Every good story needs a problem that the characters must solve.

All these components work together to create a story that feels real and keeps the reader turning the pages to find out what happens next.

## Fundamental Idea 3: Non fiction and transactional writing

Nonfiction writing is all about real things that have happened or might happen. The key components of nonfiction writing are:

- Real facts: real things that have happened or true information
- A clear purpose: nonfiction might teach you something new, help you solve a problem, or show you how to do something.
- Interesting details: nonfiction writing includes interesting details to make the information more fun to read

Transactional writing is writing with a specific goal or purpose in mind. The most common aims in transactional writing are:

To persuade: convincing someone to believe in your idea or do something.

- To argue: giving strong reasons for or against something.
- To advise: giving suggestions or recommendations based on your knowledge and experience
- To inform: providing facts and information on a particular topic

The purpose of your transactional writing is based on what you want to achieve with your words.

## Fundamental Idea 4: Punctuation

Punctuation marks control the flow of words. They tell you when to stop, pause and how to change your voice when reading something aloud. Punctuation is like the road signs for writing. Just like road signs and traffic lights control the flow of cars, punctuation marks control the flow of writing.

Some of the most common punctuation marks are:

- Full stop (.): It tells you to stop because the sentence is finished
- Comma (,): It tells you to slow down and take a little pause
- Question Mark (?): It is placed at the end of a sentence when you're asking something, like "What's your favourite game?"

- Exclamation Mark (!): It shows strong feelings or a loud shout, "Wow!"
- Apostrophe ('): It shows that some letters have been left out or that something belongs to someone, like "Mike's bike."

Punctuation helps make your writing clear and easy to read, just like road signs help drivers know what to do.

## Fundamental Idea 5: Spelling and grammar

Spelling is all about making sure letters are in the correct order so that your words look right and make sense. This helps ensure that everyone knows what you are trying to say in your writing.

Grammar is all about the rules for language: it is a set of instructions that tells us how to put words together to make sentences that are clear and make sense.



# Food

## Fundamental Idea 1: Essential Foundations of Food: The Eatwell Guide

The Essential Foundations of Food is represented in the Eatwell Guide, which provides a simple framework for balanced eating, illustrating the ideal proportions of different food groups. It emphasises the importance of including a variety of fruits and vegetables, starchy carbohydrates, proteins and dairy or dairy alternatives in daily meals. For example, a balanced plate might include vegetables, whole grain pasta, chicken and a glass of milk. Understanding these proportions helps individuals make healthier food choices, ensuring they receive necessary nutrients to support overall health and wellbeing.

## Fundamental Idea 2: Culinary skills in hospitality and catering

Culinary skills encompass a range of techniques used in food preparation and cooking. These skills include chopping, sautéing, baking and grilling, which are essential for creating diverse and flavourful dishes. For instance, learning how to properly dice an onion or cook pasta al dente can significantly improve meal quality. In hospitality, these skills extend to presentation and timing, ensuring dishes are both appealing and served efficiently. Mastering these skills is crucial for anyone pursuing a career in food service or hospitality.

## Fundamental Idea 3: Dish preparation, presentation and food diversity

Dish preparation involves selecting ingredients, following recipes and using cooking techniques to create a dish. Presentation focuses on how food is arranged and garnished on the plate to enhance visual appeal. For example, a colourful salad with neatly arranged slices of vegetables can look more appetising. Food diversity highlights the importance of incorporating ingredients from various cultures, promoting a broad and inclusive culinary experience. Understanding these aspects ensures meals are not only tasty but also visually attractive and culturally rich.



## Fundamental Idea 4: Safety standards in food and hospitality

Safety standards in food and hospitality are of great importance. They are crucial in preventing foodborne illnesses, such as Salmonella and ensure a safe dining environment. These standards include proper handwashing, cooking foods to safe temperatures and preventing cross-contamination. For instance, using separate cutting boards for raw meat and vegetables reduces the risk of spreading bacteria. Adhering to these practices protects both customers and staff, maintaining high standards of hygiene and safety in all food-related operations.

## Fundamental Idea 5: Food and Hospitality Operations

Food and Hospitality operations cover the management of food service establishments, including restaurants, hotels, and catering businesses. This involves overseeing staff, managing supplies, and ensuring customer satisfaction. For example, a restaurant manager must ensure the kitchen runs smoothly, orders are timely, and guests have a pleasant dining experience. Understanding these operations is vital for maintaining efficiency, quality service, and profitability in the hospitality industry.

## Fundamental Idea 6: Menu Planning and Evaluations

Menu Planning involves designing meals that are balanced, appealing, and suitable for the target audience. It requires considering dietary needs, seasonal ingredients, and cost efficiency. For instance, a summer menu might feature light, fresh dishes like salads and grilled fish. Evaluations include assessing customer feedback and sales data to refine the menu continuously. Effective menu planning and evaluations ensure that offerings meet customer expectations and business goals, contributing to the success of food service operations.



# French

## Fundamental Idea 1: Vocabulary

This refers to the set of words and phrases used in a language, such as French. Vocabulary is the toolbox of words used to express thoughts, ideas and emotions.

It includes:

- Nouns (les noms): words that represent people, places, things, or ideas e.g., “une maison” for a house, “un chien” for a dog.
- Verbs (les verbes): words that describe actions e.g. “manger” for to eat, “être” for to be.
- Adjectives (les adjectifs): words that describe nouns e.g. “grand” for large, “joli” for pretty.
- Adverbs (les adverbes): words that change verbs or adjectives, e.g. “rapidement” for quickly, “très” for very.
- Pronouns (les pronoms): words that replace nouns e.g. “il” for he, “elle” for she.
- Conjunctions (les conjonctions): Words that connect clauses or sentences e.g “et” for and, “mais” for but.

Building a strong and large vocabulary are essential for effective communication, comprehension and becoming fluent in French.

## Fundamental Idea 2: Grammar

Grammar is the system for organising a language. It helps put words together into sentences and express thoughts/ideas clearly. It refers to the set of rules and structures that make sure language makes sense.

Understanding French grammar is key for constructing sentences correctly and communicating effectively.

There are different parts of grammar, such as word level grammar and sentence level grammar.

Word level grammar includes verbs (les verbes), nouns (le noms), adjectives (les adjectifs) and adverbs (les adverbes).

Sentence level grammar deals with word order, phrases, clauses and types of sentences.

## Fundamental Idea 3: Communication skills and phonics

Communication skills refer to the abilities and techniques used to exchange information, ideas and feelings effectively. These skills involve expressing yourself clearly, actively listening, understanding non-verbal cues and adapting communication to different situations. Some examples are; asking and answering questions, giving opinions, making yourself understood, expressing ideas and using language in everyday situations. (Ordering a coffee, buying food, taking public transport etc.)

Phonics focuses on the relationship between the sounds of spoken language (phonemes) and the letters (graphemes) or groups of letters in written language. In other words, phonics helps people learn how to decode words by connecting the sounds they hear to the letters they see. If people learn the sound patterns and follow these rules, it is possible to understand how to say unknown words correctly in a language.

Some examples in French are; h is silent and not formed in French “l’hôtel”- hotel is pronounced [ lotel ], oi makes a [ wa ] sound so “trois” – three is pronounced [ twa ].

## Fundamental Idea 4: Cultural understanding

Cultural understanding is developing an awareness of cultural differences in daily life, traditions and routines. It involves gaining knowledge about how people live their lives, appreciating diverse perspectives and navigating interactions with people from various backgrounds. It harnesses an appreciation of different cultures and an understanding of diversity in the world.

Some French cultural understanding examples are; the use of two forms for you in French “vous” polite and formal situations but also when talking to more than one person and “tu” informal and when talking to a person you know, a friend. There are even verbs in French to ask if you should address someone in the formal way using “vous” “vouvoyer” or “tu” “tutoyer. The French national motto is “Liberté, égalité, fraternité!” – Freedom, equality and fraternity!



# Geography

## Fundamental Idea 1: Climate and Biomes

Climate is the average weather (the day-to-day conditions of the atmosphere) you expect to happen in a place over a long period of time. It helps us understand what kind of weather is normal for a place. For example, the climate of a tropical place like Hawaii is warm and sunny most of the year, while the climate of a place like Alaska is cold with lots of snow in the winter.

A biome is a neighbourhood or habitat for nature, where the plants, animals and climate all work together and rely on each other. Biomes are large areas of the Earth where the environment is similar and the living things have adapted (changed) to live there. Understanding how plants and animals have adapted to these habitats helps us to understand the impact human activity has on different biomes and how we can manage the natural resources and protect the biodiversity (variety of organisms) of our planet.

## Fundamental Idea 2: Geomorphology

Geomorphology is the study of how the Earth's surface is shaped and changed over time. Geomorphology involves different physical features like mountains, earthquakes, volcanoes, river valleys, coastlines and places shaped by glaciers. Each of these unique landscapes has a story about how it was formed and demonstrates the Earth's surface is ever changing.

Geomorphologists are like detectives who figure out how these landforms were made, how and why they keep changing. By studying how landforms have changed in the past, we can use this knowledge to understand future challenges and help people protect their homes.

## Fundamental Idea 3: Development

Development is the process of improving the well-being and quality of life for individuals, communities and societies. Development can be considered at a local scale (example Nottingham) and global scale (comparing different countries, such as USA, India and Nigeria.) These will include economic, social and environmental progress.

Economic Development focuses on increasing income and employment opportunities and involves factors like industrialisation and trade.

Social development (relating to people and how they live) aims to improve access to education, healthcare and social services and addresses issues like poverty reduction, gender equality and access to basic needs. Finally, environmental development promotes sustainable practices to protect natural resources and how economic growth can be balanced with environmental conservation.

## Fundamental Idea 4: Sustainability

Sustainability is a word we often hear. For Geographers, it means doing things in a way that does not harm the environment in the long term. For example, using wind power rather than mining coal to generate (make) electricity. Studying sustainability helps us understand how our actions affect the world around us, whether it is locally (like in Nottingham), nationally (like in the UK), or globally (like in other countries).

Sustainability involves the management of natural resources, like food, water and energy, without hurting the environment and thinking about what problems we may be causing for the future.

## Fundamental Idea 5: Contextual geography

Contextual geography is a way of studying geography that focuses on the specific conditions and circumstances of a place. Geographers understand that places around the world are very different in terms of cultures, governments, economies, landscapes and environments, and they explore these differences.

When learning about contextual Geography, the UK and other places around the world are studied. By describing the features of these places, looking at both physical aspects (like landforms) and human aspects (like cities), and by exploring a variety of places, Geographers will learn how people and their environments interact.



# History

## Fundamental Idea 1: Cause and consequence

In History, a cause is something that makes an event happen. For example, if a king decides to go to war, that decision is the cause.

A consequence is what happens because of the cause. So, if the king's army wins the war, the consequence might be that the king gets more land. It is like a chain of events: one thing leads to another. When we study history, understanding causes and consequences helps us see how past decisions and actions shaped the world we live in today.

## Fundamental Idea 2: Change and continuity

In History, change means how things become different over time. For example, horses were once used for everyday travel, but now there are cars. That is change.

Continuity is what stays the same, like a city still having a big celebration every year. When we study History, understanding change and continuity helps us learn how people's lives have changed and stayed the same over time.

## Fundamental Idea 3: Interpretations

In History, interpretations are the different ways people understand past events. Historians read about events from the past and try to figure out why they happened and what they mean. They use sources like letters, photos and other objects to make guesses, called interpretations. Sometimes, new sources can change a historian's guess. When we study history, understanding interpretations helps us see that history is not just a list of dates and facts, but a collection of stories that can be read in many ways.

## Fundamental Idea 5: Significance

In History, significance means how important an event, person, or idea is. In history, historians mark certain events as significant because they have a big impact on how we live today. For example, the invention of the wheel is significant because it changed how people travel. Significance can change over time, too. What is important now might not have been important a long time ago and what was important then might not seem so important now.



## Fundamental Idea 4: Source utility

In History, source utility means how useful a source is for learning about the past, for example a letter.

Some sources, like a letter written long ago, can tell us a lot about what people thought or how they lived. Other sources might not be as clear or might only tell us a little bit about what people thought or how they lived. When we study history, we have to decide which sources are helpful (have high utility) and which ones are not as useful (have low utility) to understand the big picture of what happened in the past.



# Maths

## Fundamental Idea 1: Number

Number is the area of mathematics that enables us to count, measure and problem solve using a range of calculation skills that include:

- The number system: We count in base 10 using only ten digits: 0, 1, 2, 3, 4, 5, 6, 7, 8 and 9. Numbers bigger than 9 can be written by introducing Place Value, that is columns for units, 10s, 100s and 1000s
- Integers are whole numbers
- Fractions are part of a whole number. The top number is the “numerator” and the bottom number is the “denominator”. The denominator tells us how many equal parts the fraction has been divided up into and the numerator tells us how many of these equal parts we have
- Decimals are also part of a whole number written in place value, such as 1 tenth is written as 0.1
- Percentages are numbers written as the number of parts out of 100. Example, 35% means 35 out of every 100
- Factors are numbers that divide into another number exactly leaving no remainder: 3 is a factor of 12 because 4 lots of 3 make 12.  $[3 \times 4 = 12]$
- Multiples are one or more of the same number (like the times tables)

## Fundamental Idea 2: Algebra

Algebra is the area of mathematics that helps us generalise what we have learnt in number. It involves introducing symbols, most often an “x” or “y” to represent a value or range of values. Algebra also helps us show the relationships that exist between things in life that are linked with each other: speed, distance and time.

In algebra the following terms may be used:

- Symbol: a letter or shape used to represent an unknown value
- Term: a number, example- 1,  $\frac{1}{3}$ , 12... or symbol, example- x, 2x, 3x...
- Expression: two or more terms, such as  $x + 1$ ,  $3x - 7$ ,  $3x^2 + x - 4$ ...
- Equation: two different terms or expressions that are equal in value, such as  $3x + 1 = 2x + 6$ . These always have an equal sign (=).
- Formula: an equation that links things in the real world that are related to each other. For example,  $\text{Speed} = \text{distance} \div \text{time}$ .

## Fundamental Idea 3: Ratio and proportion

Ratio and proportion is the area of mathematics that helps us compare the size of one or more things with one another.

Ratio notation compares size of one thing to another using the colon sign : (means “to”) 3 green to 4 blue would be written as 3:4.

Direct proportion exists where two things increase or decrease in the same way: if you need 300g of flour to bake a cake, you will need 1200g of flour to bake 4 cakes.

Inverse proportion exists where two things increase or decrease in the opposite way. For example, if your journey home is 100 km, the time taken to get home decreases if you increase the average speed you drive and increases if you decrease your average speed.



## Fundamental Idea 4: Geometry and measure

Geometry and measure is the area of mathematics that helps us understand shapes and how to accurately find the size of length, area and volume/capacity.

- 1-Dimension (1-D) is anything that has length. The Metric units used are; Kilometres (km), metres (m), centimetres (cm), millimetres (mm)
- 2-Dimensional (2-D) anything that is flat. It has length and width. Flat shapes have area measured in metric units squared:  $\text{km}^2$ ,  $\text{m}^2$ ,  $\text{cm}^2$ ,  $\text{mm}^2$ .
- 3-Dimensional (3-D) anything that has volume/capacity – has length, width and height. Metric units cubed:  $\text{km}^3$ ,  $\text{m}^3$ ,  $\text{cm}^3$ ,  $\text{mm}^3$ . Capacity metric units: Litres (l), centilitre (cl), millilitre (ml).
- Angle is a measure of turn using the unit of degrees  $^\circ$ .
- 2-D shapes (have area). These consist of different shapes such as Polygons, flat shapes with many angles, Triangles (3 sides), quadrilaterals (4 sides), pentagons (5 sides) and Circles – 2-D shapes where the edge is the same distance from its centre.
- 3-D shapes (have volume/capacity) such as Cubes, cuboids, prisms, cones and spheres.

# Music

## Fundamental Idea 5: Probability

Probability is the area of mathematics that helps us manage our way through an uncertain world. Many describe the outcome of an event (any situation in life) as being unpredictable (random).

To help us manage this better, what we learn in probability helps us achieve a better understanding of the chance of a particular outcome occurring from a given situation. For example, when rolling a six-sided fair die, we assume that the chance of rolling a six is 1 chance out of 6 possible outcomes. We use the following terms to help with this:

- **Theoretical probability:** Calculating the chance of a given outcome of an event given what we know about the situation.
- **Experimental probability:** Calculating probabilities by carrying out a number of trials and recording the outcomes we get.
- **Relative frequency:** The probability of a given outcome from a given experiment knowing that this probability is only valid for this experiment.

## Fundamental Idea 6: Statistics

Statistics is the area of mathematics that helps us better understand the world around us by analysing data. This helps us look for and determine trends in many aspects of our lives and so gives us much more control over uncertainty.

- **Data:** any form of information.
- **Discrete data:** anything that we can count.
- **Continuous data:** anything we can measure (such as length, weight, height, temperature...)
- **Quantitative data:** is numbers-based, countable, or measurable e.g., number of people in a room, number of houses in a street.
- **Qualitative data:** non-numerical. It is interpretation-based, descriptive e.g., eye colour, model of cars, dog breed.
- **Mode Average:** Most commonly occurring value.
- **Median Average:** Middle value when the data is arranged in order of size.
- **Mean Average:** Found by adding up all of the data and then dividing by the number of data in the data set.
- **Range:** Measure of spread, biggest value – smallest value in a data set.

## Fundamental Idea 1: Performing

Music performance is the act of playing or singing music for an audience. It involves practice and perfection through rehearsals. Performance can be solo, or group based. The three key elements of a good performance are fluency, accuracy and expression.

- **Fluency** is the seamless flow of music, involving music reading, rhythm understanding and effortless technique execution.
- **Accuracy** refers to performing the correct notes, rhythms and dynamics as written in the score, ensuring a mistake-free performance.
- **Expression** involves showing emotion and feelings within a performance, this is done by a variety of dynamics, tempo, phrasing and articulation, making the music come alive and allowing the audience to feel the mood and meaning behind the notes. When these elements are combined, a performance becomes polished and effective.

## Fundamental Idea 2: Composing

Composing is when the music you make is original to you. Composing involves understanding many aspects of a song, including the melody, chords and rhythm, then creating your own. Musicians can compose music in many ways. Some use traditional instruments like pianos or guitars, while others use computers to mix different sounds and beats. Composing allows a small idea to be developed into a full piece of music.

The main elements of composition are:

- **Melody:** This is the main tune of the piece, the part you often hum or sing along to. It is a sequence of notes.
- **Harmony:** This involves the combination of different musical notes played or sung simultaneously to support the melody. It adds depth and richness to the music.
- **Rhythm:** This is the pattern of beats or a sequence of time intervals. It gives music its tempo and structure, making it feel fast, slow, smooth, or choppy.



# Personal Development

## Fundamental Idea 3: Critical engagement

Critical engagement in music means thinking deeply about music. It is more than just listening or playing; it is about understanding and questioning. It involves learning how to look at the way music is made, its history and its impact. It also involves the exploration of different styles and think about why a piece of music makes them feel a certain way.

An important part of critical engagement is the understanding the different elements of music. These include

- Dynamics (the volume)
- Tempo (the speed)
- Pitch (how high or low the music is)
- Texture (the layers in the music – how many things are happening at the same time)
- Structure (the order which things happen within a song)
- Tonality (the overall sound of the music, whether it is pleasant or unpleasant)

## Fundamental Idea 4: Music Technology

We use technology as part of everyday life to listen to and to create music. Technology is used when creating music, with most modern music being created in a Digital Audio Workstation (DAW). You can record audio, play using different instruments, create drumbeats and add many creative effects to make your desired song using a DAW.

Examples of music technology aspects include:

- Audio: This can be recorded using a variety of microphones or it can be sampled from another piece of music. Sampling is when you take music that already exists and edit it to make it your own.
- Loops: These are short sections of music which are repeated multiple times. They are often used in the beginning stages of creating a song or in creating a demo of a song.
- Effects: These are used to alter the sound. This could be by adding a delay which makes the sound repeat itself multiple times or by editing the frequencies in a sound.

## Fundamental Idea 1: Health and wellbeing

Health and wellbeing are vital aspects of our lives that keep us feeling happy and able to do all the things we enjoy. Being self-aware and self-confident, along with having self-esteem and resilience, are key to understanding who we are and how we can face life's challenges.

Mental health and emotional wellbeing are just as important as physical health. Knowing our emotions and how to handle them, especially during tough times, helps us maintain a healthy mind.

A balanced lifestyle, which includes getting enough sleep, eating nutritious foods, exercising regularly and finding time for relaxation, keeps our bodies strong and minds clear.

Being aware of the risks of drugs and alcohol, learning how to manage risks in our daily activities, knowing basic first aid and understanding the changes during puberty and the importance of sexual health are all essential for taking care of ourselves now and in the future.

## Fundamental Idea 2: Relationships

Relationships are the connections we have with other people. They can be friendships, family bonds, or romantic. Positive relationships are based on mutual respect, trust and understanding. Not all relationships are healthy. Some can be harmful or unbalanced, which is why it's crucial to know the difference.

Attraction varies from person to person and understanding this helps us respect others' relationships, which may be different from our own. The law, including the Equality Act 2010, protects individuals and their relationships from discrimination, ensuring everyone is treated fairly.

Building and sustaining relationships require effort and the ability to handle conflict constructively. Consent is a vital part of any relationship, ensuring that all interactions are agreed upon by everyone involved. Understanding contraception and the responsibilities of parenthood are also important aspects of intimate relationships.



### Fundamental Idea 3: Living in the wider world

Living in the wider world is about how to be a productive citizen after leaving school. This includes setting targets and goals for the future.

There are lots of interesting careers and work opportunities available so it's important to follow your own aspirations and understand the pathways, such as college, sixth form, university, or apprenticeships, to achieve a fulfilling career.

Managing finances is also a vital skill, learning to budget wisely and recognise the risks of gambling.

The internet and social media play a significant role in how we present ourselves and consume content and it's crucial to be aware of both the benefits and potential drawbacks of these platforms to thrive in the wider world.



## Physical Education

### Fundamental Idea 1: Technique and skill development

In sports, a technique is just a special way of doing something. It could be passing a ball, hitting a ball with a racquet, or doing a handstand. When you can do these things well, that means you are skilled.

In Physical Education, we learn how to do these techniques well so we can be good at lots of different sports. We will learn things like passing, dribbling, defending and shooting in Invasion games such as Football, Basketball and Hockey. In Gymnastics, we will learn different types of rolls, balances and jumps. All these skills will help us do better in sports.

### Fundamental Idea 2: Problem solving and decision making

Problem-solving is the act of overcoming challenges to reach a goal and it is a common aspect of sports. Decision-making involves making crucial choices.

In Physical Education, we explore potential challenges in sports and develop solutions for each activity.

Challenges might involve invading an opponent's play area or maintaining possession of an object. Decisions could involve choosing the right moment for different shots in Net and Wall games (like Netball) or deciding where to hit or throw the ball in Striking and Fielding games (like Cricket) to stop the opponent from scoring.

### Fundamental Idea 3: Officiating, leadership and coaching

Officiators are like referees in a game. They make sure everyone follows the rules. When students act as officiators, they learn about the rules and become more confident and organised. They also learn how to lead others.

Leadership means being able to guide and influence others. In Physical Education, this could be leading classmates, a team or helping others to learn new skills.

Coaching is when someone who knows a lot about a sport helps others to get better at it. This could be as simple as coaching friends to get better at sports. This process allows us to understand the sport better and become more confident.



# Religious Education

## Fundamental Idea 4: Physical and mental fitness

Physical fitness is about being able to do physical activities and tasks well. It means having enough strength, endurance, flexibility and coordination. When you are physically fit, you can do lots of activities, keep a healthy body weight and stay healthy. In Physical Education, we learn about different parts of fitness, how to train to get better at each part and how being fit helps you play sports.

Mental fitness is about being able to handle mental challenges in a healthy and effective way. This includes dealing with stress, managing feelings, making decisions, focusing and remembering things. In Physical Education, students face many challenges and learn how to deal with these challenges to improve their mental fitness.

## Fundamental Idea 5: Healthy living

Living a healthy life is something you do your whole life. Being healthy means eating good food, doing physical activities, keeping a healthy weight and managing stress. In Physical Education, we learn how regular exercise can make us healthier, both in their bodies and minds. This not only helps us feel better but also gives us more chances to grow as a person and even get good jobs in the future.



## Fundamental Idea 1: Religious figures and deities

Religious figures and deities hold significant importance in a religion. They include individuals who are recognised for their teachings, leadership, or contributions. Examples include prophets, saints, monks, priests and gurus.

Religious figures and Deities differ between religions and can be found in most religions. They often serve as a source of inspiration, guidance and spiritual leadership for their followers.

For example, in Christianity, Jesus Christ is a central figure, worshipped as the Son of God. In Islam, the Prophet Muhammad is deeply respected as the last prophet of God. Buddhism recognises Gautama Buddha as an enlightened teacher who shared his insights.

In Hinduism, there are numerous deities including Brahman, the One Ultimate Reality, who they believe to be God. To understand God, many Hindus break down Brahman into the Trimurti which means 'three forms'. These are Brahma, the creator, Vishnu, the preserver and Shiva, the destroyer.

Sikhism was founded by Guru Nanak and subsequently led by a succession of nine other Gurus.

These figures and deities have shaped the beliefs, rituals and moral codes of their respective religions. They continue to be a source of wisdom and direction for millions of people around the world.

## Fundamental Idea 2: Scriptures

Religious scripture refers to the texts of the world's religions. These scriptures can greatly vary in form, length and age. However, their common feature is that their words are regarded by the devout (follower of the religion) as sacred.

The Bible is the Christian holy book. It is made up of the Old and New Testaments.

The Quran is the Muslim holy book. Muslims believe it to be the word of God (Allah) revealed to the Prophet Muhammad through the angel Jibril (Gabriel) over 22 years.

The Vedas are holy texts of the Hindu religion. They teach the origin of and reason for existence. They are some of the oldest religious writings in the world.

## Fundamental Idea 3: Practices

A religious practice refers to the behaviours, rituals, ceremonies and celebrations that individuals or communities undertake in relation to their religion.

Examples include:

- Baptism in Christianity (Christians are sprinkled with holy water to rid them of the sin of Adam and Eve and marriage)
- The five pillars of Islam (five things that all Muslims must complete)
- Sikh worship at the gurdwara
- Hindu worship at home and in temples called mendirs
- Divali as the main festival in Hinduism
- Passover celebration in Judaism

# Science

## Fundamental Idea 1: Matter

Everything in our world is made of matter, which is anything that takes up space and has weight.

Atoms are tiny parts that act as building blocks that make up all things. They can bond (stick) together in different ways to create everything we see and feel. Atoms can be found in three main forms:

- Solids: Like ice or a rock, where atoms are packed tightly in a set pattern. Solids do not change shape or size.
- Liquids: Like water or milk, where atoms are close but can move around. Liquids take the shape of their container but keep the same amount.
- Gases: Like the air or helium in balloons, where atoms are spread out and move freely. Gases can expand to fill any space and do not have a fixed shape or size.

## Fundamental Idea 2: Energy

Energy is a big part of our lives and comes in many forms:

- Kinetic Energy: The energy of moving things.
- Thermal Energy: Heat flows from hot objects to cold ones, such as when you touch a warm cup of tea.
- Elastic Potential Energy: Energy stored when things stretch or squash, like a rubber band. When these materials return to their original shape energy is released.
- Gravitational Potential Energy: Objects gain this energy from being up high. The higher and heavier something is, the more energy it has.
- Chemical Energy: Energy in the tiny parts that make up everything. It is released when we digest food or use fuels like coal or gas.

Energy does not disappear; it just changes from one form to another. Like when you kick a football, some of the Kinetic Energy turns into Gravitational Potential Energy from being up high as the ball moves through the air.

## Fundamental Idea 3: Organisms

An organism is a living thing with an organised structure that carries out the following life processes: It can feel things like light, sound and touch (react to stimuli), reproduce, grow, adapt to its surroundings and control internal conditions, such as making sure it is not too hot or too cold.

The term Organism includes all the animals, plants, fungi, protist and bacteria on Earth.

Organisms can be very simple or complex. Unicellular organisms are made of just one cell, like bacteria (for example, Salmonella) or single-cell fungi (like Yeast, which makes bread rise when heated).

Multicellular organisms have lots and lots of cells, like plants and animals. In these organisms, each cell has a special job that helps the whole organism live and carry out its life processes. It is like each cell is a tiny worker doing its part in a big company.

## Fundamental Idea 4: Earth and Space

Earth is one of eight planets that orbit (go around) the Sun. Earth has different layers: The Crust (like the skin of an apple), the Mantle (the thick liquid part inside) and the Inner and Outer core as you move towards the centre. Most planets have lots of moons, but Earth has just one, which makes it unique.

Scientists look at Earth's layers, weather, animal and plant fossils to learn how planets work. When they compare Earth to other planets, they can see what makes each one similar and different. They can predict how they may have changed over time before there was even life on Earth.

Studying Earth helps us understand not just our own planet, but all the other places in space too. Earth is like a key that unlocks the mysteries of other planets in our solar system (The Milky way).



## Fundamental Idea 5: Forces

A force is a push or a pull that can make objects move, stop or change direction. Forces are the power behind every movement.

There are two groups of forces: Contact and Non-contact

Contact forces involve objects touching. They include:

- Tension: An example is pulling a rope.
- Friction: Like rubbing your hands together.
- Air resistance: An example is when you ride a bike fast and feel the air hitting you.
- Upthrust: Such as when water lifts us when we swim.
- Thrust: The force that moves an object forward
- Normal Reaction: When an object pushes on a surface like a table the surface pushes back on the object with a balancing force. An example of this would be a book resting on a table.

Non-contact forces do not need objects to touch. They include:

- Magnetic Forces: Like magnets attracting or repelling.
- Electrostatic Forces: Like a shock from a doorknob.

## Fundamental Idea 6: Genetics and Evolution

Genetics is like a recipe book or method that is inside every part of our bodies, telling us how we will look and influence variation (differences) between living organisms. Genes, which are found in something called DNA, are in every single cell. Genes are parts of DNA that make us all different, like why some people have blue eyes and others have brown.

Living things change little by little over a long time (evolve), which helps them live better in places that are hot, cold, or have different kinds of food. Those unable to adapt face extinction, disappearing from Earth altogether.

Scientists study genetics to learn about what makes us, us. They can figure out why some people have certain illnesses that they have inherited from their parents, like Cystic Fibrosis and try to find ways to help them live longer, healthier lives.

## Fundamental Idea 7: Reactions

When chemical reactions occur, atoms rearrange themselves, leading to the formation of new substances. There are often clues that we can see to recognise that a reaction is taking place such as:

- Fizzing - The release of gas bubbles during a reaction (e.g., when an antacid tablet dissolves in water).
- Colour Change - A shift in colour due to altered chemical bonds (like when iron rusts or food changes colour during cooking).
- Temperature Change - Heat is either absorbed or released during the reaction, so will become colder or hotter.

These signs help us recognise and understand chemical reactions.

## Fundamental Idea 8: Organisms and their Environment

Organisms adapt (change) to their environment to survive and thrive. They must find food, water and shelter. Sometimes they compete with others to secure them for themselves.

An ecosystem is like a community where different kinds of living things share space and have an influence on each other. They might help each other, or a predator may eat prey (example a lion eating a zebra). This is how energy is transferred in nature.

The weather and climate, for example how hot or cold it is and how much it rains, can change how living things act. They might migrate (move to new places) or use survival strategies (find new ways to live). Human actions can change nature too, for example by building on land, which can make it harder for some organisms to survive. This alters species behaviour and can reduce biodiversity (the number of different species living in an ecosystem).



## Fundamental Idea 9: Forces

Waves are energy disturbances that travel through a medium (such as air or water) or a Vacuum (the emptiness of space). They are like invisible ripples that carry energy from one place to another, but do not take anything else with them. They do not transfer matter.

Waves follow certain rules and move in ways we can predict. There are two main kinds: Transverse and Longitudinal waves.

- Transverse waves: These are waves you can see, like light. They move through space super-fast and include all the colours we see, plus some types of light we cannot see, like infrared and ultraviolet.
- Longitudinal waves: These are waves you can hear, like sounds. They need a medium (something to travel through, like air or water) and they work by making the air vibrate back and forth. They allow communication. For example, bats communicate using Ultrasound which is a Longitudinal wave.

## Fundamental Idea 10: Electricity and Magnetism

Electricity is a form of energy that is present when an electric charge flows around wires. It flows through conductors (mostly metals) and makes things happen, like turning on lights or making your phone charge up.

Magnetism involves the attractive or repulsive (push and pull) force exerted by magnets. Certain materials, such as iron, respond to magnetic fields and makes magnets stick to the fridge or push away from each other.

When electricity and magnetism work together, it is called electromagnetism. This interaction between the two enables technologies like motors to work in everyday gadgets.





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