Pilgrim Federation Key Stage 2

Learning Theme: The Maya



Links to Other Learning Themes:
This Learning Theme Links to: Invaders & Settlers Looking after where we live The Americas Explorers Europe

KEY STAGE 2

To wrap up a Key Stage 2 piece of learning on **'The Maya'**, pupils should move beyond simple facts to demonstrate a deep, conceptual understanding of the civilisation's complexity, its environment, and its enduring legacy.

Here are the six key "big questions" that serve as the benchmarks for their learning:

1. Where and when did the Mayan civilisation thrive?

Pupils should be able to locate **The Maya** in both **time and space**.

- **The 'Where':** Identifying the region of **Mesoamerica**, specifically modern-day Mexico, Guatemala, Belize, Honduras, and El Salvador.
- **The 'When':** Distinguishing between the Pre-classic, **Classic** (the "Golden Age"), and Post-classic periods, noting that while the "collapse" happened around 900 AD, the Mayan people never disappeared.

2. How did The Maya adapt to and change their environment?

This question links History with Geography and Science.

- **Substantive Knowledge:** Understanding how they survived in a tropical rainforest by managing water through **chultunes** (reservoirs) and feeding millions through the **'Three Sisters'** farming method.
- **Key Concept:** Recognising **The Maya** as sophisticated engineers rather than just "jungle dwellers."

3. What were the main features of Mayan society and daily life?

Pupils should understand the **social hierarchy** and the roles within it.

- **Social Structure:** Knowing the difference between the lives of the **Ahau** (King) and nobles versus the farmers and artisans.
- **Culture:** Describing daily staples like maize and cacao, and the significance of the **ball game (Pok-a-Tok)** as both a sport and a religious ritual.

4. Why were The Maya considered master mathematicians and astronomers?

This explores their intellectual achievements and **disciplinary knowledge**.

- **The Number System:** Explaining the **vigesimal (base-20)** system and the revolutionary use of the **shell symbol for zero**.
- **The Heavens:** Identifying how their observations of the Sun, Moon, and Venus allowed them to create calendars more accurate than those in Europe at the same time.

5. How did The Maya use writing and art to record their history?

Pupils should understand how we "know" what we know about the Maya.

- **Glyphs:** Explaining that Mayan writing was a complex system of over 800 signs.
- **Primary Sources:** Identifying **Codices** (books) and **Stelae** (stone monuments) as the "written records" that archaeologists use to reconstruct Maya history.

6. What caused the 'Classic Mayan Collapse' and what is their legacy today?

This encourages critical thinking and "Courageous Advocacy."

- **The Mystery:** Debating the various theories for why the great cities were abandoned (e.g., drought, warfare, over-farming).
- **Modern Maya:** Understanding that there are over **6 million Mayan people living today**, speaking their ancestral languages and keeping their traditions alive, proving that the culture did not "die out."

Summary Checklist for Pupils

Question Focus	Key Vocabulary to Include
Location	Mesoamerica, Rainforest, City-State.
Environment	Irrigation, Maize, Biodiversity.
Society	Hierarchy, Ritual, Pok-a-Tok .
Intellect	Vigesimal, Zero, Calendar, Equinox.
Records	Codex, Glyph, Scribe, Stele.
Endurance	Abandonment, Continuity, Indigenous Rights.

Vocabulary

Learning about the Mayan civilisation is a fantastic way to explore a sophisticated non-European society. To truly master this learning theme, Key Stage 2 pupils need to move beyond just naming objects and start using the vocabulary of historians and archaeologists. The essential terminology has been categorised the into four pillars: **Governance**, **Daily Life**, **Beliefs**, and **Advanced Concepts**.

1. Governance and Society

Understanding how The Maya organised their world is key to comparing them with the Romans or Greeks.
City-State: An independent city that has its own government and controls the surrounding territory (e.g., Chichen Itza, Tikal).
Ahau (or Ajaw): The name for a Mayan king or ruler, often believed to be a "god-king."
Hierarchy: The system of organising people into different levels of importance, from the King down to the farmers and slaves.
Nobles: High-ranking people in Mayan society who held positions in government or the military.

2. Architecture and Innovation

The Maya were master builders and mathematicians. These terms help pupils describe their achievements.
Step Pyramid: A monumental structure with a flat top and layers (steps), often used as a temple.
Stela: An upright stone slab or column decorated with carvings and inscriptions, used to record history or honour kings.
Glyphs: The symbols used in the Mayan writing system (hieroglyphs).
Codex: A type of ancient book made from tree bark; only a few survived the Spanish conquest.
Vigesimal: A number system based on the number **20** (unlike our decimal system based on 10).

3. Beliefs and Culture
Spirituality was at the heart of Mayan life. This vocabulary explains their worldview.
Polytheistic: The belief in or worship of more than one god.
Ritual: A religious ceremony consisting of a series of actions performed in a specific order.
Maize: Another word for corn; it was the most important crop and even had its own god.
Pok-a-Tok : The traditional Mayan ball game where players used their hips to knock a rubber ball through a high stone hoop.

4. The Environment and Legacy
These terms explain how The Maya survived and what eventually happened to them.
Mesoamerica: The historical region (Central America) where the Mayan civilisation flourished.
Cenote: A natural pit or sinkhole filled with water, which **The Maya** used for water supplies and religious sacrifices.
Drought: A long period of little or no rain, which many historians believe led to the decline of the Mayan cities.
Archaeologist: A person who studies human history by digging up sites and analysing artefacts.

Vocabulary Quick-Reference Table

Term	Simple Definition	Context for Pupils
Logogram	A sign that represents a whole word.	Mayan writing used these alongside sounds.
Cacao	Seeds used to make chocolate.	So valuable they were used as money!
Astronomy	The study of stars and planets.	**The Maya** used this to create accurate calendars.
Classic Period	The "Golden Age" of **The Maya.**	Roughly 250AD to 900AD.

Art & Design

Substantive Knowledge

In Art & Design **substantive knowledge** refers to the specific *facts* and *core content* pupils need to remember about Mayan Art and Design. This is the "stuff" they need to know to understand this civilisation's unique aesthetic. In Key Stage 2, this knowledge focuses on materials, iconic artefacts, and the visual language of **The Maya**.

1. Materials and Resources
The Maya were restricted by their environment (the rainforests and highlands of Mesoamerica).
Pupils should know:
Jade: A precious green stone that was more valuable than gold to **The Maya**. It represented life, water, and the maize god.
Limestone: The primary material for large-scale carvings and architecture because it was abundant and relatively easy to carve when freshly quarried.

Obsidian: A volcanic glass used for sharp tools but also for decorative ear flares and ceremonial knives.
Stucco: A type of plaster made from lime, used to create smooth finishes on buildings and to model three-dimensional figures.
Natural Pigments: Colours derived from nature, such as **cochineal** (insects) for red and **indigo** (plants) for blue.

2. Iconic Artefacts and Forms
Pupils should be able to identify and describe the purpose of these specific items:

Funerary Masks: Often made of jade mosaics, placed over the faces of deceased rulers (like the famous Mask of Pakal the Great).
Stele (Plural: Stelae): Large stone slabs carved with images of kings and "long count" dates, acting like ancient billboards.
Cylindrical Vases: Painted pottery that often depicted scenes of palace life, mythology, or the underworld (Xibalba).
Lintels: Carved stone beams placed above doorways, often showing gruesome or highly detailed royal rituals.

3. Visual Characteristics (The Mayan 'Style')
Substantive knowledge includes Recognising what makes Mayan art look "Mayan":

The Profile View: Human figures were almost always depicted from the side (profile), showing the elongated foreheads which were a sign of beauty and status.
Horror Vacui (Fear of Empty Space): Mayan art is incredibly "busy." Artists often filled every available inch of a surface with intricate patterns, scrolls, or tiny glyphs.
Hieroglyphic Integration: Text and image are rarely separate. A king's arm might turn into a line of text, or a glyph might be tucked into his headdress.

4. Architecture as Art
Pupils should know that for '**The Maya'**, buildings were sculptures on a massive scale.

Roof Combs: Decorative "crests" on top of temples that made them look taller and more imposing.
Corbel Arches: A specific type of "false arch" created by offsetting layers of stone until they meet at the top (**The Maya** never discovered the "true" rounded arch used by the Romans).

Core Knowledge Summary Table

Category	Key Fact to Remember
Colour Symbolism	**Green** (Jade/Quetzal feathers) = Life & Wealth; **Red** = Blood & Sacrifice.
Status Symbols	Large headdresses and heavy jewellery indicated high social rank.
Artistic Tools	Art was created without metal tools; they used stone, wood, and bone.
Preservation	Most Mayan art that survives is stone or pottery; most wood and textiles rotted

	in the humid jungle.

Disciplinary Knowledge

In **Art & Design**, **'Disciplinary knowledge'** refers to the skills, techniques, and critical thinking pupils use to **act like an artist**. It isn't just about making a clay mask; it's about understanding the "how" and "why" behind Mayan aesthetics. This is the **disciplinary knowledge** for **'The Maya'** learning theme, broken down into key artistic strands:

1. Visual Literacy: Analysing Symbolism
The Maya didn't just create art for beauty; they used it as a language. Pupils need to learn how to "read" Mayan art.

Understanding Glyphs: Recognising that images can represent sounds, words, or concepts simultaneously.
Decoding Status: Learning how Mayan artists used scale and clothing (headdresses, jade jewellery) to show power and hierarchy in wall paintings and stelae.
The Concept of 'The Grotesque': Understanding that Mayan gods often looked fearsome (jaguar features, snakes) to represent power and the supernatural, rather than "scary" in a modern sense.

2. Media and Techniques: Working with Constraints
Pupils should understand the technical mastery required to create art using only natural resources available in the Mesoamerican rainforest.

Sculptural Subtraction: Understanding how **The Maya** carved limestone (a soft rock) using harder stone tools, rather than metal.
Ceramic Construction: The Maya did not use a potter's wheel. Pupils should learn the **coil technique** to build vessels, reflecting how Mayan artisans worked.
Pigment Chemistry: Knowledge of "Maya Blue"—a unique, incredibly durable pigment made from indigo and clay. Pupils can explore how natural dyes are made from plants and minerals.

3. Form and Function: Design Purpose
In Mayan culture, art and utility were inseparable. **Disciplinary knowledge** involves understanding the *intent* behind the object.

Architectural Symmetry: Studying the balance and geometry of step pyramids like *El Castillo* at Chichen Itza.
The Ritual of the Mask: Understanding that funerary masks (often made of jade) were intended to transform the deceased into a god, not just to look like the person.
Textile Geometry: Recognising the complex repeating patterns in Mayan weaving (Huipil), which often encoded information about a person's village and identity.

4. Comparison and Critical Reflection
This is the "thinking" part of the discipline—placing Mayan art in a global context.

Cross-Cultural Comparison: Comparing Mayan relief carvings with those of the Ancient Egyptians. How are they similar? How do they use space differently?
Artistic Evolution: Discussing why Mayan art changed from the "Pre-classic" to the "Classic" period (becoming more detailed and naturalistic).

Ethics of Display: A sophisticated **disciplinary** question: *Should Mayan artefacts be in British museums, or should they be returned to Mexico and Guatemala?*

Disciplinary Skills Progression Table

Artistic Strand	Disciplinary Skill (The 'How-To')
Drawing	Using line and weight to replicate the fluid, calligraphic style of Mayan glyphs.
Sculpture	Manipulating clay to create "high relief" (images that pop out from a flat surface).
Colour	Mixing a limited palette of "earth tones" (ochre, sienna, terracotta) to mimic natural Mayan dyes.
Evaluation	Identifying the "Artist's Intent"—was this made for a King, a Priest, or a Farmer?

Learning Objectives

The **Learning Objectives,** is a balance of **substantive knowledge** (the facts) with **disciplinary knowledge** (the skills). For the Key Stage 2 learning theme '**The Maya'**, these objectives should progress from observation and exploration to creation and evaluation. These are the **LOs**, categorised by the National Curriculum strands:

1. Generating Ideas and Researching

LO: To identify and describe the key characteristics of Mayan art.

Success Criteria: I can identify common themes such as gods, rulers, and nature. I can explain the significance of the colour green (jade) and blue.

LO: To explore the symbolism behind Mayan glyphs and imagery.

Success Criteria: I can explain how **The Maya** used "visual metaphors" (e.g., a jaguar representing power) and use these to plan my own designs.

2. Drawing and Painting

LO: To use line and tone to replicate Mayan relief carvings.

Success Criteria: I can use sketching pencils to create a 3D effect on paper, mimicking the "low relief" carvings found on stelae.

LO: To mix and apply a palette of natural 'earth tones' inspired by Mayan frescoes.

Success Criteria: I can mix primary colours to create terracotta, ochre, and "Maya Blue." I can apply paint smoothly to represent the finish of a temple wall.

3. Sculpture and Textiles

LO: To model a ceremonial mask using the coil and slab technique.

Success Criteria: I can manipulate clay to create a face with high-relief features. I can use slip and score techniques to attach "jewellery" or headdress elements securely.

LO: To design and create a repeating geometric pattern inspired by Mayan weaving.

Success Criteria: I can use symmetry and rotation to create a pattern that reflects the "Huipil" textile traditions.

4. Evaluation and Context

LO: To compare and contrast Mayan art with another ancient civilisation.

Success Criteria: I can spot similarities and differences between a Mayan step pyramid and an Egyptian

pyramid.
I can discuss why their artistic styles differ (e.g., materials available).
LO: To evaluate the impact of 'Horror Vacui' in my own work.
Success Criteria: I can explain why I chose to fill the space in my design and how it mimics the complex style of Mayan artisans.

Learning Objective Progression Map:
Teaching this over a half-term, you might organise the LOs like this:

Week	Focus	Learning Objective
1	**Research**	To analyse the status symbols used in Mayan royal portraits.
2	**Drawing**	To master the "profile view" and calligraphic lines of Mayan glyphs.
3	**Colour**	To experiment with natural pigments and colour symbolism.
4	**Making**	To construct a 3D clay mask using traditional joining techniques.
5	**Making**	To add intricate "Horror Vacui" textures to a sculpture.
6	**Evaluate**	To critique my work against the aesthetic of the "Classic Period."

The 'Why' behind the LO
When sharing these with pupils, try to frame them for example: *"We are learning to use Braid and Coil techniques so we can appreciate the sophisticated engineering of a culture that didn't use the potter's wheel."*

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Art & Design themed around **'The Maya'**. This unit connects core National Curriculum Art & Design strands—**Drawing & Codex Illustration**, **Sculpture & Clay Reliefs**, **Textiles & Weaving**, **Printmaking & Stencilling**, and **Architectural Analysis**—with ancient Mesoamerican visual culture, Maya glyphs, architectural stelae, and vibrant modern Indigenous Maya weaving traditions. It balances **substantive knowledge** (formal elements: line, shape, form, texture, pattern, colour theory; clay hand-building techniques like slab, coil, and incising; loom weaving mechanics; relief printmaking) with **disciplinary knowledge** ("Thinking & Acting Like an Artist & Art Historian"—analysing cultural symbolism, evaluating artistic intent across centuries, critiquing technique execution, making choices about stylistic adaptation, and reflecting on visual heritage).

Unit Title: Visions in Stone and Thread: Maya Art, Architecture, and Textiles
Duration: 6 Weeks (Approx. 1–2 hours per week)
Theme: Ancient Mesoamerican Sacred Art, Stone Reliefs, Hieroglyphic Codices, and Modern Maya Textile Heritage.
Historical & Cultural Contexts:
Ancient Maya Masterpieces: Stone Stelae of **Copán** & **Yaxchilán** (Lintel 24), Lintels and bas-reliefs of **Palenque** (Pakal the Great's sarcophagus lid), Maya Folding Codices (**Dresden Codex**), and polychrome cylinder vessels.
Modern Indigenous Maya Traditions: Contemporary Guatemalan/Mexican **Huipil** backstrap loom weaving, natural dye traditions (cochineal red, indigo blue, marigold yellow), and symbolic geometric

brocade.

Key Art & Design Pillars

Substantive Knowledge:

Drawing & Mark-Making: Calligraphic line weight, contouring, illustrative symbolism, layout symmetry in codex accordion folds.

Sculpture & Ceramics: Clay slab building, coil construction, bas-relief carving, incising surface texture, slip/engobe polychrome painting.

Textiles & Pattern: Warp and weft loom mechanics, geometric pattern repetition, colour theory (primary dyes and symbolic colour meanings: blue = sacred/water, red = life/east, yellow = sun/maize, black = west/underworld).

Printmaking: Relief block printing, negative space carving/reduction, stencil layering.

Disciplinary Knowledge ('Thinking Like an Artist'):

Visual & Cultural Analysis: Deconstructing ancient Maya iconography to understand how art served political, religious, and historical storytelling purposes.

Material Exploration & Decision-Making: Choosing appropriate sculpture and textile media to replicate historic tactile qualities (e.g., stone carving vs. clay relief).

Reflective Evaluation: Critiquing personal and peer artworks using formal art vocabulary (*contrast, relief depth, warp tension, line continuity*).

Weekly Progression Scheme

Week 1: Sacred Symbols – Maya Codices & Calligraphic Drawing

Art Strand: Drawing, Illustration & Historical Visual Analysis.

Substantive Knowledge:

LKS2: Contour lines, line weight variation (thick vs. thin), drawing stylised animal glyphs (jaguar, serpent, eagle); folding accordion paper (*screenfold format*).

UKS2: Calligraphic ink work; spatial layout in Mayan codices; balancing image and text; colour mixing for "Maya Blue" (indigo and palygorskite clay) and terracotta red.

Disciplinary Knowledge:

Visual Literacy: Analysing how ancient Maya artists (*aj k'uhuun*—scribes) combined ideograms and phonetic glyphs into decorative visual panels.

Practical Art Activity:

LKS2 (Y3/4): *Accordion Glyph Codex.* Pupils craft a 4-page accordion screenfold book, using fine-liner pens and watercolours to draw stylised Maya day-sign glyphs with varied line weights.

UKS2 (Y5/6): *Illuminated Maya Manuscript Page.* Pupils design a complex codex page depicting a Maya myth (e.g., the Hero Twins), applying calligraphic ink technique and hand-mixed "Maya Blue" wash fills.

Week 2: Carved in Stone – Clay Bas-Reliefs of Palenque & Copán

Art Strand: Sculpture, Ceramics & Tactile Relief.

Substantive Knowledge:

LKS2: Rolling flat clay slabs of uniform thickness (1cm); additive carving (attaching clay pieces using slip and scoring); subtractive carving (incising lines with wooden tools).

UKS2: Low-relief (*bas-relief*) vs. high-relief sculpture; creating focal points through varied depth levels; surface texturing to simulate weathered limestone stelae.

Disciplinary Knowledge:

Material Manipulation: Managing clay moisture, structural integrity, and joining techniques to prevent cracking during relief construction.

Practical Art Activity:

LKS2 (Y3/4): *Clay Glyph Tile.* Pupils roll a clay slab and score/incise an intricate Maya royal glyph, using additive techniques to raise key features above the background plane.
UKS2 (Y5/6): *Miniature Stone Lintel Sculpture.* Inspired by Yaxchilán Lintel 24, pupils construct a multi-depth clay bas-relief panel depicting a ruler or deity, carving fine surface textures and border motifs.

Week 3: Surface & Slip – Polychrome Finishing & Terracotta Painting
Art Strand: Painting, Colour Theory & Surface Finish.
Substantive Knowledge:
LKS2: Dry brushing techniques over dry/bisque clay to accentuate carved textures; colour wheel mixing for earth tones (ochre, sienna, burnt umber, charcoal).
UKS2: Polychrome cylinder vessel painting styles; applying thin acrylic/slip layers in controlled washes; using black contour lines over dry paint fills to mimic historic ceramics.
Disciplinary Knowledge:
Artistic Evaluation: Assessing how colour contrast and surface highlights enhance 3D forms and carved relief lines.
Practical Art Activity:
LKS2 (Y3/4): *Antiqued Clay Tile Finishing.* Pupils apply dark earth-tone washes over their dried Week 2 clay tiles, wiping back surface paint to leave dark pigment in carved crevices, highlighting raised relief.
UKS2 (Y5/6): *Polychrome Ceramic Painting.* Pupils paint their dried clay reliefs using a historic Maya palette (terracotta, cream, Maya blue, black), applying fine black outlines to define narrative figures.

Week 4: Threads of Identity – Backstrap Weaving & Huipil Patterns
Art Strand: Textiles, Weaving & Cultural Pattern.
Substantive Knowledge:
LKS2: Mechanics of warp (vertical structural threads) and weft (horizontal woven threads); weaving over-under patterns on card looms; repeating colour sequences.
UKS2: Geometric pattern brocading; cultural symbolism in Guatemalan *Huipil* garments (e.g., diamond = universe, zig-zag = feathered serpent); calculating pattern symmetry across a textile.
Disciplinary Knowledge:
Cultural Context Analysis: Exploring how modern Maya weavers preserve ancestral cosmology and community identity through living textile traditions.
Practical Art Activity:
LKS2 (Y3/4): *Card Loom Weaving.* Pupils build a simple notched cardboard loom, weaving a striped textile panel using colourful yarns (reds, yellows, blues) to practice warp-weft tension.
UKS2 (Y5/6): *Symbolic Pattern Huipil Weave.* Pupils weave a patterned textile on cardboard looms, incorporating geometric brocade shapes (diamonds, chevrons) that represent Maya natural and cosmological elements.

Week 5: Repeating History – Relief Block Printing & Stencilling
Art Strand: Printmaking, Pattern Design & Layering.
Substantive Knowledge:
LKS2: Press-print foam tile carving; applying block printing ink evenly with brayers/rollers; pulling clean relief prints with consistent registration.
UKS2: Lino/soft-cut block carving using gouges safely; multi-block or reduction printing; combining print overlay with hand-cut paper stencils for border designs.
Disciplinary Knowledge:
Printmaker's Mindset: Understanding negative vs. positive space inversion (what is carved away remains

unprinted white space).
Practical Art Activity:
LKS2 (Y3/4): *Repeating Glyph Border Print.* Pupils carve a repeating Maya geometric motif into press-print foam, pulling a continuous repeated border print on coloured paper.
UKS2 (Y5/6): *Layered Lino & Stencil Print.* Pupils carve a detailed soft-cut lino block of a Maya deity or jaguar, printing it over a hand-stencilled polychrome background.

Week 6: The Maya Art Gallery – Exhibition & Curation
Art Strand: Synthesis, Curation & Critical Evaluation.
Substantive Knowledge:
LKS2/UKS2 Synthesis: Mount-making, gallery presentation, writing artist statements incorporating formal art terminology, and organising thematic displays.
Disciplinary Knowledge:
Curatorial Critique: Evaluating a body of work across different media (drawing, clay, textiles, print), reflecting on creative choices and historical connections.
Practical Maya Art Exhibition:
LKS2 & UKS2: *The "Treasures of the Maya" School Gallery Exhibition.*
Section 1: The Scribe's Studio: Displaying folded codex books and illuminated manuscript drawings alongside raw pigment samples.
Section 2: The Hall of Stelae: Presenting antiqued clay relief tiles mounted on stone-textured backdrops.
Section 3: The Weaver's Loom & Print Gallery: Hanging woven Huipil textiles alongside block-printed glyph borders.
Section 4: Pupil Artist Plenary: Pupils guide visitors through the gallery, reading their artist statements and evaluating peer techniques against formal art criteria (*line control, relief depth, warp tension, colour harmony*).

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Draws basic outlines but struggles with line weight variation. • Presses clay unevenly, causing thin spots or cracks during carving. • Loses warp tension during card loom weaving, pulling edges inward. • Applies too much ink during printmaking, smudging relief lines.	• Uses varied line weights to draw clear contour shapes and stylised glyphs. • Rolls uniform 1cm clay slabs and uses score-and-slip joining effectively. • Maintains steady warp tension while weaving repeating over-under colour rows. • Carves press-print tiles cleanly and rolls even ink layers for crisp relief prints.	• Combines fine detail and calligraphic fluidity to construct complex glyph panels. • Creates multi-layered clay reliefs with deep subtractive carving and rich surface textures. • Incorporates complex colour sequences and neat selvedge edges on loom weaves. • Experimentally overlays multiple relief prints with precise registration alignment.
Upper	• Draws codex scenes but	• Designs accordion codex	• Synthesises ancient codex

Key Stage 2 *(Years 5 & 6)*	struggles to balance visual figures with text layout. • Carves shallow relief lines without distinct depth levels between layers. • Copies weaving steps but misses the geometric symmetry of Huipil motifs. • Struggles with negative space concepts when carving lino blocks.	pages with calligraphic linework and custom "Maya Blue" washes. • Constructs multi-layered bas-relief sculptures featuring distinct background/foreground planes. • Weaves geometric brocade patterns with symbolic cultural motifs accurately. • Carves soft-cut blocks confidently, understanding negative/positive space inversion.	layouts with personal artistic voice and expressive brushwork. • Produces realistic stone-like clay lintels with intricate surface incising and antiqued washes. • Designs and executes complex original geometric brocade motifs independently. • Combines reduction lino printing with multi-layer stencil washes seamlessly.

Other Information, Ideas and Resources

Look at art from these areas. Create art from ideas.
Stone/wood carving designs – could do screen printing here instead of carving or use clay and balsa wood.
Look at scripture from these areas.
Link to maths – tessellating shapes.
Mayan masks and clay animal gods/ figures.

Mayan Art is substantially influenced by Olmec, Teltec and Teotihuacan people. It is characterised by stone sculptures, architecture, ceramics, woodcarving and wall painting, which are some of its most celebrated forms.
Although only a few woodcarvings have survived, archaeologists believe that woodcarvings were very popular pieces of art for **The Maya**.

The Maya painted murals on the walls of their buildings including their houses, temples, and public buildings.
https://www.ducksters.com/history/maya/art.php
https://www.metmuseum.org/toah/hd/mayas/hd_mayas.htm

Considerations for Implementation

Computing

Substantive Knowledge

In the context of Computing, **substantive knowledge** refers to the specific facts, terminology, and "base data" pupils need to know about how **The Maya** processed information and how we use technology today to understand them. While **The Maya** obviously didn't have computers, their civilisation was built on complex data systems that mirror modern computing concepts.

1. Information Systems: The Maya Calendars
Pupils need to know the facts about how **The Maya** stored and processed "time data."

The Tzolkin and Haab': The Maya used two main interlocking calendars. One was a 260-day sacred calendar and the other a 365-day solar calendar.
Interlocking Gears: Understanding that the Mayan calendar functioned like a **mechanical clock** or a **program loop**, where two different cycles sync up every 52 years (the Calendar Round).
The Long Count: A linear calendar used to track vast stretches of time, which functions similarly to how modern computers count seconds from a fixed "epoch" (start date).

2. Number Systems and Logic (Base-20)

Before pupils can code Mayan-themed projects, they must know the **substantive** facts of Mayan mathematics.

Base-20 (Vigesimal): Knowing that The Maya counted in 20s (using fingers and toes) rather than the Base-10 system we use today.
The Concept of Zero: The Maya were one of the first civilisations to use a "placeholder" for zero (represented as a shell). This is the fundamental "Off" in the **Binary (0 and 1)** logic that runs modern computers.
Positional Notation: Knowing that the value of a symbol changed depending on its vertical position (rows of 1s, 20s, 400s, 8000s).

3. Remote Sensing: LiDAR Technology

This is a crucial piece of modern **substantive knowledge**—how we use technology *now* to study **The Maya**.

LiDAR (Light Detection and Ranging): A remote sensing method that uses light in the form of a pulsed laser to measure ranges to the Earth.
Digital Deforestation: Knowing that LiDAR allows archaeologists to "digitally remove" the thick jungle canopy from satellite or aerial imagery to reveal hidden pyramids, roads (Sacbeob), and farms that are invisible to the naked eye.

4. Digital Media and Communication

Codices (Singular: Codex): Knowledge that The Maya stored information in folding books made of bark cloth. Only four authentic codices survived, making them the "hard drives" of Mayan history.
Glyph Blocks: Understanding that Mayan writing was organised into a grid system—very similar to how **pixels** or **table cells** are organised on a digital screen to convey meaning.

Core Knowledge Summary Table

Computing Concept	Mayan Substantive Equivalent	Why it Matters
Data Storage	Hieroglyphic Codices	How information is preserved over centuries.
Logic Gate	The shell symbol (Zero)	The basis of all mathematical placeholders.
Simulation	The Calendar Round	Predictable cycles used to forecast events.
Hardware	Stelae (Stone Monuments)	Physical "output" used to display data to the public.

Disciplinary Knowledge

In **Computing**, **disciplinary knowledge** moves beyond simply using a computer; it involves thinking like a **Computer Scientist**, a **Data Analyst**, or a **Digital Creator**. When applied to '**The Maya'**, this means using technology to model, analyse, and communicate historical findings.
This is **the disciplinary knowledge** for **'The Maya'** learning theme, categorised by the key strands of the Computing curriculum:

1. Computer Science: Logic and Algorithms
The Maya were famous for their complex calendars and mathematical systems. Pupils can use "computational thinking" to decode these systems.

Decomposition: Breaking down the complex Mayan **Vigesimal** (Base-20) number system into smaller parts to understand how they represented large values.
Algorithmic Thinking: Creating a set of instructions (an algorithm) to convert a modern date into a Mayan date using their solar (Haab') and sacred (Tzolkin) calendar cycles.
Logical Reasoning: Predicting the outcome of a Mayan "Long Count" date by understanding the patterns of their time-keeping cycles.

2. Information Technology: Data and Modelling
The Maya built vast cities in dense jungles. Pupils use IT to explore how data helps us "see" these cities today.

Digital Research: Using advanced search techniques to find reliable primary and secondary sources about **The Maya**, learning to "filter" information for accuracy.
Data Representation: Using databases or spreadsheets to record and graph the population sizes of different Mayan city-states like Tikal, Palenque, and Copán.
3D Modelling: Using software (like Tinkercad or Minecraft) to build a scale model of a Mayan step pyramid. This involves understanding **co-ordinates** and **geometry** to ensure structural accuracy.

3. Digital Literacy: Communication and Community
This involves how pupils present their knowledge to the world while being responsible digital citizens.

Multi-modal Presentation: Combining text, audio, and images to create a "Virtual Museum" of Mayan artefacts. This requires knowledge of how to organise information for an audience.
Global Collaboration: Using the internet to connect with modern Mayan communities or museum experts, understanding the importance of respectful digital communication.
Evaluating Credibility: Identifying the difference between a historical fact found on a museum website versus an unverified theory found on a blog.

4. Programming: Simulations
The Mayan ball game (**Pok-a-Tok**) provides an excellent context for game design.

Variables: Using a block-based language (like Scratch) to create a simulation of Pok-a-Tok . Pupils must create **variables** for "Score" or "Ball Speed."
Selection (If-Then-Else): Programming the game so that *if* the ball touches the stone hoop, *then* a point is awarded.
Repetition (Loops): Using loops to animate the movement of a Mayan priest or a jaguar across the screen.

Disciplinary Skills Progression Table

Computing Strand	Disciplinary Skill (The 'How-To')
Logic	Explaining how the "Zero" placeholder worked in Mayan maths compared to modern code.
Data	Interpreting a LiDAR map to identify hidden structures.
Media	Editing a digital image of a Mayan glyph to improve its clarity for a report.
Programming	Debugging a script that simulates the Mayan calendar cycle.

Learning Objectives

1. Computer Science (Programming & Logic)

LO: To use logical reasoning to explain how a simple Mayan-themed algorithm works.

Success Criteria: I can explain the "rules" of the Mayan Base-20 system.

I can predict what happens when a counter reaches 20 in a Maya number sequence.

LO: To design and code a simulation of the Mayan ball game (Pok-a-Tok).

Success Criteria: I can use **variables** to track the score.

I can use **selection** (If...Then) to detect when the ball hits a goal.

LO: To use 'loops' to represent repeating Mayan calendar cycles.

Success Criteria: I can program a sprite to rotate 260 times to represent the Tzolkin cycle.

I can use a "forever" loop to simulate the continuous nature of time.

2. Information Technology (Data & Multimedia)

LO: To use digital search tools effectively to research Maya artefacts.

Success Criteria: I can use keywords (e.g., "Mayan stela," "Chichen Itza") to find specific information.

I can use "Search Tools" to find images that are labelled for reuse.

LO: To create a 3D digital model of a Mayan step pyramid.

Success Criteria: I can use 3D design software (like Tinkercad) to stack and resize geometric shapes. I can use **coordinates** (x, y, z) to place my structures accurately.

LO: To interpret and represent data about Mayan city-states.

Success Criteria: I can enter population data into a spreadsheet.

I can choose the best type of graph (e.g., a bar chart) to compare the sizes of different cities.

3. Digital Literacy (Communication & Safety)

LO: To evaluate the reliability of digital sources about The Maya civilisation.

Success Criteria: I can identify if a website is a primary source (like a museum) or a secondary source.

I can explain why some websites might have conflicting information.

LO: To create a multi-modal digital presentation for a specific audience.

Success Criteria: I can combine text, images, and audio to explain Mayan life.

I can use hyperlinks to navigate between different "rooms" in a virtual Mayan museum.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Computing framed around the historical and cultural theme **'The Maya'**. This unit connects core National Curriculum Computing strands—**Computer Science (Algorithms & Programming)**, **Information Technology (3D Modelling, Digital**

Publishing & Multimedia), and **Digital Literacy (Data Handling & Online Research)**—with ancient Mesoamerican achievements in mathematics, architecture, calendar systems, and hieroglyphic communication. It balances **substantive knowledge** (variables, loops, conditionals, 3D coordinate geometry, database structure, spreadsheet formulas, and vector design) with **disciplinary knowledge** ("Thinking & Acting Like a Computer Scientist & Digital Creator"—decomposing complex systems, debugging algorithmic errors, evaluating user interface efficiency, verifying historical source credibility, and designing digital artefacts for specific audiences).

Unit Title: Digital Codices and Pixel Pyramids: Maya Computing, Algorithms, and Architecture
Duration: 6 Weeks (Approx. 1–2 hours per week)
Theme: Maya Vigesimal (Base-20) Algorithms, 3D Architectural Simulation, Hieroglyphic Digital Codices, and Archaeological Data Mining.
Computing Contexts & Mayan Connections:
Maya Mathematics & Algorithms: Base-20 (Vigesimal) place value logic, zero as a placeholder, and calendar cycle loops (*Tzolkin & Haab*).
3D Architectural Engineering: Reconstructing Chichen Itza's *El Castillo* pyramid using 3D CAD geometry and spatial coordinates.
Digital Archiving & Publishing: Creating interactive digital accordion codices and vector glyph designs.
Database Exploration: Cataloguing archaeological artefacts from Chichen Itza, Tikal, and Palenque.
Key Computing Pillars
Substantive Knowledge:
Computer Science: Variables, count-controlled loops (*repeat N times*), indefinite loops (*repeat until*), conditional selection (*if...then...else*), and logic operators.
Information Technology: **3D** CAD modelling (extruding, grouping, scaling, X/Y/Z coordinates), vector graphic manipulation, interactive eBooks formatting, spreadsheet formula mechanics (SUM, AVERAGE).
Digital Literacy: Database querying (filtering, sorting, field attributes), search engine indexing evaluation, and digital copyright/fair use.
Disciplinary Knowledge ('Thinking Like a Computer Scientist'):
Decomposition & Abstraction: Breaking down complex historical structures into basic geometric components or algorithmic steps.
Debugging & Logic: Systematic testing of code sequences to isolate syntax and logical errors in calendar algorithms.
Evaluative Design: Reviewing digital artefacts against criteria of user accessibility, visual fidelity, and computational efficiency.

Weekly Progression Scheme
Week 1: Binary to Base-20 – Algorithmic Mathematics
Computing Strand: Computer Science (Algorithms & Mathematical Logic).
Substantive Knowledge:
LKS2: Algorithms as precise sequence instructions; inputs and outputs; converting Maya shell (0), dot (1), and bar (5) values into digital code logic.
UKS2: Variables; arithmetic operators; coding a Scratch converter that translates user inputs into Base-20 Maya numeral displays.
Disciplinary Knowledge:
Decomposition: Breaking down complex multi-digit calculations into step-by-step conditional statements (*if input ≥5, subtract and add a bar*).

Practical Computing Activity:
LKS2 (Y3/4): *Scratch Glyph Counter.* Pupils write a Scratch program where clicking a sprite increases a score variable, displaying the total using Maya numeral costumes.
UKS2 (Y5/6): *Base-20 Calculator Algorithm.* Pupils construct a program using Scratch or Python that accepts a Base-10 input and uses division/modulo logic to output the correct Maya Base-20 place value representation.

Week 2: Cycles of Time – Loops & Calendar Simulation
Computing Strand: Computer Science (Loops, Repetition & Simulation).
Substantive Knowledge:
LKS2: Count-controlled loops (*repeat 20 times*); nested loops; animating sprite rotations to simulate the dual-gear Maya calendar (*Tzolkin* 260-day cycle).
UKS2: Conditional loops (*repeat until*); broadcast signals between sprites; syncing multi-geared calendar algorithms to calculate overlapping astronomical events.
Disciplinary Knowledge:
Debugging: Identifying and fixing timing misalignment errors in looping animation sequences.
Practical Computing Activity:
LKS2 (Y3/4): *Calendar Gear Animation.* Pupils program two spinning gear sprites in Scratch (13 numbers gear and 20 day-names gear) using repeat loops to animate daily date changes.
UKS2 (Y5/6): *Astronomical Calendar Simulator.* Pupils code a simulation that calculates when the 260-day *Tzolkin* and 365-day *Haab* calendars align (the 52-year Calendar Round), using variables and conditional logic.

Week 3: Pixel Pyramids – 3D CAD Architectural Modelling
Computing Strand: Information Technology (3D Modelling & CAD).
Substantive Knowledge:
LKS2: 3D workspace navigation (X, Y, Z axes); adding, scaling, and aligning primitive 3D shapes (cubes, stairs) to build a basic step pyramid.
UKS2: Grouping/ungrouping objects; cutting negative space using "hole" shapes; precise dimensioning; modelling *El Castillo* at Chichen Itza including 9 terraced levels and 4 staircases (365 total steps).
Disciplinary Knowledge:
Spatial Reasoning & Design Abstraction: Translating 2D archaeological floor plans into accurate 3D computational models.
Practical Computing Activity:
LKS2 (Y3/4): *Basic Step Pyramid Build.* Using 3D CAD software (e.g., Tinkercad), pupils stack and scale decreasing cuboid layers to create a 5-tiered step pyramid.
UKS2 (Y5/6): *Architectural Precision Modelling.* Pupils build a geometrically accurate model of *El Castillo*, using alignment tools and hole cuts to carve temple doors, central staircases, and serpent head bases.

Week 4: The Digital Codex – Vector Graphics & Publishing
Computing Strand: Information Technology (Vector Graphics & Media Authoring).
Substantive Knowledge:
LKS2: Vector vs. raster graphics; using fill, stroke, node editing, and layering tools to recreate clean Maya hieroglyphic icons.
UKS2: Interactive digital eBook formatting; embedding hyperlinked buttons, pop-up text frames, and audio narration; designing a digital accordion codex.
Disciplinary Knowledge:

User Interface (UI) Design: Structuring layout geometry, font contrast, and navigation buttons to ensure an intuitive reading experience.

Practical Computing Activity:

LKS2 (Y3/4): *Vector Glyph Design.* Pupils draw clean vector glyphs using drawing tools, combining geometric shapes and manipulating control points to export digital icon sets.

UKS2 (Y5/6): *Interactive Screenfold Codex eBook.* Pupils build a multi-page interactive digital codex, combining vector glyph drawings, audio voiceovers, and action buttons that reveal historical translations when clicked.

Week 5: Maya Excavation – Databases & Data Mining

Computing Strand: Digital Literacy & Data Handling (Databases & Spreadsheets).

Substantive Knowledge:

LKS2: Data field types (text, number, image); sorting and searching flat-file databases of Maya artefacts; constructing search queries using AND/OR operators.

UKS2: Spreadsheet cell referencing (A1, B2); constructing mathematical formulas (SUM, AVERAGE); generating column and pie charts to display archaeological site comparison data.

Disciplinary Knowledge:

Data Interpretation: Formulating research queries to extract meaningful insights from large historical datasets.

Practical Computing Activity:

LKS2 (Y3/4): *Artefact Database Querying.* Pupils search an online archaeological database of Maya discoveries, using filters (e.g., *Material = Jade AND Site = Palenque*) to solve historical detective tasks.

UKS2 (Y5/6): *Archaeological Spreadsheet Analysis.* Pupils enter excavation data (counts of pottery, stone tools, jade, bones) across multiple sites, applying sum/average formulas and creating charts to analyse trade route patterns.

Week 6: The Maya Technology Expo – Synthesis & Evaluation

Computing Strand: Synthesis, Evaluation & Digital Presentation.

Substantive Knowledge:

LKS2/UKS2 Synthesis: Integrating Scratch programming, 3D CAD models, vector codices, and spreadsheet data into a cohesive digital showcase.

Disciplinary Knowledge:

Peer Evaluation & Debugging Review: Reviewing peer software builds and digital artefacts against usability, code efficiency, and historical accuracy rubrics.

Practical Maya Technology Symposium:

LKS2 & UKS2: *The "Virtual Maya World" Showcase.*

Station 1: Scratch Base-20 Arcade: Visitors play student-coded Base-20 calculation games and calendar simulators.

Station 2: 3D Pyramid Walkthrough: Screen displays feature rendered 3D CAD models of Chichen Itza and Tikal temples.

Station 3: Digital Codex Reading Zone: Visitors interact with published digital codex eBooks and review data charts generated from archaeological spreadsheets.

Section 4: Computational Reflection Plenary: Pupils evaluate peer projects using a structured checklist (*Code Efficiency, 3D Accuracy, UI Usability*).

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Sequences code blocks with guidance, but struggles to debug logic errors. • Places 3D shapes in CAD software but struggles with scaling along Z-axis. • Draws simple raster glyphs but misses vector node editing techniques. • Searches flat-file databases using single word filters only.	• Programs Scratch scripts using repeat loops and variable scores accurately. • Navigates 3D space (X, Y, Z) to align and stack cuboids into a step pyramid. • Uses vector drawing tools to edit shapes, stroke weights, and fills for glyphs. • Filters flat-file databases using AND/OR criteria to solve specific queries.	• Constructs nested loops in Scratch to handle complex Base-20 place value shifts. • Models complex 3D structures with accurate spatial proportions and alignment. • Designs vector glyphs with custom Bezier curves and layered shape groups. • Formulates multi-stage database queries and critiques data entry errors independently.
Upper Key Stage 2 *(Years 5 & 6)*	• Uses variables in Scratch but struggles with conditional mathematical logic. • Groups 3D shapes but leaves gaps or overlaps between pyramid terrace layers. • Builds multi-page eBooks but omits interactive buttons or audio embeds. • Enters spreadsheet numbers but requires help typing arithmetic formulas.	• Codes Scratch programs using variables and conditional logic (if…else) for Base-20 systems. • Models precise 3D CAD pyramids using hole cuts, grouping, and coordinate inputs. • Authors interactive digital eBooks with embedded navigation, vector graphics, and audio. • Writes spreadsheet formulas (SUM, AVERAGE) and generates charts from archaeological data.	• Writes elegant, modular Scratch code with custom functions for calendar calculations. • Creates highly detailed 3D architectural renders featuring complex interior chambers. • Builds sophisticated interactive digital codices with custom UI scripts and animations. • Analyses complex spreadsheet datasets critically, identifying correlations and reporting findings.

Other Information, Ideas and Resources

An alternative Sample 6-Week Computing Unit Plan

Week	Focus	Learning Objective
1	**Logic**	To understand the "Binary vs. Vigesimal" logic of zero.
2	**Research**	To use advanced search filters to find Mayan artefacts.
3	**Design**	To use 3D modelling tools to build a digital Tikal.
4	**Coding**	To create a "Maya Quiz" using selection (If/Else) in Scratch.
5	**Coding**	To add variables (Score/Timer) to a Mayan ball game simulation.
6	**Present**	To create a screencast explaining how LiDAR technology works.

Bridging History and Tech

When teaching the 3D modelling LO, ask the pupils: *"Why is it easier for us to build this digitally than it was for **The Maya** to build it with stone?"* This bridges the gap between **Substantive History** (Mayan labour and tools) and **Disciplinary Computing** (digital efficiency and modelling).

Other Computing Ideas and Resources

The Maya were also fascinated by mathematics and observations of the natural world, calculating the positions of the stars and planets. Although the Maya did not have digital technology, the precise calculations they undertook are precursors to today's world of scientific computing.

The Maya, however, mostly used base 20 for their calendrical computations—probably derived in prehistory from the number of fingers plus toes.

Repetitive patterns (link to Mayan art)

Considerations for Implementation

Design & Technology

Substantive Knowledge

In DT, **substantive knowledge** focuses on the specific facts about materials, ingredients, and construction techniques used by **The Maya**. It is the "knowledge of the industry" that allowed them to survive and thrive in a rainforest environment without the use of metal tools or the wheel. This is the **substantive knowledge** for KS2 pupils, categorised by DT strands:

1. Structures and Engineering

The Maya were master builders who created massive cities. To understand their success, pupils need to know:

The Corbel Arch: Unlike the rounded Roman arch, **The Maya** used a "false arch" created by layering stones closer together until they met at the top.

Limestone and Stucco: Limestone was the primary building material. When burnt and mixed with water,

it created **stucco**, a smooth plaster used for decorating and waterproofing buildings.
Sacbeob (White Roads): These were raised stone causeways that connected Mayan cities. They were engineered to be level and were coated in white lime to be visible at night.
Foundation and Drainage: Because of the heavy rainforest rain, **The Maya** built their temples on high platforms with sophisticated drainage systems to prevent flooding.

2. Textiles and Clothing
Mayan textiles were a blend of utility and social signalling.

The Backstrap Loom: A portable weaving device where one end is tied to a tree and the other around the weaver's waist. This allowed for precise control of fabric tension.
Huipil: The traditional, loose-fitting tunic worn by Mayan women, which is still made and worn today.
Natural Fibres: Most clothing was made from **cotton** (grown in the lowlands) or **agave fibres** (henequen).
Dyes: Knowledge of where colours came from—red from the cochineal beetle, blue from the indigo plant, and purple from sea snails.

3. Food Technology and Nutrition
Mayan "design" extended to their diet, which was perfectly engineered for their environment.

The Three Sisters: A farming "system" where **Maize, Beans, and Squash** are grown together. The maize provides a pole for beans, the beans add nitrogen to the soil, and the squash leaves shade the ground to keep it moist.
Nixtamalization: A technical process where maize was soaked in an alkaline solution (like lime water or ash). This made the corn easier to grind and unlocked vital vitamins (like B3) that prevent disease.
Cacao Processing: The knowledge that chocolate was originally a bitter, spicy drink. It was made by fermenting, drying, roasting, and grinding cacao beans, then mixing them with water, chili, and honey.

4. Materials and Tools
Obsidian: A volcanic glass that can be flaked into an edge sharper than a modern steel scalpel. It was used for cutting tools and weapons.
Chert/Flint: Hard stones used for hammers and chisels to shape the softer limestone.
Lignin and Bark: Used to create "paper" for codices and waterproof containers.

Substantive Knowledge Checklist

Category	Key Fact to Know
Sustainability	**The Maya** used only renewable, local materials (stone, wood, plants).
Technological Gap	They built massive structures without the wheel or iron tools.
Dietary Engineering	They "designed" a diet that was nutritionally complete through companion planting.
Joinery	They used lime mortar as a chemical "glue" to hold stones together.

Disciplinary Knowledge

In Design and Technology, **disciplinary knowledge** is about the process of being a designer and an

engineer. It moves beyond "making" and focuses on the **Design-Make-Evaluate** cycle, alongside technical understanding of structures, textiles, and nutrition. When studying **The Maya**, pupils use **disciplinary knowledge** to solve problems the way Mayan artisans and engineers once did.

1. Design: Functionalism and Aesthetics
The Maya didn't just make things look good; they designed for specific religious or practical purposes.
User-Centred Design: Understanding that a Mayan headdress was designed for a specific "user" (a King or High Priest) to convey power. Pupils learn to design with a specific person or "persona" in mind.
Annotated Sketches: Using cross-sectional diagrams and exploded views to plan how a Mayan structure (like a corbel arch) would stand up without collapsing.
Material Selection: Choosing materials based on their properties. For example, why did **The Maya** use obsidian for blades but limestone for buildings?

2. Make: Construction and Textiles
This is the "how-to" of Mayan engineering, requiring precision and a selection of appropriate tools.

Structural Integrity: Understanding the **Corbel Arch** (the "Mayan Arch"). Pupils learn the **disciplinary skill** of "counter spacing"—layering materials slightly further in until they meet—to create a functional entrance.
Textile Engineering: Learning how to use a **backstrap loom** (or a simplified version) to create woven fabric. This involves understanding the tension and "warp and weft" of a textile.
Joinery and Strengthening: Learning how to strengthen structures (like a model temple) using reinforcements or triangular bracing, mimicking how **The Maya** built massive structures on unstable jungle soil.

3. Evaluate: Performance and Ethics
Disciplinary knowledge in DT involves looking back at a product and asking if it worked and what the "cost" was.

Testing for Purpose: If a pupil builds a Mayan "Sacbe" (a raised stone road), they must test it: *Does it stay above the 'floodwater'? Does it support the weight of a heavy load?*
Historical Critique: Evaluating Mayan inventions against modern versions. For example, comparing Mayan "Chocolate" (spicy and bitter) to modern chocolate—how has the "recipe" changed to suit different "target markets"?
Sustainability: Reflecting on how **The Maya** used only local, natural resources and discussing why modern designers are trying to return to this "circular economy" approach.

4. Cooking and Nutrition: The 'Three Sisters'
The Maya were expert agricultural designers. Their **disciplinary knowledge** in food tech was about survival and balance.

Recipe Modification: Understanding how **The Maya** processed **Maize** (corn) through "Nixtamalization" (using lime/ash) to make it more nutritious. Pupils learn how processing ingredients changes their chemical and nutritional value.
Companion Planting Logic: Understanding the "Three Sisters" (Maize, Beans, and Squash). This is an engineering feat of biology where each plant supports the other's growth.

Disciplinary Skills Progression Table

DT Strand	Disciplinary Skill (The 'How-To')
Structures	Using "layering" and "weight distribution" to build a stable step pyramid.
Textiles	Measuring and cutting fabric accurately to create a "Huipil" style garment.
Mechanical Systems	Using pulleys or levers to simulate how **The Maya** moved heavy stones.
Food Tech	Following a multi-step "process" to turn raw cacao beans into a drink.

Learning Objectives

The **learning objectives** should focus on the **Design, Make, Evaluate** process while highlighting the unique engineering and culinary innovations of **The Maya**. These are the **learning objectives** categorised by the core DT strands:

1. Structures and Engineering

LO: To understand and replicate The Maya corbel arch.

Success Criteria: I can explain why **The Maya** used a "false arch" rather than a rounded one.
I can use layering techniques to create a stable opening in a model structure.

LO: To design and build a stable 3D model of a Mayan temple.

Success Criteria: I can use internal reinforcements to support the weight of a "roof comb."
I can choose appropriate materials to mimic the look of limestone and stucco.

2. Textiles and Fashion

LO: To design a functional garment for a Mayan ruler or farmer.

Success Criteria: I can select fabrics based on their properties (e.g., breathability for the rainforest).
I can use annotated sketches to show how a headdress or tunic would be fastened.

LO: To use weaving techniques to create a repeating geometric pattern.

Success Criteria: I can explain how a backstrap loom works.
I can demonstrate a simple "over-under" weave to create a texture inspired by Mayan *Huipils*.

3. Cooking and Nutrition

LO: To understand the nutritional importance of the 'Three Sisters' planting system.

Success Criteria: I can explain how maize, beans, and squash work together to create a balanced diet.
I can identify the food groups represented in a traditional Mayan meal.

LO: To follow a recipe to create a traditional Mayan food product.

Success Criteria: I can safely use tools to grind, mix, and heat ingredients.
I can explain how the flavour profile of Mayan chocolate (spicy/bitter) differs from modern chocolate.

4. Evaluation and Critique

LO: To evaluate the effectiveness of Mayan tools and inventions.

Success Criteria: I can compare the sharpness of obsidian to steel tools.
I can explain how **The Maya** moved heavy stones without the wheel and evaluate the effort required.

LO: To critique my own product against a design brief.

Success Criteria: I can test if my model "Sacbe" (road) can hold a specific weight.
I can suggest one way to improve the structural integrity of my build.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 DT framed around the historical and cultural learning theme **'The Maya'**. This unit connects core National Curriculum DT strands—**Structures & Civil Engineering**, **Mechanical Systems & Gear Mechanisms**, **Food Technology & Processing**, and **Textile Systems**—with ancient Mesoamerican achievements in agricultural engineering, ceremonial culinary traditions, and architectural stone masonry. It balances **substantive knowledge** (material properties, structural stability, mechanical gear ratios, food processing/hygiene, loom mechanics, tension/compression) with **disciplinary knowledge** ("Thinking & Acting like a Designer & Engineer"—deconstructing authentic historical artefacts, iterative prototyping, user-centred design, failure analysis, and evaluating functional performance against strict design criteria).

Unit Title: Engineers of the Rainforest: Maya Structures, Mechanisms, and Cuisine
Duration: 6 Weeks (Approx. 1–2 hours per week)
Theme: Maya Civil Engineering, Agricultural Systems (*Raised Fields/Terraces*), Mechanical Calendars, and Sacred Cacao Processing.
DT Contexts & Mayan Connections:
Structures & Civil Engineering: Designing and constructing stable step pyramids (*El Castillo*) and raised farming terraces (*Milpas/Chinampas*) using cross-bracing and load distribution.
Mechanical Systems: Interlocking gear mechanisms simulating the dual-gear Maya calendar (*Tzolkin & Haab*).
Food Technology: Processing raw ingredients, flavour balancing, and hygienic preparation of ceremonial Maya cacao drinks (*Xocolatl*).
Textiles & Functional Accessories: Designing and weaving durable utility pouches using traditional loom mechanics.

Key Design & Technology Pillars
Substantive Knowledge:
Structures: Triangulated cross-bracing, centre of gravity, load-bearing capability, soil drainage layering, and material reinforcement.
Mechanisms: Spur gears, gear ratios (driven vs. driver), axles, rotational direction, and mechanical advantage.
Food Technology: Processing raw beans/spices, temperature control, emulsification (frothing), flavour balancing (sweet, bitter, spicy), and food hygiene practices.
Textiles: Structural warp/weft dynamics, seam allowance, joining techniques (blanket stitch, running stitch), and structural fastening.
Disciplinary Knowledge ('Thinking Like an Engineer & Designer'):
User & Purpose Analysis: Designing functional artefacts suited to tropical rainforest environments and specific Maya social roles.
Iterative Prototyping & Testing: Building low-fidelity card/dowel models to test structural limits or mechanical alignment before final construction.
Evaluative Rigor: Evaluating final products against user criteria, structural stability thresholds, mechanical smoothness, or taste profiles.

Weekly Progression Scheme
Week 1: Rainforest Civil Engineering – Raised Field & Terrace Models
DT Strand: Structures & Environmental Engineering.
Substantive Knowledge:

LKS2: Soil filtration layering (gravel, sand, organic compost); drainage channels; structural walls to prevent soil erosion.
UKS2: Capillary action in soil beds; water retention calculations; building retaining walls using interlocking stones or timber retaining structures.
Disciplinary Knowledge:
Functional Design: Designing agricultural systems specifically adapted to overcome tropical rainforest flooding and swamp conditions (*Bajos*).
Practical DT Activity:
LKS2 (Y3/4): *Model Raised Farming Bed (Chinampa).* Pupils construct a mini raised agricultural bed using plastic trays, gravel, sand, and soil, testing water filtration efficiency when water is poured through.
UKS2 (Y5/6): *Terraced Hillside Model.* Pupils design and construct a multi-tiered hillside farming terrace model using wood/card supports, clay retainers, and drainage channels, testing for soil stability under simulated heavy rainfall.

Week 2: Pyramids in Stone – Load-Bearing Architectural Frames
DT Strand: Structures & Architectural Mechanics.
Substantive Knowledge:
LKS2: Shell vs. frame structures; widening bases to lower the centre of gravity; using tab joins and flanges for rigid cardboard construction.
UKS2: Internal triangulation and cross-bracing to increase load-bearing capacity; calculating scale ratios; distributed weight mechanics.
Disciplinary Knowledge:
Structural Testing: Systematically adding weights to structural prototypes to identify points of structural failure.

Practical DT Activity:
LKS2 (Y3/4): *Scale Model Temple Base.* Pupils design and assemble a 3-tiered step pyramid base using corrugate card, using tab joins and wider base profiles to ensure stability.
UKS2 (Y5/6): *Load-Bearing Temple Structure.* Pupils engineer an internal wooden dowel/card framework for a Maya step pyramid, using triangular cross-bracing to support a minimum 2 kg weight at its peak.

Week 3: Cycles of Motion – Calendar Gear Systems
DT Strand: Mechanical Systems (Gears & Pulleys).
Substantive Knowledge:
LKS2: Spur gears, driver vs. driven gears, meshing teeth, changing rotational direction, and axle alignment.
UKS2: Gear ratios; calculating input vs. output rotations (e.g., 13-tooth gear meshed with a 20-tooth gear); mechanical advantage and friction reduction.
Disciplinary Knowledge:
Iterative Adjustment: Debugging mechanical jamming by modifying tooth spacing, axle tolerances, and gear positioning.
Practical DT Activity:
LKS2 (Y3/4): *Two-Gear Calendar Mechanism.* Pupils construct a cardboard and wooden dowel mechanism featuring two meshed gears (13 teeth and 20 teeth) mounted on a backboard, ensuring smooth rotation.
UKS2 (Y5/6): *Multi-Gear Calendar Train.* Pupils engineer a 3-gear train simulating the alignment of the *Tzolkin* and *Haab* calendar cycles, adjusting gear ratios and axle alignment to ensure precise synchronisation.

Week 4: Sacred Cacao – Food Processing & Product Design

DT Strand: Food Technology & Culinary Processing.
Substantive Knowledge:
LKS2: Crushing and grinding mechanics; hygiene practices when handling food; balancing basic taste profiles (bitter, sweet, spicy).
UKS2: Emulsification principles; temperature management when extracting cocoa fats; ingredient ratios; designing for a target audience (e.g., Maya royalty vs. general population).
Disciplinary Knowledge:
Sensory Evaluation: Conducting systematic taste testing and sensory profiling (star diagrams) to evaluate and refine a recipe.
Practical DT Activity:
LKS2 (Y3/4): *Traditional Cacao Beverage.* Pupils crush cocoa nibs using mortars and pestles, mix with warm water, honey, and cinnamon, and use a wooden frothing whisk (*molinillo*) to create a traditional foamy drink.
UKS2 (Y5/6): *Spiced Maya Cacao Product.* Pupils iterate a spiced cacao recipe by testing varied proportions of chilli, vanilla, allspice, and honey, evaluating viscosity, froth height, and taste profiles on sensory charts.

Week 5: Woven Utility – Textile Pouches & Backstrap Mechanics
DT Strand: Textiles & Structural Fabrics.
Substantive Knowledge:
LKS2: Structural warp/weft threads; weaving cardboard looms; seam joining using running stitch or blanket stitch.
UKS2: Designing functional textile products with seam allowances; adding structural fasteners (wooden toggles, loops); evaluating fibre strength under tension.
Disciplinary Knowledge:
Fitness for Purpose: Ensuring chosen fabric weaves and joins are strong enough to carry heavy daily items.
Practical DT Activity:
LKS2 (Y3/4): *Weaved Seed Pouch.* Pupils weave a small wool panel on a cardboard loom, fold and stitch the sides using a running stitch, and attach a twisted cord strap.
UKS2 (Y5/6): *Merchant's Utility Belt Pouch.* Pupils design a pattern template with seam allowances, weave high-density textile panels, assemble them using blanket stitching, and attach a carved wooden toggle closure.

Week 6: The Maya Trade Fair – Testing, Evaluation & Expo
DT Strand: Synthesis, Testing & Product Evaluation.
Substantive Knowledge:
LKS2/UKS2 Synthesis: Reviewing product briefs, testing structural integrity, evaluating mechanical efficiency, and presenting design specification outcomes.
Disciplinary Knowledge:
Critical Evaluation: Assessing completed DT prototypes against original design specifications and user needs, identifying modifications for future iterations.
Practical Maya Trade & Innovation Expo:
LKS2 & UKS2: *The "Mesoamerican Engineering Guild" Exhibition.*
Station 1: Civil Engineering Zone: Testing raised terrace filtration models and stress-testing step pyramid structural load limits in front of an audience.
Station 2: Mechanical Pavilion: Demonstrating calendar gear train smooth rotation and calculating mechanical gear ratios.
Station 3: Royal Cacao Tasting: Serving refined cacao drink formulations alongside sensory evaluation star charts.

Station 4: Textile Workshop: Displaying functional woven pouches tested for load weight and seam durability.
Section 5: Evaluative Plenary: Pupils complete a formal DT evaluation report detailing successes, structural failures, and proposed engineering improvements.

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Builds simple card pyramids but sides buckle under minimal pressure. • Assembles gear wheels but teeth slip or jam frequently. • Combines cacao ingredients without following hygienic steps or measuring proportions. • Weaves loose threads that pull apart when stitched into a pouch.	• Builds stable 3-tiered step pyramid bases using accurate tab joins and wider bases. • Mounts two meshed gears on axles so they turn smoothly without jamming. • Measures ingredients accurately and follows food hygiene rules to make a frothed cacao drink. • Weaves a neat textile panel and uses running stitch to create a functional pouch.	• Incorporates internal reinforcement to ensure card pyramids withstand significant downward force. • Modifies gear tooth profiles independently to solve mechanical friction issues. • Refines flavour balance systematically using sensory feedback to improve recipe appeal. • Produces tightly woven textile products with reinforced corners and secure fastenings.
Upper Key Stage 2 *(Years 5 & 6)*	• Constructs wooden frame structures but omits diagonal bracing, causing wobbling under load. • Builds a 3-gear train but fails to calculate or align correct gear ratios. • Prepares cacao drinks but struggles to control emulsification or froth consistency. • Cuts fabric without seam allowances, resulting in undersized finished products.	• Engineers load-bearing timber step pyramid frames using triangular cross-bracing (2kg+ capacity). • Calculates gear ratios and aligns multi-gear calendar trains for synchronised rotation. • Conducts sensory trials to optimise cacao recipes for specific target audiences. • Measures seam allowances accurately and uses blanket stitch to assemble durable pouches with toggles.	• Optimises frame weight-to-strength ratios through advanced structural cross-bracing. • Designs complex mechanical systems incorporating compound gears or pulley drives smoothly. • Explains emulsification chemistry and creates commercial-grade product packaging designs. • Creates complex multi-panel textile patterns featuring integrated internal pockets and custom fasteners.

Other Information, Ideas and Resources

Week	Focus	Learning Objective

1	**Design**	To create a design specification for a Mayan "God-King's" headdress.
2	**Food**	To investigate the process of turning cacao beans into a liquid drink.
3	**Structures**	To explore the "counterbalancing" logic of the corbel arch using blocks.
4	**Make**	To build a model of a Mayan step pyramid using card and plaster (stucco).
5	**Textiles**	To experiment with natural dyes (onion skins/beetroot) on cotton fabric.
6	**Evaluate**	To test the stability of models and present "design improvements."

Jewellery, masks, clothing linked to all three areas (or just pick one!)

The Mayans were masters in the construction of large stone structures such as pyramids and temples. Most of these structures were built without the help of modern technology and still stand today. The Mayans were also experts in the construction of irrigation systems and aqueducts to supply water to their cities.

Design and build their own Mayan temple. How could they [The Mayans] build these without our modern tech?

https://www.chichenitza.com/

Make a wooden pipe to play music in the style of **The Maya**.

Aerophones have been found in locations such as Tabasco, Campeche, and Jaina.

Clay whistles were found in Jaina from burial sites. These whistles have mouthpieces in quadrangular, rectangular, ellipsoidal and conical shapes. Several whistles are shaped like human faces, and some are shaped like animals representing Mayan deities.

Mayan Food Tech- Cocoa, Maize - chocolate, taco, tortilla. Taste testing – which chocolate is the best?

Considerations for Implementation

The most challenging part of Mayan DT is acknowledging they achieved these feats without iron, horses, or the wheel. Always ask pupils: *"How would you solve this problem if you only had the materials found in a forest?"* This builds high-level **disciplinary thinking**.

Geography

Substantive Knowledge

In Geography, **substantive knowledge** consists of the concrete facts and "location-specific" data pupils need to remember about the Mayan world. This involves understanding the unique physical features of

Mesoamerica and how **The Maya** adapted their civilisation to survive in diverse environments. This is the essential **substantive knowledge** for KS2 pupils, categorised by geographical themes:

1. Locational Knowledge: Mesoamerica
Pupils need to know precisely where the Mayan civilisation was situated in relation to the modern world.

Region: The Maya lived in **Mesoamerica**, a historical region that covers what is now southern **Mexico**, **Guatemala**, **Belize**, and parts of **Honduras** and **El Salvador**.
The Yucatán Peninsula: A large landmass that juts into the Gulf of Mexico. It is mostly flat and made of limestone.
Northern vs. Southern Lowlands: The north is drier with fewer rivers; the south is a dense, lush tropical rainforest with high rainfall.
The Highlands: The mountainous region in the south (Sierra Madre), which provided volcanic stone like **obsidian** and precious minerals like **jade**.

2. Physical Geography: Landscapes and Climate
The Mayan environment was beautiful but often "water-poor" or difficult to farm.

The Rainforest Biome: A tropical climate with high temperatures and distinct **wet and dry seasons**.
Karst Topography: The name for the limestone landscape of the Yucatán. Because limestone is porous, rainwater sinks through the ground, meaning there are very few surface rivers.
Cenotes: Natural sinkholes that provide access to the underground water table. These were the primary water source for Northern Mayan cities.
Chultuns: Man-made underground cisterns (storage tanks) dug into the limestone to catch and store rainwater for the dry season.

3. Human Geography: Land Use and Trade
This is the knowledge of how **The Maya** "engineered" the earth to support millions of people.

Slash and Burn Agriculture: A method of clearing forest by cutting down trees and burning them to create nutrient-rich ash for soil.
Terrace Farming: "Steps" carved into the sides of mountains to create flat areas for farming and to prevent soil from washing away during heavy rain.
Raised Fields: In swampy areas, **The Maya** piled up mud to create "islands" for crops, with canals in between for irrigation and fish.
Trade Routes: The Maya used the sea (coastal routes) and rivers to transport heavy goods. They traded luxury items like **Quetzal feathers** and **cacao** for essentials like **salt** and **dried fish**.

4. Environmental Change and Legacy
Deforestation: The process of clearing large areas of trees. Some historians believe **The Maya** cut down so many trees for building and fuel that it changed the local climate.
Drought: A prolonged period of low rainfall. **Substantive** evidence suggests a series of severe droughts contributed to the "Collapse" of the Classic Mayan period.

Substantive Knowledge Summary Table

Geographical Feature	Why it Mattered to The Maya

Limestone	Used to build pyramids and made it possible to dig cisterns.
Obsidian	Volcanic glass found in the highlands; used for tools and trade.
Cenotes	Provided life-saving water in a land with no rivers.
The Canopy	Protected the soil from the sun but made travel difficult.

Disciplinary Knowledge

In Geography, **disciplinary knowledge** is about teaching pupils to "think like a geographer." It's less about memorising the names of cities and more about understanding the relationship between people and their environment. For **'The Maya'** learning theme, this involves analysing why they settled where they did, how they manipulated a challenging landscape, and how we use modern geographical tools to study them.

1. Locational Knowledge and Mapping
This is the skill of situating **The Maya** in space and time using geographical tools.

Map Overlays: Comparing historical maps of the Mayan empire with modern political maps of **Mexico, Guatemala, Belize, and Honduras**. Pupils learn to identify how borders change but physical geography remains.
Coordinate Systems: Using latitude and longitude to locate major city-states like Tikal or Chichen Itza.
The 'Why' of Place: Analysing why **The Maya** settled in specific areas (e.g., proximity to **Cenotes** for water or volcanic areas for fertile soil and obsidian).

2. Human Geography: Modification of the Environment
The Maya were masters of "human impact." **Disciplinary knowledge** here focuses on how humans change the earth to meet their needs.

Agricultural Engineering: Investigating how **The Maya** used **Terracing** in the highlands to prevent soil erosion and **Raised Fields** in the swamplands to grow crops.
Urban Planning: Analysing the layout of a Mayan city. Why were the temples in the centre? How did the "Sacbeob" (roads) facilitate trade between different climate zones?
Trade Networks: Understanding the flow of resources—moving jade and quetzal feathers from the mountains to the lowlands in exchange for salt and shells from the coast.

3. Physical Geography: The Rainforest Biome
Pupils learn to describe the physical characteristics of the Mayan world using specific geographical terminology.

Climate Analysis: Looking at rainfall patterns and temperature in the tropical rainforest biome. How did the **wet and dry seasons** dictate the Mayan calendar?
Karst Topography: Understanding the limestone landscape of the Yucatán. Pupils learn the geography of **sinkholes (cenotes)** and how underground river systems work when there are no surface rivers.

4. Geographical Inquiry and Fieldwork
This is the "detective work" of geography.

Cause and Effect (The Collapse): Using geographical evidence to debate the decline of **The Maya**. Did they over-farm the land (**deforestation**)? Did a long-term **drought** force them to move?
Remote Sensing: Understanding how modern geographers use **satellite imagery** and **LiDAR** to discover "lost" civilisations under the canopy. This teaches pupils that geography is a high-tech, evolving discipline.
Disciplinary Skills Progression Table

Geographical Skill	Disciplinary Application (The Maya)
Fieldwork	Using school grounds to simulate a "transect survey" of a jungle.
Data Analysis	Comparing rainfall charts to explain why northern Mayan cities needed chultuns (cisterns).
Perspective	Arguing for or against the "Environmental Collapse" theory using land-use data.
Scale	Zooming from a local city-state map to a regional Mesoamerican map.

Learning Objectives

Learning objectives for Mayan Geography should encourage pupils to look at the world through the eyes of both an ancient inhabitant and a modern researcher. The goal is to move beyond "finding Mexico on a map" toward understanding how a civilisation is shaped by its environment. **Learning objectives**, categorised by the National Curriculum strands:

1. Locational Knowledge
LO: To locate the Mayan civilisation in the context of the wider world.
Success Criteria: I can identify the continent of North America.
I can locate the modern-day countries of Mexico, Guatemala, Belize, and Honduras on a map.
LO: To identify the key physical regions of the Mayan world.
Success Criteria: I can distinguish between the Highlands (mountains) and the Lowlands (rainforests).
I can explain how the Yucatán Peninsula is geographically unique.

2. Place Knowledge
LO: To compare the physical geography of the Mayan region with my local area.
Success Criteria: I can compare rainfall and temperature data between the UK and the tropical rainforest.
I can identify differences in land use (e.g., urban sprawl vs. dense canopy).
LO: To understand the significance of a 'biome' in the development of a civilisation.
Success Criteria: I can describe the characteristics of a tropical rainforest.
I can explain how the forest provided both resources (timber, food) and challenges (travel, dense growth).

3. Human and Physical Geography
LO: To explain how The Maya managed their water supply in a karst landscape.
Success Criteria: I can define 'karst' and 'cenote'.
I can explain why **The Maya** had to build *chultuns* (cisterns) in areas without surface rivers.
LO: To investigate how The Maya modified their environment for agriculture.
Success Criteria: I can describe the techniques of slash-and-burn, terrace farming, and raised fields.
I can explain which technique was best suited to which landscape (e.g., terraces for mountains).
LO: To analyse the impact of trade on The Maya economy.

Success Criteria: I can map the movement of goods like obsidian, jade, and salt between the highlands and the coast.

4. Geographical Skills and Enquiry

LO: To use 4 and 6-figure grid references to locate Mayan city-states.

Success Criteria: I can find Tikal, Copán, and Chichen Itza on a topographical map using coordinates.

LO: To use digital mapping tools (like Google Earth or LiDAR scans) to identify human impact.

Success Criteria: I can spot the geometric shapes of pyramids beneath the forest canopy.
I can explain how technology helps geographers find "lost" cities.

LO: To debate the geographical causes of the Mayan 'collapse'.

Success Criteria: I can use evidence to discuss how climate change (drought) or human actions (deforestation) might have led to cities being abandoned.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Geography framed around the regional, physical, and human geography of **'The Maya'**. This unit connects core National Curriculum Geography strands—**Locational & Place Knowledge**, **Physical Processes & Biomes**, **Human Geography & Natural Resources**, **Geographical Information Systems (GIS) & Mapping**, and **Environmental Sustainability**—with the Mesoamerican landscape spanning modern-day Mexico, Guatemala, Belize, Honduras, and El Salvador. It balances **substantive knowledge** (latitude/longitude, tropical rainforest biomes, karst topography, cenotes, trade networks, climate patterns, and agricultural land use) with **disciplinary knowledge** ("Thinking & Acting Like a Geographer"—interpreting satellite imagery, analysing climate graphs, evaluating human-environment interactions, mapping spatial patterns, and assessing environmental trade-offs).

Unit Title: Lands of the Feathered Serpent: Maps, Biomes, and Environments of the Maya

Duration: 6 Weeks (Approx. 1–2 hours per week)

Theme: Mesoamerican Landscapes, Tropical Rainforest Ecosystems, Karst Topography & Cenotes, and Sustainable Land Use.

Geographical Contexts:

Mesoamerican Region: Modern political boundaries (Southern Mexico, Guatemala, Belize, Western Honduras, El Salvador) vs. ancient cultural region.

Physical Landscapes: The Petén rainforest basin, Maya Mountains, Yucatan Peninsula karst platform, subterranean cenotes, and volcanic highlands.

Human Geography & Settlement: Agricultural adaptation (*milpa* slash-and-burn, terrace farming, *chinampas*), rainforest resource extraction, trade routes along rivers (Usumacinta, Motagua), and modern deforestation challenges.

Key Geography Pillars

Substantive Knowledge:

Locational Knowledge: Equator, Tropic of Cancer, hemisphere locations, Central America, neighbouring oceans (Pacific) and seas (Caribbean).

Physical Geography: Tropical rainforest layers (emergent, canopy, understory, forest floor), climate graphs (precipitation vs. temperature), limestone weathering, sinkholes (*cenotes*), and water table mechanics.

Human Geography: Settlement distribution dictated by water sources, land use mapping, trade networks, rainforest resource reliance, and modern conservation versus agricultural expansion.

Disciplinary Knowledge ('Thinking Like a Geographer'):

Map Skills & Spatial Analysis: Using grid references, scale bars, thematic maps, and satellite imagery (GIS) to identify changing land cover over time.

Data Interpretation: Analysing monthly rainfall and temperature data to define tropical wet/dry seasons.

Environmental Evaluation: Investigating how human societies adapt to extreme environments and assessing the sustainability of historical versus modern land-use practices.

Weekly Progression Scheme

Week 1: Mapping Mesoamerica – Location, Countries & Regions

Geography Strand: Locational Knowledge & Map Skills.

Substantive Knowledge:

LKS2: Identifying Central America on world maps; naming the 5 modern countries housing Maya heritage (Mexico, Guatemala, Belize, Honduras, El Salvador); cardinal points (N, S, E, W); Caribbean Sea vs. Pacific Ocean.

UKS2: Latitude and longitude coordinates; Tropic of Cancer proximity; political vs. physical borders; comparing urban settlement locations (Tikal, Chichen Itza, Palenque, Copán).

Disciplinary Knowledge:

Spatial Analysis: Comparing political maps of modern Central America with historical thematic maps of ancient Maya trade territories.

Practical Geography Activity:

LKS2 (Y3/4): *Atlas & Map Overlay.* Pupils locate Central America on world maps and complete an atlas challenge, shading modern countries, labelling capital cities, key Maya sites, and surrounding water bodies using a compass rose.

UKS2 (Y5/6): *Coordinate & GIS Mapping.* Pupils plot precise latitude/longitude coordinates for key archaeological sites, analysing spatial patterns to explain why major cities developed near river networks or coastal routes.

Week 2: The Petén Ecosystem – Rainforest Biomes & Climate

Geography Strand: Physical Geography (Biomes, Vegetation Belts & Climate Data).

Substantive Knowledge:

LKS2: Characteristics of a tropical rainforest biome; vertical stratification (emergent, canopy, understory, forest floor); plant and animal adaptations (e.g., buttress roots, jaguar camouflage).

UKS2: Tropical wet and dry climate zones; analysing climate graphs (monthly rainfall in mm and temperature in ℃); calculating seasonal precipitation variances in the Petén basin.

Disciplinary Knowledge:

Data Synthesis: Correlating climate graph data (wet vs. dry seasons) with agricultural planting calendars and water storage requirements.

Practical Geography Activity:

LKS2 (Y3/4): *Rainforest Layer Diagram.* Pupils create annotated cross-section diagrams of the Petén rainforest, identifying light levels, vegetation density, and animal adaptations across the four main layers.

UKS2 (Y5/6): *Climate Graph Construction & Analysis.* Pupils plot dual-axis climate graphs for Flores (Guatemala), calculating total annual rainfall and writing a comparative geographical report on seasonal water availability.

Week 3: Water in the Karst – Cenotes & Limestone Landscapes

Geography Strand: Physical Processes & Hydrology (Geomorphology).

Substantive Knowledge:

LKS2: Groundwater mechanics; permeable vs. impermeable rock; formation of natural sinkholes (*cenotes*) in northern Yucatán's porous limestone platform.

UKS2: Karst topography; chemical weathering (acidic rainwater dissolving calcium carbonate); subterranean aquifers; subterranean water collection (*aguadas* and *chultunes*).

Disciplinary Knowledge:

Process Modelling: Demonstrating how acidic groundwater erodes underground caverns leading to roof collapses (*cenote* formation).

Practical Geography Activity:

LKS2 (Y3/4): *Cenote Formation Sequence.* Pupils storyboard the step-by-step formation of a cenote, labelling rainfall infiltration, underground cave erosion, and eventual roof collapse into the water table.

UKS2 (Y5/6): *Hydrological Settlement Investigation.* Pupils analyse physical maps of the waterless northern Yucatán peninsula, evaluating how access to natural cenotes directly governed human settlement patterns and urban growth.

Week 4: Farming the Forest – Human Adaptations & Land Use

Geography Strand: Human Geography & Agricultural Land Use.

Substantive Knowledge:

LKS2: *Milpa* agricultural systems; slash-and-burn cycles; crop rotation featuring the "Three Sisters" (maize, beans, squash); physical soil nutrient depletion.

UKS2: Civil engineering adaptations: terracing steep volcanic slopes, constructing raised fields (*chinampas*) in swampy lowlands (*bajos*), and building plaster-lined water reservoirs.

Disciplinary Knowledge:

Human-Environment Interaction: Evaluating how human societies modify challenging physical landscapes to sustain large urban populations.

Practical Geography Activity:

LKS2 (Y3/4): *Milpa Land-Use Mapping.* Pupils map out a 10-year rotational diagram of a *milpa* field system, showing clearing, cropping, fallow regeneration phases, and soil replenishment.

UKS2 (Y5/6): *Agricultural Land-Use Comparison.* Pupils evaluate 3 distinct Maya agricultural strategies (terracing, raised beds, slash-and-burn), writing an environmental report comparing labour input, yield, and landscape impact.

Week 5: Jungle Highways – Trade Networks & Resource Distribution

Geography Strand: Human Geography (Economic Activity & Trade Routes).

Substantive Knowledge:

LKS2: Natural resource distribution across Mesoamerica (jade and obsidian from highlands; cacao, quetzal feathers, and jaguar pelts from lowlands; salt and shells from coasts).

UKS2: River transport networks (Usumacinta and Motagua rivers); coastal sea-trade routes around the Yucatán; economic interdependence between highland and lowland city-states.

Disciplinary Knowledge:

Trade Route Analysis: Synthesising physical relief maps with natural resource distribution maps to trace optimal trade movement across difficult terrain.

Practical Geography Activity:

LKS2 (Y3/4): *Mesoamerican Resource Flow Map.* Pupils create a thematic resource map using symbols to show where raw materials originated across highland and lowland environmental zones.

UKS2 (Y5/6): *Trade Route Route-Finding Challenge.* Pupils act as Maya merchant guilds, using physical relief maps to plot optimal land and river trade routes between Guatemala's highlands and northern Yucatán, justifying choices based on physical obstacles.

Week 6: The Maya Biosphere Today – Conservation & Satellite GIS

Geography Strand: Environmental Geography & GIS Analysis.
Substantive Knowledge:
LKS2: Deforestation causes (cattle ranching, logging, agriculture); purpose of protected nature reserves like the Maya Biosphere Reserve in Guatemala.
UKS2: Interpreting satellite imagery (GIS); tracking land cover changes over time; sustainable forest management; balancing indigenous land rights, tourism, and environmental conservation.
Disciplinary Knowledge:
Geographical Inquiry & Evaluation: Assessing satellite data to measure human impact on fragile rainforest ecosystems and proposing sustainable solutions.
Practical Geography Summit:
LKS2 & UKS2: *The "Protecting the Maya Rainforest" Summit.*
Task 1 (GIS Analysis): Pupils compare false-colour satellite images of the Petén rainforest from 1990 vs. today, quantifying forest loss along road lines.
Task 2 (Stakeholder Debate): Pupils take on roles (Local Farmer, Conservation Ranger, Eco-Tourism Operator, Logging Company Director) to debate future land use within the Maya Biosphere Reserve.
Plenary: Pupils write a strategic "Rainforest Action Plan" balancing human economic needs with ecosystem preservation.

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Identifies Central America on a globe but struggles to label surrounding oceans. • Names a tropical rainforest but cannot describe its distinct layers. • Identifies a cenote as a water hole but cannot explain its rock formation. • Shows basic understanding that farmers grow food but misses crop rotation cycles.	• Locates Central America and accurately labels the 5 modern countries and surrounding seas. • Describes the physical layers of the Petén rainforest and identifies plant/animal adaptations. • Explains how chemical weathering creates subterranean limestone cenotes. • Maps the *milpa* farming cycle and explains how the "Three Sisters" crops support soil health.	• Uses compass directions and scale bars to measure distances between key Maya cities accurately. • Correlates rainforest layer characteristics with microclimate conditions (light, moisture, wind). • Explains the hydrological connection between subterranean limestone aquifers and human settlement distribution. • Evaluates how ancient *milpa* rotation compares to modern agricultural land degradation.
Upper Key Stage 2 *(Years 5 & 6)*	• Reads simple maps but struggles to locate sites using latitude and longitude. • Plots temperature on a graph but misinterprets precipitation curves. • Identifies river routes	• Plots precise latitude/longitude coordinates and analyses spatial patterns of ancient urban centres. • Constructs dual-axis climate graphs and analyses seasonal wet/dry precipitation	• Synthesises physical topography, river networks, and climate data to explain urban decline trends. • Calculates annual climate variance statistically and evaluates its impact on agricultural reservoir

	on a map but misses their economic trade significance. • Describes deforestation visually without identifying underlying human causes.	patterns. • Traces physical trade routes across highland/lowland zones using relief and resource maps. • Analyses GIS satellite imagery to track deforestation trends and evaluates sustainable solutions.	design. • Formulates complex trade efficiency models considering physical obstacles, canoe capacity, and porter travel times. • Critically debates multi-stakeholder land-use conflicts in biosphere reserves using quantitative GIS evidence.

Other Information, Ideas and Resources

Week	Focus	Learning Objective
1	**Mapping**	To locate Mesoamerica and its modern political borders.
2	**Biomes**	To explore the climate and layers of the tropical rainforest.
3	**Hydrology**	To understand the importance of Cenotes and the water cycle in the Yucatán.
4	**Land Use**	To investigate how **The Maya** engineered the land to grow the "Three Sisters."
5	**Trade**	To track the movement of resources across different physical zones.
6	**Enquiry**	To evaluate how environmental changes led to the decline of Mayan cities.

Considerations for Implementation

'Be the Geographer'
When teaching Week 6, frame it as a "Cold Case Investigation." Give pupils pieces of geographical evidence (rainfall charts, soil samples, pollen counts) and have them determine if **The Maya** "failed" their environment or if the environment changed too fast for them to adapt.

History

Substantive Knowledge

In History, **substantive knowledge** consists of the established facts and "content" that pupils need to store in their long-term memory. For **The Maya**, this involves understanding their timeline, their social structure, and their significant achievements. **Substantive knowledge** for KS2, grouped by historical themes:

1. Chronology: The Mayan Timeline
Pupils should know where **The Maya** fit in world history, especially in relation to British history (e.g., they were at their peak while the Anglo-Saxons and Vikings were in Britain).

Pre-classic Period (2000BC– 250AD): The era of early farming and the first small cities.
Classic Period (250AD – 900AD): The "Golden Age." This is when the great pyramids were built and writing flourished.
Post-classic Period (900AD – 1500AD): The shift of power to the north (Yucatán) before the arrival of the Spanish.

The Spanish Conquest: In the 16TH century, Spanish explorers arrived, leading to the fall of the last independent Mayan cities.

2. Society and Power
Understanding how Mayan life was structured and who held the power.

City-States: The Maya were not one single empire. They were a collection of independent city-states (like **Tikal, Palenque, and Chichen Itza**) that shared a culture but often went to war.
Social Hierarchy:
The Ajaw (King): A "god-king" who was the religious and political leader.
Nobles and Priests: The literate elite who managed the city and rituals.
Craftsmen and Merchants: Specialised workers.
Farmers and Slaves: The majority of the population who provided food and labour.
The Role of Women: While most rulers were men, some powerful women (like **Lady K'abel**) ruled as queens in their own right.

3. Achievements and Culture
Specific "firsts" or unique cultural markers that define the Mayan civilisation.

Writing (Hieroglyphs): The Maya had the most advanced writing system in the pre-Columbian Americas, using over 800 symbols (glyphs).
Mathematics: They used a **Base-20** system and were one of the first cultures in the world to understand and use **zero**.
Astronomy: They tracked the movements of the sun, moon, and Venus with incredible accuracy to create solar calendars.
Religion: They were **polytheistic** (worshipped many gods), including the Maize God and the Jaguar God. They believed in a three-layered universe: the Heavens, the Earth, and the Underworld (**Xibalba**).

4. Daily Life
What it was actually like to live in a Mayan city-state.

Diet: The "Three Sisters" (maize, beans, squash) and the significance of **cacao** (chocolate) as a luxury item and currency.
Clothing: Use of cotton, animal skins, and elaborate feather headdresses to show status.
Architecture: The construction of **Step Pyramids**, plazas, and astronomical observatories without the use of metal tools or the wheel.
The Ball Game (Pok-a-Tok): A ritual sport played with a rubber ball; it was often a matter of life and death, representing the battle between good and evil.

Substantive Knowledge Key Terms

Term	Fact to Remember
Mesoamerica	The geographical area (Central America) where **The Maya** lived.
Codex	A bark-paper book (only 4 remain today).

Stela	A stone monument used to record the history of a King's reign.
Cenote	A natural sinkhole used for water and religious offerings.

Disciplinary Knowledge

In History, **disciplinary knowledge** is about the "doing" of history. It isn't just knowing that **The Maya** lived in **Mesoamerica**; it's about understanding how we know what we know, and how to think critically about the past using the tools of a historian or archaeologist. This is the **disciplinary knowledge** for **'The Maya'** learning theme, broken down into the key historical concepts:

1. Historical Enquiry and Evidence
This is the "detective work" where pupils learn that history is a construct based on what survives.

Primary vs. Secondary Sources: Distinguishing between an actual Mayan artefact (primary) and a historian's book written in 2024 (secondary).
Archaeological Interpretation: Understanding that because **The Maya** lived in a humid rainforest, many organic materials (wood, cloth) rotted. Pupils learn to ask: *"What is missing from our evidence, and how does that change our view of them?"*
Decoding Maya Glyphs: Recognising that being able to read Mayan writing (decipherment) changed our understanding from them being "peaceful stargazers" to "complex, warring city-states."

2. Continuity and Change
History is a study of how things stay the same or shift over time.

The Three Periods: Identifying the differences between the **Pre-classic, Classic,** and **Post-classic** periods. Why did they move from small villages to massive cities?
The 'Collapse': Analysing why many Southern cities were abandoned around 900 AD while Northern cities like Chichen Itza continued to flourish.
Modern Maya: Recognising that the Mayan people did not "disappear"—their culture has changed, but over 6 million Mayan people still live in Mesoamerica today.

3. Cause and Consequence
This involves looking at the "Why" behind major historical events.

Agricultural Success: Understanding how the "Cause" (mastering maize farming) led to the "Consequence" (a population explosion and the building of pyramids).
Environmental Impact: Investigating how human actions, like deforestation for building projects, might have caused the consequence of severe drought and social unrest.

4. Similarity and Difference
This allows pupils to place **The Maya** in a global context.

Non-European Comparison: Comparing **The Maya** to civilisations they have already studied, such as the Romans or Vikings. How was their government similar? How was their technology different (e.g., **The Maya** had no metal tools or wheels)?
City-State Rivalry: Understanding that **The Maya** were not one single empire like the Romans, but a collection of independent city-states (like the Ancient Greeks) that often fought each other.

5. Historical Significance
Why do we bother learning about **The Maya** in the first place?

Innovation: Recognising their unique contributions to the world, such as the concept of **Zero**, the world's most accurate ancient calendar, and the discovery of chocolate.
Legacy: Identifying how their architectural styles and mathematical systems still influence modern Central America.

Disciplinary Skills Progression Table

Historical Skill	Disciplinary Application (The 'How-To')
Questioning	Asking: *"Why did the Spanish burn so many Mayan books (codices)?"*
Perspective	Viewing the Spanish arrival from both the Spanish and the Mayan point of view.
Analysis	Looking at a Mayan stela and identifying who is the "most important" person in the carving.
Synthesis	Using multiple pieces of evidence (pottery, bones, LiDAR) to build a picture of daily life.

Learning Objectives

Learning objectives for **The Maya** is a balance of **substantive knowledge** (the "what" of Mayan life) with **disciplinary skills** (the "how" of being a historian). These objectives should encourage pupils to move beyond just facts and start questioning the evidence. **Learning objectives,** mapped to the National Curriculum:

1. Chronology and Time
LO: To place the Mayan civilisation on a world history timeline.
Success Criteria: I can identify the Pre-classic, Classic, and Post-classic periods.
I can compare what was happening in Mayan city-states with what was happening in Anglo-Saxon or Viking Britain.
LO: To understand the concept of a 'Golden Age' in the context of the Mayan Classic Period.
Success Criteria: I can identify the years 250AD to 900AD as a time of great achievement and explain why.

2. Historical Enquiry and Evidence
LO: To investigate Mayan daily life using a range of primary and secondary sources.
Success Criteria: I can use artefacts, like pottery and stelae, to make deductions about what people wore and ate.
I can explain the difference between a physical artefact and a historian's reconstruction.
LO: To understand how the deciphering of Mayan glyphs changed our view of their history.
Success Criteria: I can explain that historians once thought **The Maya** were entirely peaceful until they learned to read their writing, which revealed stories of war and conquest.

3. Society and Achievements
LO: To describe the social hierarchy of a Mayan city-state.
Success Criteria: I can explain the roles of the *Ajaw* (King), nobles, priests, and farmers.

I can explain how power was kept within certain families.
LO: To identify and explain the significance of Mayan innovations.
Success Criteria: I can describe their achievements in mathematics (the number zero), astronomy (calendars), and architecture (step pyramids).

4. Continuity and Change
LO: To analyse the causes and consequences of the Mayan 'Collapse'.
Success Criteria: I can discuss different theories for why cities were abandoned, such as drought, warfare, or deforestation.
I can explain that the people did not disappear, but moved to new areas.
LO: To compare Maya culture with another civilisation I have studied.
Success Criteria: I can identify similarities and differences between Mayan beliefs and those of the Ancient Egyptians or Romans (e.g., pyramids, many gods).

5. Historical Interpretation
LO: To recognise that there are different interpretations of the Spanish conquest.
Success Criteria: I can explain how a Spanish soldier might describe the conquest compared to how a Mayan person might describe it.
LO: To explain why so little Mayan writing survives today.
Success Criteria: I can explain the role of the Spanish friars in burning Mayan codices and why this makes the historian's job more difficult.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 History framed around the non-European society study **'The Maya c. AD 900'**. This unit connects core National Curriculum History strands—**Chronology & Change**, **Societal Structure & Everyday Life**, **Deities, Beliefs & Rituals**, **Inventions, Writing & Mathematics**, and **Historical Collapse & Continuity**—with ancient Mesoamerican civilisations. It balances **substantive knowledge** (timelines, social hierarchies, city-state politics, codices, vigesimal maths, religious rituals, and environmental collapse theories) with **disciplinary knowledge** ("Thinking & Acting Like a Historian"—analysing primary archaeological artefacts, evaluating historical interpretations, examining cause and consequence, detecting bias in Spanish conquest accounts, and assessing historical significance).

Unit Title: City-States of the Jungle: Power, Belief, and Legacy of the Maya
Duration: 6 Weeks (Approx. 1–2 hours per week)
Theme: Mesoamerican Chronology, City-State Warfare, Hieroglyphic Codices, Sacred Rituals, and the Mysterious "Collapse."
Historical Contexts:
Chronological Placement: Pre-Classic, Classic (c. AD 250–900 peak flourish), and Post-Classic periods; contrast with Anglo-Saxon & Viking Britain.
Key Archaeological Sites: **Tikal**, **Palenque**, **Chichen Itza**, **Copán**, and **Calakmul**.
Key Figures & Sources: K'inich Janaab' Pakal (Pakal the Great), Diego de Landa's accounts, lintels of Yaxchilán, and the Dresden Codex.
Key History Pillars
Substantive Knowledge:
Chronology: Placing the Maya on a world timeline alongside British history (Stone Age to Vikings); understanding the Classic Period zenith c. AD 900.
Power & Society: Divine kingship (*K'uhul Ajaw*), social pyramids (nobles, priests, scribes, artisans, farmers, slaves), and competitive city-states.

Culture & Innovation: Hieroglyphic script, folding screenfold codices, base-20 place value mathematics including zero, and the Pok-a-Tok ballgame.
Beliefs: Polytheism, bloodletting, the underworld (*Xibalba*), and cosmic alignment in architecture.
Disciplinary Knowledge ('Thinking Like a Historian'):
Historical Evidence & Artefact Analysis: **Extracting** historical inferences from primary archaeological sources (stone lintels, painted pottery, stelae).
Cause & Consequence: Investigating multi-causal explanations for the abandonment of southern Classic city-states (drought, overpopulation, warfare).
Similarity & Difference: Comparing ancient Maya daily life and social structures with contemporary Early Medieval Anglo-Saxon/Viking Britain.
Historical Interpretations: Evaluating how views of the Maya have shifted from "peaceful astronomers" to dynamic, warring city-states.

Weekly Progression Scheme
Week 1: Parallel Worlds – Maya Chronology & World Context
History Strand: Chronological Understanding & World History.
Substantive Knowledge:
LKS2: Timeline of Maya periods (Pre-Classic, Classic, Post-Classic); placing c. AD 900 alongside Anglo-Saxon Britain; identifying Mesoamerica on a world map.
UKS2: Comparative timelines; synchronised global developments c. AD 900 (Maya Golden Age, Viking invasions in Britain, Islamic Golden Age in Baghdad); understanding city-state organisation vs. unified kingdoms.
Disciplinary Knowledge:
Chronological Inquiry: Questioning why the Maya civilisation is studied at "c. AD 900" and comparing its technological achievements with concurrent European societies.
Practical History Activity:
LKS2 (Y3/4): *Dual Time-Line Construction.* Pupils build parallel physical timelines comparing Maya events (e.g., Tikal temple building) with British history (e.g., Alfred the Great, Viking raids).
UKS2 (Y5/6): *Global Synchronous Inquiry.* Pupils analyse historical maps and timelines c. AD 900, writing a comparative entry explaining how daily life in Tikal differed from life in Anglo-Saxon Norfolk.

Week 2: Kings, Scribes, and Farmers – Maya Social Hierarchy
History Strand: Societal Structure, Power & Everyday Life.
Substantive Knowledge:
LKS2: Maya social pyramid (*K'uhul Ajaw* at the top, nobles/priests, scribes, craftsmen, peasant farmers); roles and responsibilities within a city-state.
UKS2: Divine kingship legitimisation; hereditary power; division of labour; comparing peasant obligations (tribute, corvée labour on pyramids) with Anglo-Saxon feudal structures.
Disciplinary Knowledge:
Similarity & Difference: Analysing how social class dictated housing, clothing, food, and burial practices across different levels of Maya society.
Practical History Activity:
LKS2 (Y3/4): *Living Social Pyramid.* Pupils analyse primary pottery drawings to reconstruct roles in Maya society, sorting artefacts into categories belonging to peasants vs. royals.
UKS2 (Y5/6): *A Day in the Life Comparison.* Pupils research primary source evidence to write contrasting diary entries from the perspectives of a peasant *milpa* farmer and a royal scribe during Pakal's reign in Palenque.

Week 3: Whispers in Stone – Artefacts, Scribes & Codices
History Strand: Inventions, Communication & Primary Sources.
Substantive Knowledge:
LKS2: Maya hieroglyphic writing; bark-paper codices (Dresden Codex); stone stelae as propaganda monuments recording royal births, marriages, and victories.
UKS2: Decipherment history (Yuri Knorosov and Tatiana Proskouriakoff); phonetic vs. ideographic glyphs; the destruction of codices by Bishop Diego de Landa in 1562 and its impact on historical evidence.
Disciplinary Knowledge:
Historical Evidence & Bias: Investigating how bias and destruction alter our modern understanding of ancient cultures.
Practical History Activity:
LKS2 (Y3/4): *Artefact Detective: Stela Analysis.* Pupils examine photographs of Copán stelae, inferring the power and status of rulers by decoding symbolic items (headdresses, sceptres, captive figures).
UKS2 (Y5/6): *The Lost Codices Case Study.* Pupils evaluate primary accounts of the 1562 burning of Maya codices, debating the ethics of source destruction and writing an essay on how archaeologists rebuilt Maya history without surviving books.

Week 4: Blood, Balls, and Gods – Religion, Cosmology & Rituals
History Strand: Religious Beliefs, Worldview & Cultural Practices.
Substantive Knowledge:
LKS2: Polytheistic gods (Itzamna, Chaac, Kinich Ahau); the Hero Twins myth (*Popol Vuh*); Pok-a-Tok ritual ballgame.
UKS2: Sacred cosmology (13 heavens, 9 levels of *Xibalba* underworld); the ritual necessity of bloodletting and sacrifice to maintain cosmic balance; solar alignment in temple architecture (*El Castillo* shadow serpent).
Disciplinary Knowledge:
Historical Interpretation: Challenge modern sensationalism surrounding sacrifice by examining Maya rituals through the lens of ancient cosmological beliefs.
Practical History Activity:
LKS2 (Y3/4): *Popol Vuh Storytelling & Pok-a-Tok.* Pupils read extracts of the Hero Twins story, mapping how the rules and stakes of the Pok-a-Tok game reflected spiritual battles between life and the underworld.
UKS2 (Y5/6): *Architectural Astronomy Inquiry.* Pupils investigate how Maya architects engineered Chichen Itza's pyramids to track equinoxes, writing a historical explanation of how astronomy reinforced royal religious power.

Week 5: The Great Mystery – The Classic Maya 'Collapse'
History Strand: Historical Causation & Decline.
Substantive Knowledge:
LKS2: The abandonment of southern lowland cities (Tikal, Palenque) around AD 800–900; shift of population to northern Post-Classic sites (Chichen Itza, Mayapán).
UKS2: Multi-causal factors for the Classic decline: megadroughts, severe deforestation, overpopulation, soil depletion, and escalating endemic warfare between rival city-states (Tikal vs. Calakmul).
Disciplinary Knowledge:
Cause & Consequence: Weighing multiple interconnected historical causes to evaluate which factors were primary vs. secondary triggers for urban abandonment.
Practical History Activity:
LKS2 (Y3/4): *Mystery of the Abandoned Cities.* Pupils act as archaeological detectives, sifting through "clue cards" (drought sediment layers, broken pottery, overgrown temples) to group reasons why people left Tikal.

UKS2 (Y5/6): *Causal Matrix Debate.* Pupils rank environmental, political, and social factors in the Classic Maya decline, holding a historical courtroom debate to argue which cause played the decisive role.

Week 6: Living Heritage – Maya Continuity & Modern Identity
History Strand: Historical Continuity, Heritage & Synthesis.
Substantive Knowledge:
LKS2: Misconception that "the Maya disappeared"; survival of over 6 million Indigenous Maya people in Mesoamerica today; preservation of languages, weaving traditions, and agriculture.
UKS2: Impact of the 16th-century Spanish Conquest; resistance and adaptation; modern Maya rights movements; UNESCO preservation of ancient archaeological heritage.
Disciplinary Knowledge:
Continuity & Change: Evaluating how cultural practices endure across centuries despite political collapse and foreign conquest.
Practical History Conference:
LKS2 & UKS2: *The "Voices of the Maya: Past & Present" Conference.*
Station 1: *The Archaeology Lab:* Presenting evidence-based reports on primary artefacts (stelae, pottery, glyphs).
Station 2: *The Cause & Effect Board:* Displaying multi-causal flowcharts explaining the AD 900 transition.
Station 3: *Living Culture Gallery:* Comparing ancient Maya customs with modern Guatemalan and Mexican Indigenous traditions.
Plenary: Pupils write a synthesis article titled: *"Why the Maya Never Disappeared: A Story of Survival and Resilience."*

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Places the Maya on a timeline but struggles to compare dates with British history. • Identifies king vs. farmer but struggles to describe middle roles like scribes. • Recalls god names but cannot explain why rituals were performed. • States that the Maya left cities but cites only one simple reason (e.g., war).	• Accurately places Maya c. AD 900 on a timeline alongside Anglo-Saxon Britain. • Describes the Maya social hierarchy and explains different roles in daily life. • Uses primary artefacts (pottery, stelae) to make simple inferences about beliefs and Pok-a-Tok. • Groups multiple reasons (drought, food shortages) for the abandonment of southern cities.	• Explains clearly how Maya achievements in AD 900 contrasted with life in Early Medieval Britain. • Analyses how artefact evidence reveals differences between royal and peasant life. • Connects cosmological beliefs directly to architectural design and ritual practices. • Evaluates how environmental changes interacted with human actions to cause city abandonments.
Upper Key Stage 2	• Builds timelines but struggles to synchronise global events c. AD 900	• Constructs comparative global timelines c. AD 900 and analyses city-state	• Synthesises political, environmental, and social evidence to draw

(Years 5 & 6)	accurately. • Identifies Maya hieroglyphs but cannot explain how historical sources were lost. • Describes sacrifices sensationalistically without placing them in religious context. • Lists collapse causes without categorising or showing connections between them.	political structures. • Evaluates the loss of primary sources (Diego de Landa) and explains decipherment methods. • Explains complex religious concepts (*Xibalba*, bloodletting) within cosmic balance frameworks. • Weighs multi-causal evidence (drought, warfare, deforestation) to form a reasoned argument on the AD 900 collapse.	sophisticated cross-cultural comparisons. • Critically analyses historical bias and limitations across both ancient stelae and Spanish colonial accounts. • Articulates how architectural engineering served as both religious expression and political propaganda. • Evaluates historical continuity, demonstrating clearly how modern Maya culture refutes the myth of total extinction.

Other Information, Ideas and Resources

Other possible lesson plan overview

Week	Focus	Learning Objective
1	**Chronology**	To place **The Maya** in time and locate their region (Mesoamerica).
2	**Social Structure**	To investigate the power of the 'God-Kings' and the social pyramid.
3	**Daily Life**	To use artefacts to reconstruct a day in the life of a Mayan farmer.
4	**Innovations**	To explore Mayan writing, maths, and their 365-day calendar.
5	**Religion**	To understand Mayan beliefs, including the ball game and the underworld.
6	**The Mystery**	To evaluate the different theories behind the 'Classic Collapse'.

http://www.ducksters.com/history/maya/maya_civilisation_timeline.php
http://www.theschoolrun.com/homework-help/the-mayans
https://www.chichenitza.com/
https://maya.nmai.si.edu/glossary
https://www.nationalgeographic.com/culture/2019/03/maya-ritual-balamku-cave-stuns-archaeologists/
https://www.telegraph.co.uk/news/2018/02/20/ancient-mayan-bones-uncovered-mexico-worlds-largest-underwater/
https://www.bbc.co.uk/bitesize/topics/zq6svcw/year/z63tt39
https://www.bbc.co.uk/bitesize/topics/zq6svcw/year/zhgppg8

Considerations for Implementation

'The Silent Evidence'
A great way to hit the high-level **disciplinary** objectives is to ask pupils: *"If all our paper books were burned today, what would people in 1,000 years know about us just from our stone buildings?"* This helps them understand why our knowledge of **The Maya** is so heavily focused on Kings and Temples rather than ordinary people.

Modern Foreign Languages

Substantive Knowledge

In MFL, **substantive knowledge** focuses on the vocabulary, grammatical structures, and cultural facts that allow pupils to talk about **The Maya** while developing their fluency in a second language (typically Spanish, as it is the official language of the Mayan region today). It also includes the linguistic history of how Mayan words have entered the English language.

1. Vocabulary: The Maya World in Spanish
To discuss the theme, pupils need a "word bank" of nouns, adjectives, and verbs.

Key Nouns: *La pirámide* (pyramid), *el templo* (temple), *la selva* (jungle), *el maíz* (maize), *el chocolate* (chocolate), *el rey* (king).
Adjectives of Status and Description: *Grande* (big), *antiguo* (ancient), *verde* (green - for jade/jungle), *oro* (gold).
Action Verbs: *Comer* (to eat), *beber* (to drink), *construir* (to build), *vivir* (to live).

2. Linguistic History: Loanwords
Substantive knowledge includes identifying words that originated in the indigenous languages of Mesoamerica (Mayan and Nahuatl) and travelled through Spanish into English.
Chocolate: From the Mayan *chokola'j* ("to drink chocolate together").
Cacao: The bean used for chocolate.
Huracán: (Hurricane) From the Mayan god *Huracán*, the god of wind and storms.
Tiburon: (Shark) Believed by some linguists to be a Mayan loanword (*xoc*).

3. Grammatical Structures
Pupils use '**The Maya'** learning theme to anchor their understanding of how a foreign language is built.

Gender and Number: Understanding that in Spanish, *la selva* is feminine and *el templo* is masculine.
Sentence Construction: Learning how to flip the English word order for adjectives (e.g., "The green jade" becomes *el jade verde*).
High-Frequency Verb Phrases:
Los Mayas vivían en... (The Maya lived in...)
Ellos comían maíz. (They ate maize.)
¿Dónde está Chichén Itzá? (Where is Chichén Itzá?)

4. Cultural Knowledge: Modern Maya
A vital part of MFL **substantive knowledge** is knowing that the language and culture are alive.

The Languages today: Knowing that while Spanish is the national language, there are **31 different Mayan languages** still spoken today (such as K'iche' and Yucatec).
Bilingualism: Understanding that many children in Guatemala and Mexico grow up speaking both a Mayan language at home and Spanish at school.
The Calendar names: Knowing the Spanish names for the days and months to compare them with the Mayan solar calendar names.

Core Knowledge Checklist

Category	Spanish/Mayan Fact	English Meaning
Place	*Mesoamérica*	Central America (the Mayan region).
Nature	*El Jaguar*	The Jaguar (a sacred animal).
Food	*Las tortillas de maíz*	Maize tortillas (the staple diet).
Number	*Cero*	Zero (the Maya were pioneers of this).

'Inter-disciplinary Substantive Knowledge'
Help pupils see the link between **History** and **MFL** by explaining that the Spanish wrote down what they saw in the 1500s. Therefore, the Spanish words we use for Mayan objects (like *estela* for a stone monument) are historical evidence in themselves.

Disciplinary Knowledge

In Modern Foreign Languages, **disciplinary knowledge** is about the *mechanics* of language—understanding how language works as a system and how to communicate within it. When applied to the Mayan learning theme, this is often delivered through **Spanish**, as it is the dominant language of the region today, or through a linguistic comparison between English, Spanish, and the ancient Mayan **logograms**.

1. Linguistic Awareness: Deciphering Systems
This involves the skill of looking at a language as a code to be broken, just as archaeologists did with Mayan glyphs.

Pattern Seeking: Comparing the structure of Mayan writing (where one symbol can represent a whole word or a single sound) with the alphabetic systems of English and Spanish.
Etymology (Word Origins): Investigating "loanwords"—words we use in English today that originated in the indigenous Maya or Nahuatl languages (e.g., *chocolate*, *cocoa*, *tomato*, *shark*).
Sound-Symbol Correspondence: Exploring how the Spanish alphabet is used to phonetically spell Mayan names (like *Chichén Itzá*), noting the use of accents to change stress.

2. Intercultural Understanding
A core **disciplinary** pillar of MFL is understanding the relationship between language and identity.

Language Evolution: Understanding that **Mayan** is not a dead language; it has evolved into over 30 living Mayan languages spoken by millions today.
Multilingualism: Recognising that many people in Mesoamerica are bilingual, speaking both an indigenous

language (like K ' iche ') and Spanish.
Cultural Context: Learning how greetings and polite forms in Spanish reflect the social values of modern-day Mayan communities.

3. Communication and Grammar
Using **The Maya** learning theme as a "hook" to practice the core grammatical **disciplinary skills** of the KS2 curriculum.

Noun Gender and Adjectives: Describing Mayan artefacts or gods using Spanish gender rules (e.g., *la pirámide alta* vs *el templo viejo*).
Verbal Conjugation: Using first and third-person verbs to describe daily routines in a Mayan village (e.g., "I eat maize" / "He builds a temple").
Translation Skills: The **disciplinary** act of moving meaning from one language to another, such as translating a Spanish description of a Mayan market back into English.

4. Oracy and Phonology
The "music" of the language.

Phonetic Precision: Practicing the specific "glottal" sounds found in Mayan languages (often represented in writing by an apostrophe, like *K'atun*), which are very different from English phonemes.
Authentic Listening: Listening to modern Mayan speakers to identify the "rhythm" of the language compared to Spanish and English.
Disciplinary Skills Progression Table

MFL Strand	Disciplinary Application (The Maya Learning Theme)
Listening	Identifying Spanish cognates (words that sound similar) in a story about **The Maya**.
Speaking	Presenting a short "tour" of a Mayan city using Spanish directional vocabulary.
Reading	Matching Spanish captions to images of Mayan gods or daily activities.
Writing	Writing a simple "Codex" entry using a mix of Spanish sentences and Mayan-inspired symbols.

Key Vocabulary for MFL
Cognate: A word that looks/sounds similar in two languages (e.g., *civilización* and *civilisation*).
Phoneme: The smallest unit of sound in a language.
Syntax: The arrangement of words to create well-formed sentences.

Learning Objectives

In Key Stage 2 MFL, **'The Maya'** Learning theme is typically explored through **Spanish**, as it is the primary language spoken in the regions where the Mayan civilisation flourished. These **learning objectives** focus on the transition from basic vocabulary to structured communication and cultural comparison. **Learning objectives** categorised by the core MFL strands:

1. Listening and Speaking (Oracy)
LO: To recognise and repeat key Spanish vocabulary related to the Mayan environment.

Success Criteria: I can correctly pronounce nouns like *la selva* (jungle), *la pirámide* (pyramid), and *el jaguar*. I can identify these words when I hear them in a short story.

LO: To ask and answer simple questions about Mayan life in Spanish.

Success Criteria: I can ask *"¿Qué comen los Mayas?"* (What do the Maya eat?) and respond with *"Comen maíz"* (They eat maize).

LO: To follow instructions in Spanish to play a version of a Mayan game.

Success Criteria: I can respond to physical commands like *salta* (jump), *corre* (run), or *lanza la pelota* (throw the ball) during a "Pok-a-Tok " PE integration lesson.

2. Reading and Writing (Literacy)

LO: To use a Spanish-English dictionary to find words related to Mayan artefacts.

Success Criteria: I can look up words like *escultura* (sculpture) or *joyería* (jewellery).
I can identify the gender (m or f) of the word.

LO: To read and understand a short text in Spanish about a Maya city.

Success Criteria: I can pick out cognates (words that look similar in English and Spanish) such as *civilización*, *templo*, and *calendario* to help me decode the meaning.

LO: To write a simple description of a Mayan ruler or god using adjectives.

Success Criteria: I can apply the rule that adjectives usually come after the noun (e.g., *el rey poderoso* – the powerful king).

3. Linguistic and Cultural Awareness

LO: To identify the origin of common English 'loanwords' from the Mayan world.

Success Criteria: I can explain that words like *chocolate*, *cocoa*, and *hurricane* have their roots in indigenous Mesoamerican languages and travelled through Spanish to reach us.

LO: To compare the Spanish and Mayan counting systems.

Success Criteria: I can count to twenty in Spanish (*uno* to *veinte*) and compare these "Base-10" words to the "Base-20" visual symbols used by **The Maya**.

LO: To recognise that the Mayan culture is 'alive' through language.

Success Criteria: I can identify that millions of people today speak both Spanish and a Mayan language (like Yucatec or K ' iche ').

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Modern Foreign Languages (Spanish) framed around the cultural and historical learning theme **'The Maya'**. Because modern Maya communities reside predominantly in Spanish-speaking countries (Mexico, Guatemala, Honduras, El Salvador), Spanish provides the natural linguistic vehicle. This unit connects core National Curriculum MFL strands—**Phonetics & Pronunciation**, **Vocabulary & Grammar Structures**, **Oracy & Conversation**, **Literacy & Reading Comprehension**, and **Intercultural Understanding**—with Mesoamerican geography, daily life, colour symbolism, indigenous loanwords, and rainforest wildlife. It balances **substantive knowledge** (Spanish phonics, high-frequency verbs (*ser, estar, tener, gustar*), noun gender/pluralisation, adjective agreement, positional prepositions) with **disciplinary knowledge** ("Thinking & Acting Like a Linguist"—etymological analysis of Indigenous Maya/Nahuatl loanwords in Spanish, decoding unfamiliar texts using cognates/context clues, code-switching mechanics, and evaluating how language reflects cultural worldviews).

Unit Title: Voces de la Selva: Spanish Language, Maya Culture, and Indigenous Heritage
Duration: 6 Weeks (Approx. 1 hour per week)
Theme: Spanish Language Acquisition through Mesoamerican Geography, Maya Colours/Art, Rainforest

Animals, Foods of the Americas, and Modern Maya Culture.

Linguistic & Cultural Contexts:

MFL Language: Spanish phonics (*j, ll, ñ, z, rolling r*), baseline grammar (gender, agreement, verb conjugations), target language questioning, and descriptive writing.

Maya & Mesoamerican Connections: Spanish as the lingua franca of modern Maya regions; indigenous loanwords exported to Spanish and English (*chocolate, aguacate, tomate, jaguar*); colours in sacred Maya art; Central American animal habitats; traditional market trading.

Key MFL Pillars

Substantive Knowledge:

Phonetics: Spanish sound-spelling correspondences: **J** (*jaguar/hoja*), **LL** (*lluvia/servilla*), **Ñ** (*montaña*), **Z/C** (*maíz/quetzal*), silent **H** (*historia*), trilled **RR** (*pirámide*).

Vocabulary: Geographic terms, colours/shapes, rainforest animals, traditional foods/spices, numbers 1-20 (LKS2) / 1-100 (UKS2), days of the week, weather phrases.

Grammar: Indefinite/definite articles (*un/una, el/la/los/las*), adjective position and agreement (*un jaguar amarillo, unas pirámides altas*), high-frequency verbs: *es/está, tiene, hay, me gusta/prefiero.*

Disciplinary Knowledge ('Thinking Like a Linguist'):

Etymology & Language Evolution: Tracing how ancient Mesoamerican indigenous terms entered modern Spanish and transformed global English.

Decoding & Contextual Inferences: Using cognates, structural patterns, and visual scaffolding to decipher authentic target-language texts.

Intercultural Competence: Recognising Spanish as a global language shaped by centuries of indigenous contact, trading, and cultural synthesis.

Weekly Progression Scheme

Week 1: ¿Dónde viven los mayas? – Geography, Phonics & Countries

MFL Strand: Phonetics, Listening & Locational Vocabulary.

Substantive Knowledge:

LKS2: Spanish phonics focus: **J** (*joven/jaguar*), **Z/C** (*centro/azul*); naming Central American countries in Spanish (*México, Guatemala, Belice, Honduras*); phrase: *¿Dónde está…? / Está en…*

UKS2: Spanish phonics focus: **G/J** and stress rules; compass points (*el norte, el sur, el este, el oeste*); complex locational sentences using *está cerca de / está al sur de.*

Disciplinary Knowledge:

Phonetic Precision: Applying Spanish sound-spelling rules to pronounce unfamiliar geographic proper nouns accurately.

Practical MFL Activity:

LKS2 (Y3/4): *Map Phonics Hunt.* Pupils listen to target language descriptions of Maya regions and locate countries on a map, chorally practicing the soft Spanish **J** and **Z** sounds (*México está en Centroamérica*).

UKS2 (Y5/6): *Geographic Weather Report.* Pupils construct spoken sentences describing where ancient Maya cities are located and their typical weather (*Tikal está en Guatemala; en la selva hace mucho calor y hay lluvia*).

Week 2: Colores Sagrados – Colours, Shapes & Codex Descriptions

MFL Strand: Grammar (Adjective Agreement) & Colour Vocabulary.

Substantive Knowledge:

LKS2: Sacred colours (*rojo, azul, amarillo, verde, negro, blanco*); basic shapes (*el círculo, el triángulo*); placing adjectives **after** nouns (*un glifo azul*).

UKS2: Full gender and number agreement rules (*masculine/feminine/plural*: *unos glifos amarillos / una pirámide roja*); key verbs: *es* (permanent characteristic) vs *está* (state/location).
Disciplinary Knowledge:
Grammatical Patterning: Identifying how Spanish adjective endings change based on noun gender and quantity.
Practical MFL Activity:
LKS2 (Y3/4): *Codex Colour Matching.* Pupils describe Maya glyph flashcards using simple noun + colour phrases (*un templo grande, una serpiente verde*), ensuring the adjective comes after the noun.
UKS2 (Y5/6): *Art Critic Descriptions.* Pupils write and speak descriptive sentences analysing a polychrome Maya artefact, applying correct gender and plural agreement (*Las vasijas son rojas y amarillas; el rey es alto*).

Week 3: Animales de la Selva – Animals & Verb Structures
MFL Strand: Oracy, Reading & Verb Conjugation (*Tener / Hay*).
Substantive Knowledge:
LKS2: Petén rainforest animal vocabulary (*el jaguar, el tucán, la serpiente, el mono, el tapir*); verb phrase *hay* (there is/are) and *tiene* (it has); phonics **RR** (*el perro/tierra*).
UKS2: Descriptive animal sentences incorporating physical traits (*tiene plumas verdes, tiene dientes afilados, es peligroso*); comparative structures (*el jaguar es más rápido que el tapir*).
Disciplinary Knowledge:
Decoding Unknown Words: Using cognates (*pájaro/pàjar, exótico, jungla*) and contextual cues to read a short natural history text in Spanish.
Practical MFL Activity:
LKS2 (Y3/4): *Jungle Audio Trail.* Pupils listen to animal descriptions in Spanish (*Es verde, tiene alas, vive en la selva: ¿qué es?*) and select the correct animal card (*¡Es el tucán!*).
UKS2 (Y5/6): *Rainforest Wildlife Guidebook.* Pupils write a short descriptive entry for a Petén animal guide in Spanish, using comparative phrases and body part vocabulary (*El jaguar es un mamífero amarillo con manchas negras*).

Week 4: Del Cacao al Chocolate – Foods, Etymology & Preferences
MFL Strand: Etymology, Food Vocabulary & Verb *Me gusta / Prefiero.*
Substantive Knowledge:
LKS2: Foods originating in Mesoamerica (*el chocolate, el maíz, el aguacate, el tomate, el chile*); expressing likes: *Me gusta el chocolate / No me gusta el chile.*
UKS2: Etymology of loanwords (Nahuatl/Maya → Spanish → English); expressing complex preferences: *Prefiero / Me chifla / Odio*; expressing reasons with *porque es dulce / picante / sabroso.*
Disciplinary Knowledge:
Linguistic History: Analysing how global languages adopt indigenous vocabulary for new flora, fauna, and foods during historical contact.
Practical MFL Activity:
LKS2 (Y3/4): *Tasting & Opinion Survey.* Pupils conduct a survey in the room asking classmates *¿Te gusta el chocolate/el aguacate?* and recording responses in Spanish (*Sí, me gusta / No, no me gusta*).
UKS2 (Y5/6): *Etymology Flowcharts & Recipe Cards.* Pupils chart how words like *xocolātl* became *chocolate*, then write a target-language recipe card for a traditional Maya cocoa drink using quantity vocabulary (*un poco de miel, mucho cacao*).

Week 5: El Mercado Tradicional – Numbers, Prices & Roleplay
MFL Strand: Transactional Oracy, Numbers & Currency.
Substantive Knowledge:
LKS2: Numbers 1-20; currency phrases (*¿Cuánto cuesta? / Cuesta… quetzales/pesos*); politeness conventions (*por favor, gracias, buenos días*).
UKS2: Numbers 1-100 (multiples of 10); transactional market dialogue (*Quisiera comprar…, ¿Tiene…? Es demasiado caro / Es barato*).
Disciplinary Knowledge:
Fluency under Transactional Pressure: Performing spontaneous target-language conversations in simulated real-world scenarios.

Practical MFL Activity:
LKS2 (Y3/4): *Guatemalan Market Roleplay.* Pupils roleplay as shoppers and vendors at a Chichicastenango market stall, buying fruits and textiles using single-digit prices (*¿Cuánto cuesta el maíz? Cuesta cinco pesos*).
UKS2 (Y5/6): *Advanced Market Negotiations.* Pupils engage in extended market dialogues, negotiating prices for modern Maya woven textiles (*huipiles*) and pottery using higher numbers and persuasive target language (*¡Es muy bonito pero cuesta ochenta pesos!*).

Week 6: Celebración de la Cultura Maya – Synthesis & Performance
MFL Strand: Spoken Performance, Reading Synthesis & Intercultural Assessment.
Substantive Knowledge:
LKS2/UKS2 Synthesis: Integrating phonics, descriptive grammar, preferences, and cultural facts into a spoken presentation about Maya life.
Disciplinary Knowledge:
Intercultural Reflection: Evaluating how learning Spanish unlocks access to both historical Mesoamerican history and contemporary Indigenous Latin American communities.
Practical Maya Spanish Festival:
LKS2 & UKS2: *La Feria Cultural Maya (The Maya Cultural Fair).*
Station 1: El Recital de la Selva: Pupils read aloud their descriptive animal riddles and poems with correct Spanish pronunciation and rhythm.
Station 2: La Tienda del Mercado: Live market roleplays demonstrating fluency in numbers, food vocabulary, and polite transactional dialogue.
Station 3: Guías Turísticos: UKS2 pupils act as Spanish-speaking tour guides, giving short presentations about 3D pyramid models or codex artwork (*Bienvenidos a Tikal; aquí hay una pirámide alta y antigua*).
Plenary: Pupils complete an intercultural reflection journal highlighting shared Spanish and English vocabulary of Mesoamerican origin.

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Pronounces Spanish vowels inconsistently, misinterpreting **J** and **Z** sounds. • Recalls colour words but	• Pronounces key Spanish phonics (**J, Z, LL**) accurately during choral reading. • Places colour and size	• Self-corrects pronunciation errors spontaneously using learned phonic rules. • Applies correct singular

	places adjectives before nouns (*un azul glifo*). • Identifies animal nouns but relies on English prompts during audio trails. • Expresses likes using single words (*sí/no*) rather than full phrases (*me gusta*).	adjectives correctly **after** nouns (*un templo alto*). • Identifies rainforest animals from spoken Spanish descriptions accurately. • Asks and answers questions about food preferences using *¿Te gusta...? / Me gusta...*	masculine/feminine article choices (*el/la, un/una*) consistently. • Writes short independent descriptive sentences about animals using correct word order. • Extends opinion statements using simple conjunctions (*me gusta el cacao porque es dulce*).
Upper Key Stage 2 *(Years 5 & 6)*	• Recalls numbers up to 20 but struggles with multiples of ten (30, 40, 50). • Uses adjectives but forgets gender/plural agreement changes (*las pirámides alto*). • Reads Spanish texts word-for-word without using cognate strategies. • Conducts market roleplay using memorised scripts with limited spontaneity.	• Uses numbers 1-100 fluently to state prices during transactional market roleplays. • Applies noun gender and plural adjective agreements accurately (*unas serpientes verdes*). • Decodes short unfamiliar Spanish texts about Maya history using cognates and context. • Formulates spontaneous questions and responses during market negotiation roleplays.	• Uses high-frequency numbers effortlessly in complex mental calculations and pricing dialogues. • Manipulates verb forms (*es/está, tiene, hay, prefiere*) flexibly to create original descriptive prose. • Synthesises complex target-language information from multiple sources to deliver tour guide speeches. • Explains etymological connections between Maya languages, Spanish, and English with linguistic precision.

Other Information, Ideas and Resources

Week	Focus	Learning Objective
1	**Geography**	To name the countries of the Mayan region in Spanish (*México, Guatemala...*).
2	**Nature**	To use Spanish colour words to describe the rainforest and jade jewellery.
3	**Food**	To express likes and dislikes regarding Mayan foods (*Me gusta el chocolate*).
4	**Animals**	To use "high-frequency" verbs to describe what a jaguar or quetzal bird does.
5	**Numbers**	To use Spanish numbers to calculate "Long Count" dates or trade goods.

6	**Performance**	To present a short "Postcard from Palenque" using the first-person singular.

Considerations for Implementation

The 'Detective' Approach

Encourage pupils to act as "linguistic archaeologists." When they see a Spanish sentence like *"La pirámide es muy antigua,"* ask them to find the clues that help them understand it without being told the translation. This builds the **disciplinary skill** of decoding unfamiliar languages.

Music

See also Charanga Music Scheme

Substantive Knowledge

When studying the learning theme, **'The Maya'** from a music perspective, the **substantive knowledge** is the "what"—the specific facts, names, and concepts that pupils need to anchor their understanding of Mayan music. In Key Stage 2, this is often categorised into instruments, sounds, and the specific roles music played in their society.

1. Instrument Families (Organology)

The Maya did not use string instruments (like guitars or violins). Their musical world was built entirely on **percussion** and **wind**.

Idiophones (Shakers/Hitting): Turtle shells played with deer antlers, wooden slits drums (*tun*), and various gourd rattles.
Aerophones (Wind): Ocarinas, clay flutes, and conch shell trumpets (*hub*).
Membranophones (Drums): Large upright drums made of hollowed logs and animal skins, known as *pax*.

2. The Soundscape and Pitch

Substantive knowledge includes the specific "flavour" of the music produced by these ancient materials.

Pentatonic Scales: Many Mayan wind instruments were tuned to five-note scales, similar to many other ancient civilisations.
Microtones: The understanding that Mayan flutes could produce "in-between" notes that don't exist on a modern piano.
Nature Mimicry: A core part of Mayan music was the imitation of bird calls (like the Quetzal), jaguar roars, and the sound of rain or wind.

3. Ritual and Social Roles

Pupils should know the specific occasions where music was mandatory.

The Mayan Ball Game: Music was played during the *Pok-a-Tok* games to heighten the tension and celebrate the winners.
Religious Ceremonies: Music was the "bridge" to the underworld (*Xibalba*). Specific deities, like the **Maize God**, were often associated with dance and music.
Status Symbols: Only high-ranking individuals or specialised "court musicians" were allowed to play certain elaborate instruments.

4. Architectural Acoustics

A fascinating "fact" of Mayan **substantive knowledge** is how they built music into their cities.

The Chichen Itza 'Chirp': If you clap at the base of the El Castillo pyramid, the echo returns as the sound of a Quetzal bird. This shows **The Maya** understood sound reflection and engineering.
Amphitheatre Effects: How plazas were designed so that a priest speaking or a musician playing at the top of a temple could be heard by thousands below.

Key Vocabulary Checklist
To master this learning theme, pupils should be able to define and use these terms:

Term	Definition
Huehuetl	A large, upright wooden drum (common in Mesoamerica).
Ocarina	A small, clay wind instrument, often shaped like an animal.
Ensemble	A group of musicians playing together (Mayan ensembles were often loud and percussive).
Glyph	**The Maya** writing system, which sometimes depicted musicians and instruments.

Disciplinary Knowledge

In the context of the KS2 History learning theme **'The Maya'**, **disciplinary knowledge** in Music focuses on how we understand, interpret, and reconstruct the musical world of a civilisation that left no written musical notation. It isn't just about playing an instrument; it's about acting like a **musicologist** or **archaeologist** to piece together the past.

1. Evidence and Reconstruction
Since there are no audio recordings or sheet music from 900 AD, **disciplinary knowledge** involves understanding **how we know what we know**.

Organology: Studying the physical remains of ancient instruments (clay flutes, turtle shell drums, rasps, and conch shells).
Iconography: Analysing Mayan murals (like those at Bonampak) and pottery to see who was playing music, in what context, and what the ensembles looked like.
Ethnomusicology: Looking at modern indigenous Mayan music in Central America to find "living echoes" of ancient rhythmic patterns or tonal preferences.

2. Cultural Context and Function
Disciplinary knowledge requires understanding that for **The Maya**, music was rarely "art for art's sake." It had specific **functions**:

Ritual and Sacred Space: How music was used to communicate with gods or ancestors.
Social Hierarchy: Identifying how different instruments signalled status (e.g., large trumpets used for royalty/war vs. clay whistles for commoners).
Warfare and Signal: Understanding the use of drums and shells to coordinate movement or intimidate enemies.

3. Musical Elements (The 'How')
Pupils apply musical concepts specifically through the lens of Mayan materials and environment:

Timbre (Sound Quality): Exploring the "earthy" sounds of clay, wood, bone, and skin.
Scale and Pitch: Understanding that Mayan flutes often used specific scales (like pentatonic or unique microtonal arrangements) that differ from the modern Western Major scale.
Texture: Analysing the use of "layers" in processions—combining steady percussion with soaring, improvisational wind melodies.

4. Composition and Performance
This involves the **creative application** of historical knowledge:

Authentic Intent: Composing a piece not just to "sound cool," but to serve a purpose, such as a rain ceremony for the god *Chaac*.
Graphic Notation: Since **The Maya** didn't use staves, pupils might develop their own symbols (inspired by glyphs) to represent sounds, which builds an understanding of how music can be preserved without a standard alphabet.

Summary Table: Disciplinary Skills

Skill	What the pupil does
Analysing	Looks at a vase painting and identifies the "instrumentation" of a Mayan ensemble.
Evaluating	Discusses why a clay flute might sound different from a modern metal flute.
Interpreting	Suggests why a certain rhythm might be used during a sacrifice or a ball game.
Creating	Uses natural materials to replicate the "soundscape" of a tropical rainforest city.

Note: A common misconception is that Mayan music was "primitive." **Disciplinary knowledge** corrects this by showing the acoustic complexity of their architecture (like the "chirp" echo at Chichen Itza) and the sophisticated craftsmanship of their wind instruments.

Learning Objectives

Learning objectives for a Mayan-themed Music unit should bridge the gap between historical inquiry and practical music-making. In the National Curriculum, these objectives focus on performing, composing, transcribing, and describing. **Learning objectives** categorised by musical skill:

1. Performance and Instrumental Skills
Objective: To play and perform in solo and ensemble contexts, using their voices and playing musical instruments with increasing accuracy, fluency, control, and expression.
Mayan Context: Pupils learn to play rhythmic patterns on percussion (tambourines or hand drums) to simulate a Mayan procession.
Objective: To use a range of "found" and natural materials to recreate the timbre of ancient Maya instruments.
Mayan Context: Using scrapers, shakers, or clay whistles to match the "earthy" soundscapes of the rainforest.

2. Composition and Improvisation

Objective: To improvise and compose music for a range of purposes using the interrelated dimensions of music.

Mayan Context: Pupils compose a "Rain Dance" for the god *Chaac*, using **dynamics** (getting louder as the storm approaches) and **tempo** (speeding up to represent falling rain).

Objective: To create a soundscape that represents a specific Mayan environment (e.g., a bustling marketplace in Tikal vs. a quiet ritual in a limestone cave).

Mayan Context: Selecting instruments that mimic the sounds of jaguars, birds, and wind.

3. Listening and Appraising (Critical Analysis)

Objective: To listen with attention to detail and recall sounds with increasing aural memory.

Mayan Context: Identifying specific instrument families (wind vs. percussion) within a recording of Mesoamerican-style music.

Objective: To appreciate and understand a wide range of high-quality live and recorded music drawn from different traditions and historical periods.

Mayan Context: Comparing a modern orchestral "fanfare" with a reconstructed Mayan "royal fanfare" using conch shells and log drums.

4. Notation and Structure

Objective: **To use and devise non-standard symbols (graphic notation) to represent sounds and structures.**

Mayan Context: Pupils design their own "musical glyphs" to write down a four-beat rhythm, inspired by the Mayan logosyllabic writing system.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Music framed around the historical and cultural learning theme **'The Maya'**. This unit connects core National Curriculum Music strands—**Listening & Musical Analysis**, **Interrelated Dimensions of Music** (tempo, dynamics, pitch, timbre, texture, structure, rhythm), **Vocal Performance & Chant**, **Instrumental Technique & Composition**, and **Graphic Notation & Score Reading**—with Mesoamerican acoustic archaeology, ceremonial rainforest soundscapes, clay flutes/ocarinas, and traditional percussion instruments. It balances **substantive knowledge** (ostinato patterns, pentatonic scales, call-and-response structures, timbre identification, syncopation, graphic notation symbols, layering textures) with **disciplinary knowledge** ("Thinking & Acting Like a Musician & Ethnomusicologist"—analysing sacred soundscapes, evaluating how acoustic choices evoke emotional/religious responses, composing for specific ceremonial functions, improvising within rhythmic constraints, and critiquing ensemble cohesion).

Unit Title: Sacred Sounds of Xibalba: Maya Instruments, Soundscapes, and Ceremonial Rhythms

Duration: 6 Weeks (Approx. 1 hour per week)

Theme: Mesoamerican Acoustic Archaeology, Rainforest Animal Soundscapes, Clay Ocarina Melodies, and Ceremonial Rhythm Ensembles.

Musical Contexts & Mayan Connections:

Ancient Mesoamerican Instrumentation: *Tunkul* (slit log drums), *Ayotl* (turtle shell drums struck with antlers), clay ocarinas/flutes, bone whistles, rasps (*tzicahuitzli*), and rainsticks.

Acoustic Archaeology: Sacred Maya pyramid echo acoustics (e.g., the quetzal bird echo response at Chichen Itza's *El Castillo* pyramid).

Vocal & Ceremonial Traditions: Sacred chants from the *Popol Vuh* creation myth, call-and-response vocal

structures, and ritual dance accompaniments.

Key Music Pillars

Substantive Knowledge:

Dimensions of Music: Timbre (woody, metallic, scraping, earthy, breathy), Dynamics (p, mp, mf, f, ff), Tempo (accelerando, ritardando), Texture (monophonic, polyphonic, layered ostinatos).

Rhythm & Pitch: Pentatonic melodic frameworks (D-E-F#-A-B), 4/4 and 3/4 metre, syncopated polyrhythms, pulse vs. rhythm.

Notation & Composition: Graphic scores using visual symbols for acoustic effects; traditional notation for simple rhythm grids.

Disciplinary Knowledge ('Thinking Like a Musician'):

Acoustic Analysis: Investigating how ancient architects engineered physical spaces to manipulate sound dynamics and timbre.

Expressive Intent: Selecting specific instrumental timbres to evoke natural environments or spiritual states.

Ensemble Musicianship: Maintaining independent rhythmic layers within a group performance without drifting in tempo.

Weekly Progression Scheme

Week 1: Voices of the Rainforest – Timbre & Soundscape Composition

Music Strand: Listening, Timbre & Graphic Notation.

Substantive Knowledge:

LKS2: Defining *timbre* (tone colour); classifying acoustic percussion instruments (shakers, scrapers, woods, skins); graphic notation symbols for sound length and pitch.

UKS2: Creating texture through layering (monophonic → polyphonic); using dynamics (p to f) and tempo changes (*accelerando*) to build atmosphere; reading graphic scores.

Disciplinary Knowledge:

Acoustic Abstraction: Translating physical rainforest sights and animal calls into non-standard musical notation and instrumental timbres.

Practical Music Activity:

LKS2 (Y3/4): *Petén Soundscape.* Pupils use classroom percussion (guiros, cabasas, rainsticks, woodblocks) to simulate Petén rainforest sounds (wind, rainfall, howler monkeys, jaguars), recording their composition using an icon-based graphic score.

UKS2 (Y5/6): *Layered Dawn Soundscape.* Pupils compose a multi-layered graphic score representing a Maya rainforest from dawn to dusk, incorporating controlled dynamic swells (crescendo / decrescendo) and polyphonic instrumental entries.

Week 2: Echoes of Chichen Itza – Acoustics & Vocal Chants

Music Strand: Singing, Dynamics & Acoustic Analysis.

Substantive Knowledge:

LKS2: Pitch control in singing; call-and-response vocal structures; maintaining a steady pulse while chanting; echo dynamics (f vs. p).

UKS2: Modal pentatonic vocal melodies; 2-part round singing; understanding acoustic reverberation and echo dynamics inspired by the quetzal bird echo at *El Castillo.*

Disciplinary Knowledge:

Ethnomusicology Inquiry: Exploring how vocal chants were used to communicate across large temple plazas and reinforce sacred rituals.

Practical Music Activity:

LKS2 (Y3/4): *Call-and-Response Quetzal Chant.* Pupils learn a traditional-style Maya vocal chant about the

Quetzal bird, practicing clear diction, steady pulse, and dynamic contrast between leader and response group.
UKS2 (Y5/6): *Acoustic Echo Polyphony.* Pupils perform a 2-part vocal chant based on the *Popol Vuh* myth, applying echo effects (*forte* leader followed by *piano* repeating echo group) to simulate temple plaza acoustics.

Week 3: The Tunkul Pulse – Ostinatos & Rhythmic Layers
Music Strand: Instrumental Performance, Rhythm & Metres.
Substantive Knowledge:
LKS2: Defining an *ostinato* (repeating rhythmic pattern); 4/4 time signature; playing on beat 1 vs. off-beats using log drums/woodblocks and scrapers.
UKS2: Syncopated polyrhythms; playing 3/4 against 4/4 metre; combining 3 distinct rhythmic ostinatos using log drums, turtle shells (*ayotl*), and rasps.
Disciplinary Knowledge:
Rhythmic Independence: Maintaining a strict individual rhythmic pattern against competing cross-rhythms within an ensemble.
Practical Music Activity:
LKS2 (Y3/4): *Two-Layer Log Drum Ostinato.* Pupils perform a 2-part rhythm score using woodblocks (*Tunkul*) and guiros (*Tzicahuitzli*), maintaining a steady 4-beat pulse alongside a repeating syncopated pattern.
UKS2 (Y5/6): *Polyrhythmic Pok-a-Tok Ensemble.* Pupils compose a 3-layer polyrhythmic piece simulating the energy of the Pok-a-Tok ballgame, layering fast triplet scrapers over steady log drum bass ostinatos.

Week 4: The Clay Whistle – Pentatonic Melodies & Improvisation
Music Strand: Pitch, Melody & Improvisation.
Substantive Knowledge:
LKS2: The 5-note pentatonic scale (D-E-F♯-A-B); pitch movement (stepwise vs. leap); playing short melodic motifs on tuned percussion (glockenspiels/xylophones) or recorders/ocarinas.
UKS2: Improvising within a pentatonic framework; phrase structure (question and answer phrases); ornamentation (trills and glissandos simulating clay bird whistles).
Disciplinary Knowledge:
Improvisational Choice: Creating spontaneous pentatonic melodies that match the emotional mood of a narrative story.

Practical Music Activity:
LKS2 (Y3/4): *Pentatonic Ocarina Motifs.* Pupils learn a 4-bar pentatonic melody on xylophones/recorders representing ancient clay ocarinas, practicing clean fingering/mallet technique.
UKS2 (Y5/6): *Hero Twins Improvised Solos.* Over a steady drone, pupils take turns improvising 8-bar "question and answer" solos on pentatonic instruments, using trills and glissandos to mimic bird whistles.

Week 5: The Ballgame Processional – Structural Composition & Notation
Music Strand: Composition, Notation & Structural Form.
Substantive Knowledge:
LKS2: Ternary form (A-B-A); combining vocal chants with instrumental percussion sections; notation using rhythm grids (1-e-&-a).
UKS2: Arch form (A-B-C-B-A); integrating graphic notation with formal rhythmic staff notation; managing

smooth transitions between dynamic sections.

Disciplinary Knowledge:

Structural Design: Organising disparate musical ideas into a coherent ceremonial performance piece with clear beginnings, climaxes, and endings.

Practical Music Activity:

LKS2 (Y3/4): *Processional Composition (A-B-A).* Pupils compose a 3-part processional piece: Section A (vocal chant), Section B (percussion ostinato), Section A (returning chant fading out).

UKS2 (Y5/6): *Sacred Temple Suite Composition.* Pupils design and write a complete score for a 4-part ceremonial suite using a combination of graphic symbols and traditional rhythmic notation grids.

Week 6: The Festival of the Sun – Performance, Curation & Evaluation

Music Strand: Performance, Critique & Ethical Evaluation.

Substantive Knowledge:

LKS2/UKS2 Synthesis: Stage presence, ensemble coordination, timing precision, dynamic balance, and evaluating musical performances using formal terminology.

Disciplinary Knowledge:

Critical Appraisal: Critiquing ensemble performances constructively against criteria of dynamic balance, rhythmic precision, and expressive atmosphere.

Practical Maya Music Festival:

LKS2 & UKS2: *The "Echoes of the Maya" Concert.*

Performance 1: The Petén Rainforest Suite: Pupils perform atmospheric graphic score soundscapes using classroom percussion.

Performance 2: The Temple Plaza Chants: Performing multi-part vocal chants featuring echo dynamics and call-and-response structures.

Performance 3: The Ballgame Polyrhythm & Pentatonic Soloists: Performing complex layered rhythm ostinatos alongside improvised pentatonic ocarina solos.

Plenary Evaluation: Pupils complete a peer appraisal sheet evaluating performances using formal dimensions (*timbre, dynamics, texture, tempo, rhythm*).

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Plays percussion instruments loudly without controlling timbre choices. • Loses pulse during call-and-response vocal chants. • Plays isolated notes on xylophones rather than continuous pentatonic patterns. • Draws random pictures for graphic scores rather than symbolic musical	• Selects specific instrument timbres intentionally to match rainforest animal sounds. • Maintains a steady pulse during vocal chants and call-and-response routines. • Plays 4-note pentatonic phrases with correct mallet/fingering technique. • Creates clear graphic scores with distinct	• Modulates instrument dynamics subtly to build atmospheric crescendo effects. • Leads call-and-response chants confidently while keeping a rock-solid ensemble tempo. • Combines stepwise pitch movement and leap patterns into memorable pentatonic melodies.

	guides.	symbols for sound duration and pitch.	• Devises intuitive graphic scores that peers can read and perform accurately at first sight.
Upper Key Stage 2 *(Years 5 & 6)*	• Struggles to maintain an independent rhythm layer when playing against a second pattern. • Sings vocal rounds out of time, causing dynamic rushing. • Improvises on xylophones using non-pentatonic notes, creating tonal clashes. • Writes unstructured compositions without clear transitions between sections.	• Performs independent syncopated ostinatos accurately within a 3-layer polyrhythmic ensemble. • Sings 2-part vocal rounds with precise pitch, controlled echo dynamics, and steady tempo. • Improvises expressive 8-bar pentatonic solos incorporating trills and bird-call motifs. • Composes structured ternary (A-B-A) pieces combining graphic and grid notation.	• Holds complex cross-rhythms (3/4 against 4/4) effortlessly while leading an ensemble section. • Directs 2-part polyphonic singing with dynamic sensitivity, adjusting balance spontaneously. • Constructs sophisticated pentatonic solos with varied rhythmic phrasing and expressive dynamics. • Authors complex multi-section scores featuring seamless transitions and rich polyphonic textures.

Other Information, Ideas and Resources

Lesson	Learning Objective	Activity
1. The Soundscape	To identify how instruments represent nature.	Listen to rainforest sounds; match instruments (shakers = rain, whistles = birds).
2. The Ritual Rhythm	To maintain a steady pulse in an ensemble.	Learn a 4/4 "procession beat" using drums and turtle shells (or woodblocks).
3. Decoding the Murals	To interpret historical evidence for music-making.	Look at the Bonampak murals; identify which instruments were played by the elite.
4. The Rain Ceremony	To compose a piece with a clear structure.	Create a piece with an *Introduction* (wind), *Middle* (fast drums), and *Ending* (silence).

Mayan Music:
https://www.youtube.com/watch?v=cA0TC_Lznd4&safe=active
http://www.mayankids.com/mmkpeople/mkmusic.htm
https://www.mexicoloure.co.uk/maya/teachers/ancient-maya-music

Considerations for Implementation

PE

Substantive Knowledge

Substantive knowledge in PE for **'The Maya'** focuses on the concrete facts, rules, and physical techniques associated with Mayan physical culture—most notably the **Ball Game (Pok-a-Tok)** and the physical requirements of their lifestyle.

1. The Rules and Mechanics of *Pok-a-Tok*

To understand the game, pupils must know the specific "**substantive**" constraints that governed how **The Maya** played:

Body Part Restrictions: The fundamental rule that the ball could only be struck with the **hips, thighs, and elbows**. Using hands or feet was strictly forbidden.
The Equipment: The ball was made of solid, heavy **natural rubber** (sourced from the *Castilla elastica* tree). Because the ball was so heavy and hard, players wore protective gear called **yokes** (waist guards) and **manoplas** (hand/wrist guards).
Scoring: Points were scored by keeping the ball in motion and not letting it touch the ground. A rare, "instant-win" shot involved hitting the ball through a high, vertical stone hoop.

2. Mayan 'Warrior' Agility and Combat

Beyond the ball game, **substantive knowledge** covers the physical training and movement patterns of Mayan warriors and hunters.

Animal Mimicry: The Maya held the **Jaguar** in high regard. Movement patterns were modelled after the jaguar's low centre of gravity, explosive power, and stealthy "prowling" steps.
Archery and Throwing: Knowledge of the **Atlatl** (spear thrower), which required a specific rotational movement of the shoulder and arm to increase the force and distance of a projectile.
Steep Navigation: The physical fact that Mayan cities were built with incredibly steep stone steps, requiring specific leg strength and a steady "climbing" gait.

3. The Messenger System (Endurance)

Pupils should know how information travelled across the Mayan empire, which was a feat of physical endurance.

Long-Distance Running: The Maya did not use pack animals or wheeled vehicles for transport. All "post" was carried by **relay runners**.
Pacing: Knowledge of how to maintain a steady heart rate and "jogging" pace over uneven jungle terrain for long periods.

4. Ritual Dance and Posture

Physical Education also encompasses the "**substantive**" shapes and structures of Mayan ceremonial dance.

Angular Postures: Unlike the fluid lines of ballet, Mayan dance movements (as seen in murals) were often

angular, with knees bent and feet turned out, creating a grounded, powerful silhouette.
Rhythmic Coordination: The knowledge that dance was inseparable from music; movements were often performed in synchronisation with a 4/4 drum beat.

Key Vocabulary Checklist

Term	Definition
Pok-a-Tok	The Mayan name for their traditional ball game.
I-Shaped Court	The specific architectural layout of the ball court.
Yoke	A heavy protective belt worn by ball players made of leather or stone.
Atlatl	A tool used to throw spears with greater speed and force.
Endurance	The ability to keep moving for long periods (used by messengers).

Disciplinary Knowledge

In PE, **disciplinary knowledge** for **'The Maya'** learning theme shifts the focus from just "playing a game" to understanding the **mechanics, strategy, and cultural physical literacy** of the civilisation. It's about pupils learning to think like a coach or an athlete from 900 AD.

1. Tactical Awareness: The Ball Game (*Pok-a-Tok*)

Disciplinary knowledge involves understanding the constraints and strategies of the ancient Mayan ball game, which was radically different from modern football or basketball.

Body Mechanics: Learning the "forbidden zones"—traditionally, players could not use their hands or feet. Pupils must understand how to use hips, elbows, and knees to propel a ball.
Space and Flow: Understanding the layout of a "Ball Court" (I-shaped) and how to maintain possession within those specific architectural boundaries.
Strategic Intent: Recognising that the game was often a ritualised battle; pupils learn how to defend a "goal" (the stone hoop) using limited body parts.

2. Physical Conditioning and Agility

This involves understanding how the Mayan people moved through their specific environment (the jungle and steep stone cities).

Balance and Elevation: Developing the core strength and balance required for navigating steep limestone structures and uneven terrain.
Endurance: The **disciplinary** understanding of "the messenger"—how **The Maya** used long-distance runners to communicate between city-states like Tikal and Palenque.
Mimicry in Movement: The Maya observed animal movements (the jaguar, the eagle) for both dance and combat. Pupils apply this by analysing and replicating animalistic agility and "stealth" movements.

3. Performance and Ritual Dance

In PE, dance is a key component. **Disciplinary knowledge** here looks at how movement communicates meaning.

Choreography as Narrative: Understanding that Mayan dance was often a retelling of their creation

myth, the *Popol Vuh*.
Rhythm and Coordination: Syncing complex footwork with a steady percussive beat (linking back to the Music theme).
Form and Posture: Learning the specific angular postures found in Mayan art—understanding how a "warrior's stance" differs from a "priest's movement."

4. Evaluation and Improvement
A core **disciplinary** skill in PE is the ability to observe and improve performance.

Analysing Success: Pupils look at why a certain hip-strike was successful in hitting a target.
Safety and Equipment: Understanding why **The Maya** wore heavy leather padding (manoplas and yokes) and how that impacted their range of motion and safety during high-impact games.

Disciplinary Skills Table

Skill	Physical Application
Analysing Tactics	Determining the best angle to bounce a ball off a wall to reach the hoop.
Selecting Techniques	Choosing whether to use a knee-strike or a hip-strike for power vs. accuracy.
Cultural Expression	Using a specific sequence of movements to represent a jaguar hunt.
Physical Logic	Understanding how to conserve energy during long-distance "messenger" running.

Learning Objectives

PE **learning objectives** for a Mayan-themed unit focus on **games**, **dance**, and **athletics**. The primary challenge for pupils is to adapt their modern movement patterns to the specific rules and cultural styles of **The Maya**. **Learning objectives** categorised by the National Curriculum strands:

1. Games and Invasion Tactics (The Ball Game)
Objective: To develop and use specific techniques for striking a ball using different body parts (hips, elbows, knees).
Mayan Context: Pupils learn to propel a ball without using their hands or feet, focusing on the core rotation needed for a "hip-strike."
Objective: To play competitive games, modified where appropriate, and apply basic principles suitable for attacking and defending.
Mayan Context: Playing a version of *Pok-a-Tok* where the goal is to keep the ball in the air or hit a specific target on the wall.
Objective: To understand the importance of protective equipment and body positioning for safety in high-impact games.

2. Dance and Artistic Movement
Objective: To create and perform dances using a range of movement patterns inspired by historical imagery.
Mayan Context: Pupils analyse the "angular" postures in Mayan murals and incorporate them into a ritual dance sequence.
Objective: To use movement to communicate a narrative or character.

Mayan Context: Creating a "Jaguar Dance" that focuses on low-level movements, stealthy prowling, and explosive pouncing.
Objective: To perform dances in time with a steady percussive beat (linking to Mayan music).

3. Athletics and Physical Literacy
Objective: To develop power, agility, and coordination through animal-inspired movement.
Mayan Context: "The Hero Twins Challenge"—completing an obstacle course that requires jumping, crawling, and balancing, representing the trials of the Mayan underworld, *Xibalba*.
Objective: To demonstrate "pacing" and endurance in long-distance running.
Mayan Context: Acting as "The Mayan Messenger," pupils learn to maintain a consistent speed over a set distance to deliver a "glyph" message to another city-state.

4. Evaluation and Improvement
Objective: To compare their performances with previous ones and demonstrate improvement to achieve their personal best.
Mayan Context: Recording how many successful hip-strikes were made in a row and identifying how adjusting their stance improved their accuracy.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Physical Education framed around the cultural and physical theme **'The Maya'**. This unit connects core National Curriculum PE strands—**Invasion Games (Ball Control, Passing & Spatial Awareness)**, **Dance & Choreography**, **Athletics (Agility, Speed & Endurance)**, and **Outdoor Adventurous Activities (OAA / Team Navigation)**—with the physical demands of Mesoamerican ballgames, rainforest navigation, and ceremonial ritual movement. It balances **substantive knowledge** (hip-striking mechanics, rebound angles, weight distribution, spatial dodging, movement motifs, heart rate zones, and tactical positioning) with **disciplinary knowledge** ("Thinking & Acting Like an Athlete & Choreographer"—evaluating tactical performance, refining physical technique through peer feedback, adapting strategies under pressure, choreographing expressive narratives, and assessing personal physical limits).

Unit Title: Warriors of the Ball Court: Maya Athletics, Dance, and Tactical Games
Duration: 6 Weeks (Approx. 1–2 hours per week)
Theme: Pok-a-Tok Mechanics, Rainforest Agility, Ceremonial Ritual Dance, and Strategic Navigation.
Physical & Cultural Contexts:
Pok-a-Tok (The Sacred Ballgame): Playing a non-contact, hip-and-torso-driven invasion game using foam/solid rubber balls, focusing on keeping the ball airborne without using hands or feet.
Rainforest Warrior Training: Agility, explosive power, and endurance required to navigate jungle terrain and build stone monuments.
Sacred Dance & Ritual Movement: Choreographing ritual dance narratives inspired by the *Popol Vuh* Hero Twins, sacred animals (jaguar, serpent, eagle), and agricultural cycles.
Key Physical Education Pillars
Substantive Knowledge:
Games & Tactics: Hip and torso manipulation for ball control, passing angles, spatial awareness, defensive zoning, communication cues, off-the-ball movement.
Dance & Movement: Action, space, dynamics, and relationships (ASDR); motif development; unison, canon, and contrast; storytelling through physical expression.
Athletics & Fitness: Agility (change of direction), plyometric explosive power, balance/pivoting, heart rate

recovery, stamina pacing.
OAA & Navigation: Map orientating, team communication, tactical route planning under time constraints.
Disciplinary Knowledge ('Thinking Like an Athlete & Choreographer'):
Tactical Evaluation: Analysing game situations to choose optimal defensive or attacking positioning.
Choreographic Reflection: Refining dance routines to improve dynamic contrast and expressive storytelling.
Performance Analysis: Assessing personal and peer movement mechanics to optimise efficiency and safety.

Weekly Progression Scheme
Week 1: The Sacred Rubber Ball – Pok-a-Tok Mechanics & Ball Control
PE Strand: Invasion Games (Ball Control & Body Mechanics).
Substantive Knowledge:
LKS2: Striking a medium/large foam ball using hips, thighs, and torso (no hands, arms, or feet); stance width for low centre of gravity; tracked eye-to-ball coordination.
UKS2: Controlling rebound angles using hip driving forces; directional redirection off elbows/upper torso; maintaining continuous ball bounce off side walls/benches.
Disciplinary Knowledge:
Biomechanics Analysis: Understanding how bending knees and rotating core muscles generates upward force without limb usage.
Practical PE Activity:
LKS2 (Y3/4): *Hip-Striking Rally Challenge.* In pairs, pupils practice keeping a soft ball airborne or bouncing across a low bench zone using only hips, thighs, and upper body.
UKS2 (Y5/6): *Wall-Rebound Pok-a-Tok.* Small groups direct a foam rubber ball against gym walls or angled benches, alternating hip/torso strikes to keep the ball active above a boundary line.

Week 2: Court Tactics & Space – Pok-a-Tok Game Play
PE Strand: Invasion Games (Spatial Awareness & Tactics).
Substantive Knowledge:
LKS2: Moving into open space to receive a pass; basic 2v2 court positioning; defensive shadowing.
UKS2: Creating passing lanes; defensive zoning vs. player-marking; target scoring strategies (striking high target hoops mounted on wall ends).
Disciplinary Knowledge:
Tactical Adaptation: Adjusting team positioning when attacking vs. defending a vertical ring target.
Practical PE Activity:
LKS2 (Y3/4): *2v2 Court Keep-Away.* Teams earn points by completing 3 consecutive hip/thigh passes without the opposition intercepting or the ball touching the floor.
UKS2 (Y5/6): *Adapted Pok-a-Tok Tournament.* 4v4 matches played on a narrow court with vertical target hoops. Players use hips/torso to pass and score by driving the ball through elevated hoops or against high targets.

Week 3: Dance of the Sacred Animals – Jaguar & Serpent Motifs
PE Strand: Dance (Movement Motifs & Dynamics).
Substantive Knowledge:
LKS2: Animal movement qualities: sharp/explosive (*Jaguar*), fluid/low (*Serpent*), light/elevated (*Quetzal Bird*); spatial levels (high, medium, low).
UKS2: Developing motif variations (changing speed, level, direction, and size); incorporating sharp dynamic

contrasts; transitions between solo and unison group shapes.
Disciplinary Knowledge:
Expressive Intent: Selecting dynamic qualities to communicate character traits and physical power through movement.
Practical PE Activity:
LKS2 (Y3/4): *Animal Motif Creation.* Pupils build a 4-phrase movement motif combining a creeping low serpent, an explosive jaguar leap, and a high quetzal balance.
UKS2 (Y5/6): *Dynamic Contrast Duets.* In pairs, pupils construct a choreographic sequence contrasting the fluid gliding of the serpent with the powerful, sudden stalls of the jaguar, performing on varied spatial pathways.

Week 4: The Hero Twins – Choreographing Narrative Sequences
PE Strand: Dance (Composition, Structure & Performance).
Substantive Knowledge:
LKS2: Narrative dance structures (Beginning, Middle, End); using *canon* (one after another) and *unison* (all together) to show teamwork.
UKS2: Complex choreographic relationships (counter-balance, contact weight sharing, mirror-and-contrast); building dramatic tension using accelerando and sudden pauses.
Disciplinary Knowledge:
Critique & Refinement: Evaluating peer routines to refine timing precision, expressive focus, and narrative clarity.
Practical PE Activity:
LKS2 (Y3/4): *Hero Twins vs. Lords of Xibalba Routine.* Groups of 4 choreograph a short dance battle scene using unison strikes, rolling transitions, and clear narrative starting/ending still shapes.
UKS2 (Y5/6): *Popol Vuh Dance Theatre.* Groups construct a 2-minute dance narrative representing the Hero Twins overcoming underworld trials, featuring contact balance lifts, canonical group movements, and sharp dynamic shifts.

Week 5: Jungle Messenger – Agility, Speed & Pacing
PE Strand: Athletics (Fitness, Agility & Energy Systems).
Substantive Knowledge:
LKS2: Fast footwork through ladder drills; directional deceleration and acceleration; pacing speed over longer distance runs.
UKS2: Plyometric jumping mechanics; maintaining explosive power; monitoring heart rate responses; calculating pacing strategies for continuous stamina circuits.
Disciplinary Knowledge:
Performance Analysis: Assessing how pacing strategies prevent early fatigue during high-intensity obstacle courses.
Practical PE Activity:
LKS2 (Y3/4): *Jungle Messenger Relay.* Pupils navigate an agility obstacle course (side-stepping cones, hurdle leaps, balance beam crossing) to deliver "royal codex messages," focusing on quick feet and balance.
UKS2 (Y5/6): *Peten Stamina Circuit.* Pupils complete a multi-station athletic circuit testing explosive jump distance, rapid shuttle agility, and sustained lap running, recording heart rates pre- and post-workout.

Week 6: The Maya Games – Synthesis, Tournament & Celebration
PE Strand: Outdoor Adventurous Activities (OAA), Games & Performance.
Substantive Knowledge:

LKS2/UKS2 Synthesis: Applying hip-striking tactics, choreographic precision, orienteering navigation, and athletic stamina in a culminating event.

Disciplinary Knowledge:

Reflective Sportsmanship: Evaluating individual and team performance against values of fair play, tactical execution, and artistic expression.

Practical Maya PE Festival:

LKS2 & UKS2: *The "Mesoamerican Warrior Games" Festival.*

Station 1: *Pok-a-Tok Championship Arena:* Teams compete in competitive non-contact Pok-a-Tok matches applying hip-striking and ring-scoring tactics.

Station 2: *Ceremonial Dance Showcase:* Groups perform their Popol Vuh narrative dance routines for peer evaluation.

Station 3: *Trade Route Orienteering Course:* Teams map and navigate an outdoor physical orienteering course collecting resource tokens under time pressure.

Plenary: Pupils complete self-evaluation cards reflecting on athletic progress, tactical growth, and collaborative teamwork.

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Touches the ball with hands/feet during Pok-a-Tok games out of instinct. • Performs simple animal movements but lacks variation in spatial levels. • Loses footwork control during agility drills, tripping over hurdles. • Moves erratically during orienteering tasks without consulting maps.	• Controls and passes a soft ball using hips/thighs without using hands or feet. • Constructs 4-phrase dance motifs using high, medium, and low spatial levels clearly. • Demonstrates quick footwork and balanced landing technique across agility courses. • Navigates basic orienteering routes in small teams using map orientation skills.	• Directs hip strikes with clear directional accuracy to hit high target zones. • Expresses distinct dynamic qualities (explosive vs. fluid) vividly during dance performances. • Sustains high-speed agility and balance through complex obstacle combinations seamlessly. • Leads team navigation strategy efficiently, adapting routes under time constraints.
Upper Key Stage 2 *(Years 5 & 6)*	• Plays Pok-a-Tok but struggles to direct rebound angles toward team members. • Copies dance steps without showing dynamic contrast or dramatic facial focus. • Fails to pace running speed, fatiguing early during stamina circuits. • Navigates independently	• Applies tactical spatial positioning and controlled hip/torso strikes in 4v4 matches. • Choreographs narrative group dances incorporating contact balance, canon, and unison. • Regulates pacing during stamina circuits and analyses personal heart rate recovery.	• Dictates game tempo through precise off-the-ball movement and wall-rebound passes. • Refines choreographic structures independently to maximise spatial impact and audience engagement. • Analyses physical movement mechanics critically to optimise peer speed and power.

	without communicating choices to team members.	• Communicates effectively to execute fast, accurate route choices during OAA challenges.	• Evaluates team OAA tactics under pressure, making real-time corrections to improve efficiency.

Other Information, Ideas and Resources

Phase	Learning Objective	Activity Example
Week 1: Mechanics	To strike a ball without hands or feet.	Using soft balls to practice "bumping" the ball off the hip into a hoop.
Week 2: Agility	To mimic the movements of the Jaguar.	Developing "low-impact" travel across mats using a prowling technique.
Week 3: Tactics	To work as a team to defend a space.	A game of "Mayan Endball" where the ball must be passed using only elbows/knees.
Week 4: Performance	To choreograph a ritual ceremony.	Combining the "Warrior Stance" and "Jaguar Prowl" into a group performance.

Considerations for Implementation

Science

Substantive Knowledge

Substantive knowledge in Science for **'The Maya'** learning theme covers the specific biological, chemical, and physical facts that allowed this civilisation to thrive in a tropical rainforest. It focuses on their sophisticated understanding of the natural world.

1. Astronomy and Earth Science
The Maya were elite observers of the solar system. Their knowledge of the Earth's movement was far ahead of many contemporary civilisations.

The Solar Year: Knowledge that the Earth takes approximately 365 days to orbit the sun (the *Haab'* calendar).
Planetary Cycles: Detailed data on the cycles of Venus, which they tracked as both the "Morning Star" and "Evening Star."
The Zenith Sun: Understanding the "Zenith passage," when the sun is directly overhead and vertical objects cast no shadow.

2. States of Matter and Materials
The Maya were early "chemists" who manipulated natural substances to change their properties.

Vulcanisation: The fact that mixing sap from the **rubber tree** (*Hevea brasiliensis*) with juice from the

morning glory vine creates a solid, bouncy material.
Limestone Chemistry: Knowledge that heating limestone creates **quicklime**, which, when mixed with water and sand, creates a durable plaster used for building and waterproofing.
Obsidian: Understanding the properties of volcanic glass (obsidian)—its hardness and the fact that it can be fractured to create an edge sharper than a modern steel scalpel.

3. Biology and Ecology (The Rainforest)
The Maya had deep **substantive knowledge** of the **interdependence** of species within the Mesoamerican ecosystem.

The 'Three Sisters' (Agriculture): The biological fact that planting **Maize, Beans, and Squash** together benefits the soil. The beans provide nitrogen, the maize provides a structure for beans to climb, and the squash leaves shade the soil to retain moisture.
Pollination: The role of the **Stingless Bee** (*Melipona*) in the ecosystem and its importance for honey and crop production.
Medicinal Plants: Knowledge of the pharmacological properties of local flora, such as using the bark of the Cinchona tree or various jungle herbs for healing.

4. Forces and Hydraulics
To build cities in a jungle with no major rivers, **The Maya** had to master the physics of water.

Gravity-Fed Systems: Knowledge of how to build sloped plazas to direct rainwater into underground reservoirs called **Chultunes**.
Water Pressure: Evidence that **The Maya** understood how to narrow pipes to create water pressure for fountains or waste removal.
Structural Engineering: The use of the **Corbel Arch** to support the massive weight of limestone temples.

Key Vocabulary Checklist

Term	Definition
Nixtamalization	Processing corn with lime (calcium hydroxide) to make it more nutritious.
Equinox	The two times a year when day and night are of equal length (important for temple alignment).
Ecosystem	The community of living and non-living things in the Mayan rainforest.
Vulcanisation	The chemical process of making rubber more durable.

Disciplinary Knowledge

In Key Stage 2 Science, **disciplinary knowledge** for **'The Maya'** learning theme moves beyond simple facts about the rainforest. It involves **thinking like a Mayan scientist**—understanding how an ancient civilisation observed the natural world, tested materials, and engineered solutions without modern technology. It focuses on the skills of **observation over time**, **fair testing**, and **classification**.

1. Astronomy and Pattern Seeking

The Maya were master astronomers. **Disciplinary knowledge** here is about understanding how to use the sky as a laboratory.

Observation over Time: Understanding how **The Maya** tracked the movement of the sun, moon, and Venus to create incredibly accurate calendars.
Predictions: Learning how a scientist uses past data to predict future events, such as solar eclipses or the best time to plant maize.
Shadow Tracking: Using a gnomon (a vertical stick) to track the sun's path—a skill used to align temples like El Castillo.

2. Materials and Chemistry
The Maya manipulated the chemistry of their environment to create unique materials.

Comparing and Grouping: Analysing the properties of volcanic rock (obsidian), limestone, and flint to determine which is best for building vs. tool-making.
Chemical Reactions (Nixtamalization): Understanding the "science of corn." **The Maya** soaked maize in an alkaline solution (lime water). **Disciplinary knowledge** involves understanding how this process changes the nutritional value of food.
The Science of Rubber: Investigating how **The Maya** used **vulcanisation** (mixing raw rubber with morning glory juice) to turn a sticky liquid into a bouncy, solid ball for their games.

3. Ecology and Biological Classification
The Maya lived in a tropical rainforest (the Selva). **Disciplinary knowledge** involves understanding the "interdependence" of this specific ecosystem.

Classification: Grouping rainforest plants based on their uses: medicinal, structural (building), or nutritional.
Life Cycles: Observing the life cycles of animals sacred to **The Maya**, such as the Jaguar or the Quetzal bird, and understanding their place in the food chain.
Human Impact: Investigating how Mayan farming techniques (like "slash and burn" or raised beds) affected the soil and local biodiversity.

4. Engineering and Hydraulics
In a land of seasonal droughts, **The Maya** had to be master water engineers.

Problem Solving: Designing systems to move water. Pupils look at how **The Maya** used gravity and plaster-lined reservoirs (*chultunes*) to store water.
Acoustic Engineering: (Cross-over with Music) Understanding how the shape of a building can change how sound travels, such as the "chirp" echo at Chichen Itza.

Disciplinary Skills Table

Skill	Scientific Application
Observation	Tracking the position of the North Star over several months.
Fair Testing	Testing which local plants produce the strongest fibres for ropes.

Classifying	Sorting rainforest animals into those that live in the canopy vs. the forest floor.
Evidence	Using archaeological remains to prove that **The Maya** practiced advanced agriculture.

Learning Objectives

'The Maya' learning theme provides an excellent backdrop for studying **Materials**, **Living Things**, and **Astronomy**. The **learning objectives** focus on applying the scientific method (Working Scientifically) to the innovations and environment of **The Maya**. **Learning objectives** categorised by the National Curriculum strands:

1. Properties and Changes of Materials

Objective: To compare and group together everyday materials on the basis of their properties, including their hardness, transparency, and response to magnets.
Mayan Context: Comparing the properties of **obsidian**, **flint**, and **limestone** to determine why they were used for different tools and buildings.
Objective: To explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible.
Mayan Context: Investigating how **The Maya** used a chemical reaction (**vulcanisation**) by mixing morning glory juice with rubber sap to create a solid ball.
Objective: To demonstrate that dissolving, mixing, and changes of state are reversible changes.
Mayan Context: Exploring how **The Maya** produced salt through the evaporation of brine in coastal "salt pans."

2. Earth and Space

Objective: To describe the movement of the Earth, and other planets, relative to the Sun in the solar system.
Maya Context: Understanding how **The Maya** tracked the orbit of **Venus** and the Sun to create their 365-day solar calendar.
Objective: To use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky.
Maya Context: Investigating how **The Maya** built temples like *El Castillo* to align with the sun during the **Equinox**, creating the famous "serpent of light" shadow.

3. Living Things and Their Habitats

Objective: To describe the differences in the life cycles of a mammal, an amphibian, an insect, and a bird.
Mayan Context: Studying the life cycles of animals native to the Mayan biosphere, such as the **Jaguar** (mammal), the **Red-eyed Tree Frog** (amphibian), and the **Quetzal** (bird).
Objective: To recognise that living things can be grouped in a variety of ways.
Mayan Context: Classifying rainforest plants used by **The Maya** into categories: **Medicinal**, **Nutritional** (Maize/Cacao), and **Structural** (Palm fronds/Cotton).

4. Working Scientifically (Disciplinary Skills)

Objective: To plan different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary.
Mayan Context: "Which natural fibre (Henequen, Cotton, or Vine) is the strongest for building a Mayan bridge?"
Objective: To record data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs.

Mayan Context: Creating a **classification key** for animals found in a Mayan rainforest mural.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Science framed around the historical and physical world of **'The Maya'**. This unit connects core National Curriculum Science strands—**Living Things & Their Habitats**, **States of Matter**, **Properties & Changes of Materials**, **Plants & Agricultural Botany**, and **Earth & Space (Mesoamerican Astronomy)**—with the natural environment, technologies, and scientific observations of ancient Mesoamerica.

It balances **substantive knowledge** (classification keys, rainforest food webs, thermal states of matter, melting vs. dissolving, soil nutrients and seed germination, rock weathering, and shadow movements/planetary orbits) with **disciplinary knowledge** ("Working Scientifically"—fair testing, variables identification, systematic observations, classification, quantitative measurement, data collection, and evidence-based reporting).

Unit Title: Rainforest Science and Cosmic Shadows: The Maya Environment, Materials, and Astronomy

Duration: 6 Weeks (Approx. 1.5–2 hours per week)

Theme: Tropical Rainforest Ecosystems, Cacao Chemistry, Limestone Hydrology, Maize Life Cycles, and Solar Observation.

Scientific Contexts & Mayan Connections:

Rainforest Biodiversity: Classifying Flora/Fauna of the Petén rainforest and constructing complex tropical food webs (*Jaguar, Howler Monkey, Harpy Eagle, Cacao Tree*).

States of Matter & Reversible Changes: Cacao processing, cocoa butter melting points, emulsification, and temperature state changes.

Properties of Materials & Rock Processes: Limestone chemical weathering (*acid rain/carbonation*), water filtration through porous rock, and cenote formation.

Plant Science & Botany: Soil nutrient absorption, germination conditions, and cross-pollination mechanics of the "Three Sisters" (*Maize, Beans, Squash*).

Earth, Space & Light: Tracking shadows on step pyramids (*El Castillo*), solar tracking, seasonal movement, and moon/planetary orbits.

Key Science Pillars

Substantive Knowledge:

Living Things & Habitats: Vertebrate/invertebrate classification keys, adaptations, rainforest food chains and webs, producers/consumers/decomposers.

States of Matter & Changes: Solid, liquid, gas transition temperatures; melting points; physical vs. chemical changes; dissolving vs. melting.

Materials & Earth Science: Permeable vs. impermeable rock, acid reactions on limestone ($CaCO_3$), soil composition, filtration mechanics.

Plants: Germination requirements (water, oxygen, temperature), photosynthesis needs, nutrient exchange (nitrogen fixation in beans).

Earth & Space / Light: Sun's apparent movement, shadow length variation, Earth's rotation/revolution around the Sun, planetary alignment tracking.

Disciplinary Knowledge ('Working Scientifically'):

Experimental Testing: Planning fair tests, identifying independent/dependent/controlled variables.

Data Collection & Pattern Seeking: Recording metric measurements accurately (℃, cm, ml), plotting line/bar graphs, identifying trends.

Observational Analysis: Using magnifying tools and classification keys to categorise living organisms and geological samples.

Scientific Evaluation: Drawing conclusions from evidence and evaluating test reliability.

Weekly Progression Scheme

Week 1: In the Shadow of the Canopy – Rainforest Biodiversity & Webs

Science Strand: Living Things and Their Habitats (Classification & Ecosystems).

Substantive Knowledge:

LKS2: Grouping animals into vertebrates (mammals, reptiles, amphibians, birds, fish) and invertebrates; using branching dichotomous classification keys; producers and consumers in Petén food chains.

UKS2: Constructing multi-layered rainforest food webs; structural, behavioural, and physiological adaptations (e.g., spider monkey prehensile tails, jaguar camouflage); impact of environmental changes on ecosystem balances.

Disciplinary Knowledge:

Classifying & Grouping: Designing and testing dichotomous keys to categorise unknown Mesoamerican organisms based on observable features.

Practical Science Activity:

LKS2 (Y3/4): *Rainforest Classification Keys.* Pupils use branching keys to classify Mesoamerican fauna (e.g., Quetzal, Tree Frog, Fer-de-lance Snake, Jaguar, Leafcutter Ant) and build simple food chains.

UKS2 (Y5/6): *Food Web Dynamics & Adaptation Audit.* Pupils construct a complex Petén food web, modelling how removing apex predators or deforestation impacts species populations quantitatively.

Week 2: Chemistry of Cacao – States of Matter & Phase Transitions

Science Strand: States of Matter & Properties of Materials.

Substantive Knowledge:

LKS2: Identifying solids, liquids, and gases; measuring melting temperatures (℃); observing state transitions when heat energy is added or removed.

UKS2: Reversible vs. irreversible changes; distinguishing between *melting* (phase change due to heat) and *dissolving* (solute breaking down in solvent); emulsification of fats in liquid suspensions (traditional Maya cacao drink).

Disciplinary Knowledge:

Systematic Measurement: Using digital thermometers to track temperature changes over time and plotting cooling/heating curves.

Practical Science Activity:

LKS2 (Y3/4): *Melting Point Investigation.* Pupils place dark chocolate/cacao butter chips into water baths of varying temperatures (20℃, 35℃, 50℃), timing how quickly solids transition to liquids.

UKS2 (Y5/6): *Reversible Changes & Emulsion Fair Test.* Pupils investigate the solubility of cocoa powder vs. cacao butter in water at different temperatures, measuring how whisking (*frothing*) creates a suspension and determining if changes are reversible.

Week 3: Disappearing Rocks – Limestone Weathering & Cenote Chemistry

Science Strand: Rocks, Materials & Physical Processes.

Substantive Knowledge:

LKS2: Comparing properties of sedimentary, igneous, and metamorphic rocks; permeability vs. impermeability; testing rock hardness and water absorption.

UKS2: Chemical weathering of calcium carbonate ($CaCO_3$) limestone by carbonic acid (acidic rainwater); subterranean water filtration; formation mechanics of karst topography and sinkholes (*cenotes*).

Disciplinary Knowledge:

Fair Testing & Variable Control: Setting up comparative tests using dilute acids on varied rock samples while controlling volume, mass, and surface area.
Practical Science Activity:
LKS2 (Y3/4): *Rock Permeability Test.* Pupils test limestone, granite, and chalk using drop pipettes of water, measuring liquid absorption times to determine why water collects underground in the Yucatán.
UKS2 (Y5/6): *Acid Weathering Simulation.* Pupils immerse weighed limestone samples in solutions of varying acidity (water, mild vinegar, stronger vinegar) over 48 hours, measuring mass loss to model subterranean cenote cave formation.

Week 4: The Three Sisters – Plant Science & Agricultural Botany
Science Strand: Plants & Life Cycles.
Substantive Knowledge:
LKS2: Requirements for plant growth (light, water, air, nutrients, room); functions of roots, stems, leaves, and flowers; seed structure and germination conditions.
UKS2: Symbiotic plant relationships (the Maya *Three Sisters* system: Maize provides climbing structure, Beans fix atmospheric nitrogen into soil, Squash foliage shields soil moisture); pollination dynamics.
Disciplinary Knowledge:
Pattern Seeking & Controlled Growth Experiments: Planning investigations to isolate a single plant variable (e.g., presence of soil nitrogen or light access) over an extended growth window.
Practical Science Activity:
LKS2 (Y3/4): *Germination Factor Investigation.* Pupils set up controlled experiments testing bean seed germination across 4 conditions (varying water, light, temperature), measuring root and shoot growth over time in mm.
UKS2 (Y5/6): *Soil Nutrients & Symbiosis Audit.* Pupils analyse soil pH and nitrate levels in pots containing maize grown alone versus maize planted alongside nitrogen-fixing legumes, logging plant heights and leaf chlorosis metrics (quantify the loss of green chlorophyll and the progression of yellowing tissue).

Week 5: Shadows of Chichen Itza – Light, Shadows & Solar Tracking
Science Strand: Light & Earth and Space.
Substantive Knowledge:
LKS2: Light travels in straight lines; formation of shadows; opaque, translucent, and transparent materials; shadow length and directional changes as light sources move.
UKS2: Apparent solar movement caused by Earth's axial rotation; seasonal variation caused by Earth's revolution around the Sun; engineering solar alignment in architecture (*El Castillo's equinox shadow serpent*).
Disciplinary Knowledge:
Quantitative Data Collection: Measuring shadow lengths and angles accurately using protractors and tape measures, converting data into line graphs.
Practical Science Activity:
LKS2 (Y3/4): *Pyramid Shadow Tracking.* Pupils place 3D step pyramid models under artificial light sources, varying light angle and elevation to measure shadow length changes and predict daily shadow movements.
UKS2 (Y5/6): *Equinox Alignment Simulation.* Pupils use light sensors and globe/pyramid models to replicate the precise equinox angle (23.5° axial tilt) that causes the undulating serpent shadow along *El Castillo's* stairwell.

Week 6: The Maya Science Symposium – Findings, Evaluation & Expo
Science Strand: Working Scientifically, Synthesis & Reporting.
Substantive Knowledge:

LKS2/UKS2 Synthesis: Summarising experimental conclusions across rainforest ecology, thermal state changes, rock weathering, plant botany, and solar optics.
Disciplinary Knowledge:
Scientific Reporting: Presenting empirical evidence using scientific terminology, data charts, line graphs, and clear conclusions.
Practical Maya Science Conference:
LKS2 & UKS2: *The "Mesoamerican Scientific Research Council" Symposium.*
Station 1: Ecology & Web Analysis: Presenting classification keys and food web resilience reports.
Station 2: Cacao State Change Lab: Demonstrating temperature-controlled melting and solubility data.
Station 3: Geology & Hydrology Desk: Explaining limestone erosion data using mass loss tables and acid reaction charts.
Station 4: Botanical Growth & Solar Alignment Zone: Displaying plant growth graphs and live solar tracking models.
Plenary Evaluation: Pupils review peer investigations against scientific criteria (*Variable Isolation, Data Accuracy, Empirical Evidence*).

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Groups animals using simple traits but struggles with dichotomous branching keys. • Identifies that chocolate melts when warm but fails to measure temperature accurately. • Pours water on rocks but struggles to define rock permeability. • Measures plant growth with a ruler but misses controlled variables.	• Uses branching classification keys to categorise rainforest fauna into vertebrate groups. • Measures melting temperatures of cacao solids in ℃ accurately. • Identifies limestone as a permeable, reactive rock type through comparative testing. • Sets up fair tests for seed germination, isolating light/water variables correctly.	• Constructs complex branching keys with unambiguous physical criteria independently. • Plots heating/cooling curve line graphs, explaining heat energy transfers during state changes. • Explains how chemical weathering erodes limestone to form subterranean water systems. • Analyses plant growth data quantitatively, identifying anomalies and explaining causes.
Upper Key Stage 2 *(Years 5 & 6)*	• Constructs food chains but omits arrows showing energy transfer directions. • Confuses melting (heat state change) with dissolving (solute/solvent interaction). • Records rock mass changes without controlling acid	• Constructs Petén food webs and evaluates population impacts caused by habitat loss. • Distinguishes between melting and dissolving using thermal and solubility experiments. • Conducts fair tests on limestone erosion,	• Predicts cascading ecological impacts across complex food webs using data-backed reasoning. • Explains emulsification and molecular suspensions in traditional cacao preparations. • Evaluates limestone weathering rate data

	concentration or immersion time. • Plots shadow lengths on a graph but misinterprets light source angle relationships.	controlling variables and measuring mass loss accurately. • Models the Earth's orbit and axial tilt to explain seasonal solar shadow movements on pyramids.	critically to calculate long-term geological erosion rates. • Explains axial alignment geometry and solar angles with mathematical precision.

Other Information, Ideas and Resources

Topic	Learning Objective	Activity Example
Rubber Chemistry	To explore irreversible chemical changes.	Mix latex (or PVA glue/borax) with various "activators" to see which creates the bounciest ball.
The Three Sisters	To identify the requirements for plant growth.	Plant corn, beans, and squash together to observe how they support each other (Interdependence).
Ancient Mirrors	To investigate how light reflects off surfaces.	Experiment with polished obsidian or pyrite to understand how **The Maya** created "smoking mirrors."
Shadow Clocks	To track the sun's movement over time.	Build a gnomon (shadow stick) to predict the time of day, mimicking Mayan architectural alignment.

Environmental Science – weather and climate for these areas of the world.

Look at flora and fauna native to these countries – link to evolution and inheritance.
Link to animal and plant adaptations to their environment e.g. desert vs. rainforest

El Niño is a climate cycle in the Pacific Ocean with a global impact on weather patterns. The cycle begins when warm water in the western tropical Pacific Ocean shifts eastward along the equator toward the coast of South America.

Mayans – Chocolate Reversible and Irreversible changes. Changing State.

If doing aerophones and whistles in DT link to the Sound topic:
Identify how sounds are made, associating some of them with something vibrating.

Recognise that vibrations from sounds travel through a medium to the ear.

Find patterns between the pitch of a sound and features of the object that produced it.
Find patterns between the volume of a sound and the strength of the vibrations that produced it.
Recognise that sounds get fainter as the distance from the sound source increases.

Considerations for Implementation

English

Book/Text Ideas:

https://www.booksfortopics.com/ancient-civilisations https://www.booksfortopics.com/maya
https://www.booksfortopics.com/world-civilisations

Fiction:

Rain Player by David Wisniewski Picture book
Oh Maya Gods! By Maz Evans chapter book
Me and Mister P: Maya's Storm By Maria Farrer & Daniel Rieley Chapter Book
The Curse of the Maya by Johnny Pearce & Andy Loneragan Chapter book
Middleworld (Jaguar Stones) by J&P Voelkel Chapter book
Go! Go! Chichico! By Geraldine McCaughrean & Tom Percival Chapter book
The Explorer by Katherine Rundell Chapter book
My Name is River by Emma Rea Chapter book
Journey to the River Sea by Eva Ibbotson Chapter book
The Good Thieves
Katherine Rundell Chapter book
Kidnap on the California Comet by M. G. Leonard & Sam Sedgman & Elisa Paganelli Chapter book
The Accidental President by Tom McLaughlin Chapter book
Little Bird Lands by Karen McCombie Chapter book
Trouble in New York by Sylvia Bishop Chapter book
Front Desk by Kelly Yang & Maike Plenzke Chapter book
Holes by Louis Sachar Chapter book
The Crow's Tale by Naomi Howarth Picture book
Snow White in New York by Fiona French Picture book

Non-Fiction:

The History detective Investigates: Mayan Civilisation by Clare Hibbert
A Question of History: Why were Mayan games so deadly? And other questions about the Maya by Tim Cooke
History in Infographics: The Maya by Jon Richards
Daily Life in the Maya Civilisation by Nick Hunter
DKfindout! Maya, Incas, and Aztecs by DK
History in Infographics: The Maya by Jon Richards
Rainforest Warrior by Anita Ganeri & Margaux Carpentier Picture book
Ada's Violin: The Story of the Recycled Orchestra of Paraguay by Susan Hood & Sally Wern Comport Picture book
Pele by Maria Isabel Sanchez Vegara & Camila Rosa Picture book
Expedition Diaries: Amazon Basin by Simon Chapman
Where On Earth?: South America by Shallini Vallepur
Info Buzz: Argentina by Izzi Howell
Brazil: The Land and the People by Susie Brooks
Continents Uncovered: South America by Rob Colson & Josy Bloggs
Cities Of The World: South America Liz Gogerly, Rob Hunt & Victor Beuren
Amazon River by Sangma Francis Romolo D'Hipolito

Substantive Knowledge

Substantive knowledge in English refers to the specific content—the facts, vocabulary, grammar, and genres—that pupils must acquire to communicate effectively about **The Maya**. It is the "building blocks" they

use to read, write, and speak within this historical context.

1. Vocabulary (The Lexicon)
To write or speak accurately about **The Maya**, pupils must possess a bank of domain-specific Tier 2 and Tier 3 vocabulary.

Tier 3 (Subject Specific): *Codex, stelae, glyphs, ahau (king), Pok-a-Tok , maize, obsidian, quetzal, Xibalba (the underworld).*
Tier 2 (Academic): *Civilisation, hierarchy, architecture, ritual, agricultural, significant, interpretation.*
Sensory Vocabulary: Using adjectives like *humid, verdant, intricate, echoes,* and *ancient* to build a "show, don't tell" environment in creative writing.

2. Oracy: Discussion and Performance
This involves the knowledge of how to structure speech for different audiences within a Mayan context.

Character Archetypes: Knowing the roles of specific people in Mayan society (e.g., the Hero Twins, a scribe, a farmer) to inform role-play.
Narrative Structure of Myths: Understanding the plot points of the *Popol Vuh*—the failure of the first humans (made of mud and wood) and the success of the humans made of maize.
Formal Debate: Knowing how to use "connectives of contrast" (*however, on the other hand*) to debate whether a city-state should go to war or seek peace.

3. Reading: Text Types and Decoding
Substantive knowledge in reading focuses on the specific texts used to learn about **The Maya**.

Non-Fiction Features: Knowing how to navigate an information text about **The Maya** (using the **index, glossary, and captions**).
Historical Fiction: Reading stories like *The Rain Player* or *The Corn Grower* to understand how authors blend historical fact with fictional plot.
The Maya Writing System: Knowing that Maya writing was **logosyllabic** (signs representing both sounds and whole words) and was written in columns of two.

4. Writing: Genre and Composition
Pupils apply their knowledge of **The Maya** to specific writing frameworks required by the KS2 curriculum.

Persuasive Writing: Writing a travel brochure for a Mayan city-state (e.g., Chichen Itza or Tikal), using **rhetorical questions** and **superlatives** to attract visitors.
Report Writing: Constructing a non-chronological report on Mayan daily life, ensuring clear **thematic paragraphs** and **subject-specific headings**.
Instructional Writing: Writing a "How-to" guide for a Mayan priest (e.g., *How to perform a rain ceremony* or *How to play Pok-a-Tok*), using **imperative verbs** (e.g., *Gather, strike, observe*).
Poetry: Using **kennings** or **expanded noun phrases** to describe a Jaguar or the rainforest canopy.

Knowledge Organiser: English Focus

Literacy Area	Substantive Content	Example Application

Punctuation	Using brackets for parenthesis.	"The Maya (a civilisation in Mesoamerica) were master builders."
Grammar	Fronted Adverbials.	"Deep within the rainforest, the stone temples towered over the trees."
Structure	Accordion-fold layout.	Creating a "Codex" where the story unfolds in one long strip.
Fact vs Myth	Distinguishing evidence.	Understanding that a *stele* records historical dates, while the *Popol Vuh* records beliefs.

Disciplinary Knowledge

In Key Stage 2 English, **disciplinary knowledge** for **'The Maya'** involves teaching pupils to think and communicate like **historians, linguists, and storytellers**. It is about understanding the *conventions* of how we interpret ancient voices and how we construct modern narratives about them.

1. Oracy: The Art of Rhetoric and Oral Tradition
The Maya had a sophisticated oral culture where speech was linked to power. **Disciplinary knowledge** here focuses on the **purpose** and **impact** of spoken word.

Formal vs. Informal Language: Understanding the register required for different Mayan roles—how a priest might address a god versus how a merchant trades in a marketplace.
Oral Storytelling Conventions: Learning how the *Popol Vuh* (the Mayan creation myth) was passed down. Pupils study the use of **repetition**, **rhythm**, and **mnemonics** to preserve history without books.
Persuasion and Debate: Engaging in "Council meetings," where pupils must use evidence-based talk to argue for a particular subject area such as agricultural changes (deforestation).

2. Reading: Decoding and Interpreting
Reading **disciplinary knowledge** moves beyond simple comprehension; it involves **interrogating the source**.

Linguistic Archaeology: Understanding that Mayan "writing" (glyphs) is a **logosyllabic system**—a combination of pictures representing words and symbols representing sounds.
Authorial Intent and Bias: When reading translations of Mayan myths or Spanish accounts of **The Maya**, pupils learn to ask: *Who wrote this, and why?*
Deduction from Fragments: Reading "visual texts" (stelae and codices) to piece together a narrative. Pupils learn that in history, "reading" isn't just about words on a page, but interpreting symbols and artefacts.

3. Writing: Genre and Structure
In writing, **disciplinary knowledge** is about mastering the specific "tools" needed to convey historical or fictional truth.

Genre Conventions: Knowing the difference between writing an **Information Report** (objective, third-person, factual) about Mayan architecture and a **First-Person Narrative** (emotive, sensory) about a ball player's experience.
Atmospheric Vocabulary: Selecting specific nouns and verbs that evoke the Maya setting—using

"limestone," "canopy," and "obsidian" rather than generic terms like "stone" or "woods."
Structuring Non-Fiction: Understanding how to use subheadings, glossaries, and diagrams to organise complex historical data for a reader.

Disciplinary Skills Table: The English 'Lens'

Skill	English Application
Synthesising	Taking facts from a history book and turning them into a script for a Mayan radio play.
Empathising	Writing a diary entry from the perspective of a Mayan farmer during a drought.
Analysing	Comparing two different versions of the Maya creation story to see what remains the same.
Transcribing	Creating a "codex" style book where text and images work together to tell a story.

4. Cross-Curricular Literacy: The Mayan Codex
A unique **disciplinary** task for **The Maya** is the creation of a **Codex**. This requires the "Writing" knowledge of how to integrate text and image. Unlike modern books, Mayan codices were accordion-folded. Pupils learn how the physical **format** of a text changes how a reader interacts with it.

Summary of 'The English Lens'
Oracy: "I can adapt my speech to play the role of a Mayan priest."
Reading: "I can distinguish between a historical fact and a mythological story."
Writing: "I can use technical vocabulary to describe Mayan innovations accurately."

Learning Objectives

'The Maya' learning theme provides a rich, "story-heavy" context for achieving National Curriculum goals. The **learning objectives** focus on moving from simple descriptions to sophisticated, evidence-based communication. **Learning objectives** categorised by the three core strands of English:

1. Oracy: Speaking, Listening, and Drama
Objective: To articulate and justify answers, arguments, and opinions based on historical evidence.
Mayan Context: Pupils debate the reasons for the "Classic Mayan Collapse" (e.g., drought vs. warfare), using evidence to support their claims.
Objective: To speak audibly and fluently with an increasing command of Standard English in formal contexts.
Mayan Context: Performing a retelling of the *Popol Vuh* (The Hero Twins), using vocal expression and body language to portray mythical characters.
Objective: To use spoken language to develop understanding through speculating, hypothesising, imagining, and exploring ideas.
Mayan Context: In role-play, pupils act as "Council Elders" deciding whether to move their city-state to a new location near a *cenote*.

2. Reading: Comprehension and Interpretation
Objective: To distinguish between statements of fact and opinion in non-fiction texts.

Mayan Context: Comparing a modern archaeological report on **The Maya** with a Spanish conquistador's biased historical account.
Objective: To retrieve, record, and present information from non-fiction.
Mayan Context: Using a "Mayan Life" information book to create a fact-file about the specific diet of a Mayan farmer (Maize, Squash, Cacao).
Objective: To identify how language, structure, and presentation contribute to meaning.
Mayan Context: Analysing the layout of a **Mayan Codex** to understand how images and glyphs work together to record history and ritual.

3. Writing: Composition and Transcription
Objective: To use a wide range of devices to build cohesion within and across paragraphs.
Mayan Context: Writing a non-chronological report on Mayan inventions, using sub-headings and conjunctions (e.g., *furthermore*, *consequently*) to link ideas.
Objective: To select appropriate grammar and vocabulary, understanding how such choices can change and enhance meaning.
Mayan Context: Writing a diary entry as a Mayan astronomer, using **fronted adverbials** (e.g., "From the top of the observatory...") and **expanded noun phrases** (e.g., "The shimmering, distant planet of Venus").
Objective: To draft and write by creating characters, settings, and plot in narrative writing.
Mayan Context: Writing a "Suspense Story" set during a *Pok-a-Tok* ball game, focusing on the sensory details of the heavy rubber ball and the roaring crowd.

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 English (Oracy, Reading, and Writing) framed around the historical and cultural learning theme **'The Maya'**. This unit connects core National Curriculum English strands—**Oracy & Debate**, **Reading Comprehension & Analysis**, and **Writing Composition & Grammar**—with Mesoamerican folklore, codex hieroglyphs, rainforest description, and archaeological discovery. It balances **substantive knowledge** (narrative arcs, figurative language, fronted adverbials, expanded noun phrases, relative clauses, formal register, passive voice, rhetorical devices) with **disciplinary knowledge** ("Thinking & Acting Like an Author, Reader, and Orator"—analysing authorial intent, decoding cultural symbolism, evaluating persuasive rhetoric, tailoring register for specific audiences, and critiquing spoken performance).

Unit Title: Chronicles of the Maya: Myths, Rainforests, and Ancient Cities
Duration: 6 Weeks (Approx. 5 hours per week)
Theme: *Popol Vuh* Creation Myths, Petén Rainforest Imagery, Non-Chronological Reports on City-States, and Archaeological Debates.
Core Texts & Stimuli:
Main Narrative Text: Retellings of the *Popol Vuh* (The Maya Creation Myth & The Hero Twins in Xibalba).
Non-Fiction Text: Archaeological reports on Chichen Itza, Tikal, and Maya codices.
Poetry: Rainforest imagery poems (*The Jaguar's Shadow*).
Key English Pillars
Substantive Knowledge:
Oracy: Formal debate protocol, vocal modulation, persuasive rhetoric (ethos, pathos, logos), active listening techniques.
Reading: Inference, retrieval, vocabulary in context, identifying structural conventions of myth and non-chronological reports, authorial intent.
Writing & Grammar:
LKS2: Conjunctions of time/cause, fronted adverbials, expanded noun phrases, direct speech punctuation,

paragraphing around key ideas.
UKS2: Relative clauses, passive voice for formal reports, subjunctive mood, cohesive devices across paragraphs, advanced punctuation (hyphens, dashes, semi-colons).
Disciplinary Knowledge ('Thinking Like an Author & Orator'):
Literary Analysis: Evaluating how mythic structure reflects Mesoamerican worldviews and religious beliefs.
Crafting Atmosphere: Selecting vocabulary deliberately to evoke tension, setting, and awe.
Rhetorical Audience Awareness: Adapting tone, body language, and formal register for academic presentations vs. dramatic storytelling.

Weekly Progression Scheme
Week 1: Tales of Xibalba – Mythic Reading & Oral Storytelling
English Focus: Reading Analysis & Spoken Performance (Mythology).
Substantive Knowledge:
LKS2: Conventions of myths (heroic quests, underworld monsters, moral lessons); identifying direct speech punctuation; using vocal expression (pitch, pace, dynamic volume).
UKS2: Mythic archetypes in Mesoamerican literature; inferring character motives from speech/action; using dramatic pause and gesture to heighten narrative suspense.
Disciplinary Knowledge:
Textual Interpretation: Comparing how ancient oral traditions convey cultural values differently from written historical texts.
Practical English Activity:
LKS2 (Y3/4): *Hero Twins Performance.* Pupils read excerpts of Hunahpu and Xbalanque entering Xibalba, analysing dialogue, then perform the scene in pairs using expressive vocal modulation.
UKS2 (Y5/6): *Oral Myth Retelling.* Pupils annotate the *Popol Vuh* creation story for structural arc, then perform a 2-minute oral retelling incorporating dramatic pauses, varied pacing, and ceremonial gesture.

Week 2: Deep in the Petén – Descriptive Rainforest Narrative Writing
English Focus: Descriptive Writing & Grammar (Setting & Atmosphere).
Substantive Knowledge:
LKS2: Expanded noun phrases (*the towering, emerald canopy*); fronted adverbials of place/manner (*Deep within the shadows, ...*); sensory imagery.
UKS2: Relative clauses (*...which echoed with howler monkey shrieks*); figurative language (personification, metaphors); varying sentence structures to control pacing.
Disciplinary Knowledge:
Authorial Choice: Deliberately selecting vocabulary to evoke a sense of ancient mystery versus immediate physical danger.
Practical English Activity:
LKS2 (Y3/4): *Jungle Setting Description.* Pupils write a 2-paragraph narrative scene describing a explorer finding a hidden temple, utilising fronted adverbials and expanded noun phrases.
UKS2 (Y5/6): *Underworld Descent Scene.* Pupils write an atmospheric narrative opening detailing a descent into a sacred cenote, applying relative clauses, personification, and varied sentence lengths.

Week 3: Cities of Stone – Non-Chronological Report Reading & Structural Analysis
English Focus: Non-Fiction Reading & Text Structure (Formal Reports).
Substantive Knowledge:
LKS2: Structural features of reports (subheadings, bullet points, glossaries, introductions); identifying key

facts vs. author opinion.
UKS2: Technical vocabulary in context (*astronomy, hieroglyphs, codices, stratification*); analysing formal impersonal register; evaluating text layout efficiency.
Disciplinary Knowledge:
Critical Reading: Evaluating the reliability and neutral tone of historical sources describing ancient civilisations.
Practical English Activity:
LKS2 (Y3/4): *Report Structure Audit.* Pupils read model texts about Tikal, highlighting subheadings, technical terms, and factual statements to create a report checklist.
UKS2 (Y5/6): *Comparative Non-Fiction Analysis.* Pupils analyse two contrasting texts (a travel guide vs. an archaeological report) on Chichen Itza, identifying variations in register, passive voice, and audience intent.

Week 4: The Ancient City-States – Writing Non-Chronological Reports
English Focus: Non-Fiction Writing Composition & Grammar.
Substantive Knowledge:
LKS2: Grouping related information into logical paragraphs; using conjunctions of cause and time (*consequently, as a result, furthermore*); formal present tense.
UKS2: Passive voice for formal objectivity (*Pyramids were constructed to align with solar equinoxes*); cohesive devices (linking adverbs, pronoun repetition avoidance, semi-colons for linked clauses).
Disciplinary Knowledge:
Informational Synthesis: Distilling complex historical data into structured, highly readable educational reports.
Practical English Activity:
LKS2 (Y3/4): *City-State Report Composition.* Pupils write a structured non-chronological report on Maya daily life and architecture using subheadings and causal conjunctions.
UKS2 (Y5/6): *Archaeological Monograph.* Pupils compose an authoritative 4-section report on Maya civilisation, using passive voice, relative clauses, and semi-colons to link complex factual points.

Week 5: Artefacts of the Past – Persuasive Oracy & Formal Debate
English Focus: Oracy, Debate & Rhetorical Devices.
Substantive Knowledge:
LKS2: Formulating opinion statements supported by reasons; polite disagreement phrases (*I understand your point, however...*); projection and eye contact.
UKS2: Rhetorical strategies (rule of three, rhetorical questions, emotive language, appeal to ethics); formal debate structures (proposer, opposer, rebuttal); adjusting tone for persuasive impact.

Disciplinary Knowledge:
Rhetorical Evaluation: Assessing the validity of competing ethical arguments regarding global cultural heritage.
Practical English Activity:
LKS2 (Y3/4): *Museum Display Discussion.* In groups, pupils discuss and present arguments on which Maya artefacts are most important to display in a museum, giving clear evidence.
UKS2 (Y5/6): *Repatriation Parliamentary Debate.* Pupils conduct a formal debate on the motion: *"This house believes that ancient Maya codices held in European museums should be immediately returned to Central America."*

Week 6: The Grand Codex – Synthesis, Publishing & Performance

English Focus: Editing, Publishing & Spoken Showcase.
Substantive Knowledge:
LKS2/UKS2 Synthesis: Proofreading for spelling, punctuation, and grammar; editing for flow; performing written compositions aloud with appropriate expression and audience awareness.
Disciplinary Knowledge:
Self-Reflective Editing: Critiquing and refining one's own written work against target success criteria before publication.
Practical Maya English Festival:
LKS2 & UKS2: *The "Codex & Chronicle" Literary Symposium.*
Station 1: The Storyteller's Circle: Pupils perform polished oral retellings of their descriptive myth scenes for an audience.
Station 2: The Maya Library: Exhibiting published non-chronological reports complete with illustrations and hieroglyphic borders.
Station 3: The Debate Chamber: Selected teams present 3-minute persuasive speeches on historical preservation.
Plenary: Peer feedback given using structured evaluation sheets (*Praise, Question, Polish*).

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Retells stories with quiet voice and minimal expression. • Uses simple sentences without expanded noun phrases or fronted adverbials. • Groups facts randomly in non-fiction writing without clear subheadings. • Expresses opinions in debates without providing supporting reasons.	• Performs myth retellings with clear projection, varied pitch, and expressive gesture. • Writes descriptive setting paragraphs using fronted adverbials and expanded noun phrases. • Organises non-chronological reports logically using subheadings and causal conjunctions. • Participates in discussions using polite disagreement structures and reasoned points.	• Adapts spoken tone spontaneously to hold audience attention during narrative retellings. • Manipulates sentence structures flexibly to build suspense and vivid setting atmosphere. • Links paragraphs seamlessly using sophisticated temporal and causal transition words. • Constructs persuasive arguments that anticipate and counter opposing viewpoints effectively.
Upper Key Stage 2 *(Years 5 & 6)*	• Reads myths literally without inferring underlying character motives or symbolism. • Overuses simple relative clauses, creating repetitive sentence structures. • Writes reports using informal personal pronouns (*I, We*) rather	• Infers deeper theme meanings and cultural symbolism from ancient mythic texts. • Crafts tense narrative descriptions using relative clauses, personification, and varied sentence lengths. • Writes authoritative	• Analyses authorial choices critically, evaluating how vocabulary shapes reader perception. • Weaves complex figurative language and precise structural pacing to create memorable prose. • Controls formal register flawlessly, using cohesive

	than an impersonal register. • Struggles to construct formal rebuttals during structured debate tasks.	reports utilising passive voice, relative clauses, and formal vocabulary. • Uses rhetorical devices (rule of three, emotive language) effectively during formal debates.	devices, dashes, and semi-colons accurately. • Delivers compelling, unscripted debate speeches that manipulate rhetorical tone masterfully.

Other Information, Ideas and Resources

Topic	Learning Objective	Activity Example
Persuasion	To write a persuasive text to influence a reader.	Create a "Travel Leaflet" for the city of Tikal, using rhetorical questions and superlatives.
Instruction	To write clear instructions using imperative verbs.	Write a guide: "How to survive the trials of Xibalba (The Underworld)."
Decoding	To interpret symbols and meanings in a text.	"Reading" a Mayan Stele (stone monument) to identify the date and the King's name.
Narrative	To describe settings and characters effectively.	Write a story about a "Day in the Life" of a scribe, focusing on the specialised tools and paints used.

Grammar & Punctuation Focus (The Maya Lens)

Parenthesis: "The Quetzal bird (prized for its green feathers) was sacred to **The Maya**."
Relative Clauses: "The High Priest, who wore a towering headdress, stepped onto the temple platform."
Modality: "If the rains do not come, the maize crop **might** fail."

Fun fact: **The Maya** had the most sophisticated and developed writing system in the pre-Columbian Americas. It was a logographic script, meaning that individual glyphs represented words or concepts.

Considerations for Implementation

Maths

We use the White Rose Maths Scheme. The information below is for enhanced provision purposes and do not replace the WRM lessons.

Substantive Knowledge

Substantive knowledge in Mayan Maths focuses on the specific symbols, the base-20 structure, and the calendrical systems they developed. It is the "factual" content that allows pupils to perform calculations and understand the Mayan world-view.

1. The Three Basic Symbols

The Maya used a remarkably simple system to represent any quantity. Pupils must know:

The Shell (0): Representing zero or a placeholder.
The Dot (1): Representing a single unit.
The Bar (5): Representing a group of five.

Pupils must also know the "rule of four": you can have no more than four dots in a row before they must be converted into a bar.

2. The Vigesimal (Base-20) System
Unlike our decimal (base-10) system, **The Maya** counted in groups of 20. **Substantive knowledge** includes:

Place Value Positions: In a vertical column, the bottom row is the **1s** (20^0), the second row up is the **20s** (20^1), the third row is the **400s** (20^2), and the fourth is the **8000s** (20^3).
Vertical Layout: Numbers are read from top to bottom, with the highest value at the top.

3. Calendrical Mathematics
The Maya used their maths to track time with incredible precision. Pupils should be aware of the two primary cycles:

The Tzolkin (Sacred Calendar): A 260-day cycle used for religious rituals.
The Haab' (Solar Calendar): A 365-day cycle consisting of 18 months of 20 days each, plus 5 "unlucky" days at the end.
The Calendar Round: The knowledge that these two calendars overlapped every 52 years, requiring complex mathematical synchronisation.

4. Geometric and Architectural Facts
The Maya applied maths to their physical environment in specific, measurable ways:
Symmetry: The use of bilateral symmetry in temple design.
The Step Pyramid: Understanding the 3D geometry of the *frustum* (a pyramid with the top cut off).
Orientation: The **substantive** fact that many buildings were aligned to specific degree measurements (180° South, etc.) to match astronomical events.

Key Vocabulary Checklist

Term	Definition
Vigesimal	A number system based on the number 20.
Base-10	The modern "decimal" system we use today.
Placeholder	A symbol (the shell) used to show an empty value in a position.
Algorithm	A step-by-step process for calculation (e.g., how **The Maya** added bars and dots).
Long Count	The Mayan linear calendar used for recording long periods of history.

Disciplinary Knowledge

In Key Stage 2 Mathematics, **disciplinary knowledge** for **'The Maya'** learning theme involves

understanding how a civilisation develops its own **logic, number systems, and computational methods**. It is about pupils learning to think like a **Mayan Mathematician**, moving away from our base-10 (decimal) system and exploring how the Maya used **vigesimal (also called vicesimal)(base-20)** logic to manage their empire, trade, and time.

1. Vigesimal Logic (The Power of 20)
While we count in groups of 10, **The Maya** used a base-20 system. **Disciplinary knowledge** here involves understanding why a culture might choose a specific base (likely based on 10 fingers and 10 toes).

Place Value: Understanding that in the Mayan system, positions move vertically and increase by powers of 20 (1, 20, 400, 8000) rather than powers of 10 (1, 10, 100, 1000).
Symbolic Efficiency: Recognising how only three symbols (a shell, a dot, and a bar) can represent any number, no matter how large.

2. The Concept of Zero
The Maya were one of the first civilisations to independently develop the concept of **Zero** as a placeholder.

Mathematical Placeholder: Understanding that a symbol for "nothing" is essential for complex place-value systems.
Abstraction: Recognising that the shell symbol represented a completed cycle or an empty position, allowing for sophisticated calculations in astronomy.
3. Computational Thinking: The Addition Grid
Disciplinary knowledge in Mayan maths involves the specific **algorithms** used for calculation.

Vertical Calculation: Instead of horizontal carrying, pupils learn the **disciplinary skill** of "regrouping" vertically. For example, knowing that five dots in one row "carry" to become one bar, and four bars in one position "carry" to become one dot in the position above it.
Mental Agility: Converting between a base-10 and a base-20 system requires high levels of mathematical flexibility and an understanding of the underlying structure of number systems.

4. Geometry and Measurement in Architecture
The Maya applied mathematical principles to their physical world through engineering.

Symmetry and Proportions: Analysing the "sacred geometry" used in the construction of pyramids like Chichen Itza.
Angular Alignment: Understanding the link between geometry and astronomy—specifically how the angles of a building's staircase were calculated to interact with the sun's light during equinoxes.
Non-standard Measurement: Exploring how **The Maya** used the human body (cubits, hand-spans) to standardise building measurements before the invention of the metre.

Disciplinary Skills Table

Skill	Mathematical Application
Comparative Analysis	Comparing the efficiency of Roman Numerals vs. Mayan Numerals.

Pattern Seeking	Identifying the 20-day cycles in the *Tzolkin* and *Haab'* calendars.
Synthesising	Using base-20 logic to solve modern word problems (e.g., "The merchant has 3 bars and 2 dots of cacao beans...").
Geometric Reasoning	Estimating the volume of a Mayan "step pyramid" using 3D shapes.

Learning Objectives

'The Maya' learning theme offers an opportunity to deepen children's understanding of **number systems**, **place value**, and **geometry**. By stepping outside of the standard base-10 system, pupils develop higher-level "mathematical flexibility." **Learning objectives** categorised by the National Curriculum strands:

1. Number and Place Value

Objective: To recognise the place value of each digit in a four-digit number (thousands, hundreds, tens, and ones).
Mayan Context: Pupils compare the modern decimal system with the Mayan **vigesimal (base-20)** system, identifying how value increases vertically in powers of 20 (1, 20, 400, 8000).
Objective: To read Roman numerals to 100 (I to C) and know that over time, the numeral system changed to include the concept of zero.
Mayan Context: Comparing the Mayan "shell" symbol for zero with other ancient systems that lacked a placeholder, exploring why zero is essential for calculations.

2. Addition and Subtraction

Objective: To add and subtract numbers with up to 4 digits using the formal written methods of columnar addition and subtraction where appropriate.
Mayan Context: Pupils use the "Mayan Addition Grid" to perform vertical calculations, learning the "regrouping" rules (e.g., 5 dots become 1 bar; 4 bars in one level become 1 dot in the level above).
Objective: To solve addition and subtraction multi-step problems in contexts, deciding which operations and methods to use and why.
Mayan Context: Solving "Marketplace Word Problems" (e.g., "A merchant trades 2 bars of cacao for 1 shell of maize; how many units remain?").

3. Geometry (Properties of Shape)

Objective: To identify 3D shapes, including cubes and other cuboids, from 2D representations.
Mayan Context: Analysing the geometry of a **step pyramid** (a series of stacked prisms) and identifying right angles and symmetry in temple architecture.
Objective: To identify horizontal and vertical lines and pairs of perpendicular and parallel lines.
Mayan Context: Investigating the precise linear alignments of Mayan observatories and how they intersect with astronomical horizons.

4. Statistics and Time

Objective: To solve comparison, sum, and difference problems using information presented in a line graph.
Mayan Context: Mapping the "Long Count" or solar calendar cycles on a timeline to calculate the difference in years between significant Mayan events (e.g., the founding of Tikal vs. Chichen Itza).
Objective: To read, write, and convert time between analogue and digital 12- and 24-hour clocks.
Mayan Context: Understanding the **intermeshing gear** logic of the *Tzolkin* (260 days) and *Haab'* (365 days) calendars to find out when the cycles "reset."

Lesson Ideas

Here is a complete, 6-week Medium-Term Plan for Key Stage 2 Mathematics framed around the historical and mathematical world of **'The Maya'**. This unit connects core National Curriculum Maths strands—**Vigesimal (Base-20) Place Value**, **Addition & Subtraction (Grid/Column Methods)**, **Multiplication & Division**, **Geometry & Symmetry**, and **Time, Calendars & Fractions**—with ancient Mesoamerican counting systems, monumental pyramid architecture, and astronomy. It balances **substantive knowledge** (Vigesimal place value columns [1, 20, 400, 8000], shell/dot/bar representations, column addition/subtraction, multiplication arrays, symmetry, and calendar conversion) with **disciplinary knowledge** ("Thinking & Acting Like a Mathematician"—pattern seeking, systematic problem-solving, base-conversion reasoning, algebraic equivalence, and evaluating architectural symmetry).

Unit Title: The Vigesimal Code: Maya Numerals, Pyramids, and Astronomical Time
Duration: 6 Weeks (Approx. 5 hours per week)
Theme: Maya Base-20 Place Value, Monumental Geometry, Architectural Symmetry, and Calendar Cycles.
Mathematical Contexts & Mayan Connections:
Maya Numeral System: A vigesimal (base-20) system using three symbols: a shell (zero/0), a dot (one/1), and a bar (five/5) arranged in vertical place value columns (1s, 20s, 400s, 8000s).
Pyramid Architecture: Step pyramid geometry, symmetry, volume of cuboids, and perimeter calculations of temple bases.
Calendrics & Time: The 260-day *Tzolkin* and 365-day *Haab* calendar cycles, modulo arithmetic, and fractional year calculations.
Key Mathematics Pillars
Substantive Knowledge:
Place Value: Base-10 vs. Base-20 structures, zero as a place-holder, reading and writing Maya numerals up to 8,000.
Calculation: Mental and written addition/subtraction using positional notation, column addition, multiplication via grid/array methods.
Geometry & Measurement: Reflective and rotational symmetry, 2D shape properties, perimeter and area of compound shapes, volume of 3D prisms.
Fractions & Time: Converting time intervals, calculating fractional parts of quantities based on 20s, reading calendar cycles.
Disciplinary Knowledge ('Thinking Like a Mathematician'):
Base System Comparison: Analysing how place value systems function when changing the base unit (10 →20).
Systematic Proof: Proving geometric symmetry and spatial patterns in temple layouts.
Mathematical Efficiency: Comparing calculation strategies across different historic numeral systems.

Weekly Progression Scheme
Week 1: The Code of Shells, Dots & Bars – Vigesimal Place Value
Maths Strand: Number & Place Value (Base-20 & Zero).
Substantive Knowledge:
LKS2: Value of Maya symbols (Shell = 0, Dot = 1, Bar = 5); vertical place value layers: Ones (1s) at the bottom, Twenties (20s) above; reading values up to 399 (19 x 20 + 19).
UKS2: Maya 400s (20^2) and 8,000s (20^3) place value columns; converting between Base-10 (decimal) and Base-20 (vigesimal) systems up to 16,000.
Disciplinary Knowledge:
Comparative Place Value: Evaluating the role of zero as a crucial placeholder across vertical and horizontal

positional number systems.

Practical Maths Activity:

LKS2 (Y3/4): *Maya Numeral Decoding.* Pupils construct numbers up to 399 using physical counters (beans = dots, sticks = bars, shells = zero) stacked in a 2-tier place value board.

UKS2 (Y5/6): *Base-10 to Base-20 Conversion Challenge.* Pupils translate four-digit decimal numbers into 3-tier and 4-tier Maya vertical numerals, proving accuracy via expanded additions (e.g., [3 x 400] + [5 x 20] + [12 x 1] = 1,312).

Week 2: Adding and Subtracting in the Temple Grounds – Calculations

Maths Strand: Addition & Subtraction (Mental & Written Methods).

Substantive Knowledge:

LKS2: Adding and subtracting using Maya symbols; grouping 5 dots into 1 bar; exchanging 4 bars (20) for 1 dot in the 20s row above.

UKS2: Column addition/subtraction strategies using Base-20 values; multi-step word problems involving trade routes, population counts, and agricultural yields.

Disciplinary Knowledge:

Algebraic Equivalence: Proving that symbol regrouping (5 dots = 1 bar; 4 bars = 1 dot in higher position) maintains equivalent numeric value.

Practical Maths Activity:

LKS2 (Y3/4): *Regrouping Addition Station.* Pupils solve addition problems using physical Maya counters, exchanging 5 dots for 1 bar, and 4 bars for 1 dot moved up to the 20s row.

UKS2 (Y5/6): *Mesoamerican Trade Ledger Calculations.* Pupils complete complex multi-step addition and subtraction problems from an archaeological trade inventory, converting data into formal written Base-10 column methods to verify answers.

Week 3: Multiples of the Rainforest – Multiplication & Area Arrays

Maths Strand: Multiplication & Area Models.

Substantive Knowledge:

LKS2: Multiplication arrays; scaling quantities by 20; multiplying 1digit numbers by multiples of 10 and 20.

UKS2: Long multiplication using the grid method based on score (20) units; calculating area of rectangular agricultural fields (*milpas*) in m^2.

Disciplinary Knowledge:

Mathematical Efficiency: Comparing array models vs. formal written multiplication when calculating large areas.

Practical Maths Activity:

LKS2 (Y3/4): *Cacao Array Grids.* Pupils design cocoa plantation arrays using dot-and-bar grids to multiply single-digit factors by 20.

UKS2 (Y5/6): *Milpa Field Area Investigation.* Pupils calculate the surface area of irregular compound farmland plots using grid multiplication and partitioning strategies (Area = Length x Width).

Week 4: Geometry of the Step Pyramid – Symmetry, Shapes & Perimeter

Maths Strand: Geometry (2D/3D Shape Properties, Symmetry & Perimeter).

Substantive Knowledge:

LKS2: Identifying 2D shapes in architectural elevations (trapezoids, squares, rectangles); finding vertical and horizontal lines of symmetry; calculating perimeters of regular/irregular polygons.

UKS2: Rotational symmetry of step pyramids; 3D shape properties (frustums, square-based pyramids, prisms); calculating volume of 3D tiered structures (V = length x width x height).

Disciplinary Knowledge:
Geometric Proof: Demonstrating how architectural symmetry provides structural balance in monumental masonry.
Practical Maths Activity:
LKS2 (Y3/4): *Symmetry in Temple Facades.* Pupils draw lines of symmetry across scale blueprints of Chichen Itza temple elevations, calculating perimeter lengths in metres.
UKS2 (Y5/6): *Pyramid Tier Volume Challenge.* Pupils calculate the total composite volume of multi-tiered step pyramid models by working out the volume of individual cuboid levels (V = l x w x h) and summing them systematically.

Week 5: The Wheel of Time – Fractions, Ratios & Calendars
Maths Strand: Fractions, Decimals, Ratios & Time.
Substantive Knowledge:
LKS2: Expressing calendar parts as fractions (e.g., 5 days out of 20 = $\frac{5}{20}$ = $\frac{1}{4}$; converting between days, weeks, months, and years; reading analogue/digital time intervals.
UKS2: Ratios between calendar cycles (260-day Tzolkin vs. 365-day Haab); calculating LCM (Lowest Common Multiple) to determine when the two calendars align (18,980 days = 52 years); simplifying fractions.
Disciplinary Knowledge:
Pattern Seeking & Cycle Ratios: Analysing recurring mathematical cycles to predict future coincidences in overlapping calendar gears.
Practical Maths Activity:
LKS2 (Y3/4): *Vigesimal Time Fractions.* Pupils solve fraction reduction problems using the 20-day Maya month cycle ($\frac{10}{20}$ = ½, $\frac{15}{20}$ = ¾).
UKS2 (Y5/6): *Calendar Gear LCM Investigation.* Pupils use prime factorisation and LCM algorithms to prove why the 260-day and 365-day calendar wheels align exactly every 52 solar years (18,980 days).

Week 6: The Maya Maths Olympiad – Problem Solving & Synthesis
Maths Strand: Problem Solving, Reasoning & Data Presentation.
Substantive Knowledge:
LKS2/UKS2 Synthesis: Applying Base-20 place value, written calculation methods, area/volume formulas, and ratio reasoning to solve complex multi-step mathematical puzzles.
Disciplinary Knowledge:
Mathematical Communication: Explaining problem-solving steps clearly using mathematical notation, diagrams, and formal proof.
Practical Maya Maths Festival:
LKS2 & UKS2: *The "Mesoamerican Mathematical Code" Challenge.*
Station 1: Codex Cipher Room: Decoding complex Base-20 multi-digit numbers from authentic glyph scripts.
Station 2: Architect's Workbench: Designing scale pyramid blueprints adhering to precise perimeter, area, and volume constraints.
Station 3: Astronomer's Wheel: Solving fraction and ratio problems based on planetary alignment schedules.
Plenary: Pupils present their mathematical proofs and problem-solving strategies to the class.

Assessment Matrix (Progression Indicators)

Phase	Working Towards	Expected Standard	Greater Depth
Lower Key Stage 2 *(Years 3 & 4)*	• Reads Maya symbols up to 19 but struggles with 20s place value layers. • Adds Maya numerals without exchanging 5 dots for a bar. • Identifies lines of symmetry on simple shapes but struggles on pyramid facades. • Expresses fractions of 20 with visual support only.	• Converts Maya numerals up to 399 into decimal values accurately using place value boards. • Performs addition/subtraction using symbol exchange rules (5 dots = 1 bar). • Identifies lines of symmetry and calculates perimeters of step pyramid elevations. • Simplifies time fractions based on a 20-day unit ($\frac{5}{20}$ = ¼).	• Translates fluently between decimal and Base-20 systems for three-digit numbers. • Explains the mathematical necessity of the zero placeholder symbol in positional systems. • Solves complex compound perimeter and area problems on pyramid blueprints independently. • Explains equivalence between fractional parts of 20 and decimal representations.
Upper Key Stage 2 *(Years 5 & 6)*	• Reads 20s row but gets confused by 400s (20^2) place value layers. • Multiplies numbers using arrays but makes calculation errors with multiples of 20. • Calculates area of simple rectangles but struggles with compound 3D pyramid volume. • Finds common multiples for simple single-digit numbers only.	• Converts 4-tier Maya numerals up to 16,000 into Base-10 integers accurately. • Uses formal written methods to solve multi-step Base-20 calculation word problems. • Calculates total volume of compound tiered pyramids using V = l x w x h. • Calculates Lowest Common Multiples (LCM) to prove calendar cycle alignments.	• Devises general algebraic rules for converting any integer into Base-20 vertical notation. • Evaluates calculation efficiency between Base-10, Base-20, and Roman numeral systems. • Solves complex optimisation problems involving maximum pyramid volume under material constraints. • Formulates mathematical proofs for overlapping cycle problems involving multiple ratios.

Other Information, Ideas and Resources

Topic	Learning Objective	Activity Example
Number Sense	To translate between different number systems.	Convert your birthday or house number into Mayan bars, dots, and shells.
Place Value	To understand vertical place value.	Build a "Place Value Tower" using cups to represent the 1s, 20s, and 400s positions.

Calculation	To use non-standard algorithms for addition.	Use beans (dots) and lolly sticks (bars) to solve Mayan addition sums on a floor grid.
Geometry	To recognise symmetry in ancient design.	Use mirrors to identify reflective symmetry in Mayan masks and glyphs.

Considerations for Implementation

Courageous Advocacy

In the context of the Key Stage 2 curriculum, **Courageous Advocacy** involves pupils taking a stand for justice, heritage, and the environment. Using **'The Maya'** learning theme, pupils can move beyond historical study to support the living descendants of **The Maya** and protect the landscapes they originated from. These are practical ideas for courageous advocacy projects:

1. Protecting the 'Lungs of the Earth' (Environmental Advocacy)
The Maya thrived in the rainforest, but today the Mesoamerican jungles face rapid deforestation.

The Action: Pupils can research the impact of deforestation on the **Petén Basin** (the Mayan heartland).
Advocacy Idea: Partner with an organisation like *Rainforest Trust* or *WWF*. Pupils can write "Letters to the Future" or record a podcast explaining why protecting these forests is vital for global climate health, not just local history.
Goal: Raising funds to "adopt" an acre of rainforest or lobbying local supermarkets to stock only sustainable, deforestation-free products.

2. Supporting Modern Maya Artisans (Fair Trade Advocacy)
The Mayan people are a living culture, yet many modern Mayan communities in Guatemala and Mexico face economic hardship.

The Action: Learn about traditional Mayan weaving and cacao (chocolate) farming.
Advocacy Idea: Host a "Maya Marketplace" at school that exclusively features **Fair Trade** chocolate and textiles. Pupils create placards explaining the "Power of the Purchase," showing how fair wages help modern Mayan families keep their traditions alive.
Goal: Educating the school community on how global trade impacts indigenous livelihoods.

3. Cultural Heritage and Museum Ethics (Justice Advocacy)
Many significant Mayan artefacts are held in museums far from Central America.

The Action: Investigate the concept of **repatriation**—the return of artefacts to their country of origin.
Advocacy Idea: Pupils can write formal, persuasive letters to museum curators or their local MP. They can argue for "Digital Repatriation" (where high-quality 3D scans are shared) or for more prominent credit to be given to modern Mayan voices in museum displays.
Goal: Challenging the idea that history "belongs" to the person who finds it, rather than the culture that created it.

4. Indigenous Rights and Language Preservation
Maya languages (like K'iche' or Yucatec) are still spoken by millions but are often under-represented in media and education.

The Action: Explore the importance of linguistic diversity.
Advocacy Idea: Pupils can create a "Language Awareness" campaign. They could learn a few phrases in a Mayan language and petition for more diverse books in the school library that feature indigenous protagonists or bilingual text.
Goal: Standing up against cultural "erasure" and celebrating the persistence of indigenous identities.

Summary of Advocacy Themes

Project	Focus	Target Audience
Save the Selva	Biodiversity	Local Community / Global Charities
The Cacao Connection	Ethical Trade	School Parents / Local Shops
Whose History?	Cultural Justice	Museums / Government
Voices of the Maya	Diversity	School Library / Publishers

'Courageous advocacy is not just about helping; it is about speaking out against the causes of inequality and seeking long-term change.'

Developing Spirituality

Developing spirituality in Key Stage 2 isn't necessarily about religion; it's about the **'Self, Others, World, and Beyond.'** **'The Maya'** learning theme is particularly powerful for this because their worldview integrated the physical and spiritual realms into every aspect of life.
These are ways to develop spirituality through the lens of **The Maya**:

1. Sense of Awe and Wonder (The World)
The Maya were deeply attuned to the cycles of the cosmos and the complexity of the rainforest.
The Idea: 'The Great Interconnectedness.' Explore the Mayan belief that the gods, humans, and nature were bound together.
Activity: Use the "Three Sisters" (Maize, Beans, Squash) as a spiritual metaphor. Reflect on how these plants support one another to survive.
Spiritual Reflection: Ask pupils to sit in a "Rainforest Stillness" (using soundscapes). Reflect on the question: *"If every living thing is connected, how does my behaviour change toward the environment?"*

2. Personal Identity and Worth (The Self)
The Maya believed every person had a *way*—a companion spirit or animal co-essence.

The Idea: 'The Spirit Within.' This helps children explore their own character traits and inner strengths.
Activity: Instead of just choosing a favourite animal, pupils research animals **The Maya** respected (Jaguar for strength, Quetzal for beauty, Hummingbird for speed). They identify which animal reflects their own *internal* qualities.
Spiritual Reflection: Creating "Spirit Masks" that show the "outer" face (how others see them) and the "inner" animal (their hidden strengths).

3. Empathy and Shared Humanity (Others)
The Maya faced immense challenges, including long droughts that threatened their civilisation.
The Idea: 'Resilience and Sacrifice.' While we might find Mayan sacrifice difficult to understand, we can explore the *concept* of putting the community's needs above the individual's.
Activity: Discuss the "Common Good." Look at how **The Maya** built great reservoirs to save water for everyone.
Spiritual Reflection: Create a "Community Well." On blue paper "water droplets," children write one thing they can "sacrifice" (time, a toy, being first in line) to help the class thrive.

4. The Mystery of Time (The Beyond)
The Maya viewed time not as a straight line, but as a series of vast, repeating circles.
The Idea: 'Legacy and the Long Count.' This helps children grapple with their place in history.
Activity: Introduce the "Long Count" calendar. Discuss how **The Maya** recorded dates thousands of years into the future.
Spiritual Reflection: "The 100-Year Echo." Ask pupils to imagine a child standing on the same spot 100 years from now. What "echo" or message would they want to leave behind? This encourages a sense of belonging to something larger than their own lifespan.
Summary of Spiritual Growth

Dimension	Maya Focus	Pupil Reflection
Windows (The World)	The vastness of the stars and the jungle.	Gaining a sense of awe for the natural world.
Mirrors (The Self)	The "Way" (Animal companion/spirit).	Reflecting on their own unique character.
Doors (Others)	Rituals for the common good.	Learning to act with empathy for the community.
Centuries (Beyond)	The circular nature of time.	Considering their legacy and place in the universe.

Other

Extracurricular activities provide a "hands-on" depth that the standard classroom timetable often can't accommodate. For **'The Maya'** learning theme, these ideas focus on immersive experiences, craft, and community engagement.

1. The 'Chocolatier' Club (Cuisine & Enterprise)
Cacao was so valuable to the Maya that it was used as currency.

The Activity: Pupils explore the journey from bean to bar. They can roast cacao nibs, grind them using a traditional *metate* (or mortar and pestle), and create "Mayan Hot Chocolate" using chili and vanilla instead of sugar.
Extra Mile: The club can design their own "Mayan Currency" (clay cacao beans) and run a stall at the school fair, selling ethically sourced chocolate treats to raise money for rainforest conservation.

2. Maya 'STEM' Construction Club
The Maya were master engineers who built massive structures without the wheel or metal tools.

The Activity: Using Lego, wooden blocks, or cardboard, pupils attempt to build a scale model of the **Temple of the Inscriptions**.
The Challenge: They must incorporate a **Corbel Arch** (the Mayan's signature architectural feature) and ensure the structure can support a specific weight at the top.
Outdoor Twist: Try building a life-sized "chultun" (water reservoir) in the school sandpit or garden to test how gravity-fed irrigation works.

3. The 'Hero Twins' Drama & Mask-Making
Mayan mythology is incredibly cinematic. The story of the Hero Twins journeying to the underworld (*Xibalba*) is perfect for a multi-week drama project.

The Activity: Pupils design and create elaborate "God Masks" using papier-mâché, feathers, and "obsidian" (black painted stones).
The Performance: They script and perform a play based on the *Popol Vuh*. They could even use "Shadow Puppetry" to represent the dark trials of the underworld, mimicking the flickering firelight of a Maya cave ceremony.

4. Junior Archaeologists: The 'Trench' Experience
The Activity: Create a "dig site" in a large planter or a corner of the school field. Bury "artefacts" (broken pottery with glyphs, jade-coloured beads, and plastic bones).

The Skill: Pupils learn the painstaking process of gridding a site, using brushes to uncover finds, and recording them in an "Archaeological Log."
The Reveal: At the end of the term, they curate a "Museum of **The Maya** " in the school hall, acting as tour guides for parents and younger year groups.

5. Ancient Athletics Club
Moving beyond the PE lesson, this club focuses on the specialised sports and fitness of **The Maya**.

The Activity: Practice the "Hip-Strike" ball game using soft, weighted balls. They can also practice "Mayan Archery" (using safe, suction-cup arrows) or "The Messenger Relay," where teams must pass a "message glyph" across an obstacle-heavy "jungle" course.

The Tournament: End the term with a school-wide *Pok-a-Tok* tournament, complete with traditional face paint and drumming.

Extracurricular Snapshot

Club Name	Core Subject	Primary Outcome
Mayan MasterChefs	DT / History	Making and selling "Sacred Cacao" drinks.
Pyramid Builders	Science / Maths	Building a stable 1:50 scale temple model.
Mayan Myth Makers	English / Art	A public performance of the *Popol Vuh*.
The Dig Team	History / Geography	Cataloguing "found" artefacts in a school dig.