Year 6 Curriculum Term 1

Topic Title: Stargazers	
English	**Maths**
Reading **'Cosmic' by Frank Cotterell-Boyce** In this term, our English curriculum will encompass a wide array of engaging activities to foster a love for reading and enhance language skills amongst our students. Central to our literary journey is the exploration of the novel *Cosmic* by Frank Cotterall-Boyce. Within each lesson, we will diligently follow a structured approach aimed at enriching students' vocabulary, comprehension, and analytical abilities. Our lesson structure commences with a thorough introduction to key vocabulary from the text. Following this, students will engage in activities such as 'just read' and 'close read', enabling them to delve deeper into the nuances of the narrative and language used by the author. Comprehension exercises will challenge students to critically analyse themes, character motivations, and literary devices employed within the text. Furthermore, we will dedicate a session to reading for pleasure, allowing students the opportunity to explore a variety of books in our library. This session aims to nurture a genuine appreciation for reading and encourage students to broaden their literary horizons beyond the classroom. By integrating these components seamlessly throughout the term, we aim to cultivate a holistic approach to English language learning that not only enhances academic performance but also nurtures a lifelong passion for literature. **Writing** **Fiction: Description – people, and places** • Use well-chosen adjectives, similes/metaphor • Use senses and concrete detail • Show things through the character's eyes, e.g. she stared at…. • Describe only key objects • Describe settings to create atmosphere • Describe the weather and time of day	**Understanding Large Numbers** • **Numbers up to 1,000,000 and 10,000,000**: Pupils should confidently understand, read, and write numbers up to 10,000,000, recognising the place value of each digit. • **Using a Number Line to 10,000,000**: Pupils should be able to position and represent numbers up to 10,000,000 accurately on a number line. **Ordering and Comparing** • **Compare and Order Integers**: Learners should have the ability to compare and sequence numbers up to 10,000,000, including the use of <, > and = signs. • **Rounding Numbers**: Pupils need to round any integers, including to the nearest 10, 100, 1000, 10000, 100000 and 1000000. **Operations with Integers** • **Addition and Subtraction**: Pupils must add and subtract integers with confidence, using formal written methods for large numbers and applying these skills in solving complex problems. • **Multiplication**: Learners should multiply numbers up to four digits by a two-digit number using long multiplication, and tackle multi-step problems through multiplication. • **Division**: Skills required include short division to divide numbers up to four digits by a one-digit number and progressing to more complex division using factors and long division methods with remainders. **Factors, Multiples, and Divisibility** • **Common Factors and Multiples**: Understand and identify common factors and common multiples of two numbers, and solve related problems. • **Rules of Divisibility**: Pupils should be familiar with and apply the rules of divisibility for numbers 2, 3, 4, 5, 6, 9, and 10.

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Non-Fiction – Should Humankind continue to Explore Space?
Non-Fiction: Discussion
Building on Y3/4 work

The framework for discussion introduced in Y3/4 should be practised and extended in Y5/6, with increasing emphasis on writing across the curriculum. These are likely to be more abstract and outside the children's immediate experience.

• When assembling arguments:
-try to support views with reasons, examples and/or evidence
- OR Make it clear when you include an opinion- I think…In my opinion…
-OR Try to persuade within the arguments. It is important to know the difference between these ways of arguing.
• Write openings to introduce the reader and explain why you are discussing an issue
- Since last summer, people have been arguing about whether or not to build a supermarket next door to our school. We think everyone should be clear about the reasons before a decision is made.
• Give examples which move from the general to the specific
- Most shoppers would agree that…One lady, who has shopped in the town for many years, told us…
• Use indirect, reported speech
- It has been said that…the local policeman told us that…
• Vary sentence structure, length and type: -complex sentences to combine and compress information -short sentences for effect
• Sentence openers - Interestingly, From our point of view, Indeed, there could even be
• Passive voice to sound more formal (Y6)
- It could be said that …Additional disturbance would be created by…
• Conditional and hypothetical sentences using the subjunctive 'were'
- If…, then….sentences using the subjunctive 'were' If that's the best they can offer…, If it were to be approved…
• Use persuasive devices to press points.

Special Numbers and Operations

- **Primes, Squares, and Cubes**: Identify prime numbers up to 100, know square numbers up to 12×12, and familiar with cube numbers up to 10^3.
- **Order of Operations**: Apply the correct order of operations including brackets, powers, division, and multiplication in calculations (BIDMAS/BODMAS).

Mental Strategies and Problem Solving

- **Mental Calculations and Estimation**: Enhance accuracy in mental arithmetic, including adding, subtracting, multiplying, and dividing.
- **Reasoning with Known Facts**: Develop reasoning strategies by applying known facts to new situations to solve more complex problems, including multi-step problems.

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- Address readers from time to time to hold attention and draw them in to the arguments: - inviting them to speculate You may be wondering why… - asking questions How would you like to…? - Using exclamations How infuriating! What a nuisance! • Extend the range of connectives given in year ¾ to link sentences and paragraphs interestingly, coherently and effectively, including: - Addition also, furthermore, moreover, additionally, - change of direction although, on the other hand, unfortunately, however, despite - cause and effect so that, owing to, due to, - uncertainty perhaps, it is possible that, another possible reason… - comparison equally, similarly, just as, in contrast, whereas - emphasis most/least of all, importantly • Make views sound more reasonable through use of modal verbs might/may/could be, and words and phrases that leave room for alternative views or contrary facts often/usually/commonly/mostly/tend to/are likely to… • Use a variety of phrases for drawing conclusions.. In conclusion, To sum up, Having considered, In the light of, Given these arguments, On the whole, By and large, In the circumstances, All things considered, • When you have finished, re-read and check you have been fair to both sides.	
RE	**PSHE**
CORE: • Outline the importance of Creation on the timeline of the 'big story' of the Bible. • Identify what type of text some Christians say Genesis 1 is, and its purpose. • Taking account of the context, suggest what Genesis 1 might mean, and compare their ideas with ways in which Christians interpret it, showing awareness of different interpretations. • Make clear connections between Genesis 1 and Christian belief about God as Creator. • Show understanding of why many Christians find science and faith go together. • Identify key ideas arising from their study of Genesis 1 and comment on how far these are helpful or inspiring, justifying their responses.	<u>Get Heartsmart and the St Nicholas Way</u> • **The St Nicholas Way:** it's who we are • Powerful Poses Demonstrate that our body language can be used to help us feel more powerful • Stone Trainers Comparing our hearts to trainers - how do we keep our hearts soft but strong • Secret Scenarios Recognising when it is right to keep a secret and when a secret should be shared • Tying the Knot Recognising the importance of commitment in marriage Healthy Food, Healthy Heart: Learning about the Eatwell plate and how to plan a healthy meal

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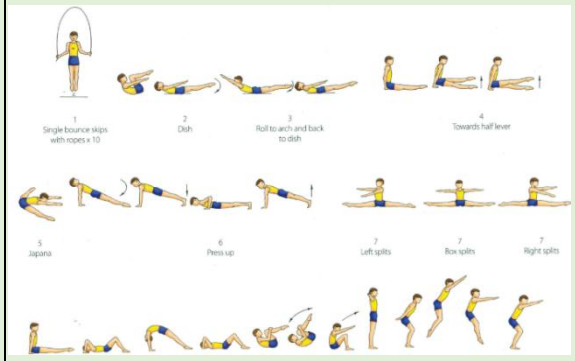
• Weigh up how far the Genesis 1 creation narrative is in conflict, or is complementary, with a scientific account. **KNOWLEDGE** **BUILDING BLOCKS** PUPILS WILL KNOW THAT: • There is much debate and some controversy around the relationship the accounts of creation in Genesis and contemporary scientific accounts. • These debates and controversies relate to the purpose and interpretation of the texts. For example, does reading Genesis as a poetic account conflict with scientific accounts? • There are many scientists throughout history and now who are Christians. • The discoveries of science make Christians wonder even more about the power and majesty of the Creator	• reflection and self-evaluation
Music	**PE**
Musicianship: -Rhythmic patterns using minims, crotchets, quavers, semiquavers and their rests -Key Signature: C major (no sharps/flats) -Melodic patterns using the notes C D E F G A B -Improvisation – notes C D E F G A B **Listen and Respond:** Selection of songs (see overview) Singing: Selection of songs (see overview) **Playing:** Glockenspiel/Recorder – notes – GABCDE (4 levels) and DFGABbCDEF (4 levels) **Improvising and composition:** -Compose with the Song – notes - GABb -Create a Graphic Score: Moving Pictures -Compose with a Theme: Moving Pictures - ABC -Music Notepad -Quickbeats -drums **Performing:** Perform and share what has taken place in the lesson	**Teacher Led - Gymnastics** **Body Management** 

Courage **Resilience** **Honesty** **Kindness**

Matthew 7:24 - "Therefore everyone who hears these words of mine and puts them into practice is like a wise man who built his house on the rock"

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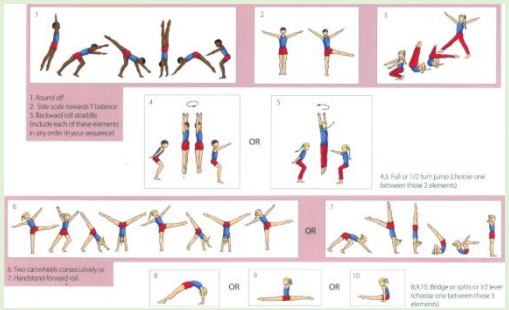
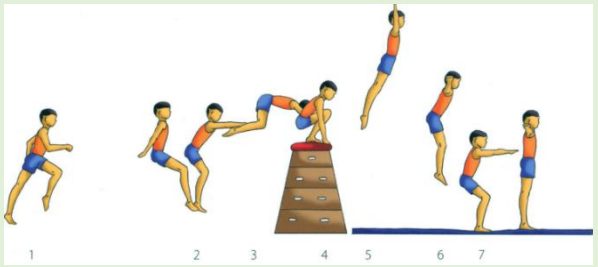
Floor Exercise



Vault



TSC – Athletics

Pupils will continue to develop fundamental Athletics skills across all disciplines- refining techniques and beginning to achieve and challenge personal bests. Pupils will then transfer developed skills into a culminating mini-Olympics style festival attempting all disciplines.

Fundamental Movement Skills addressed:

Locomotor- Running, Walking, Hopping, Jumping (height & distance)

Body Control- Landing, Stretching, Balancing, Turning, Stopping, Bending, Twisting, Swinging

Object Control- Control, Catching

French	Computing
Unit 8- J'ai trente-deux paquets numbers 61–100 **Unit 9- Luc et Sophie font les devoirs**	<u>Computing Systems and Networks – Communication and Collaboration</u> ▪ To explain the importance of internet addresses ▪ To explain how data is transferred across the internet

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school subjects; opinions **Unit 10 – C'est délicieux !** Food	▪ To explain how sharing information online can help people work together ▪ To evaluate different ways of working together online ▪ To recognise how we communicate using technology ▪ To evaluate different methods of online communication

Connected Curriculum

Science

Substantive Knowledge	Disciplinary Knowledge
Order of the Planets The eight planets in order from the sun are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune. Terrestrial Planets (Rocky): Mercury, Venus, Earth, Mars. Jovian Planets (Gaseous): Jupiter, Saturn, Uranus, Neptune. Size and Scale **Endpoints** 1. Identify the order of the planets in the solar system. 2. Differentiate between terrestrial and Jovian planets. 3. Recall key characteristics of each planet. Day and Night **Size and Scale** **Sizes of Planets** Mercury: 4,880 km Venus: 12,104 km Earth: 12,742 km Mars: 6,779 km Jupiter: 139,820 km Saturn: 116,460 km Uranus: 50,724 km Neptune: 49,244 km	**Observation:** Describing the characteristics of each planet **Classification:** Differentiating between terrestrial and jovian planets **Sequence:** Understanding the order of planets from the Sun **Comparative Analysis**: Contrasting the features of rocky and gaseous planets **Researching Planet Sizes:** Use provided data table to gather information on the size of each planet in the Solar System. Compare the sizes and diameters of different planets. **Selecting Spherical Items:** Select different items to represent each planet based on their sizes and scales. Justify the choice for each planet. **Comparing Decisions:** Discuss and compare the choices made by different groups. Provide reasons for why certain items best represent specific planets. **Placing Planets at Correct Distances:** Measure out and place the planets at the correct distances from the Sun according to the numerical data provided. **Observations:** Use a bright light (e.g. LED torch) to represent the Sun. Place a sticker on the UK on the globe to depict the starting point. Rotate the globe on its axis to simulate the Earth's rotation. **Demonstrations:** Show how day and night occur as the Earth rotates.

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Distances from the Sun

Mercury: 57.9 million km

Venus: 108.2 million km

Earth: 149.6 million km

Mars: 227.9 million km

Jupiter: 778.5 million km

Saturn: 1.4 billion km

Uranus: 2.8 billion km

Neptune: 4.5 billion km

Endpoints

1. Understand the relative sizes of planets in the Solar System.
2. Apply the concept of scale to represent planetary sizes using spherical items.
3. Demonstrate knowledge of each planet's position in the Solar System.

Day and Night

Earth's Rotation

The Earth rotates on its axis from west to east.

This rotation takes approximately 24 hours to complete.

The side of the Earth facing the Sun experiences daylight, while the opposite side experiences night.

Sun as the Light Source

The Sun emits light in the form of sunlight.

The Earth orbits around the Sun, receiving varying amounts of sunlight throughout the year.

Day and Night Cycle

Daytime occurs when a specific location on Earth faces towards the Sun.

Explain why different parts of the Earth experience day and night at the same time.

Observations and Recording

Students will observe the moon's phases over a period of time, recording their observations in a moon diary.

They will note the changes in shape and illumination of the moon each night.

Models and Diagrams

Students will create models or diagrams to represent the different phases of the moon.

Using these models, they will be able to explain why the moon appears differently throughout the month.

Compare and Contrast

Students will compare and contrast the phases of the moon, noticing patterns and differences.

They will also explore how the moon's phases relate to the position of the Earth, moon, and sun.

Measuring Weight:

Use force meters with different scales to measure the weight of objects in newtons.

Experimental Design:

Design fair tests by controlling variables that could affect outcomes.

Data Analysis:

Interpret data to draw conclusions about the relationship between weight and speed of falling objects.

Properties of Materials: Understanding how different materials interact with light will help us classify them as transparent, opaque, or translucent.

Direction of Light: Learning about how light travels in a straight line will help us understand how we see objects in our environment.

Reflection: Exploring how light reflects off surfaces and into our eyes will deepen our understanding of vision and sight.

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Night-time occurs when that location faces away from the Sun.

Day and night are caused by the Earth's rotation, not by the Sun moving around the Earth.

Endpoints

1. Explain how the Earth's rotation causes day and night.
2. Understand the role of the Sun as a light source in the day and night cycle.
3. Demonstrate the concept using a torch, globe, and sticker on the UK.

Facts about the Moon

What causes the phases of the moon?

The moon appears to have different shapes in the sky due to the sunlight reflecting off it.

The moon orbits the Earth, and the Sun illuminates different parts of the moon's surface as it moves.

Phases of the Moon

New Moon: The side of the moon facing the Earth is not illuminated by sunlight.

Waxing Crescent: A small portion (less than half) of the moon is illuminated, beginning after the New Moon.

First Quarter: Exactly half of the moon is illuminated in this phase.

Waxing Gibbous: More than half, but not all, of the moon is illuminated.

Full Moon: The entire face of the moon that is visible from Earth is illuminated.

Waning Gibbous: The moon is still more than half illuminated, but becoming less so.

Third Quarter: Half of the moon is illuminated, but on the opposite side from the First Quarter.

Waning Crescent: A small portion (less than half) of the moon is illuminated, nearing the New Moon once again.

Scientific Explanation:
When light hits an object, it cannot pass through, creating an area of darkness behind the object, known as a shadow. The shape of the object determines the shape of the shadow.

- NASA Solar System Exploration
- BBC Bitesize - The Solar System
- National Geographic Kids - Planets
- Royal Observatory Greenwich - The Solar System
- BBC Bitesize - Phases of the Moon
- NASA - Moon Phases
- BBC Bitesize - Forces and Gravity
- Science Learning Hub - Gravity
- BBC Bitesize - Light
- Exploratorium - Light Reflection
- Science Kids - Transparent, Translucent, Opaque
- BBC Bitesize - Light and Reflection
- The Royal Institution - Light and Optics

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Endpoints

1. Identify and describe each phase of the moon.
2. Explain why the moon appears to have different shapes over a month.
3. Create accurate models or diagrams of the moon's phases.

Investigating Gravity

Understanding Gravity

Gravity is a force that pulls objects towards the Earth.

Weight is the measure of the force of gravity acting on an object.

Weight is measured in newtons using force meters with different scales.

Objects fall to the ground due to the force of gravity acting on them.

Hypothesis on Weight and Dropping Speed

Hypothesis: The weight of an object may affect the speed at which it falls.

Investigate if objects of different weights, such as an orange and a grape, fall at different speeds.

Gravity is a constant force acting on all objects, regardless of their weight.

Other Forces Opposing Gravity

Air resistance is a force that opposes the downward movement of objects.

The shape and size of objects can influence air resistance.

Objects with larger surface areas experience more air resistance, affecting their falling speed.

Endpoints

1. Describe the force of gravity and its effect on objects.
2. Use force meters to measure the force of gravity in Newtons.
3. Formulate hypotheses on how weight may affect the speed at which objects fall.
4. Conduct experiments using objects like oranges and grapes to test hypotheses.

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5. Identify and explain other forces, such as air resistance, that influence the falling speed of objects.

Light – Earth Lesson

Light Travels in a Straight Line

Light is a form of energy that travels in straight lines.

When light encounters a surface, it can be reflected, absorbed, or transmitted.

Transparent Materials

Materials that allow light to pass through with minimal scattering are called transparent.

Examples: clear glass, water, and air.

Opaque Materials

Materials that do not allow light to pass through are called opaque.

Examples: wood, metal, and cardboard.

Translucent Materials

Materials that allow some light to pass through but scatter it in different directions are called translucent.

Examples: frosted glass, wax paper.

Light Reflects into the Eyes

When light is reflected off an object, it enters our eyes and forms an image.

This is how we see objects around us.

Endpoints

1. Understand that light travels in straight lines.
2. Identify and classify materials as transparent, opaque, or translucent.
3. Explain how light reflects into our eyes and enables us to see objects.

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Light – Seeking Patterns

What is a Shadow?

A shadow is formed when an object blocks light. It is an area where light is obstructed, creating a darker region behind the object.

Why Do Shadows Have the Same Shape as the Objects that Cast Them?

Shadows have the same shape as the objects that cast them because light travels in straight lines. When an object blocks light, it creates a silhouette of the object on any surface behind it.

How Can Shadows be Changed?

Shadows can be changed by altering the position of the object, the light source, or the surface the shadow falls on.

Endpoints:

1. Explain how shadows are formed.
2. Demonstrate the relationship between the shape of objects and their shadows.
3. Investigate how the position of the light source affects the size and shape of shadows.
4. Explore how shadows can be changed by varying the distance of the light source from the object.

Light – Properties and Uses/Light – Phenomena

Reflection in Mirrors:

Light reflects off a mirror at the same angle it hits it, following the law of reflection.

When light hits a plane mirror, it bounces off with the same angle but in the opposite direction.

Convex mirrors bulge outwards and reflect light outwards, making objects appear smaller.

Concave mirrors curve inwards and reflect light inwards, focusing it to a point.

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Refraction in Lenses:

Concave lenses are thinner in the middle and cause light to diverge.

Convex lenses are thicker in the middle and converge light to a focal point.

Light changes speed and direction when passing through a lens.

Endpoints:

1. Explain the concept of reflection and refraction of light.
2. Identify different types of mirrors and lenses.
3. Understand how light behaves when reflecting off mirrors and passing through lenses.

Design and Technology

Substantive Knowledge	Disciplinary Knowledge
Rocket Launch Understanding the purpose of rockets in space exploration Knowledge of key parts of a rocket (e.g. nose cone, body, fins, engine) Recognising the importance of designing for aerodynamics and stability Exploring materials and their properties (e.g. strength, weight, durability) Knowing how to conduct fair tests and record results accurately Appreciating the significance of protecting the astronaut (egg) during launch and landing **Endpoints** 1. Design a model rocket blueprint with annotations of key features. 2. Build a model rocket using specified materials and tools. 3. Test the rocket's flight and ensure the protective casing for the astronaut (egg) functions effectively. 4. Evaluate the rocket's performance and make improvements based on testing results. 5. Present findings and showcase the completed rocket design to peers.	**Designing:** Sketching ideas for rocket design Understanding the function of each component **Construction:** Using materials safely Assembling components accurately **Testing and Evaluating:** Launching and observing the flight of the rocket Assessing the protection of the "astronaut" (egg) **Problem-Solving:** Modifying designs to improve performance Troubleshooting issues during construction • NASA Kids' Club • Science Museum - Rocket Science • Royal Institution - Engineering at Home

Courage **Resilience** **Honesty** **Kindness**

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History	
Substantive Knowledge	Disciplinary Knowledge
Space Race **Timeline of Important Events or Concepts** 1957: Soviet Union launches Sputnik, the first artificial satellite. 1961: Yuri Gagarin becomes the first human in space. 1969: Neil Armstrong and Buzz Aldrin land on the moon during Apollo 11. 1981: First launch of the NASA Space Shuttle – Columbia. 1998: Launch of the International Space Station (ISS). **Interesting Facts** The Soviet Union launched the first living being, a dog named Laika, into space in 1957. The Space Race was a key part of the Cold War rivalry between the US and the Soviet Union. The Apollo 11 mission took approximately 8 days to complete, with Armstrong and Aldrin spending around 21 hours on the lunar surface. **Endpoints** By the end of this topic, students should know: 1. The key countries involved in the Space Race. 2. The significance of key events such as the launch of Sputnik and the Apollo missions. 3. The astronauts and scientists who played important roles during the Space Race. 4. The impact of the Space Race on technology and international relations. 5. The ongoing developments in space exploration, including the International Space Station.	**Impact on Science and Society** Assess Impact on Science: Students should evaluate how the Space Race spurred on developments in science and technology, focusing on areas such as physics, engineering, and computing. Analyse Societal Impact: Examine the broader implications of the Space Race on global societies, including shifts in educational priorities and increasing interest in STEM subjects amongst children and adolescents. **Skills Development** Critical Thinking and Analysis: Through the use of primary and secondary sources, including speeches, photographs, and documentaries, pupils will develop the ability to critically analyse and engage with historical texts and artefacts. Cause and Consequence: Students need to be able to discuss and write about the cause and effects of the Space Race, understanding why it started, key developments, and its legacy. **Presentation and Debate** Present Findings: Develop the ability to present historical findings, either through presentations, debates, or written reports, defending their viewpoints with historical evidence. Engage in Discussions: Participate in guided discussions and debates about the ethical considerations of space exploration and the competitive nature of the Space Race.
	1. NASA Kids' Club 2. European Space Agency Kids 3. BBC Bitesize - Space Race 4. BBC Bitesize - Galileo Galilei 5. NASA - Galileo Galilei 6. The Galileo Project

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Galileo

Timeline of Galileo

1564: Galileo Galilei is born in Pisa, Italy.
1609: Galileo builds his first telescope and makes various astronomical discoveries.
1610: Galileo discovers Jupiter's four largest moons, now known as the Galilean moons.
1616: Galileo is warned by the Catholic Church not to promote heliocentrism.
1632: Galileo publishes "Dialogue Concerning the Two Chief World Systems", defending the heliocentric view.
1633: Galileo is tried by the Roman Inquisition, found guilty of heresy, and sentenced to house arrest.

Useful Websites:

Interesting Facts:

Galileo's discoveries with the telescope supported the heliocentric model proposed by Nicolaus Copernicus.

He was the first to observe sunspots, the phases of Venus, and the moons of Jupiter.

Galileo's work laid the foundation for modern physics and observational astronomy.

Endpoints:

By the end of this topic, students should know:

1. Describe who Galileo Galilei was and his contributions to astronomy.
2. Explain the controversy surrounding Galileo's support for heliocentrism.
3. Identify key discoveries made by Galileo using his telescope.
4. Analyse the impact of Galileo's work on the fields of astronomy and physics.
5. Discuss the implications of the Galileo affair on the relationship between science and religion.

Newton

Timeline of Important Events:

1643: Isaac Newton born in Lincolnshire, England.

7. BBC Bitesize - Isaac Newton
8. The Isaac Newton Institute for Mathematical Sciences
9. Royal Society - Isaac Newton

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1665: Developed early theories on calculus and the laws of motion. 1687: Published "Philosophiæ Naturalis Principia Mathematica" outlining his laws of motion and gravitation. 1704: Published "Opticks", which explored the properties of light. **Interesting Facts:** Newton discovered gravity when he saw an apple fall from a tree. He is known for his work in mathematics, physics, and astronomy. Newton's laws of motion are still used today to understand how objects move. **Endpoints:** By the end of this topic, students should know: 1. The key contributions of Isaac Newton to the fields of science and mathematics. 2. The significance of Newton's laws of motion and universal gravitation. 3. The impact of Newton's work on our understanding of the natural world. 4. How Newton's discoveries have influenced modern science and technology	