Somerset Council

Somerset Inclusive Curriculum Framework 2026-27

A coherent and rich curriculum architecture to help every learner in every setting to belong, achieve and thrive

The Somerset Inclusive Curriculum Framework is an evidence-informed architecture for an ambitious, coherent and rich curriculum that every learner can access, and every setting can enact through the contexts which are right for their community of learners.

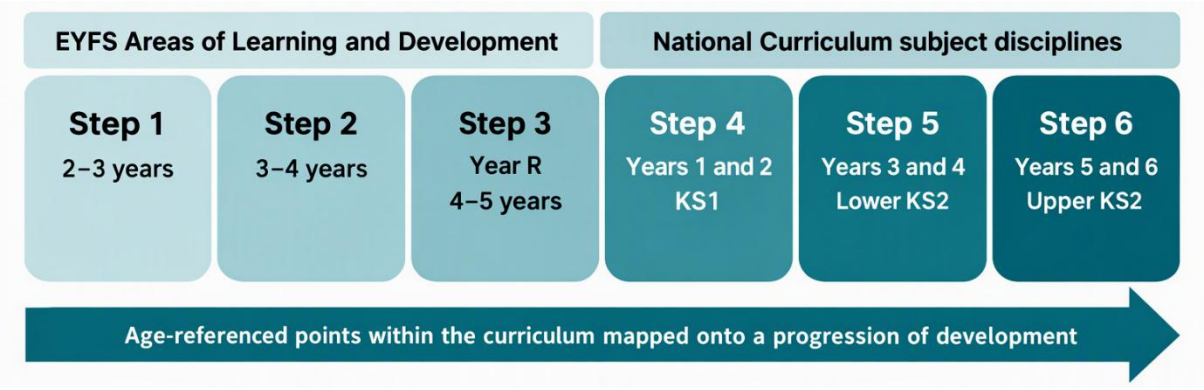
1 One curriculum journey for everyone

The framework at a glance

The Somerset Inclusive Curriculum Framework offers one connected curriculum journey from the earliest stages of development to the end of Key Stage 2. It begins with the educational programmes and Early Learning Goals of the Early Years Foundation Stage and continues into the subject disciplines of the National Curriculum.

It is designed for educators in early years settings, mainstream and special schools, PRUs, alternative provision, and inclusion bases – both support and specialist. It is not a separate curriculum for particular groups of learners. Instead, it provides a shared entitlement that can be delivered flexibly for different learners, communities and places.

The framework offers a model for curriculum design that settings can use to strengthen the resources they already adopt or create, rather than replace them. It supports high-quality Ordinarily Available Inclusive Practice at every stage of the graduated response, keeping a coherent and rich curriculum at the heart of teaching and support.



The steps are age-referenced points within a progression of development and curriculum knowledge. They indicate where most learners are likely to encounter particular knowledge, but they do not prescribe a single pace or pathway. A learner may need to revisit knowledge from an earlier step in one area while engaging with age-appropriate or more advanced knowledge in another. The steps therefore support educators to identify gaps, trace prerequisite knowledge and plan accessible routes through the shared curriculum.

Steps describe curriculum reference points, not fixed levels assigned to learners.

A learner may engage with knowledge associated with different steps in different areas. Communication, reading, mathematics, personal development and understanding of the world may develop unevenly. Educators should therefore avoid labels such as ‘a Step 2 child’ or placing a learner at one step across the whole curriculum.

Three connected curriculum purposes

All learning in the curriculum can be understood through three broad areas, which align to the three purposes of any curriculum offer:



2 One model of learning for everyone

The heart of curriculum design is choosing what you want learners to notice about the world.

Notice and name, compare and wonder, and predict and reason begin in the earliest stages of development and continue throughout the curriculum, becoming increasingly sophisticated.

Notice and name → Compare and wonder → Predict and reason

Notice and name

This is where learning and curriculum design begin. Educators decide what matters, direct learners' attention towards it and give it a clear name. At the earliest stages this begins with nouns and verbs, followed by adjectives that describe qualities, properties and relationships. As learning becomes more sophisticated, learners notice and name increasingly abstract ideas and concepts, such as ‘sustainability’, ‘trade’, or ‘artistic composition’.

Compare and wonder

Learners need repeated encounters with the same concepts through varied contexts. Educators help them ask:

What is similar? **What is different?** **What has changed?**

At earlier stages of development, we might ask children, ‘Do you remember when we saw this before?’ When children are working within subject disciplines, grouping knowledge into a handful of manageable concepts which we deliberately return to repeatedly throughout the curriculum allows for richer and deeper comparison.

Predict and reason

Learners draw on connected knowledge to anticipate, infer, classify, explain, justify, evaluate and solve problems. Knowledge becomes usable rather than remaining as isolated information. Learners increasingly use and apply their knowledge, developing the distinctive ways of thinking within different subject disciplines.

Concepts or 'big ideas' give knowledge somewhere to go. They help a learner recognise that a new example belongs to a group of ideas encountered before.

Big questions and big ideas

Repeated and meaningful encounters are essential for remembering. When knowledge is revisited, retrieved and connected in different contexts, learners are more likely to retain it and use it flexibly.

The human brain looks for patterns. Our brains create schema – webs of knowledge – which help us to remember and link new ideas to existing knowledge. Concepts or 'big ideas' within a subject discipline are best used when they are few, and shown repeatedly, but become increasingly complex as learning develops.

In the Somerset Inclusive Curriculum Framework, similar knowledge is grouped under a handful of 'big ideas', which we recommend learners are shown explicitly. Together, with a few big questions, we help children and young people to understand the disciplinary thinking and subject-specific richness of the curriculum.

For example, 'Thinking like an artist' means asking what an artwork communicates and how it uses line, colour, shape and form, texture and pattern, and composition to do so. These concepts develop in complexity: learners may first distinguish geometric and organic shapes, then explore how light and shadow create the illusion of three-dimensional form – but in both cases, learners are shown these as ways to understand the single big idea of 'shape and form'.

Same concepts. Different contexts. Increasingly complex.

A coherent and rich curriculum then, is based around one simple thought: we show the same handful of concepts again and again through a range of different and engaging contexts (themes, topics, experiences and stories), with the demonstration of those concepts becoming increasingly complex as learning develops.

The same handful of concepts,

shown through different and rich contexts,

becoming increasingly complex.

The Somerset Inclusive Curriculum Framework has suggested the concepts with their increasing complexity so that educators can focus on how to bring these to life through a range of relevant and engaging contexts which they enjoy teaching and children enjoy learning.

3 How settings can use the framework

The framework is an exemplified architecture: it shows how concepts and essential knowledge can be organised into a coherent and rich curriculum. It is not a prescribed scheme of work or a sequence of activities to copy. Use it to decide what learners need to understand, then choose the texts, examples, experiences and contexts that will bring that knowledge to life for your learners. The framework suggests the specific knowledge to be taught at different stages of development – the educator decides how to bring this to life.

Two connected resources

The Somerset Inclusive Curriculum Framework provides the specific, essential knowledge, big ideas and big questions that educators can start from. There are two main sets of resources: concept progressions and core knowledge grids.

Concept progressions show the recurring 'big ideas' within a subject and how understanding of them becomes increasingly complex. Use them to connect new learning with earlier encounters and see where it leads next.

History			Concept progression		Building blocks to the big ideas	
What was life like in the past?			Why is the world the way it is today because of what happened in the past?		How do we know about the past?	
		Everyday Life		Hierarchy and Power		Invasion and Settlement
Step 4 - KS1	homes	Places where people live that provide shelter and warmth.	leaders	People who guide or direct others, making decisions and setting examples for a group.	community	A group of people who live or work together in the same place.
	food	Things people eat to stay healthy and grow.	laws	Rules made by leaders that everyone must follow to keep society safe.	resources	Things people need and use, like food, water, and materials.
	clothing	Clothes people wear to cover and protect their bodies.	fairness	Treating all people in the same way and giving everyone the same opportunities.	settlement	A place where people build homes and live together.
	childhood	The time in a person's life when they are a child, growing, learning, and playing before becoming an adult.	monarchy	A type of leadership when a country is ruled by a king or a queen.	transport	Ways people and things move from one place to another, like by walking, riding, or using vehicles.
	technology	Tools and machines people use to help them do things.	absolute power	Complete control over everything without anyone being able to stop them.	nation	A large group of people living in one country, often with the same government.
Step 5 - LKS2	language	The words and ways people talk and write to share ideas.	chieftain	A leader of a tribe or clan who holds authority and makes decisions for the group, often based on their leadership skills and ability to protect and provide for their people.	agriculture	Growing plants and raising animals for food and other things people need.
	literature	Stories, poems, and books people read or listen to.	council	A group of people who come together to make decisions and give advice about important matters.	technology	Tools and machines people use to help them do things.
	religious belief	What people believe about gods, life, and how to live.	government	A group of people who make rules and decisions for a country to help keep it running smoothly. There are different types of government.	exploration	Travelling to new places to find out what is there.
	values	The important ideas and beliefs that guide how people behave and make choices.	democracy	A way of running a country where people vote to choose their leaders and have a say in decisions.	invasion	When a group of people enters another place by force to take control.

Core knowledge grids set out the specific knowledge to teach, revisit and assess within those ideas. Use the two together: the progression shows the connections; the grid helps you decide precisely what to teach.

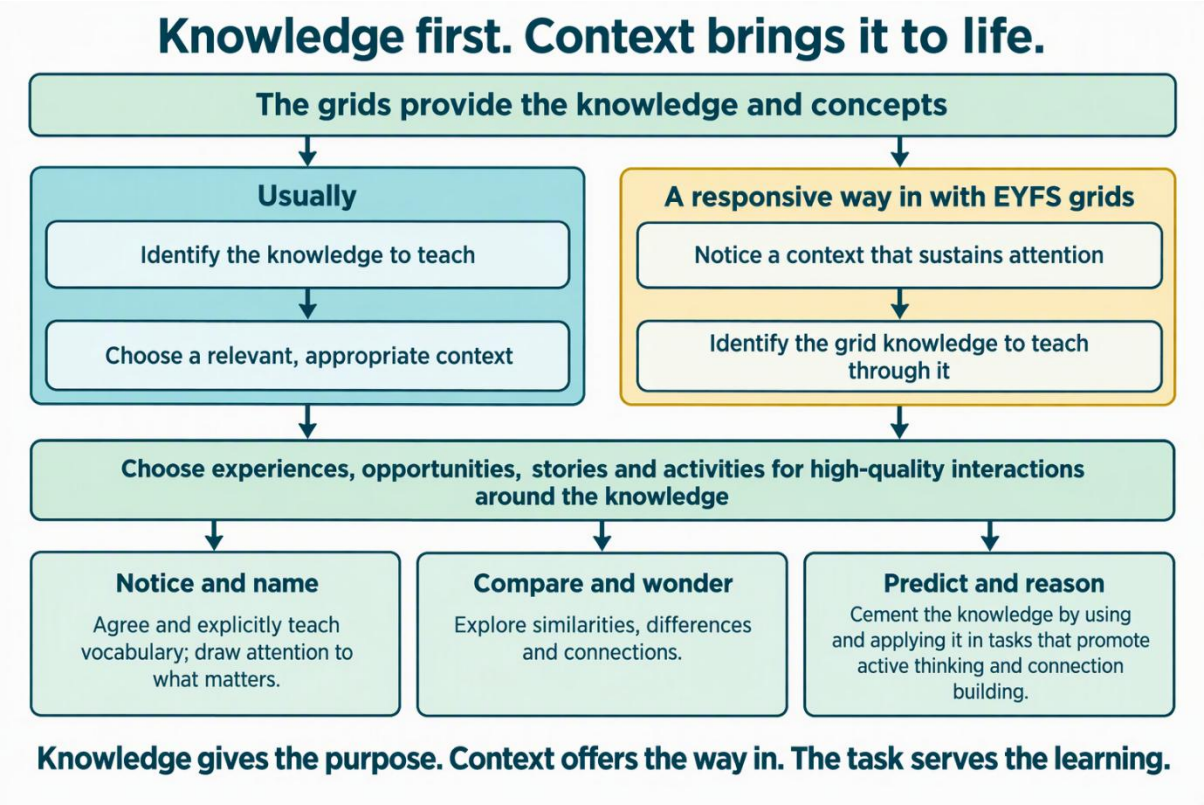
History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Thinking like a historian – how do we know about the past?	We know about the past because we can look at historical sources and ask questions.	Historical sources are things that were created at the time in the past we are thinking about.	There are six main types of historical source: people who remember; videos; photos; artwork; writing; artefacts.	People can be historical sources if they existed in and remember a time in the past we want to ask questions about.
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Some people who lived in the past were significant people because they invented, said or did things that changed the world from that point on.	Some important events that happened in the past were significant because they changed the way people lived.	When something in the past changes the way people live after that, we call it a legacy.	A legacy might be seen through objects that have lasted, or the way people think, speak, and behave.
Everyday Life	The past is everything that has already happened. The present is what is happening now.	Adults today were once children. Their childhood is part of the past.	Some events happened within living memory: people alive today can remember them.	Some events happened before anyone alive today was born. No one alive today remembers them happening.
	Events happen in an order. 'Before' and 'after' tell us when one event happened compared with another.	A timeline shows events in the order they happened, from earlier to later.	The past includes many different times. Not everyone we learn about lived at the same time.	Dates tell us when things happened. A year helps us place an event on a timeline.
Hierarchy and Power	People in the past needed food, water, clothing and shelter, just as people do today.	Homes, clothes, work and play can be different at different times in history.	As time passes, some things change and other things stay the same.	People living at the same time did not all have the same way of life.
	Inventions can change how people live, work, travel and share news.	Some changes happen quickly. Others happen slowly over many years.	Things happen for reasons. What happens can lead to other events and changes.	Places have a history. Buildings and objects from the past can still be found where people live today.
Invasion and Settlement	In the past, some people had more power than others. They could make decisions that affected other people.	Rules and laws have changed over time. Things people were allowed to do in the past may be different today.	People with more money often had different homes, work and opportunities from people with less money.	People have worked together to change rules and improve their lives.
	People have moved to new places throughout history to find homes, work or safety.	When people settle somewhere, they make it their home. A settlement is a place where people live.	An invasion is when a group enters another land to take control of it by force.	When people move, they bring ideas, skills and ways of life. These can change the places where they settle.

For Steps 1–3, knowledge and concept progression are combined in the one-page EYFS grids. The concept progressions and knowledge grids are included in the appendices of this document.

Understanding the World									
Key ideas		**Step 1 – noticing and naming (2-3 years)**			**Step 2 – comparing and wondering (3-4 years)**			**Step 3 – predicting and reasoning (4-5 years)**		
Language and thinking development		The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing and wondering continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:		*What can you see?*	*What can you hear?*	*What is it called?*	*What is the same?*	*How is this one different?*	*I wonder why...*	*What do you think will happen?*	*Why do you think that?*	*What clues do you have?*
Land, sea and sky		**Children notice and name features of the world around them. Discussion focuses on what they can see, hear, and experience in the environment.**			**Children compare places, weather and natural features. Discussion focuses on similarities, differences and patterns over time.**			**Children use what they know and what they can observe to predict, explain and reason about changes in weather, seasons, and the world around them.**		
		Land, water, and sky can be seen all around us.	There are different types of weather.		Land can look different in different places.	The sky can look different depending on the weather.	The sky looks different in the day and at night.	Seasons cause changes in plants, animals, and weather.	Weather can change how places look.	Wind can move objects such as leaves and clouds.
		The sun, moon and stars can be seen in the sky.	People wear different clothes for different weathers.		The weather changes.	Water can be found in different places.	The Sun and moon give us light.	Water freezes into ice when it is cold.	Earth is the planet where people, plants and animals live.	People can care for the natural environment.
Plants		**Children notice and name different plants and plant parts. Discussion focuses on what things are called, building vocabulary.**			**Children compare plants and plant parts. Discussion focuses on similarities, differenes, and patterns. Consider colour, size, health, age, texture, scent.**			**Children use what they know and what they can observe to predict, explain and reason about how plants grow, change and survive.**		
		Plants are living things.	There are different kinds of plants and trees.		Plants can be different shapes, colours and sizes.	Plants grow and change over time.	Plants need water to stay healthy.	People can care for plants and the places where they grow.	Flowers can grow into fruits and seeds.	Plants need water and light to grow.
		Plants can be touched, smelled and observed.	Some plants have flowers.		Fruits and vegetables come from plants and trees.	Seeds and bulbs can grow into new plants.	Some plants can be harmful if touched or eaten.	Different plants have different needs.	Different seasons bring changes to trees and plants.	People grow plants for food for animals and humans.
Animals		**Children notice and name different animals and their body parts. Discussion focuses on what animals are called and what can be observed.**			**Children compare animals and notice similarities, differences and patterns. Discussion focuses on appearance, behaviour and where animals live, encouraging curiosity and questions.**			**Children use what they know and what they can observe to predict, explain and reason about how animals live, grow and meet their needs.**		
		Animals are living things.	There are different kinds of animals.		Animals can be grouped according to their features.	Different animals move in different ways.	Different animals eat different food.	Animals need food, water and shelter to survive.	People can help care for and protect animals and their habitats.	A habitat is a place where an animal lives.
		Animals have different body parts.	Animals move and make sounds.		Animals live in different places.	Adult and baby animals can look different.	Animals have different coverings, such as fur, feathers or scales	Animals grow and change over time.	Animals need the right environment to survive.	Animals and plants depend on one another.
People and communities		**Children notice and name people who are important to them – family, friends, and key adults.**			**Children compare themselves to others and notice similarities and differences between people, families, and communities.**			**Children use what they know and what they can observe to explain how people live, grow, help one another, and contribute to communities.**		
		People can help one another.	People have parties and celebrations.		People have lots of similarities and differences.	Different people celebrate different events	People use technology for different purposes.	People choose technology to help achieve a purpose.	People celebrate important events, beliefs and traditions.	Communities are made up of lots of different people.
		People have names.	People do different jobs.		Different jobs help people in different ways.	People live in different homes and in different families.	People change and grow over time.	People contribute to communities in different ways.	Photos and stories help us to learn about people in the past.	Some things about life have changed over a long time.
Places		**Children notice and name familiar places in their immediate environment. Discussion focuses on recognising, identifying, and talking about places that are important to them.**			**Children compare places and begin to notice similarities and differences. Discussion encourages children to talk about experiences, observations and patterns they notice in the environments they encounter in real life and through stories.**			**Children use their observations and experiences to explain why places are like they are, and how they meet people's needs.**		
		We live in homes.	People visit different places.		Places can look different from one another and have different features.	Places can be represented using objects, pictures and maps.	Places can be near or far away.	Some places are important to different people and communities.	Maps can be used to find out about places.	People can use maps to follow a route from one place to another.
		Some places are special to people.	We travel between places by walking or using a vehicle.		Different places have different purposes.	People can live in different places.	Some places are natural and some are made by people.	Photos and stories can help us find out about places in the past.	People can move from where they were born to new places, homes or countries.	Places change over time.

From architecture to curriculum planning

Knowledge gives planning its purpose. Usually, educators identify what to teach, then choose a relevant context and teaching approach. With the EYFS grids, an engaging context may offer the way in: the practitioner identifies which knowledge can be taught through it.



Choose contexts that help learners recognise themselves and their connections, but also broaden what they encounter. ‘Community’ does not mean only the village or town around the setting: it includes the identities, cultures, languages, histories, experiences and relationships represented by learners, families and staff. A coherent and rich curriculum draws on these connections while introducing unfamiliar people, places, perspectives and possibilities. The concepts remain connected across the curriculum; the contexts need not be the same in every setting.

The architecture is shared. Its enactment is responsive.

4 Making the same curriculum accessible for all

When learners have different starting points, communication needs or uneven learning profiles, begin with the same concepts and knowledge, then identify an accessible way in, as Early Years practitioners would. Use the progressions and grids in the appendices to trace earlier knowledge that may need teaching or revisiting within the same overarching concept. Adapt how learners encounter and respond to the knowledge, rather than automatically replacing it with unrelated activities or assigning them one step across every subject.

Non-verbal learners: naming does not have to be spoken

'Naming' means connecting what is noticed with a word, sign, symbol or other consistent representation; it does not require a spoken answer from the learner. Learners may demonstrate recognition through speech, signing, gesture, symbols, objects of reference, eye gaze, augmentative and alternative communication (AAC), selection or movement.

Exploring different ways for non-verbal learners to communicate is crucial – it requires repetition and patience. **Do not assume that difficulty expressing an answer means difficulty understanding the knowledge.**

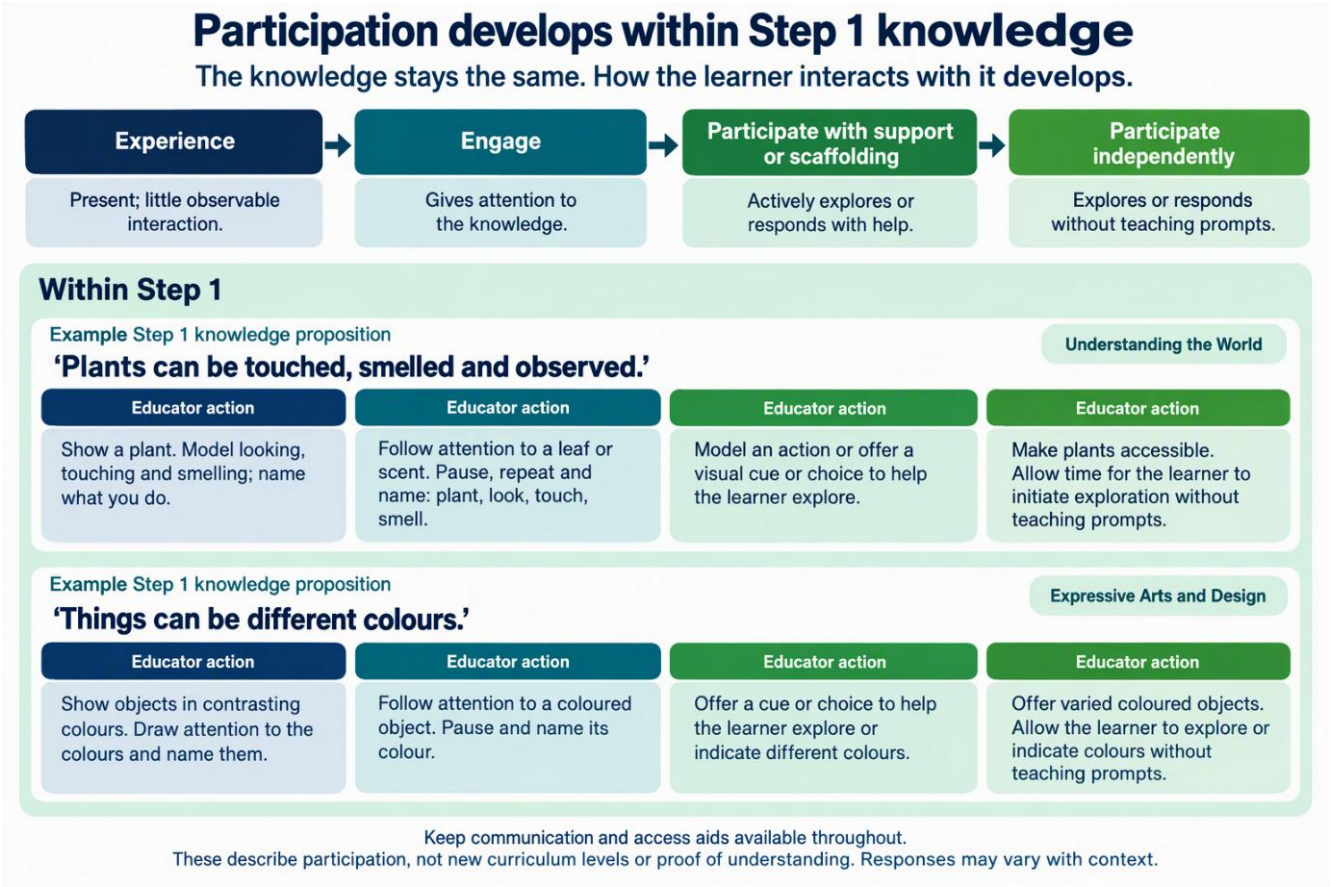
Where understanding is uncertain, continue to offer a coherent and rich curriculum through high-quality interactions and accessible responses. Sensory experiences can provide a route into knowledge, rather than replacing it. Observe the learner's responses and adapt the experience, without assuming that limited expression means limited understanding.

Build strong foundations alongside ambitious curriculum learning

Do not lower the ambition of the knowledge you teach because a learner's reading or writing skills are still developing. A child or young person who cannot yet record an answer with accurate spelling, grammar and punctuation may nevertheless understand and explain complex ideas orally. For example, a learner still practising the transcription of simple sentences may be ready to understand fronted adverbials or parenthesis. Continue teaching this knowledge so that gaps in understanding do not widen while transcription skills develop. Experiences, reading aloud, listening, interaction and talk, alongside AAC or a scribe where needed, offer routes into knowledge that respects the learner's age, even when earlier knowledge needs revisiting. Teach the knowledge learners are ready to think about while providing discrete, deliberate daily teaching and practice in communication, reading, writing, counting and calculating to build fluency and independence.

Isn’t there knowledge to teach before Step 1?

Rather than creating a step before Step 1 or breaking its knowledge into ever-smaller statements, begin with Step 1 knowledge and offer accessible encounters with it. This keeps curriculum content ambitious. Monitor how each learner interacts with that knowledge and what helps them participate, rather than reducing the knowledge because their response is limited.



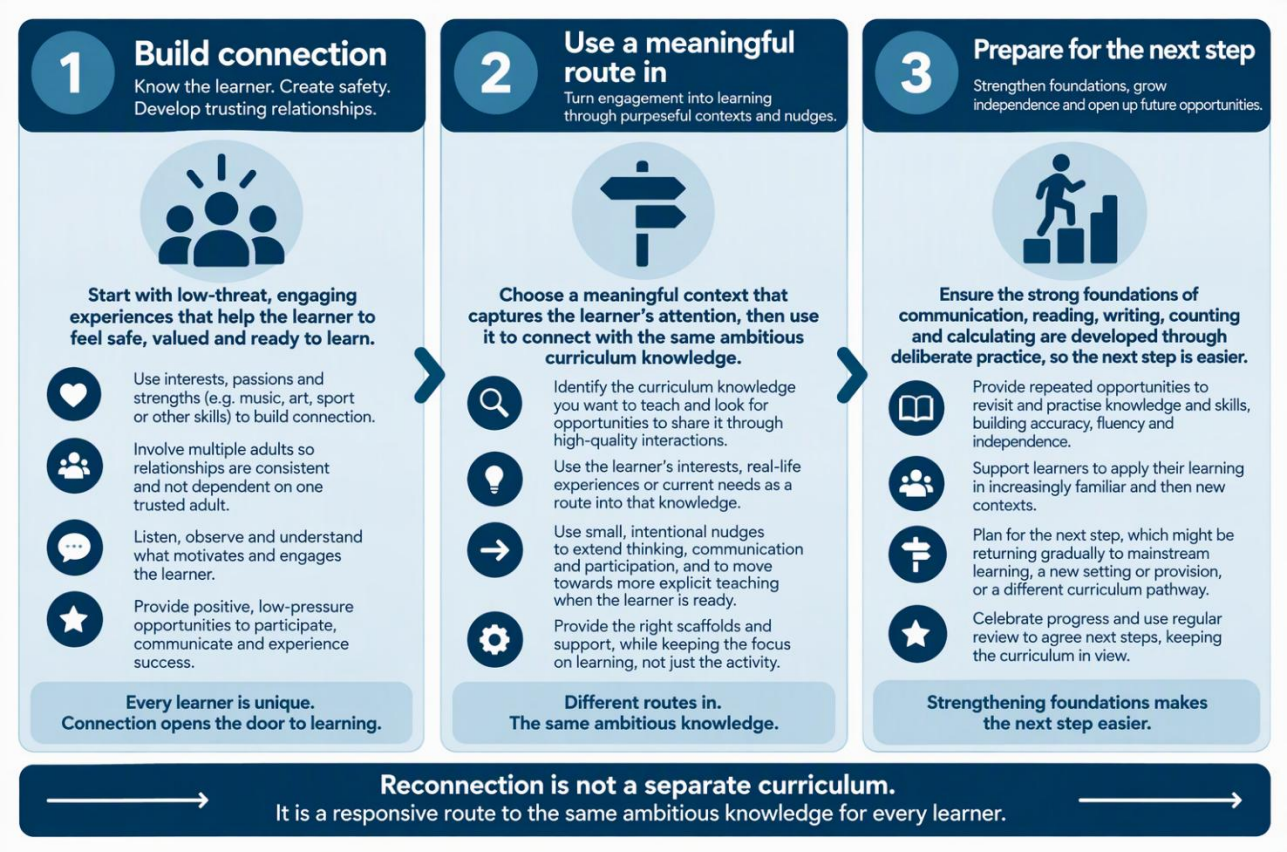
5 Learners who need to reconnect with education

A different balance, not a different curriculum

Some learners need help to reconnect with education following prolonged absence, emotionally based school avoidance (EBSA), suspension, movement between settings or disrupted prior education. This does not necessarily mean they have an earlier developmental starting point. A learner may know a great deal but find participation difficult.

Reconnection is not a different or reduced curriculum. It is a responsive route back into the same coherent and rich curriculum. The balance will be different for every learner: initially, relationships, safety and belonging may need greater emphasis; strong foundations may need deliberate teaching and practice; and wider curriculum engagement can grow as trust and participation develop.

The three principles below offer a practical way to think about this journey. The balance changes. The entitlement does not.



6 Assessment using the framework

Assessment is about understanding what a learner knows and can do, so that we can decide what to teach next.

The Somerset Inclusive Curriculum Framework is **not a grading or levelling system**. The steps describe a progression of curriculum knowledge, showing where learning has come from and where it can go next. They should not be used to assign a learner an overall step.

The knowledge grids can, however, support assessment. Start with the knowledge you intended to teach. Identify what the learner now knows and can do, then use the grids and concept progressions to decide **what needs securing, revisiting or teaching next**.

Where assessment identifies gaps in important foundational knowledge, earlier steps in the same progression can provide the basis for **precise, targeted teaching and intervention alongside the learner's age-appropriate curriculum**. This is particularly useful for communication, reading, writing, counting and calculating, where gaps in foundational knowledge can make later learning harder.

Assess what is known. Identify what needs strengthening. Teach the next step. Keep the wider curriculum ambitious.

Appendices:

Concept progressions and core knowledge grids:

A: Steps 1, 2, 3 (EYFS)

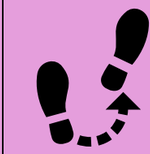
B: Steps 4, 5, 6 (NC) – concept progressions

C: Steps 4, 5, 6 (NC) – core knowledge grids

Communication and Language

Key concepts		Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development		The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:		***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Vocabulary and language		**Children build vocabulary to name and describe the world around them.**			**Children use vocabulary to describe, compare and explain their experiences**.			**Children choose and use vocabulary to explain ideas, communicate meaning and reason about their experiences.**		
		Words help us name people, objects and actions.	Books, songs, rhymes and conversations Introduce new words.		Stories introduce new and interesting words.	Talking helps us think about and explain experiences.	Questions can help us learn new words and meanings.	Words help us describe what we know and understand.	Vocabulary helps us explain ideas and experiences.	Talking helps us explain ideas, solve problems, reason and predict.
		New words help us talk about the world around us.	Words can describe what we see, hear and do.		Words help us talk about the past, present and future.	New vocabulary helps us explain ideas and experiences.	Words help us describe people, objects and events in more detail.	Different words can describe feelings and emotions.	Some words are linked to particular interests, subjects or experiences.	Vocabulary can help us ask more detailed questions.
Listening and understanding		**Children listen to spoken language and begin to understand what others are communicating.**			**Children use what they hear to understand, remember and make sense of information**			**Children use spoken information to explain, predict, discuss and develop understanding**		
		Listening helps us learn about the world around us.	Listening helps us understand what people are communicating.		Information can be remembered and recalled.	Instructions can contain more than one piece of information.	Important information can be identified.	Listening helps us understand different viewpoints.	Questions can be used to clarify understanding.	Information can be used to answer questions.
		Familiar instructions can be followed.	Sounds, words and sentences carry meaning.		Listening helps us learn more information.	Questions can help us understand more.	People can remember and talk about what we have experienced.	Reasons can be given to explain ideas and opinions.	Information can be used to explain ideas.	Understanding spoken information helps us solve problems and make decisions.
Communication and interaction		**Children explore ways of communicating with others using sounds, words, actions and gestures.**			**Children take part in conversations, noticing how people share and respond to ideas.**			**Children use spoken language to share ideas, explain their thinking and communicate with others.**		
		Communication helps us share wants, needs and interests.	People communicate with each other.		People take turns to listen and respond in conversations.	Different questions can help us find out information.	People can talk about things that have happened, are happening, or might happen.	Different viewpoints can be discussed and considered.	People can explain their thinking.	Experiences and ideas can be described in sequence.
		People communicate using words, sounds, signs, actions and facial expressions.	Communication involves listening and responding.		Different words can be used to describe the same thing.	People can build on what someone else has said.	People may communicate in different ways.	Stories, experiences and information can be retold and discussed	People can change the way they communicate to help others understand.	Ideas can be explained using reasons.

Physical Development

Key ideas		Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development		The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing and wondering continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:		***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Movement		**Children notice and name different ways their body can move.**			**Children compare movements noticing how they are similar, different and suited to different situations.**			**Children choose movements intentionally to achieve a goal and explain their choices.**		
		Bodies can move in different ways.	Different body parts help us to move.		Pushing and pulling helps develop body strength.	People can move in different directions and at different speeds.	Movement helps to keep our bodies healthy and active.	Different movements are useful for different purposes.	Practice helps people improve their movement skills.	Good posture, balance and coordination help us move successfully.
		Movement helps people to explore spaces and objects.	Bodies need space to move safely.		Different activities require different movements e.g. digging, mixing.	Some movements need more balance than others.	Moving safely requires awareness of people, objects and space.	Different movements can be combined.	Movement can be adapted in response to people, objects and spaces.	Controlling objects requires accuracy, timing and coordination.
Control		**Children notice and name how their bodies and hands can control objects, tools and movements.**			**Children compare different movements, actions and tasks, noticing how control helps them be successful.**			**Children choose and adapt movements, actions and tools to achieve a goal.**		
		Objects can be picked up, pushed, pulled and carried.	Clothes can be taken on and off.		Hands and eyes can be used together to do different tasks.	Some tools require small careful movements.	Different tasks require different actions and movements.	Practice helps people improve control and coordination.	Control and coordination support independence in everyday tasks.	Careful movements help people to draw, build and create with detail.
		Hands can hold grasp and release objects.	Two hands can work together to complete a task e.g. throwing a ball, pouring a drink.		Different tools require different movements.	The two sides of the body can work together e.g. cutting.	Balance and stability help us control our movements.	Tools require different grips and can be used with increasing precision.	Fingers can be used to manipulate small objects.	People can change our movements to help us be successful.
Bodies		**Children notice and name different parts of the body and what their bodies need.**			**Children compare how their bodies change when they are active and how their bodies feel before, during and after movement.**			**Children explain how their bodies stay healthy and why they need food drink, rest and physical activity.**		
		Food and drink help our bodies grow and stay healthy.	Bodies need rest.		Physical activity helps our body to become stronger.	Our hearts beat faster when we are active.	Water helps bodies to cool down and stay hydrated.	Food, drink, rest and activity work together to keep our bodies healthy.	Our bodies give us signals about hunger, thirst, tiredness.	Making healthy choices help our bodies grow and stay strong.
		Bodies can feel different at different times.	Bodies have different parts.		Physical activity can make our bodies feel warm.	Bodies need rest after physical activity.	Different foods and drinks help our body in different ways.	We breathe faster when we are active because we are working harder.	Taking slow deep breaths can help our bodies recover after activity.	Sleep helps our bodies to grow, recover and get ready for a new day.

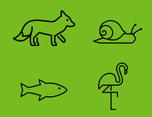
Personal, Social and Emotional Development

Key ideas		Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development		The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing and wondering continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:		***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Identity		**Children notice and name the things that make them who they are. Discussion focuses on helping children recognise themselves as unique individuals with bodies, brains and feelings.**			**Children compare themselves with others, noticing similarities, differences and changes.**			**Children use what they know about themselves and others to explain, predict and reason. Discussion helps children understand that identity develops over time.**		
		People have bodies and brains.	People experience different feelings.		People can have similar and different feelings.	Bodies and brains are similar in many ways but everyone is unique.	People grow and change.	People's brains help them to solve problems and make decisions.	Experiences help people learn and change.	Everyone is special and unique.
		People can make choices.	People belong to families.		Families can be similar and different.	People belong to different groups.	People change as they get older.	People may feel differently because different things have happened to them.	Sometimes people make different choices to each other.	What people do can help them to learn and grow.
Connection		**Children notice and name the ways they connect with other people, such as smiling, waving, and speaking. Discussion focuses on communication, relationships and feelings.**			**Children compare different ways people communicate, connect and build relationships. Discussion encourages children to wonder how feelings, actions and communication affect themselves and others.**			**Children use what they know about building relationships and connecting with other people to solve problems and explain why someone else might be feeling the way they are and what they could do to change this if needed.**		
		Someone who is crying may be feeling sad.	Smiling at someone is a friendly thing to do.		People can show feelings in different ways.	People can use words, faces and actions to communicate.	Friends may like different games and need different things.	People can choose to help someone who needs it.	Talking and listening can help people solve problems.	People's actions can help someone feel included.
		People are special to one another.	Playing together can help people make friends.		Some people like to play together and some like quiet time.	Relationships can change as people get to know each other.	Different people can help us in different ways.	If people listen to each other, they can understand each other better.	People do not always agree but they can still work and play together.	Kind choices can make relationships stronger.
Contribution		**Children notice and name the ways they can make a positive difference such as different ways to follow the rules and help someone else.**			**Children compare different ways to help themselves and other people. They compare different choices and the impact they have had.**			**Children use what they know about rules and choices to explain, predict and reason. Discussion helps children to understand that their actiosn have consequences for themsles and others, and that everyone can help.**		
		People can help other people.	Rules help us know what to do and take turns.		Some choices help people and some choices do not.	Different places can have different rules.	People can do more things for themselves as they grow.	Following a rule can help keep people safe.	People's choices can change what happens next.	Everyone can make a positive difference.
		People can do some things for themselves.	People can look after their bodies.		Helping can look different at home, school and in the community.	People may need help with different things at different times.	Looing after ourselves helps us to stay healthy.	Thinking before acting can make choices safer.	There are reasons why someone might need help.	Working together can help make things better for everyone.

Expressive Arts and Design

Key ideas	Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development	The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing and wondering continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:	***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Creating with materials	**Children explore materials and tools, noticing their features and learning their names.**			**Children compare materials, tools and creative processes, noticing similarities, differences and possibilities.**			**Children choose materials, tools and techniques for a purpose, adapting their ideas and explaining their choices.**		
	Things can be different colours.	Materials can be changed by squeezing, pressing, poking and rolling.		Different colours can be mixed to make new colours.	Patterns are created by repeating colours, shapes and lines.	Different tools create different effects.	Materials can be chosen for a particular purpose.	Tools can be chosen for a specific task.	Colours,marks and shapes can communicate different feelings and ideas.
	Materials can look and feel different.	Materials can be used to make models and structures.		Materials can be changed by cutting tearing and folding.	Different materials can be used to make 3D creations.	Materials can be shaped and changed.	Some materials are more suitable for certain purposes than others.	People have different ideas about artwork and creations.	Colours can be chosen for a particular purpose.
	Marks can be made in different ways.	People create pictures, models and artwork.		Materials can be joined in different ways.	Materials can be rough, smooth, soft or hard.	Lines can be straight or curved.	Creations can communicate ideas and experiences.	Creations can be adapted and improved.	Lines and shapes can represent real or imagined objects.
Music and sound	**Children notice, name and explore sounds in the world around them.**			**Children compare sounds and music, noticing similarities, differences and patterns.**			**Children choose and combine sounds and musical ideas for a purpose and explain their choices.**		
	Music can be listened to and enjoyed.	Sounds can be made using voices, bodies and objects (including instruments).		Music can start and stop.	Sounds can be loud or quiet, fast or slow.	Sounds can be the same or different.	Music can be high or low.	Sounds can be combined and organised to make music.	Music can communicate feelings and ideas.
	Songs and rhymes can be remembered and repeated.	Sounds can be heard all around us.		Musical patterns can be repeated.	Different music can inspire different movements.	Music can have a regular pulse.	Different types of music can create different moods.	Instruments can be played in different ways.	Music can be created and performed for an audience.
Role-play, storytelling and performance	**Children notice and imitate people, actions and experiences through pretend play.**			**Children compare and develop ideas through pretend play, stories and role-play.**			**Children create and develop roles, stories and performances for a purpose, explaining their ideas and choices.**		
	Toys and objects can represent real things.	Songs, rhymes and stories can be acted out.		Stories can be retold through play.	Different people can take on different roles.	Stories contain characters, events and settings.	Stories can be created, adapted and changed	Performances can be shared with an audience.	Voices, movements and expressions can help portray a character.
	Voices and actions can be copied.	People can pretend to be someone or something else.		People can perform for others.	Characters can be real or imaginary.	Props can be used to represent different things.	Stories can be created from imagination, experiences and familiar texts.	Performances can be improved through practice.	Performances can be adapted and improved.

Understanding the World

Key ideas		Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development		The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing and wondering continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:		***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Land, sea and sky		**Children notice and name features of the world around them. Discussion focuses on what they can see, hear, and experience in the environment.**			**Children compare places, weather and natural features. Discussion focuses on similarities, differences and patterns over time.**			**Children use what they know and what they can observe to predict, explain and reason about changes in weather, seasons, and the world around them.**		
		Land, water, and sky can be seen all around us.	There are different types of weather.		Land can look different in different places.	The sky can look different depending on the weather.	The sky looks different in the day and at night.	Seasons cause changes in plants, animals, and weather.	Weather can change how places look.	Wind can move objects such as leaves and clouds.
		The sun, moon and stars can be seen in the sky.	People wear different clothes for different weathers.		The weather changes.	Water can be found in different places.	The Sun and moon give us light.	Water freezes into ice when it is cold.	Earth is the planet where people, plants and animals live.	People can care for the natural environment.
Plants		**Children notice and name different plants and plant parts. Discussion focuses on what things are called, building vocabulary.**			**Children compare plants and plant parts. Discussion focuses on similarities, differences, and patterns. Consider colour, size, health, age, texture, scent.**			**Children use what they know and what they can observe to predict, explain and reason about how plants grow, change and survive.**		
		Plants are living things.	There are different kinds of plants and trees.		Plants can be different shapes, colours and sizes.	Plants grow and change over time.	Plants need water to stay healthy.	People can care for plants and the places where they grow.	Flowers can grow into fruits and seeds.	Plants need water and light to grow.
		Plants can be touched, smelled and observed.	Some plants have flowers.		Fruits and vegetables come from plants and trees.	Seeds and bulbs can grow into new plants.	Some plants can be harmful if touched or eaten.	Different plants have different needs.	Different seasons bring changes to trees and plants.	People grow plants for food for animals and humans.
Animals		**Children notice and name different animals and their body parts. Discussion focuses on what animals are called and what can be observed.**			**Children compare animals and notice similarities, differences and patterns. Discussion focuses on appearance, behaviour and where animals live, encouraging curiosity and questions.**			**Children use what they know and what they can observe to predict, explain and reason about how animals live, grow and meet their needs.**		
		Animals are living things.	There are different kinds of animals.		Animals can be grouped according to their features.	Different animals move in different ways.	Different animals eat different food.	Animals need food, water and shelter to survive.	People can help care for and protect animals and their habitats.	A habitat is a place where an animal lives.
		Animals have different body parts.	Animals move and make sounds.		Animals live in different places.	Adult and baby animals can look different.	Animals have different coverings, such as fur, feathers or scales	Animals grow and change over time.	Animals need the right environment to survive.	Animals and plants depend on one another.
People and communities		**Children notice and name people who are important to them – family, friends, and key adults.**			**Children compare themselves to others and notice similarities and differences between people, families, and communities.**			**Children use what they know and what they can observe to explain how people live, grow, help one another, and contribute to communities.**		
		People can help one another.	People have parties and celebrations.		People have lots of similarities and differences.	Different people celebrate different events	People use technology for different purposes.	People choose technology to help achieve a purpose.	People celebrate important events, beliefs and traditions	Communities are made up of lots of different people.
		People have names.	People do different jobs.		Different jobs help people in different ways.	People live in different homes and in different families.	People change and grow over time.	People contribute to communities in different ways.	Photos and stories help us to learn about people in the past.	Some things about life have changed over a long time.
Places		**Children notice and name familiar places in their immediate environment. Discussion focuses on recognising, identifying, and talking about places that are important to them.**			**Children compare places and begin to notice similarities and differences. Discussion encourages children to talk about experiences, observations and patterns they notice in the environments they encounter in real life and through stories.**			**Children use their observations and experiences to explain why places are like they are, and how they meet people's needs.**		
		We live in homes.	People visit different places.		Places can look different from one another and have different features.	Places can be represented using objects, pictures and maps.	Places can be near or far away.	Some places are important to different people and communities.	Maps can be used to find out about places.	People can use maps to follow a route from one place to another.
		Some places are special to people.	We travel between places by walking or using a vehicle.		Different places have different purposes.	People can live in different places.	Some places are natural and some are made by people.	Photos and stories can help us find out about places in the past.	People can move from where they were born to new places, homes or countries.	Places change over time.

Literacy

Key concepts		Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development		The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:		***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Understanding stories and texts		**Children build the vocabulary of stories, language and texts. They notice and name people, objects, actions and events in stories, rhymes, songs and conversations.**			**Children develop their understanding of characters, events, feelings and ideas and how they are connected.**			**Children use their understanding of language, stories and texts to predict, explain, discuss and interpret meaning, drawing on clues and evidence to justify their ideas.**		
		Stories contain people, objects and events.	Stories and experiences can be talked about.		Questions can be answered using information that has been heard.	Characters may think, feel and behave in different ways.	Events in stories happen in a sequence.	Clues can help us predict what might happen next.	Characters actions and words can help us understand their thoughts and feelings.	Important details can be remembered and recalled.
		Stories can be connected to our own experiences.	Pictures can show us what is happening in a story.		Stories and texts help us learn about people, places and experiences.	Different stories and texts can share similarities and differences.	Information texts tell us about real people, places, animals and things.	Stories can be discussed, retold and explained.	Stories can help us understand people, places and experiences.	Information can be used to answer questions and explain ideas.
Books and print		**Children notice and name books, print and symbols in the world around them.**			**Children compare books, print and symbols, noticing similarities, differences, features and purposes.**			**Children use books, print and symbols to find information, explain ideas and communicate meaning.**		
		Books can be shared and enjoyed.	Favourite books can be chosen and revisited.		Some books tell stories, and some provide information.	Different books are organised in different ways.	Books have features such as covers, pages and titles.	A title gives information about a text.	Information books and storybooks are often organised differently.	Information can be found by using features of a text.
		Books contain pictures.	Print can be seen in books and in the environment.		Print carries meaning.	Familiar symbols and logos can be recognised.	Print can be used for different purposes and found in different places.	Illustrators create the pictures in a text.	Authors create the words in a text.	Books can help us learn about the world.
Word reading		**Children notice and respond to sounds, songs, rhymes and words in spoken language.**			**Children compare sounds and words, noticing patterns and beginning to understand how spoken words are made up of sounds.**			**Children use their understanding of sounds and letters to read words, phrases and simple sentences.**		
		Sounds can be heard all around us.	Songs, rhymes and repeated phrases can be remembered and repeated.		Some words rhyme.	Words can be broken into smaller parts (e.g. syllables).	Sounds can be blended to make words.	Letters and groups of letters represent sounds.	Words are made up of individual sounds.	Reading helps us to understand meaning.
		Listening helps us notice sounds.	Sounds can be made by voices, objects and instruments.		Words can begin with the same sound.	Words can be broken into individual sounds.	Sounds in words can be identified.	Some words cannot be sounded out and need to be read by sight.	Words can be read by blending sounds together.	Words in English are read from left to right.
Writing		**Children build the vocabulary of marks, symbols and meaning. They notice and make marks and begin to recognise that marks and symbols can represent ideas, objects and experiences.**			**Children compare marks, symbols, drawings and writing, noticing similarities, differences and different ways meaning can be communicated.**			**Children use their understanding of marks, letters and words to communicate ideas, information and experiences through writing.**		
		Marks can be made in different ways.	Marks can be discussed and shared.		Writing is different from drawing.	Writing can be used for different purposes.	Letters can be used to represent sounds in spoken words.	Words can be combined to make phrases and sentences.	Letters are formed in a consistent way.	Words are separated by spaces.
		Different tools make different marks.	Marks can be made on different surfaces.		Marks can represent ideas, objects and experiences.	Writing can help us remember things.	Writing can be used to communicate a message.	Writing can be used to share ideas, information and experiences. .	Sentences end with a full stop.	Words can be broken into sounds for writing.

Mathematical Development

Key ideas	Step 1 – noticing and naming (2-3 years)			Step 2 – comparing and wondering (3-4 years)			Step 3 – predicting and reasoning (4-5 years)		
Language and thinking development	The first step of learning is when children are noticing things in the world around them and learning their names. Adults should continually help children to 'notice' things about the natural world by drawing their attention to them and provide the words we use to name. Noticing and naming continues into adulthood.			Children continue to build their vocabulary by noticing and naming. When they are working at the next step, they should be encouraged to make comparisons – what is the same, and what is different? How are they different? Use comparative language – smaller, heavier. Comparing and wondering continues into adulthood.			When children are ready, they will be working at the third step of learning – where they begin to wonder why things are the way they are. They will then take this further and begin to reason – proposing their own theories, using 'because' to answer questions.		
Key prompts for high-quality interactions and sustained shared thinking:	***What can you see?***	***What can you hear?***	***What is it called?***	***What is the same?***	***How is this one different?***	***I wonder why…***	***What do you think will happen?***	***Why do you think that?***	***What clues do you have?***
Number	**Children notice and quantities in their environment and learn to name them.**			**Children compare quantities and explore relationships between numbers.**			**Children use their understanding of number relationships to predict, explain and solve problems. They begin to justify their thinking using mathematical language.**		
	Objects, actions and sounds can be counted.	There can be more or less of something.		Each item counted is given one number name (one to one correspondence).	The last number counted tells us how many objects there are (cardinal principle).	Quantities can be compared.	Even numbers can be shared into equal groups, odd numbers can't be shared equally.	Numerals can be used to represent and compare quantities.	Numbers can be partitioned and recombined in different ways.
	Numbers can describe quantity.	Number words can be heard in songs, stories and daily routines.		Numbers can be used to compare quantities.	Some small quantities can be recognised without counting (subitising).	Quantities can be grouped and separated into parts.	Numbers can be used to compare quantities.	A double is made of two equal parts.	Different pairs of numbers can make the same whole.
Numerical patterns	**Children notice and name patterns, sequences and changes in the world around them.**			**Children compare patterns and sequences, noticing what stay the same and what changes.**			**Children use patterns and sequences to predict what comes next and explain their thinking**		
	Patterns can be found in everyday life.	Some things are the same and can be matched together.		Patterns can be copied and continued.	Number sequences follow patterns.	Numbers decrease as we count backwards.	Numbers have a one more, one less relationship.	Number can be recited forwards, and backwards.	Numbers can be put in order from smallest to largest.
	Numbers can be recited in order.	Numbers follow a sequence.		Numbers can be recited in order.	Numbers increase as we count forward.	Patterns can be created using objects, sounds and actions.	We can explain how we know a pattern can continue.	Missing numbers can be identified using number patterns.	Number relationships help us to predict what comes next.
Shape, space and measure	**Children notice and name shapes, space, measures and positions in their environment.**			**Children compare shapes, spaces and measures, noticing similarities, differences and relationships.**			**Children use their understanding of shape, space and measure to predict, explain and solve problems.**		
	Objects can be different shapes.	Objects and containers can be different sizes, weights and capacities.		Objects can be measured and compared by size, length, height and weight.	Objects can be grouped and sorted in different ways.	Position and direction can be used to compare locations.	The properties of shapes help us identify and sort them	Measuring helps us compare and solve problems.	Position and direction help us explain movement and location.
	Objects and spaces can be described using position words.	Daily events and routines happen in a sequence.		Events can take different amounts of time.	Objects can be moved, turned and rearranged.	Shapes have different properties.	Shapes can be combined and separated to make new shapes.	Time can be used to describe, compare and order evens.	Objects can be compared, ordered and grouped by their size, shape or attributes.

Appendices:

Concept progressions and core knowledge grids:

A: Steps 1, 2, 3 (EYFS)

B: Steps 4, 5, 6 (NC) – concept progressions

C: Steps 4, 5, 6 (NC) – core knowledge grids

Understanding myself and others		Concepts progression				Building blocks to the big ideas			
		Identity			Connection			Contribution	
		Who am I? Who are we?			How do my body and brain connect, and how do I relate to others?			How can I make a positive difference?	
Step 4 - KS1	Me	**unique**	I am one of a kind because there is no-one exactly like me.		**senses**	My senses help my brain notice what is happening.		**looking after myself**	I can care for myself so I am ready to take part.
		preferences	I have things I like, dislike, and choose.		**feelings**	My body gives me clues about how I am feeling.		**choices**	My choices can help or harm myself and others.
	Us	**in common**	Some aspects of who I am are shared with other people.		**friendship**	Friends connect by playing, sharing, helping and being kind.		**helping others**	I notice when someone needs help and do something kind.
		belong	Things I have in common with other people help me to belong to different groups.		**communicate**	People use words, faces, bodies, actions and technology to share meaning.		**teamwork**	People can do more when they share roles, ideas and effort.
	Everyone	**differences**	People are not all the same and this is normal and good.		**empathy**	Notice and imagine how someone else might feel.		**caring**	Learning about and looking after people, places, and living things beyond myself.
		respect	I should treat other people as important even when they are different to me.		**kindness**	Small kind actions can help people feel connected.		**fairness**	Fairness means thinking about what other people need, not just what I want.
Step 5 - LKS2	Me	**experiences**	What happens to people shapes who they are.		**brain chemicals**	Chemicals in my brain can affect how I feel, think and act.		**responsibility**	People can be trusted to make choices and understand what happens because of them.
		becoming	People continue to grow and change as a person because of new experiences they have.		**stress response**	My brain and body react when I feel unsafe, worried or under pressure.		**accountability**	Owning mistakes and trying to put things right helps to rebuild trust.

	Us	**community**	A group of people who share places or beliefs.	**trust**	Trust is essential for connection and trust grows when people are honest, reliable and safe.	**participate**	Joining in, sharing ideas and taking a role can help a group work well.
		culture	Groups of people can share ways of living, celebrating, speaking and believing.	**repair**	When connection is damaged, people can try to repair it through honesty, apology and change.	**democracy**	Shared decisions work best when people have a voice and listen to different views.
	Everyone	**diversity**	Human life includes many different people, cultures and ways of being.	**media**	Media can connect people by sharing stories, ideas and information.	**citizenship**	Being part of a community and helping make it better
		equality	Everyone should have the same worth, rights, and chances to take part.	**influence**	What people see and hear can shape what they think.	**rule of law**	Shared rules help people live together safely, fairly and peacefully.
Step 6 - UKS2	Me	**values**	My choices can be guided by what I believe is important.	**habits**	Repeated thoughts and actions can become patterns in my brain and behaviour.	**purpose**	Thinking about what matters can guide the difference a person wants to make.
		integrity	When people live by their values even when this is difficult or no-one else knows.	**regulation**	I can use strategies to help my brain and body return to a calmer state.	**agency**	I can make choices and take actions that affect myself and others.
	Us	**perspective**	People can see the same thing in different ways because of what they are and what they know.	**conflict**	Conflict can happen when people's needs, views or feelings clash.	**service**	Time, strengths or voice can be used to benefit other people.
		complexity	People and groups cannot be understood in only one simple way.	**boundaries**	Healthy connection includes knowing what is okay and what is not okay for myself and others.	**social action**	People can work together to challenge problems and improve society.
	Everyone	**shared humanity**	All people are different, but we share needs, feelings, and hopes.	**misinformation**	False or misleading information can damage trust and connection between people.	**justice**	People should be treated fairly, protected from harm and given what they need to flourish.
		dignity	Every person has worth and should be treated as fully human.	**interdependence**	People around the world are connected by the choices, actions and systems they share.	**hope**	Imagining a better future can give people courage to work towards it.

History	Concept progression	Building blocks to the big ideas
What was life like in the past?	Why is the world the way it is today because of what happened in the past?	How do we know about the past?

		Everyday Life		Hierarchy and Power		Invasion and Settlement
Step 4 - KS1	homes	Places where people live that provide shelter and warmth.	leaders	People who guide or direct others, making decisions and setting examples for a group.	community	A group of people who live or work together in the same place.
	food	Things people eat to stay healthy and grow.	laws	Rules made by leaders that everyone must follow to keep society safe.	resources	Things people need and use, like food, water, and materials.
	clothing	Clothes people wear to cover and protect their bodies.	fairness	Treating all people in the same way and giving everyone the same opportunities.	settlement	A place where people build homes and live together.
	childhood	The time in a person's life when they are a child, growing, learning, and playing before becoming an adult.	monarchy	A type of leadership when a country is ruled by a king or a queen.	transport	Ways people and things move from one place to another, like by walking, riding, or using vehicles.
	technology	Tools and machines people use to help them do things.	absolute power	Complete control over everything without anyone being able to stop them.	nation	A large group of people living in one country, often with the same government.
Step 5 - LKS2	language	The words and ways people talk and write to share ideas.	chieftain	A leader of a tribe or clan who holds authority and makes decisions for the group, often based on their leadership skills and ability to protect and provide for their people.	agriculture	Growing plants and raising animals for food and other things people need.
	literature	Stories, poems, and books people read or listen to.	council	A group of people who come together to make decisions and give advice about important matters.	technology	Tools and machines people use to help them do things.
	religious belief	What people believe about gods, life, and how to live.	government	A group of people who make rules and decisions for a country to help keep it running smoothly. There are different types of government.	exploration	Travelling to new places to find out what is there.

	values	The important ideas and beliefs that guide how people behave and make choices.	**democracy**	A way of running a country where people vote to choose their leaders and have a say in decisions.	**invasion**	When a group of people enters another place by force to take control.
	traditions	Special ways of doing things that are passed down in families or groups.	**justice**	Making sure everyone is treated fairly and that wrong actions are corrected.	**defence**	Ways people protect themselves and their land from danger or attack.
Step 6 - UKS2	**influence**	The way people or things can change how others think, feel, or act.	**nobility**	A high social class of people with special titles and privileges, often owning land and having important roles in society.	**empire**	A group of countries or areas controlled by one ruler or country.
	heritage	The traditions, stories, and things from the past that are passed down in families or groups.	**peasantry**	The class of people who work on farms and do manual labour, usually having fewer privileges and less wealth than nobles.	**colony**	A place that is ruled by another country, often far away.
	economy	The way people make, use, and share money, goods, and services in a place.	**parliament**	A group of elected people who make laws and decisions for a country – parliament is part of a country's government.	**tax**	Money people must pay to the government.
	trade	The buying, selling, or exchanging of goods and services between people or countries.	**liberty**	The freedom to do what you want, as long as you don't hurt others or break the rules.	**migration**	When people move from one place to live in another.
	industry	The making of things in factories or businesses, often using machines.	**revolution**	When people fight to change the government or system of power in their country.	**indigenous**	People who were the first to live in a place.

Geography			Concepts progression		Building blocks to the big ideas	
	Place, Space and Scale		Environment and Time		Human and Physical Interconnection and Sustainability	
	Where is this place?		*What is this place like and how is it changing?*		*How do people interact with this place?*	
Step 4 - KS1	**location**	Where a place is in the world, from our local area to the continents and oceans.	**weather**	What the atmosphere is like each day, including rain, wind, sunshine, and temperature.	**needs**	Things people, plants and animals require to live and thrive.
	geographical features	The human and physical characteristics of a place which make it unique.	**climate**	The usual weather conditions in a place over a long period of time.	**resources**	Things that people use from the world around us.
	settlements	Places where people live, work and build communities. Settlements exist at different scales from villages to cities.	**habitat**	A place where plants and animals live.	**impact**	The effect that people and natural events have on the world.
	equator	An imaginary line around the middle of the Earth.	**landscape**	What we can see in an area, including natural and human features.	**care**	Looking after places, people and the natural world.
	compass directions	A way of describing where places are and show us which way to travel.	**change**	How places and environments alter over time.	**responsibility**	A duty to help protect people, places and environments.
Step 5 - LKS2	**region**	An area with shared features that make it different from other places.	**biome**	A large area with similar climate, plants and animals.	**agriculture**	The growing of crops and animals for food and other resources.
	latitude	Shows how far north or south a place is from the equator.	**water systems**	The ways water moves and connects through the world.	**conservation**	Protecting and caring for the natural world.
	landlocked	A place that is surrounded by land and has no coastline.	**biodiversity**	The variety of plants and animals in a place.	**energy**	The power we use to heat, light, and move things.

	grid references	Help us to find exact locations on a map.	**natural processes**	Changes that happen in the natural world.	**natural hazards**	Natural events that can harm people and places.
	elevation	The height of a place above sea level.	**tectonic plates**	Large pieces of the Earth's crust that move slowly, sometimes causing earthquakes and volcanoes.	**climate change**	The long-term change in the Earth's climate.
Step 6 - UKS2	**distribution**	The pattern of how people, places and resources are spread across the world.	**geology**	The study of the Earth's rocks, land and how they have changed over time.	**trade**	The buying and selling of goods and services between places.
	land use	How people use areas of land for different purposes.	**topography**	The shape, features and elevation of the land.	**migration**	The movement of people from one place to another.
	longitude	Lines which show how far east or west a location is from the Prime Meridian which runs through London.	**resilience**	The ability to prepare for, cope with and recover from challenges.	**renewables**	Sources of energy which can be replaced naturally.
	time zones	Divide the world into areas with different times, linked to similar sunset and sunrise times.	**development**	How places change and improve over time.	**man-made climate change**	How human activities are changing the Earth's climate.
	population density	Shows how crowded an area if by measuring the number of people living there.	**infrastructure**	The buildings, services and systems that support a place.	**carbon footprint**	The amount of carbon dioxide produced by our actions.

Science - Plants

	Structures and Systems		Changes and Cycles		Energy	
	Everything is made of smaller parts. When parts work together, it's a system.		Cycles are made of changes from one stage to another.		Energy is the power needed to make something change or happen.	
Step 4 - KS1	**roots**	Roots hold the plant in place and absorb water.	**seed**	A seed contains a new plant waiting to grow.	**sunlight**	Sunlight gives plants the energy they need to grow.
	stem	The stem supports the plant.	**bulb**	A bulb stores food underground so a plant can grow again.	**water**	Plants need water to stay alive and grow.
	leaves	Leaves come in many shapes, sizes and colours.	**germinate**	Germination is when a seed begins to grow into a new plant.	**living**	Plants are living things because they grow, reproduce and need resources.
	flowers	Flowers come in many shapes, sizes and colours.	**grow**	Growth is when a plant gets bigger and develops over time.	**needs**	Plants need sunlight, water, air and space to survive.
	habitat	A habitat is the place where a plant lives and grows.	**dormant**	Resting and not actively growing until conditions improve.	**store**	Plants can keep food and water in different parts of their bodies.
Step 5 - LKS2	**function**	Every part of a plant has a specific job that helps it survive.	**life cycle**	A life cycle is the series of stages a plant passes through during its life.	**photosynthesis**	Plants use sunlight, air and water to make their own food.
	transport	Water and nutrients move through a plant to where they are needed.	**pollination**	Pollination happens when pollen is moved from one flower to another.	**nutrients**	Nutrients are substances plants absorb from the soil to stay healthy.
	support	Stems, trunks and roots support the plant and keep it upright.	**fertilisation**	Fertilisation happens when pollen joins with an ovule and a seed begins to form.	**producers**	Plants are producers because they make their own food using sunlight.

	classification	Classification is grouping living things according to similarities and differences.	**seed formation**	Seeds develop after fertilisation and contain a new plant.	**conditions**	Plants need the right conditions to grow successfully.
	system	Plant parts work together as a system to help the plant survive and grow.	**seed dispersal**	Seed dispersal spreads seeds away from the parent plant so they can grow successfully.	**ecosystem**	Plants provide energy and resources that support other living things in an ecosystem.
Step 6 - UKS2	**kingdom**	A kingdom is one of the largest groups scientists use to organise living things.	**sexual reproduction**	Sexual reproduction combines information from two parents to produce offspring that are similar but not identical.	**resource**	A resource is something a living thing needs to survive, grow and reproduce.
	species	A species is a group of living things that can reproduce and produce offspring of the same kind.	**adaptation**	An adaptation is an inherited feature that helps an organism survive and reproduce in its environment.	**competition**	Competition happens when living things need the same limited resources.
	variation	Variation describes the differences between individuals of the same species.	**natural selection**	Natural selection happens when individuals with helpful inherited traits are more likely to survive and reproduce.	**niche**	A niche is the role a living thing plays in its environment and how it obtains the resources it needs.
	inheritance	Inheritance is the passing of characteristics from parents to their offspring.	**evolution**	Evolution is the gradual change of a species over many generations.	**biodiversity**	Biodiversity is the variety of living things in a habitat or ecosystem.
	taxonomy	Taxonomy is the scientific system used to classify and name living things.	**extinction**	Extinction happens when every member of a species dies out.	**conservation**	Conservation is protecting living things and their habitats for the future.

Science - Animals

	Concepts progression		Building blocks to the big ideas	
	Structures and Systems	**Changes and Cycles**	**Energy**	
	Everything is made of smaller parts. When parts work together, it's a system.	Cycles are made of changes from one stage to another.	Energy is the power needed to make something change or happen.	
Step 4 - KS1	**body parts**	Animals have body parts that help them live, move and survive.	**offspring**	Offspring are the young produced by adult animals.	**food**	Food provides animals with the energy they need to live, move and grow.
	senses	Animals use their senses to learn about the world around them.	**survival**	Young animals must survive and develop before becoming adults.	**water**	Animals need water to survive and stay healthy.
	animal groups	Scientists group animals that share similar features.	**change**	Animals change as they grow and develop.	**herbivore**	A herbivore is an animal that gains its energy by eating plants.
	habitat	A habitat is the place where an animal lives.	**grow**	Growth is when an animal gets bigger and develops over time.	**carnivore**	A carnivore is an animal that gains its energy by eating other animals.
	living things	Animals are living things because they need food, water and air, grow, reproduce and respond to their surroundings.	**adulthood**	An adult is a fully grown animal that can reproduce.	**omnivore**	An omnivore is an animal that gains its energy by eating both plants and animals.
Step 5 - LKS2	**classification**	Classification is grouping living things according to similarities and differences.	**life cycle**	A life cycle is the sequence of stages an animal passes through from birth to reproduction.	**diet**	A diet is the food an animal regularly eats to obtain energy.
	vertebrate	A vertebrate is an animal with a backbone.	**development**	Development is the process of changing as an organism grows.	**predator**	A predator is an animal that gains energy by hunting and eating other animals.
	invertebrate	An invertebrate is an animal without a backbone.	**nutrition**	Nutrition is obtaining and using nutrients from food.	**apex predator**	An apex predator is an animal at the top of a food chain with no natural predators.

	skeleton	A skeleton supports, protects and helps move an animal's body.	**digestion**	Digestion is the process of breaking food down into nutrients that the body can use.	**energy transfer**	Energy moves through ecosystems when living things eat other living things.
	digestive system	The digestive system breaks food down into nutrients that the body can use.	**food chain**	A food chain shows how energy moves between living things.	**ecosystem**	An ecosystem is a community of living things that depend on one another and their environment.
Step 6 - UKS2	**kingdom**	A kingdom is one of the largest groups scientists use to organise living things.	**sexual reproduction**	Sexual reproduction combines information from two parents to produce offspring that are similar but not identical.	**resource**	A resource is something a living thing needs to survive, grow and reproduce.
	species	A species is a group of living things that can reproduce and produce offspring of the same kind.	**adaptation**	An adaptation is an inherited feature that helps an organism survive and reproduce in its environment.	**competition**	Competition happens when living things need the same limited resources.
	variation	Variation describes the differences between individuals of the same species.	**natural selection**	Natural selection happens when individuals with helpful inherited traits are more likely to survive and reproduce.	**niche**	A niche is the role a living thing plays in its environment and how it obtains the resources it needs.
	inheritance	Inheritance is the passing of characteristics from parents to their offspring.	**evolution**	Evolution is the gradual change of a species over many generations.	**biodiversity**	Biodiversity is the variety of living things in a habitat or ecosystem.
	taxonomy	Taxonomy is the scientific system used to classify and name living things.	**extinction**	Extinction happens when every member of a species dies out.	**conservation**	Conservation is protecting living things and their habitats for the future.

Science - The Human Body

	Concepts progression		Building blocks to the big ideas	
	Structures and Systems	**Changes and Cycles**	**Energy**	
	Everything is made of smaller parts. When parts work together, it's a system.	Cycles are made of changes from one stage to another.	Energy is the power needed to make something change or happen.	
Step 4 - KS1	**body parts**	Humans have body parts that help them live, move and interact with the world.	**offspring**	Offspring are the young produced by adult animals.	**food**	Food provides the energy humans need to live, move and grow.
	senses	Humans use their senses to gather information about the world around them.	**childhood**	Childhood is the stage of life between infancy and adulthood.	**water**	Humans need water to survive and stay healthy.
	organs	Some body parts have special jobs that help us survive.	**change**	Humans change as they grow and develop.	**oxygen**	Humans need oxygen from the air to survive.
	health	Looking after our bodies helps them work properly.	**growth**	Growth is when a living thing gets bigger and develops over time.	**exercise**	Exercise uses energy and helps keep the body healthy.
	system	Body parts work together to keep us alive and healthy.	**adulthood**	An adult is a fully grown animal that can reproduce.	**healthy food**	Some foods provide the nutrients our bodies need to work well.
Step 5 - LKS2	**musculoskeletal system**	Muscles and bones that work together to support, protect and move the body.	**life cycle**	A life cycle is the sequence of stages a human passes through from birth to adulthood.	**balanced diet**	A balanced diet provides the nutrients and energy the body needs.
	digestive system	The digestive system breaks food down into nutrients the body can use.	**development**	Development is the process of changing as the body grows.	**carbohydrates**	Carbohydrates are the body's main source of energy.
	teeth	Different types of teeth have different jobs in digestion.	**nutrition**	Nutrition is obtaining and using nutrients from food.	**protein**	Protein helps the body grow, repair and maintain muscles.

	skeleton	The skeleton supports, protects and helps move the body.	**digestion**	Digestion is the process of breaking food down into nutrients that the body can use.	**fats**	Fats provide energy and help protect the body's organs.
	function	Different body parts and systems have specific functions that help the body survive and stay healthy.	**healthy lifestyle**	Healthy choices support growth, development and body systems.	**nutrient**	A nutrient is a substance the body needs to function, grow and repair itself.
Step 6 - UKS2	**circulatory system**	The circulatory system transports oxygen, nutrients and other substances around the body.	**sexual reproduction**	Sexual reproduction combines information from two parents to produce offspring that are similar but not identical.	**oxygen transport**	Oxygen is carried around the body to release energy from food.
	respiratory system	The respiratory system allows the body to take in oxygen and remove carbon dioxide.	**puberty**	Puberty is the stage of life when a child's body develops into an adult body.	**nutrient transport**	Nutrients are transported around the body to support growth and repair.
	variation	Variation describes the differences between individuals of the same species.	**gestation**	Gestation is the period during which a baby develops before birth.	**respiration**	Respiration is the process that releases energy from food in living cells.
	regulation	The body controls important internal conditions to keep cells healthy and functioning properly	**evolution**	Evolution is the gradual change of a species over many generations.	**balanced lifestyle**	Exercise, nutrition and rest help the body function efficiently.
	interdependence	Body systems work together to keep the body alive and healthy.	**inheritance**	Inherited characteristics can be seen across generations of a family.	**metabolism**	Metabolism is the collection of processes that use nutrients and oxygen to release energy and support life.

Science – Materials and Matter

	Concepts progression		Building blocks to the big ideas	
	Structures and Systems	**Changes and Cycles**	**Energy**	
	Everything is made of smaller parts. When parts work together, it's a system.	Cycles are made of changes from one stage to another.	Energy is the power needed to make something change or happen.	
Step 4 - KS1	**object**	An object is a thing that has a name, shape and purpose.	**melt**	Melting happens when a solid becomes a liquid.	**absorbent**	An absorbent material soaks up liquids.
	material	A material is the substance that an object is made from.	**freeze**	Freezing happens when a liquid becomes a solid.	**waterproof**	A waterproof material does not let water pass through it.
	property	A property describes what a material is like and how it behaves.	**bend**	Bending changes an object's shape without breaking it.	**transparent**	A transparent material lets light pass through it clearly.
	natural material	A natural material comes from plants, animals or the Earth.	**stretch**	Stretching makes a material longer by pulling it.	**opaque**	An opaque material blocks light from passing through it.
	man-made material	A man-made material is created or modified by humans.	**squash**	Squashing changes the shape of a material by pushing it.	**hard/soft**	Hard materials resist being changed in shape, while soft materials can be changed more easily.
Step 5 - LKS2	**matter**	Matter is the scientific name for everything that exists and takes up space.	**change of state**	A change of state happens when matter changes between solid, liquid and gas.	**conductor**	A conductor allows electricity or heat energy to pass through it.
	solid	A solid keeps its shape unless a force acts upon it.	**melting**	Melting is the process in which a solid changes into a liquid.	**insulator**	An insulator reduces the transfer of electricity or heat energy.
	liquid	A liquid flows and takes the shape of its container.	**freezing**	Freezing is the process in which a liquid changes into a solid.	**temperature**	Temperature is a measure of how hot or cold something is.

	gas	A gas spreads out to fill the available space.	**evaporation**	Evaporation is the process in which a liquid changes into a gas.	**heat**	Heat is energy that can be transferred from one place or object to another.
	state	A state describes whether matter is a solid, liquid or gas.	**condensation**	Condensation is the process in which a gas changes into a liquid.	**magnetic**	A magnetic material is attracted to a magnet.
Step 6 - UKS2	**mixture**	A mixture contains two or more substances that have been combined but not chemically joined.	**reversible change**	A reversible change can be undone to recover the original materials.	**thermal conductivity**	Thermal conductivity describes how easily heat moves through a material.
	solution	A solution forms when one substance dissolves completely in another.	**irreversible change**	An irreversible change forms new materials and cannot easily be undone.	**electrical conductivity**	Electrical conductivity describes how easily electricity moves through a material.
	solubility	Solubility is a measure of how well a substance dissolves in a liquid.	**dissolving**	Dissolving happens when a substance mixes completely into a liquid to form a solution.	**energy transfer**	Energy transfer occurs when energy moves from one material or object to another.
	synthetic material	A synthetic material is a material made by humans through chemical processes.	**separation**	Separation is the process of splitting materials in a mixture apart.	**efficiency**	Efficiency describes how well a material performs its intended purpose with minimal energy loss.
	substance	A substance is a material with a specific set of properties.	**reaction**	A reaction is a process in which substances change and new materials are formed.	**sustainability**	Sustainability involves choosing and using materials in ways that protect resources and reduce environmental harm.

Science – Energy and Forces

	Structures and Systems		Changes and Cycles		Energy	
	Everything is made of smaller parts. When parts work together, it's a system.		Cycles are made of changes from one stage to another.		Energy is the power needed to make something change or happen.	
Step 4 - KS1	**light source**	A light source produces its own light.	**movement**	Movement occurs when a force acts on an object.		
	sound source	A sound source produces sound.	**light and dark**	Darkness occurs when there is little or no light.		
	push	A push is a force that moves an object away.	**loud and quiet**	Sounds can vary in loudness.		
	pull	A pull is a force that moves an object closer.	**change**	Forces, light and sound can cause changes.		
	parts	Objects are made from parts that work together.	**shadow**	A shadow forms when light is blocked.		
Step 5 - LKS2	**magnet**	A magnet is an object that can attract or repel certain materials.	**reflection**	Reflection occurs when light bounces from a surface.		
	circuit	A circuit is a complete pathway through which electricity flows.	**friction**	Friction is a force that slows movement between surfaces.		
	component	A component is a part of a circuit with a specific function.	**gravity**	Gravity pulls objects towards the Earth.		

	vibration	A vibration is a rapid back-and-forth movement that produces sound.	**pitch**	Pitch describes how high or low a sound is.		
Step 6 - UKS2	**series circuit**	A series circuit contains components connected in a single loop.	**air resistance**	Air resistance opposes movement through air.		
	switch	A switch controls whether a circuit is complete or incomplete.	**water resistance**	Water resistance opposes movement through water.		
	refraction	Refraction occurs when light changes direction as it moves between materials.	**brightness**	Brightness can change when a circuit is altered.		
	mechanism	A mechanism is a system of parts designed to transfer movement or force.	**attenuation**	Sound becomes weaker as it travels further from its source.		
	electrical system	Electrical systems transfer energy between components to perform a function.				

Science – Earth and Space

Concepts progression

Building blocks to the big ideas

Structures and Systems

Everything is made of smaller parts. When parts work together, it's a system.

Changes and Cycles

Cycles are made of changes from one stage to another.

Energy

Energy is the power needed to make something change or happen.

Step 4 - KS1	**Earth**	Earth is the planet on which we live.	**weather**	Weather describes the conditions of the air around us at a particular time.	**Sun**	The Sun provides light and heat energy to Earth.
	sphere	A sphere is a round three-dimensional shape like a ball.	**season**	A season is one of the four parts of the year that brings predictable changes.	**temperature**	Temperature is a measure of how hot or cold something is.
	land	Land is the solid part of the Earth's surface.	**spring**	Spring is the season when temperatures rise and plants begin to grow.	**rain**	Rain is water that falls from clouds.
	sea	The sea is the large area of saltwater covering much of the Earth.	**summer**	Summer is the season with longer days and warmer weather.	**wind**	Wind is moving air.
	climate	Climate is the weather we usually expect in a place over a long period of time.	**autumn/winter**	Autumn and winter are seasons when temperatures fall and many plants become dormant.	**water**	Water is essential for life and is constantly moving around the Earth.
Step 5 - LKS2	**crust**	The crust is the thin outer layer of the Earth on which we live.	**volcano**	A volcano is an opening in the Earth's crust through which magma can reach the surface.	**evaporation**	Evaporation is the process by which liquid water becomes water vapour.
	magma	Magma is liquid rock found beneath the Earth's surface.	**erosion**	Erosion is the wearing away of rock by water, wind or ice.	**condensation**	Condensation is the process by which water vapour becomes liquid water.
	rock	A rock is a naturally occurring solid material that forms part of the Earth.	**fossilisation**	Fossilisation is the process by which the remains of living things are preserved in rock.	**precipitation**	Precipitation is water that falls from the atmosphere as rain, snow or hail.

	soil	Soil is a mixture of rock particles, organic matter, water and air.	**change of state**	A change of state happens when matter changes between solid, liquid and gas.	**solar energy**	Solar energy is energy that comes from the Sun.
	core	The core is the central part of the Earth and is made mainly of metal.	**water cycle**	Water moves continuously through evaporation, condensation and precipitation.	**freshwater**	Freshwater is water that contains very little salt and can support most life on land.
Step 6 - UKS2	**universe**	The universe contains all space, matter and energy.	**lunar phase**	Lunar phases are the different shapes of the Moon that appear during its orbit around Earth.	**gravity**	
	galaxy	A galaxy is a vast collection of stars, planets and other objects held together in space.	**time zone**	Time zones exist because different parts of Earth experience daylight at different times.		
	solar system	A solar system consists of a star and all the objects that orbit it.				
	satellite	A satellite is an object that orbits another object in space.				
	orbit	An orbit is the path one object follows as it travels around another object in space.				

Art and Design

Concepts progression

Building blocks to the big ideas

What is the artist saying through their artwork?

How is the artist using the big ideas of art to say this?

	Line		Colour		Shape and Form		Texture and Pattern		Composition	
Step 4 - KS1	**straight**	A straight line can make an artwork feel stable, strong or organised.	**primary**	Primary colours can be mixed to create many other colours.	**shape**	Shapes help artists represent objects, places and ideas.	**texture**	Texture describes how a surface feels or appears to feel.	**position**	Where something is placed affects what we notice first.
	curved	A curved line can make an artwork feel gentle, natural or flowing.	**warm**	Warm colours can make an artwork feel energetic, cheerful or inviting.	**geometric**	Geometric shapes look ordered because they have clear edges and regular forms.	**pattern**	Patterns are made when lines, shapes or colours repeat.	**size**	Size can show what is important in an artwork.
	direction	The direction of a line can lead our eyes around an artwork.	**cool**	Cool colours can make an artwork feel calm, quiet or distant.	**organic**	Organic shapes often look natural because they are irregular and flowing.	**repetition**	Repetition creates pattern, rhythm and visual interest.	**balance**	Balance helps an artwork feel comfortable, even or complete.
	outline	An outline helps us recognise the edge and shape of something.	**mood**	Colour can change how an artwork makes us feel.	**3D**	Three-dimensional forms have height, width and depth.	**detail**	Detail can add realism, emphasis and visual interest.	**symmetry**	Symmetry creates balance by making one side match or reflect another.
Step 5 - LKS2	**contour**	Contour lines describe the edges and shape of a subject.	**tone**	Tone describes how light or dark a colour appears.	**form**	Form helps artists create the illusion of three dimensions.	**surface quality**	Surface quality describes how a surface looks or feels.	**foreground**	Objects in the foreground appear closer to the viewer.
	movement	Lines can create a sense of action, energy or motion.	**tint**	A tint is made when white is added to a colour.	**volume**	Volume makes an object appear to take up space.	**mark-making**	Drawing techniques help artists use marks to create texture, tone and effect.	**background**	The background helps show where an artwork is set.
	gesture	Gesture lines capture the movement and character of a subject.	**shade**	A shade is made when black is added to a colour.	**light**	Light helps us understand the shape and form of an object.	**layering**	Layering builds up marks, colours or textures to create richness and depth.	**overlap**	Overlap helps show which objects are in front or behind.

	perspective	Perspective uses lines to create the illusion of depth and distance.	**hue**	Hue means the colour itself before it is made lighter or darker.	**shadow**	Shadows help create depth, form and realism.	**texture effect**	Texture effect describes how marks, materials or surfaces change the way an artwork looks or feels.	**depth**	Depth makes an artwork appear to have near and far spaces.
Step 6 - UKS2	**leading lines**	Leading lines guide the viewer's eye towards important parts of an artwork.	**contrast**	Contrast helps important colours, shapes or areas stand out.	**space**	Space describes the area around, between or within forms.	**motif**	A motif is a repeated visual idea that can help communicate meaning.	**focal point**	A focal point is the part of an artwork we notice first.
	vanishing point	A vanishing point helps artists create realistic distance and perspective.	**harmony**	Harmonious colours work well together and help an artwork feel unified.	**proportion**	Proportion describes how the size of one part relates to another.	**rhythm**	Rhythm is created when repeated patterns guide the eye through an artwork.	**emphasis**	Emphasis helps show what is most important in an artwork.
	converging lines	Converging lines move towards each other to show distance or direction.	**palette**	A palette is the set of colours an artist chooses to use.	**structure**	Structure helps artists build believable forms and spaces.	**realism**	Realism uses detail, texture and proportion to make something appear lifelike.	**framing**	Framing directs attention and shapes how we interpret what we see.
	expressive line	Expressive lines can communicate feeling, movement, energy or personal style.	**colour relationships**	Colour relationships help artists create balance, emphasis, mood and meaning.	**viewpoint**	Viewpoint changes how we see the shape, form and importance of a subject.	**expression**	Expression uses visual choices to communicate feeling, mood or personal response.	**symbolism**	Pattern and texture can be used to suggest deeper ideas or meanings.

Design and Technology

Concepts progression

Building blocks to the big ideas

	Purpose		People		Materials		Systems		Innovation	
	What problem does this product solve?		Who will use this product? How will it meet their wants and needs?		What is it made from? Why have these materials been chosen?		How do the parts work together? How do the different components interact?		How do designs change and improve?	
Step 4 - KS1	**solution**	An answer to a problem.	**target user**	The person who will use the product.	**properties**	The qualities of a material that tell us what it is like.	**parts**	The pieces that make up a product.	**improve**	To make something better so that it works more successfully.
	product	Something that has been designed and made.	**appearance**	What something looks like.	**suitability**	Right for a particular purpose or job.	**movement**	The way in which something moves.	**adapt**	To change a design to make it more suitable for a purpose or user.
	design	A plan or idea for something you want to make.	**opinion**	What someone thinks or feels about something.	**structure**	Something that has been built from different parts joined together.	**join**	To connect two or more parts together.	**invent**	To create something new that solves a problem.
	features	The parts of a product that help it to do its job.					**control**	To make something work in a way you want it to.	**success**	When a product does what it is designed to do.
Step 5 - LKS2	**criteria**	The things a product must have or do to be successful.	**requirements**	The thing a product must have or do to meet a user's needs.	**environmental impact**	The effect a material or product has on the environment.	**performance**	How well a product or system does its job.	**feedback**	Comments or suggestions that help improve a product or design.
	design brief	A short description explaining what needs to be designed.	**functionality**	How well all the features of a product work together to do their job.	**natural**	A material which comes from plants, animals, or the earth.	**components**	The individual parts that work together in a system.	**modifications**	A change made to improve a product or make it work better.
	quality	How well a product is made and how well it works.	**appeal**	How much a product is liked by the people who will use it.	**synthetic**	A material that is made by people rather than found in nature.	**mechanism**	A group of parts that work together to create movement.	**research**	Finding out information to help make design decisions.
			preferences	The things a person likes or chooses.	**qualities**	The features or characteristics of a material that make it suitable for a particular use.	**technology**	Products, tools, and systems that help people solve problems or make tasks easier.	**prototype**	An early version of a product used to test and develop ideas.

Step 6 - UKS2	**specification**	A detailed list of what a product must have or do to be successful.	**aesthetics**	How a product looks and how attractive it is to the user.	**durability**	How well a material lasts over time without breaking, wearing out or becoming damaged.	**efficiency**	How well a product or system does its job without wasting time, energy or materials.	**refinements**	The process of making small improvements to a design so that it works better.
	constraints	The limits or restrictions that affect a design, such as time or cost.	**accessibility**	Making sure a product can be used by as many people as possible, including those with disabilities.	**sustainability**	Using materials and resources in a way that protects the environment for the future.	**input**	The action, force, or information that starts a system working.	**iteration**	Repeating the process of designing, testing, and improving a product.
			target market	The group of people a product is designed to be sold or made for.	**renewable**	A material or resource that can be replaced naturally over time.	**output**	The result or action produced by a system.	**future design**	Thinking about how a product could be improved or developed further in the future.
					cost-effective	Good value for money because it works well without costing too much.	**reliability**	How consistently a product or system works over time.	**optimisation**	Making a product work as effectively as possible.

Appendices:

Concept progressions and core knowledge grids:

A: Steps 1, 2, 3 (EYFS)

B: Steps 4, 5, 6 (NC) – concept progressions

C: Steps 4, 5, 6 (NC) – core knowledge grids

Understanding Myself and Others	Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 – KS1
Core Knowledge	Me 	Us 	Everyone 
Identity 	Likes and choices can show something about who a person is – these preferences is part of their identity.	People in a group can be alike in some ways and different in others.	Every person in the world has their own individual identity.
	Feelings, memories and experiences help shape a person's unique identity.	Groups can share names, stories and ways of doing things.	Identity can be shaped by where people live.
	A name can be an important part of a person's identity.	Families, classes, schools, and teams can all share a common identity.	People might have many differences to us but we respect them because they are humans like us too.
Connection 	Our senses send messages which connect our body to our brain.	Friendships grow when people share, listen and help each other.	Connections can reach across countries, cultures and languages.
	Body signals help the brain notice and understand feelings.	Teamwork means sharing roles, ideas and effort.	We can understand how someone might feel even if we haven't experienced their lives ourselves.
	Emotions can change how the body feels and acts.	Problems can be solved through talking, listening and understanding.	Kindness to people who have many differences to us is vital to build connection.
Contribution 	Looking after myself means staying safe and healthy and happy.	Helping others starts with noticing what they need.	Small actions can make a positive difference in the wider world.
	We have choices about what to eat, watch, and do.	People can achieve more when they work together.	Caring for the world means looking after people, animals and places – this makes life better for everyone.
	Good choices can make a positive difference to our lives and those around us too.	Groups work well when people listen, take turns and help each other.	Fair choices help people feel safe, included and respected.

Understanding Myself and Others		Answer using the core knowledge grid.	Step 4 – KS1
Quiz Questions	Me 	Us 	Everyone 
Identity 	What can likes and choices show about who a person is?	How can people in a group be alike and different?	What does every person in the world have?
	What helps shape a person's unique identity?	What can groups share?	What can help shape someone's identity?
	Why can a name be important?	Which groups can share a common identity?	Why should we respect people who are different from us?
Connection 	What connects our body to our brain?	How do friendships grow?	Where can connections reach across?
	What helps the brain notice and understand feelings?	What does teamwork mean?	Can we understand someone's feelings even if we have not lived their life?
	How can emotions change the body?	How can problems be solved?	Why is kindness important when people are different from us?
Contribution 	What does looking after myself mean?	What does helping others start with?	What can small actions do in the wider world?
	What choices do we have?	What can people achieve when they work together?	What does caring for the world mean?
	What can good choices do?	How do groups work well?	What do fair choices help people feel?

Understanding Myself and Others	Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 – LKS2
Core Knowledge	Me 	Us 	Everyone 
Identity 	Experiences can shape how a person understands who they are.	Shared experiences can shape the identity of a group.	Diversity means that people have different identities, backgrounds, experiences and ways of life.
	People continue becoming themselves as they grow and change.	A community is a group of people who share a place, interest or sense of belonging.	Equality means making sure everyone is treated fairly and has the opportunity to take part.
	A person can belong to more than one group at the same time.	A culture is a group's shared ideas, customs, traditions and ways of life.	Valuing people's differences helps everyone feel respected, included and able to belong.
Connection 	Our bodies and brains make natural chemicals that affect how we feel.	Connecting with other people can boost brain chemicals which make us feel good.	Media helps us to understand other people's experiences and connect with them.
	Good sleep, a good diet, moving, and being outside all help our bodies and brains produce the natural chemicals that make us feel good.	Communication can solve problems when people listen and explain clearly.	Social media allows people to connect with others all over the world.
	Our bodies and brain react to stress but breathing deeply can help us become calm.	Healthy relationships are built on trust, respect and honesty.	What we read and watch can influence our way of thinking in good ways and harmful ways too.
Contribution 	Responsibility means understanding that choices have consequences.	Participation means taking part and helping a group to work well.	Citizens are people who belong to a society and help make it work well.
	Trust grows when a person acts honestly and keeps commitments.	Groups often make better decisions when people share ideas and listen to each other.	Laws are rules that help keep people safe and make society fairer.
	Putting mistakes we make right helps build trust.	Democracy means people have a fair way to choose, decide and be heard.	The rule of law means everyone should follow the law, including people with power.

Understanding Myself and Others	Quiz questions	Answer using the core knowledge grid.	Step 5 – LKS2
Quiz Questions	Me	Us	Everyone
Identity	What can shape how a person understands who they are?	What can shape the identity of a group?	What does diversity mean?
	How do people keep becoming themselves?	What is a community?	What does equality mean?
	Can a person belong to more than one group?	What is a culture?	How can valuing people's differences help everyone?
Connection	What do our bodies and brains make that can affect how we feel?	How can connecting with other people affect how we feel?	How can media help us connect with other people?
	What healthy habits help our bodies and brains make chemicals that make us feel good?	How can communication help people solve problems?	What does social media allow people to do?
	How can breathing deeply help us when our body and brain react to stress?	What are healthy relationships built on?	How can what we read and watch influence our thinking?
Contribution	What does responsibility mean?	What does participation mean?	What are citizens?
	How does trust grow?	When do groups often make better decisions?	What are laws for?
	How can putting mistakes right help?	What does democracy mean?	What does the rule of law mean?

Understanding Myself and Others	Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 – UKS2
Core Knowledge	Me 	Us 	Everyone 
Identity 	Values and habits help shape the kind of person someone becomes.	Perspective means understanding that people may see the same situation in different ways.	Shared humanity means all people belong to one human family, even when our lives are different.
	Knowing personal values can help a person make thoughtful choices.	Human beings are complex, so one label or story can never explain everything about a person.	Human dignity means every person has worth and should be treated with respect.
	Integrity means acting in line with values, even when it is difficult.	Identity can have many parts, such as family, culture, interests, beliefs, strengths and experiences.	Understanding shared humanity can help people challenge unfairness and respect others' rights.
Connection 	Quick rewards from sugar, and screens can feel good at first, but too many can lead to a dip in mood, energy or motivation afterwards.	Oxytocin can increase when people feel safe, trusted and connected with each other..	Trust can be damaged when people or organisations knowingly spread false or misleading information to influence others.
	Activities that require some effort – such as reading, writing or creating – build lasting motivation and better mood for longer.	Healthy relationships make space for different opinions and needs.	People should test what they are told by checking evidence, comparing sources and asking whether it is true.
	Endorphins can increase during exercise, laughter and enjoyable challenge.	Connection grows when people respect each other's boundaries and needs.	Global connection means actions in one place can affect people elsewhere.
Contribution 	Purpose helps me choose what is worth my time and effort to contribute to others.	Service means using my time, effort or skills to help other people, such as helping a younger child or doing a job for the class.	Justice means people being treated fairly and having their dignity respected.
	Agency means knowing my choices and actions can change what happens next.	Social action means working with others to improve something, such as reducing litter, raising money or making playtimes fairer.	Hope means believing that change is possible, even when problems are difficult.
	I contribute when I use my strengths, effort or ideas to make a positive difference.	Groups can make a bigger difference when people notice a need, make a plan and act together.	People contribute to shared humanity when they act with courage, care and fairness.

Understanding Myself and Others	Quiz questions	Answer using the core knowledge grid.	Step 6 – UKS2
Quiz Questions	Me	Us	Everyone
Identity	What helps shape the kind of person someone becomes?	What does perspective mean?	What does shared humanity mean?
	How can knowing personal values help someone?	Why can one label or story never explain everything about a person?	What does human dignity mean?
	What does integrity mean?	What kinds of things can be part of someone's identity?	How can understanding shared humanity help people treat others?
Connection	What can happen after too many quick rewards from sugar or screens?	When can oxytocin increase between people?	What can damage trust when people or organisations influence others?
	What kinds of activities can build lasting motivation and better mood for longer?	What do healthy relationships make space for?	How should people test what they are told?
	When can endorphins increase?	What helps connection grow between people?	What does global connection mean?
Contribution	How can purpose help me contribute to others?	What does service mean?	What does justice mean?
	What does agency mean?	What does social action mean?	What does hope mean?
	When do I contribute?	How can groups make a bigger difference?	How do people contribute to shared humanity?

History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Thinking like a historian – how do we know about the past?	We know about the past because we can look at historical sources and ask questions.	Historical sources are things that were created at the time in the past we are thinking about.	There are six main types of historical source: people who remember; videos; photos; artwork; writing; artefacts.	People can be historical sources if they existed in and remember a time in the past we want to ask questions about.
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Some people who lived in the past were significant people because they invented, said or did things that changed the world from that point on.	Some important events that happened in the past were significant because they changed the way people lived.	When something in the past changes the way people live after that, we call it a legacy.	A legacy might be seen through objects that have lasted, or the way people think, speak, and behave.
Everyday Life 	The past is everything that has already happened. The present is what is happening now.	Adults today were once children. Their childhood is part of the past.	Some events happened within living memory: people alive today can remember them.	Some events happened before anyone alive today was born. No one alive today remembers them happening.
	Events happen in an order. ‘Before’ and ‘after’ tell us when one event happened compared with another.	A timeline shows events in the order they happened, from earlier to later.	The past includes many different times. Not everyone we learn about lived at the same time.	Dates tell us when things happened. A year helps us place an event on a timeline.
Hierarchy and Power 	People in the past needed food, water, clothing and shelter, just as people do today.	Homes, clothes, work and play can be different at different times in history.	As time passes, some things change and other things stay the same.	People living at the same time did not all have the same way of life.
	Inventions can change how people live, work, travel and share news.	Some changes happen quickly. Others happen slowly over many years.	Things happen for reasons. What happens can lead to other events and changes.	Places have a history. Buildings and objects from the past can still be found where people live today.
Invasion and Settlement 	In the past, some people had more power than others. They could make decisions that affected other people.	Rules and laws have changed over time. Things people were allowed to do in the past may be different today.	People with more money often had different homes, work and opportunities from people with less money.	People have worked together to change rules and improve their lives.
	People have moved to new places throughout history to find homes, work or safety.	When people settle somewhere, they make it their home. A settlement is a place where people live.	An invasion is when a group enters another land to take control of it by force.	When people move, they bring ideas, skills and ways of life. These can change the places where they settle.

History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Thinking like a historian – how do we know about the past?	How can we find out about the past?	What is a historical source?	What six types of historical source can you name?	When can a person be a historical source?
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Why are some people from the past called significant?	Why are some events from the past called significant?	What is a legacy?	Where might we see a legacy from the past?
Everyday Life 	What is the difference between the past and the present?	Were adults today always adults? Is their childhood in the past or the present?	What does 'within living memory' mean?	Why can no one alive today remember some events happening?
	What do 'before' and 'after' tell us about events?	What does a timeline show?	Did everyone we learn about in history live at the same time?	What do dates tell us? How does knowing the year help us use a timeline?
Hierarchy and Power 	What did people in the past need, just as we do today?	Which parts of everyday life can be different at different times in history?	As time passes, does everything change?	Did people living at the same time all have the same way of life?
	How can inventions change people's lives?	Do all changes happen quickly?	Do events happen for reasons? What can one event lead to?	What might we still find from the past in places where people live today?
Invasion and Settlement 	What could people with more power do in the past?	Have rules and laws always been the same as they are today?	How could having more or less money affect people's lives in the past?	What have people worked together to change and improve?
	Why have people moved to new places throughout history?	What does it mean to settle somewhere? What is a settlement?	What is an invasion?	What do people bring when they move, and how can this change their new home?

History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Thinking like a historian – how do we know about the past?	We know about the past because we can look at historical sources and ask questions.	Historical sources are things that were created at the time in the past we are thinking about.	There are six main types of historical source: people who remember; videos; photos; artwork; writing; artefacts.	People can be historical sources if they existed in and remember a time in the past we want to ask questions about.
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Some people who lived in the past were significant people because they invented, said or did things that changed the world from that point on.	Some important events that happened in the past were significant because they changed the way people lived.	When something in the past changes the way people live after that, we call it a legacy.	A legacy might be seen through objects that have lasted, or the way people think, speak, and behave.
Everyday Life 	History is learning about the human past. Prehistory is the time before written records. Objects and other remains help us learn about it.	BC and BCE mean the same years before AD 1. AD and CE mean the same years from AD 1 onwards. A century is 100 years.	Britain's main order is: Stone Age, Bronze Age, Iron Age, Roman rule, Anglo-Saxon kingdoms, Viking settlement, Norman conquest. Some periods overlap: they happen at the same time.	A society is a group of people living together. A civilisation is a large, organised society with cities, government and different skilled jobs. It often has writing.
	The Stone Age has three main parts: Palaeolithic (Old), Mesolithic (Middle) and Neolithic (New). People used stone, wood and bone to make tools.	Palaeolithic people hunted animals and gathered food during and between Ice Ages. They often moved to find food. Sometimes no people lived in Britain.	In Mesolithic Britain, about 9500–4000 BC, the land became warmer. People were hunter-gatherers. Rising seas cut Britain off from mainland Europe.	Neolithic farming reached Britain around 4000 BC. Agriculture means growing crops and keeping animals. People built settlements that lasted and large stone monuments.
Hierarchy and Power 	Britain's Bronze Age lasted about 2300–800 BC. People mixed copper and tin to make bronze tools and objects. They still farmed and exchanged goods.	Britain's Iron Age began around 800 BC. Iron tools helped people farm. Many lived in roundhouses. Some built hillforts for defence and to meet together.	During Britain's prehistory, Egypt and Sumer already had cities and writing. Technologies, such as tools and ways of making things, developed at different times in different places.	Roman rule brought new roads, towns, baths and ways of writing to Britain. Many people still farmed. Some people's lives changed more than others.
	Languages change when people meet. Old English and Old Norse helped shape English. Stories and literature passed on knowledge, values and traditions.	Beliefs shaped buildings, festivals and daily life. Christianity spread in Roman and Anglo-Saxon times. Some older beliefs and traditions continued alongside it.	A chieftain leads a tribe or clan. A council gives advice to leaders. Anglo-Saxon kings discussed important decisions with a council called the witan.	Governments make laws and organise society. Justice means treating people fairly. Past laws did not give everyone equal rights. Most people could not choose their rulers.
Invasion and Settlement 	The Roman conquest began in AD 43. Roman rule ended around AD 410. The Romans ruled much of Britain but never conquered Ireland.	Angles, Saxons and Jutes came from mainland Europe from the fifth century onwards. They settled alongside Britons and formed several kingdoms in the land that became England.	Britons, Picts, Gaels and other peoples lived across these islands. The lands of England, Scotland, Wales and Ireland were not all one kingdom.	Vikings came from Scandinavia from the late eighth century onwards. They raided, explored, traded and settled across these islands. They were not just invaders.
	Anglo-Saxons and Vikings lived at the same time. They fought and made agreements. The Danelaw was an area of England where Danish laws and settlement spread.	In 1066, William conquered England and became its first Norman king. This was in medieval times, not the modern age. Monarchy—rule by kings or queens—already existed.	Invaders wanted land, wealth and power. Settlers also wanted homes and farmland. New arrivals did not always replace the people already living there.	Conquest could change rulers, laws and language. Farming and traditions could continue. Defences, such as walls and forts, helped people protect their settlements.

History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Thinking like a historian – how do we know about the past?	How can we find out about the past?	What is a historical source?	What six types of historical source can you name?	When can a person be a historical source?
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Why are some people from the past called significant?	Why are some events from the past called significant?	What is a legacy?	Where might we see a legacy from the past?
Everyday Life 	What is history? What is prehistory, and how do we learn about it?	Which date labels mean the same thing? How long is a century?	What is Britain's broad sequence of periods from the Stone Age to the Norman conquest? Can periods overlap?	What is a society? What features does a civilisation usually have?
	Name the three Stone Age periods in order. Which materials did people use for tools?	How did Palaeolithic people find food? Why did they move, and was Britain always inhabited?	When was Mesolithic Britain? How did its landscape and links with mainland Europe change?	When did Neolithic farming reach Britain? What is agriculture, and what did people build?
Hierarchy and Power 	When was Britain's Bronze Age? How was bronze made, and which activities continued?	When did Britain's Iron Age begin? How were iron tools, roundhouses and hillforts used?	Did every place develop cities and writing at the same time? Name two that had them while Britain was prehistoric.	What changed under Roman rule? What continued, and did everyone's life change equally?
	Which languages helped shape English? What did stories and literature pass on?	How did beliefs shape daily life? When did Christianity spread, and did older traditions all disappear?	What does a chieftain do? What does a council do, and what was the witan?	What do governments do? What is justice, and did past laws give everyone equal rights?
Invasion and Settlement 	When did Roman conquest begin and Roman rule end? Did the Romans conquer Ireland?	Where did the Angles, Saxons and Jutes come from? When did they arrive, and what did they form?	Name three peoples who lived across these islands. Did the islands form one single kingdom?	Where did Vikings come from? When did they begin arriving, and what did they do besides invade?
	Did Anglo-Saxons and Vikings live at the same time? How did they deal with each other, and what was the Danelaw?	Who became England's first Norman king, and when? Was this the start of monarchy or the modern age?	Why did people invade or settle? Did new arrivals always replace those already living there?	What could change or continue after conquest? How did walls and forts help settlements?

History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Thinking like a historian – how do we know about the past?	We know about the past because we can look at historical sources and ask questions.	Historical sources are things that were created at the time in the past we are thinking about.	There are six main types of historical source: people who remember; videos; photos; artwork; writing; artefacts.	People can be historical sources if they existed in and remember a time in the past we want to ask questions about.
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Some people who lived in the past were significant people because they invented, said or did things that changed the world from that point on.	Some important events that happened in the past were significant because they changed the way people lived.	When something in the past changes the way people live after that, we call it a legacy.	A legacy might be seen through objects that have lasted, or the way people think, speak, and behave.
Everyday Life 	World histories overlap. Sumer and Egypt built cities during Britain's Neolithic and Bronze Ages; Shang China flourished during Britain's Bronze Age.	Sumer's cities grew in Mesopotamia, now Iraq, around 3500 BC. Early writing recorded goods and decisions. Rivers supported farming and trade.	Ancient Egypt united around 3100 BC beside the Nile. Pharaohs ruled; farming supported towns, skilled crafts, writing and large buildings, including pyramids.	Indus cities flourished around 2600–1900 BC in today's Pakistan and India. Planned streets, drains and trade show organisation; their writing remains undeciphered.
	The Shang dynasty ruled part of China around 1600–1046 BC. Bronze objects and writing on oracle bones reveal skilled crafts, beliefs and royal power.	Ancient Greek city-states flourished during Britain's Iron Age. Their ideas influenced later societies through democracy, theatre, philosophy, science and architecture.	In fifth-century BC Athens, male citizens could vote directly on decisions. Women, enslaved people and foreigners were excluded; this differed from modern UK democracy.	Around AD 900, Baghdad, in today's Iraq, was a centre of learning and trade. Scholars developed and shared mathematics, medicine and astronomy.
Hierarchy and Power 	Maya city-states flourished in Mexico and Central America around AD 250–900. They developed writing, calendars and mathematics while Anglo-Saxons and Vikings lived in Britain.	Benin developed in West Africa, in today's Nigeria, around AD 900–1300 and continued afterwards. Its rulers, crafts and trade can be compared with medieval Britain.	After 1066 came later medieval, Tudor (1485–1603), Stuart (1603–1714, with an interruption), Georgian (1714–1830) and Victorian (1837–1901) periods, then the twentieth century.	In many medieval societies, nobles held land and privileges while peasants farmed. Wealth and social position affected people's work, homes, rights and power.
	Parliament's power grew over centuries; the 1689 Bill of Rights limited royal power. Parliament makes laws; the government runs the country and collects taxes.	Liberty means freedom. Laws and campaigns changed people's rights over time. Political revolutions can change who governs and how power is shared.	Britain's Industrial Revolution began in the eighteenth century. Machines and factories changed production. Towns grew as people moved for work; conditions were often harsh.	An economy includes producing and using goods and services. Trade exchanges them between people and places. Industry, transport and taxes connect everyday lives to wider systems.
Invasion and Settlement 	An empire controls other lands and peoples. A colony is a territory ruled from elsewhere. Britain's overseas empire grew from the late sixteenth century.	The British Empire linked trade, settlement and conquest. It brought wealth to some while taking land, resources and freedom from others, including Indigenous peoples.	The First World War lasted 1914–1918; the Second, 1939–1945. People from many countries and empires took part. Both wars changed borders and everyday life.	World wars had several causes, including rivalries and invasions. They disrupted trade and work; rationing and evacuation changed life for many families in Britain.
	During the twentieth century, many colonies gained independence, especially after 1945. Migration continued to connect Britain with its former empire and the wider world.	Migration means moving to live elsewhere. People move for work, family or safety, by choice or under pressure. Indigenous peoples have longstanding ties to their homelands.	Heritage includes buildings, objects, language and traditions inherited from the past. It carries achievements and injustices. Local history connects places with national and world events.	Change and continuity happen together. Events have several causes and short- and long-term consequences; the same event can affect different people in different ways.

History Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Thinking like a historian – how do we know about the past?	How can we find out about the past?	What is a historical source?	What six types of historical source can you name?	When can a person be a historical source?
Thinking like a historian – why is the world the way it is today because of what happened in the past?	Why are some people from the past called significant?	Why are some events from the past called significant?	What is a legacy?	Where might we see a legacy from the past?
Everyday Life 	Which British periods overlapped with the cities of Sumer and Egypt, and with Shang China?	Where and when did Sumer's cities grow? How did writing and rivers support life there?	When did Ancient Egypt unite, beside which river, and who ruled? What did farming help support?	Where and when did Indus cities flourish? What shows their organisation, and can we read their writing?
	Where and when did the Shang dynasty rule? What can bronze objects and oracle bones reveal?	Which British period overlapped with Ancient Greek city-states? Which Greek ideas influenced later societies?	Who could vote in fifth-century BC Athens? Who was excluded, and how did voting differ from the modern UK?	Where is Baghdad, and what was it known for around AD 900? Which subjects did scholars develop and share?
Hierarchy and Power 	Where and when did Maya city-states flourish? What did they develop, and who lived in Britain during this time?	Where and when did Benin develop? Did it end in AD 1300, and which British period can we compare it with?	Put the periods after 1066 in order. When were the Tudor, Stuart, Georgian and Victorian periods?	How did the lives of medieval nobles and peasants differ? What could wealth and social position affect?
	How did Parliament's power change? What happened in 1689, and what do Parliament and government do?	What is liberty? How have rights changed, and what can a political revolution change?	When did Britain's Industrial Revolution begin? How did production, towns and working lives change?	What are an economy and trade? Which wider systems connect people's everyday lives?
Invasion and Settlement 	What is an empire? What is a colony, and when did Britain's overseas empire begin to grow?	How were trade, settlement and conquest linked in the British Empire? How did its effects differ for people?	When were the two world wars? Who took part, and what did the wars change?	What were some causes of the world wars? How did they affect trade, work and families in Britain?
	What happened to many colonies during the twentieth century? How did migration continue to connect Britain with the world?	What is migration? Why do people move, and what ties do Indigenous peoples have to their homelands?	What is heritage? How does local history connect with national and world events?	Can change and continuity happen together? Can events have several causes and affect people differently?

Writing Core Knowledge		Colour in the core knowledge that you know.		Step 4 (KS1)
Things I should know from EYFS	**Spoken words can be written using letters.**	**Letters have names and sounds.**	**Writing goes from left to right and top to bottom.**	**Words are separated by spaces.**
Transcription and Handwriting 	**A sentence is a complete thought with a noun and a verb.**	**A complete sentence must start with an uppercase letter and end with a full stop.**	**A noun is a naming word for a person, place or object.**	
	A verb is an action word.	**We can expand our sentences by adding detail to either the noun or the verb.**	**We add detail to the noun using adjectives which describe the noun.**	
	We add detail to the verb using adverbs which describe the verb.	**There are three types of adverbs: where-adverbs, when adverbs, and how-adverbs.**	**There are three types of sentence: simple (one verb), compound (two verbs), and complex (many verbs).**	
Sentence construction and structure	The individual sounds we hear in a word are called phonemes.	A grapheme is the written symbol that represents a sound (phoneme) in a word.	We learn the names of each letter to help with our writing.	
	Capital letters are used for names, titles and at the start of sentences	We leave small gaps (fingers spaces) between our words so that it is easier to read.	Question marks (?) are used at the end of a question.	
	Exclamation marks are used to express strong feelings.	An adjective gives more detail about a noun.	A noun phrase is a group of words that describe a noun.	
Grammar and word classes	Adding ‘s’ or ‘es’ makes a noun plural.	Words such as ‘and’, ‘but’, and ‘so’ are conjunctions and join ideas together.	Words such as ‘because’, ‘if’, and ‘when’ link ideas in longer sentences.	
	A clause is a part of a sentence which includes a verb.	Verbs ending in ‘-ing’ or ‘-ed’ show actions happening or finished.	Past tense verbs ending in ‘-ed’ show something already happened.	
	First person writing uses words like ‘I’, ‘me’, and ‘my’.	Third person writing uses words like ‘he’, ‘she’, and ‘they’.	Apostrophes show the contracted form or missing letters (e.g. can’t) or something that belongs to someone (Billy’s).	
Thinking like a writer 	**Writers choose words carefully to say exactly what they mean.**	**Always think about who is reading your writing and how it will make them feel.**	**Writers always check their writing to make sure it makes sense and looks right.**	

Writing Core Knowledge		Colour in the core knowledge that you know.		Step 4 (KS1)
Things I should know from EYFS	**Spoken words can be written using letters.**	**Letters have names and sounds.**	**Writing goes from left to right and top to bottom.**	**Words are separated by spaces.**

Transcription and Handwriting 	**What is a sentence?**	**What must a complete sentence begin and end with?**	**What is a noun?**
	What is a verb?	**How can a sentence be expanded?**	**Which word class describes and adds detail to a noun?**
	Which word class describes and adds detail to a verb?	**What are the three types of adverbs?**	**What are the three types of sentence?**
Sentence construction and structure 	What are phonemes?	What is a grapheme?	Why do we learn the names of each letter?
	When are capital letters used?	Why do we leave spaces between words?	When is punctuation used to end a question?
	What punctuation shows strong feelings?	What does an adjective do?	What is a noun phrase?
Grammar and word classes 	How is a noun made plural?	What are ‘and’, ‘but’, and ‘so’ examples of?	What are ‘because’, ‘if’, and ‘when’ examples of?
	What is a clause?	What do verbs ending in ‘-ing’ or ‘-ed’ show?	What do past tense verbs ending in ‘-ed’ show?
	What words are used in first person writing?	What words are used in third person writing?	What does an apostrophe show?

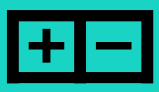
Thinking like a writer 	**Writers choose words carefully to say exactly what they mean.**	**Always think about who is reading your writing and how it will make them feel.**	**Writers always check their writing to make sure it makes sense and looks right.**	

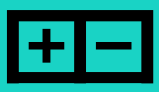
Writing Core Knowledge		Colour in the core knowledge that you know.	Step 5 (LKS2)
Transcription and Handwriting 	**A sentence is a complete thought with a noun and a verb.**	**A complete sentence must start with an uppercase letter and end with a full stop.**	**A noun is a naming word for a person, place or object.**
	A verb is an action word.	**We can expand our sentences by adding detail to either the noun or the verb.**	**We add detail to the noun using adjectives which describe the noun.**
	We add detail to the verb using adverbs which describe the verb.	**There are three types of adverbs: where-adverbs, when adverbs, and how-adverbs.**	**There are three types of sentence: simple (one verb), compound (two verbs), and complex (many verbs).**
Sentence construction and structure 	**Nouns** can be described using **noun phrases** (e.g. the old wooden chair).	**Pronouns** replace nouns to avoid repetition (e.g. he, she, they, it).	**Pronouns** are used to make writing flow better and sound more natural.
	A **clause** is a group of words that includes a verb.	A **phrase** is a group of words that does not include a verb.	Verbs can be described using **adverbs** (e.g. quickly, silently) or **adverbial phrases** (e.g. with great care).
	Adverbs can tell us when, where, or how something happens.	**Fronted adverbials** come at the start of a sentence and are followed by a comma.	**Conjunctions** link ideas and explain reasons such as because, *if*, *when*, and *although.*
	Prepositions show where something is (e.g. under, behind, next to).	**Paragraphs** are used to group sentences about the same topic or idea.	**A new paragraph** often starts on a new line to help the reader and when a **new character speaks**.
Grammar and word classes 	Inverted commas go **before and after** what the character says.	We always use **punctuation before the closing inverted comma**. A **full stop** is used if the speech ends the sentence.	If the speech is followed by *said Max*, we use a **comma**, **question mark**, or **exclamation mark** before the closing inverted comma.
	A short clause such as *said Max* comes **outside** the inverted commas.	The **simple past tense** is used to describe something that already happened (e.g. *she jumped*).	The **present perfect tense** is used to show something that has just happened (e.g. *she has jumped*).
	The **present perfect** uses **has/have** + a past participle verb (-ed).	In **non-fiction writing**, we use **headings** and **subheadings** to organise ideas.	**Headings** tell the reader what a section is about and help them **navigate the text**.
Thinking like a writer 	**Writers choose words carefully to say exactly what they mean.**	**Always think about who is reading your writing and how it will make them feel.**	**Writers always check their writing to make sure it makes sense and looks right.**

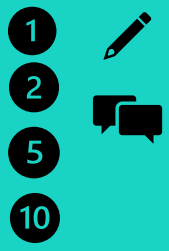
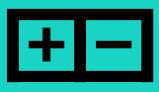
Writing Core Knowledge		Colour in the core knowledge that you know.	Step 5 (LKS2)
Transcription and Handwriting 	**What is a sentence?**	**What must a complete sentence begin and end with?**	**What is a noun?**
	What is a verb?	**How can a sentence be expanded?**	**Which word class describes and adds detail to a noun?**
	Which word class describes and adds detail to a verb?	**What are the three types of adverbs?**	**What are the three types of sentence?**
	What is a noun phrase?	What is a pronoun used for?	Why are pronouns used in writing?
Sentence construction and structure 	What is a clause?	What is a phrase?	How can verbs be described?
	What can adverbs tell the reader?	What is a fronted adverbial?	What do conjunctions do in a sentence?
	What does a preposition show?	Why are paragraphs used?	How do we know there is a new paragraph?
Grammar and word classes 	Where do inverted commas go in speech?	What punctuation is used before the closing inverted comma?	What punctuation is used before the closing inverted comma if followed by 'said Max'?
	Where does a short clause such as *'said Max'* go in relation to inverted commas?	What is the simple past tense used for?	What is the present perfect tense used for?
	What does the present perfect tense use?	What helps organise ideas in non-fiction writing?	What do headings do in a non-fiction text?
Thinking like a writer 	**Writers choose words carefully to say exactly what they mean.**	**Always think about who is reading your writing and how it will make them feel.**	**Writers always check their writing to make sure it makes sense and looks right.**

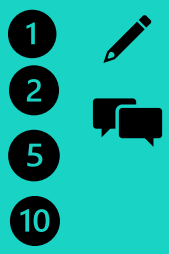
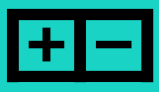
Writing Core Knowledge		Colour in the core knowledge that you know.	Step 6 (UKS2)
Transcription and Handwriting 	**A sentence is a complete thought with a noun and a verb.**	**A complete sentence must start with an uppercase letter and end with a full stop.**	**A noun is a naming word for a person, place or object.**
	A verb is an action word.	**We can expand our sentences by adding detail to either the noun or the verb.**	**We add detail to the noun using adjectives which describe the noun.**
	We add detail to the verb using adverbs which describe the verb.	**We add detail to the verb using adverbs which describe the verb.**	**There are three types of sentence: simple (one verb), compound (two verbs), and complex (many verbs).**
Sentence construction and structure 	A **clause** is a group of words that includes a verb.	A **phrase** is a group of words that does not include a verb.	Verbs can be described using **adverbs** (e.g. quickly, silently) or **adverbial phrases** (e.g. with great care).
	Some adverbs (e.g. *perhaps, surely, maybe*) also **show possibility.**	**Fronted adverbials** come at the start of a sentence and are followed by a comma.	**Modal verbs** (*e.g. might, should, must*) show degrees of possibility or certainty.
	Formal adverbial phrases (e.g. *on the other hand*, *in contrast to*) help link ideas between paragraphs.	**Parenthesis** adds extra information to a sentence.	**Commas** are used for parenthesis when the extra detail flows smoothly with the sentence.
	Brackets for parenthesis are used when the detail is an aside or extra thought.	**Dashes** are used for parenthesis when we want to emphasise the extra detail.	**Ellipsis** (…) shows an incomplete thought or action.
Grammar and word classes 	Authors use ellipsis to create **suspense** or show a character's reflection.	The **simple past tense** is used to describe something that already happened (e.g. *she jumped*).	The **present perfect tense** is used to show something that has just happened (e.g. *she has jumped*).
	The **present perfect** uses **has/have** + a past participle verb (-ed).	The **subjunctive form** is used for wishes or hypothetical ideas (e.g. If I were you…).	We use different **writer's voices** for different purposes (e.g. formal letters).
	In the **active voice**, the subject does the verb to the object (e.g. The cat chased the mouse).	In the **passive voice**, the object becomes the subject and has the verb done to it (e.g. The mouse was chased by the cat).	In **non-fiction writing**, we use **headings** and **subheadings** to organise ideas.
Thinking like a writer 	**Writers choose words carefully to say exactly what they mean.**	**Always think about who is reading your writing and how it will make them feel.**	**Writers always check their writing to make sure it makes sense and looks right.**

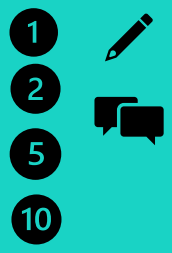
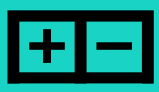
Writing Core Knowledge		Colour in the core knowledge that you know.	Step 6 (UKS2)
Transcription and Handwriting 	**What is a sentence?**	**What must a complete sentence begin and end with?**	**What is a noun?**
	What is a verb?	**How can a sentence be expanded?**	**Which word class describes and adds detail to a noun?**
	Which word class describes and adds detail to a verb?	**What are the three types of adverbs?**	**What are the three types of sentence?**
	What is a clause?	What is a phrase?	How can verbs be described in more detail?
Sentence construction and structure 	What adverbs show possibility?	What is a fronted adverbial?	What does a model verb show?
	What do formal adverbial phrases help with?	What is parenthesis?	When are commas used for parenthesis?
	When are brackets used for parenthesis?	When are dashes used for parenthesis?	What does ellipsis show?
Grammar and word classes 	Why do authors use ellipsis?	What is the simple past tense used for?	What is the present perfect tense used for?
	What does the present perfect tense use?	When is the subjunctive form used?	Why do writers use different voices?
	What is the active voice?	What is the passive voice?	How are ideas organised in non-fiction writing?
Thinking like a writer 	**Writers choose words carefully to say exactly what they mean.**	**Always think about who is reading your writing and how it will make them feel.**	**Writers always check their writing to make sure it makes sense and looks right.**

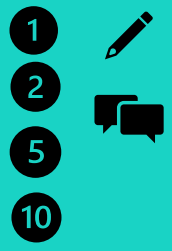
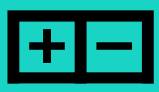
Maths Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Number and Place Value 	Count to 100.	Understand the place value of each digit of a 2-digit number.	Recognise odd and even numbers.	Understand number bonds to 10.
	Read and write numbers to 100.	Count in multiples of 2,5 and 10.	Compare and order numbers up to 100.	Count forwards and backwards from any number within 100.
Addition and Subtraction 	Add and Subtract numbers up to 20.	Add and subtract one-digit and two-digit numbers to 20 including zero.	Doubles from 1- 10. If I know that 7 + 5 = 12 I also know that 12 – 5 = 7	Do I know… **12** **13** **9** **3** **9** **4** **14** **14** **8** **7** **9** **6**
Multiplication and Division 	Understand and use the symbols +, -, and =	Understand number bonds to 20.	Do I know… **12** **12** **15** **15** **7** **5** **8** **4** **8** **7** **9** **6** **13** **13** **16** **17** **7** **6** **8** **5** **9** **7** **9** **8**	
	Multiplication as repeated addition. 5 x 2 is the same as 5 + 5.	Recall multiplication facts for the 2,5 and 10-times tables.	Arrays can be used to represent multiplication.	Recognise and use the symbols x, **÷ and =**
Key knowledge 	Recognise and name common 2D shapes.	Measure length and height in CM using a ruler.	Recognise and understand a quarter.	Recognise and understand a half.
Thinking like a Mathematician	**Maths is using numbers and symbols to solve problems.**	**Mathematicians study numbers, shapes and patterns.**	**Mathematicians check their work and learn from their mistakes.**	**Mathematicians explain their thinking and share their ideas.**

Maths Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Number and Place Value 	Can you count to 100?	What is the value for each digit in a two-digit number?	How can you recognise if a number is odd or even?	Can you list different pairs of numbers that make 10?
	Can you read and write numbers to 100?	Can you count in multiples of 2, 5 and 10?	Can you compare and order numbers up to 100?	Can you count forwards from 38? Can you count backwards from 64?
Addition and Subtraction 	Can you add and subtract numbers up to 20?	Can you add and subtract one-digit and two-digit	If you know 7 + 5 = 12, what else can you work out?	Do I know… **12** **13** ? ? ? ? **14** **14** ? ? ? ?
Multiplication and Division 	What do the symbols +, - and = mean?	Can you list pairs of numbers that make 20?	Do I know… **12** **12** **15** **15** ? ? ? ? ? ? ? ? **13** **13** **16** **17** ? ? ? ? ? ? ? ?	
	What does multiplication ad repeated addition mean?	Can you recall multiplication facts for the 2,5 and 10 times tables?	How can multiplication be represented visually?	What do the symbols ×, ÷ and = mean?
Key knowledge 	Can you name examples of common 2D shapes?	What measurement and resource can we use to measure length and height?	What is a quarter?	What is a half?
Thinking like a Mathematician	**Maths is using numbers and symbols to solve problems.**	**Mathematicians study numbers, shapes and patterns.**	**Mathematicians check their work and learn from their mistakes.**	**Mathematicians explain their thinking and share their ideas.**

Maths Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Number and Place Value 	Count in multiples of 4, 50 and 100.	Recognise the place value of each digit in a three-digit number. 345	Compare and order numbers up to 1000.	Recognise and use Roman numerals up to 100.
	Read and write numbers up to 1000.	Round numbers to the nearest 10,100 or 1000.	Use number lines to identify and estimate different numbers up to 1000.	Read, write and compare decimals up to two decimal places 3.5 > 1.5 > 0.5
Addition and Subtraction 	Add and subtract numbers with up to three digits.	Use formal written methods for addition and subtraction.	We can estimate answers to check calculations.	Convert fractions to decimals equivalents. ¼ = 0.25 ½ = 0.5 1/10 = 0.1
	Understand the inverse operation. Use subtraction to check addition vice versa.	Use mental strategies for addition and subtraction.	Partitioning 2- and 3-digit numbers for addition and subtraction.	Compensation 52 – 9 = 52 – 10 = 42 **(+1)** = 43
Multiplication and Division 	Recall multiplication facts for the 3,4 and 8-times tables.	Use formal written methods for multiplication and division.	Understand short Multiplication for 2 and 3-digit numbers by 1 digit.	Understand short division for dividing two and 3-digit numbers by a 1-digit number.
Key knowledge 	Measure and compare lengths, weights and capacities.	Identify acute, obtuse and right angles.	Interpret and present data using charts and graphs.	Identify and describe properties of 2D and 3D shapes.
Thinking like a Mathematician	**Maths is using numbers and symbols to solve problems.**	**Mathematicians study numbers, shapes and patterns.**	**Mathematicians check their work and learn from their mistakes.**	**Mathematicians explain their thinking and share their ideas.**

Maths Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Number and Place Value 	Can you count in multiples of 4, 50 and 100?	What does each digit in the number 345 represent?	Which number is greater: 482 or 829? Which number is smaller: 301 or 103?	Can you read and write Roman numerals up to 100?
	Can you read and write numbers up to 1000?	What is 1158 rounded to the nearest 10,100 or 1000?	Can you use number lines to identify and estimate different numbers up to 1000?	Can you use > and > to compare these numbers 1.5, 0.5 and 3.5?
Addition and Subtraction 	What is 332 + 456? What is 484 – 242?	Can you use formal written methods for addition and subtraction?	What can we do to check our calculations?	Can you convert fractions to decimals? ¼ = ½ =
Multiplication and Division 	Why do we use the inverse operation?	Other than written methods how else can we add and subtract?	Can you partition 2 and 3-digit numbers for addition and subtraction?	How do you use compensation to work out 52-9?
	Can you recall multiplication facts for the 3,4- and 8-times tables	Can you use formal and written methods for multiplication and division?	Can you use short multiplication to work out 256 x 3?	Can you use short division to work out 459 ÷ 3?
Key knowledge 	Can you measure and compare lengths, weights and capacities?	What the names of 3 types of angles?	How can we present and interpret data?	Can you identify and describe properties of different 2D and 3D shapes?
Thinking like a Mathematician	**Maths is using numbers and symbols to solve problems.**	**Mathematicians study numbers, shapes and patterns.**	**Mathematicians check their work and learn from their mistakes.**	**Mathematicians explain their thinking and share their ideas.**

Maths Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Number and Place Value 	Read, write, and compare numbers up to 1,000,000.	Round whole numbers to the nearest 10,100 or 1000.	Recall and build fluency speed for all times tables up to 12x12.	Recognise and use prime numbers up to 100.
	Understand and calculate using negative numbers.	Read, write and order numbers with up to 3 decimal places.	Convert between 12-hour and 24-hour time.	Use knowledge of order of operations (BODMAS).
Addition and Subtraction 	Column addition to add numbers with more than four digits.	Column subtraction to subtract numbers with more than four digits.	Add and subtract large numbers using mental strategies.	Use estimation to check answers to calculations.
Multiplication and Division 	Multiply 4-digit numbers by a 2-digit number using a formal written method.	Divide 4-digit numbers by a 2-digit number using a formal written method.	Identify common multiples.	Identify common factors.
	Compare and order fractions from smallest to largest.	Calculate percentages of amounts. 50% of 42	Calculate percentages of amounts. 10% of 560	Add and subtract fractions with different denominators.
Key knowledge 	Convert between different units of measure. Km to m .	Convert between different units of measure. CM to mm	Measure and draw angles accurately.	Calculate the area and perimeter of shapes.
Thinking like a Mathematician	**Maths is using numbers and symbols to solve problems.**	**Mathematicians study numbers, shapes and patterns.**	**Mathematicians check their work and learn from their mistakes.**	**Mathematicians explain their thinking and share their ideas.**

Maths Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Number and Place Value 	Can you read, write and compare numbers up to 1,000,000?	Can you round 4362 to the nearest 10,100 and 1000?	Can you recall all of your times tables up to 12 x 12?	Can you list all the prime numbers under 30?
	What is 5- 8?	Can you read, write and order numbers up to 3 decimal places?	What is 3:45pm in 24-hour time?	6 + 4 X 3 Why is the answer not 30?
Addition and Subtraction 	Can you use column addition to calculate 4236 + 2345?	Can you use column subtraction to calculate 4236 – 2345?	What mental strategies could you use to add and subtract large numbers?	What could you use to check answers to calculations?
Multiplication and Division 	Use a formal written method to calculate: 6284 x 23	Use a formal written method to calculate: 4584 ÷ 12	What is a number that is a multiple of both 3 and 4?	What are the common factors of 12 and 18?
	Can you put these fractions in order from smallest to largest: 1/2, 1/9, 3/4 and 2/3?	What is 50% of 42?	What is 10% of 560?	What is 2/3 + 3/4 ?
Key knowledge 	What is 8 km converted into M? .	What is 26cm converted into mm?	Can you measure and draw a 90’ angle?	Can you calculate the area and perimeter of different shapes?
Thinking like a Mathematician	**Maths is using numbers and symbols to solve problems.**	**Mathematicians study numbers, shapes and patterns.**	**Mathematicians check their work and learn from their mistakes.**	**Mathematicians explain their thinking and share their ideas.**

	Plants	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know	Plants are alive like me.	Trees are plants.	Some plants have flowers but some plants do not.	People and animals need plants to survive.
	We grow and eat some plants for food.	Some plants make us sick if we eat them.	We must never eat something from a plant unless we have checked with an adult that it is safe first.	Some plants are very small and some plants are very large.
Energy  Energy is the power needed to make something change or happen.	Plants are part of the natural world, and we need them to survive.	Plants have roots, a stem, leaves and flowers.	A plant's roots are under the ground and different types of plants have different types of roots.	Some plants have one long stem but other plants have many stems and branches.
	The stem of a tree is called a trunk.	Most plants have flowers but these can look very different from plant to plant.	Flowers are made up of smaller parts called petals.	Blossom is the name we give to flowers on trees.
	Flowers in the spring turn into fruit or seedheads in the late summer and the autumn.	All plants have leaves but the shape and size look different from plant to plant.	Plants provide us with food, medicine and building materials.	People enjoy making gardens by choosing which plants to grow in a small space.
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	We sow seeds in the spring and harvest the food the plants produce in late summer and into autumn.	Eating lots of vegetables and fruit gives our bodies energy and keeps us healthy.	Some trees shed their leaves in the autumn and grow new leaves in the spring. We call these deciduous trees.	Deciduous trees rest in the winter when there is less sunlight.
	Some trees keep their leaves all year round – we call these evergreen trees.	Some evergreen trees have needles instead of leaves.	Some common deciduous trees in the UK are oak, sycamore and beech trees.	Some common evergreen trees in the UK are pine, holly and laurel trees.
	Plants are living things because they move, reproduce, need food and water, and can sense the world around them.	A habitat is the environment in which plants and animals live.	Different habitats have different types of plants growing there.	Some habitats are hot and wet, others are hot and dry, some can be cold and snowy.
Changes and Cycles  Cycles are made of changes from one stage to another.	Microhabitats are very small habitats, such as under a log or in a rock pool at the coast.	Plants are adapted to the habitat in which they live in different ways.	Plants are a vital food source for animals and are the first step in a food chain.	Seeds can only grow a plant once. Bulbs grow a new plant each year from the same bulb.
	Seeds and bulbs have a store of food inside them to help a plant start to grow.	When a seed starts to grow, it is called 'germination'.	Seeds need water and warmth to germinate and only need light once the seedling has grown.	Seeds and bulbs come in many shapes and sizes.
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	**Observing over time** is a scientific enquiry which helps us understand how plants change over days, weeks, months or years.	Scientists **notice patterns** such as all plants having leaves but they also notice how one type of leaf is different to another.	Scientists use differences between types of plants to **group and classify them.**
	When scientists test what a plant needs, they know they only change one thing at a time.	Scientists learn about what other scientists have discovered by reading their work.	Plant scientists are helping us to grow food more sustainably.	Scientists use scientific apparatus such as microscopes and magnifying glasses to look closely.

Observing over time  **Noticing patterns**  **Comparative and fair testing**  **Grouping and classifying**  **Research using secondary sources** 

	Plants	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know				
Energy Energy is the power needed to make something change or happen.	Why do we need plants to survive?	Can you name the parts of a plant?	What do roots do and how are they different?	Do all plants have the same kind of stem?
	What is the stem of a tree called?	Do all plants have the same kind of flowers?	What are petals?	What is blossom?
	How flowers change through the seasons?	Do all plants have the same kind of leaves?	How do plants help us?	Why do people make gardens?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	When do we sow seeds and harvest food?	Why is eating fruit and vegetables good for us?	What are deciduous trees and what do they do?	Why do deciduous trees rest in winter?
	What are evergreen trees?	What kind of leaves do evergreen trees have?	Can you name some deciduous trees?	Can you name some evergreen trees?
	What makes plans living things?	What is a habitat?	Do all habitats have the same plants?	What are some types of habitats?
Changes and Cycles Cycles are made of changes from one stage to another.	What is a microhabitat?	How are plants adapted to their habitat?	Why are plants important in a food chain?	What is the different between seeds and bulbs?
	What helps seeds and bulbs start growing?	What is germination?	What do seeds need to germinate?	Do seeds and bulbs all look the same?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	**Observing over time** is a scientific enquiry which helps us understand how plants change over days, weeks, months or years.	Scientists **notice patterns** such as all plants having leaves but they also notice how one type of leaf is different to another.	Scientists use differences between types of plants to **group and classify them.**
	When scientists test what a plant needs, they know they only change one thing at a time.	Scientists learn about what other scientists have discovered by reading their work.	Plant scientists are helping us to grow food more sustainably.	Scientists use scientific apparatus such as microscopes and magnifying glasses to look closely.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Plants	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	Plants need sunlight to grow well.	Plants use light energy from the sun to make their own food.	Plants store energy in their leaves, stems, and roots.	Animals, including humans, gain energy by eating plants.
	Plants need the right amount of water for their type to grow well.	Nutrients from the soil give plants energy to stay healthy.	Plants need air to grow well.	Plants need room to grow in the right conditions for their type to produce energy for their ecosystem.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Stems, trunks and branches provide support for the plant, like a skeleton in an animal.	Roots hold the plant in the ground and take in water and nutrients.	The stem (or trunk in large plants) carries water and nutrients to the leaves and flowers.	Leaves make the plant's food by taking in sunlight and air.
	Most plants reproduce by creating seeds.	Flowers are brightly coloured to attract pollinators (like bees and other insects), which help create seeds.	When a flower has been pollinated, seeds form inside a fruit or seed pod.	Fruit and seed pods help the seeds to be dispersed far from the parent plant so they don't have to compete for the same resources.
	Plants grow from seeds into mature plants that can produce new seeds – this is the plant life cycle.	The stages of the plant life cycle are: germination, growth, flowering, seed formation and seed dispersal.	Germination is when a seed begins to grow into a seedling.	Most seeds only need water and warmth to germinate – not light.
	Seedlings grow into young plants and spend the first part of their life producing food to grow bigger and stronger.	Some individual plants grow and die in one year; others live for many years.	Flowers come in a huge range of size, structure and colour.	Pollination starts a cycle that leads to seed formation.
	If a plant doesn't get water, it will wilt and may die.	A small plant may grow tall but feeble where there is insufficient light.	If the soil lacks nutrients, the plant won't grow well.	If a flower isn't pollinated, it won't make seeds.
Changes and Cycles Cycles are made of changes from one stage to another.	If seeds germinate too close to the parent plant, they will have to compete for the air, nutrients, water and light they need.	If the roots are damaged, the plant can't take in water properly.	Plants in temperate biomes have adapted to low light in the winter by becoming deciduous to conserve energy.	If the environment changes quickly, some plants may not survive.
	Plants clean the air and help animals, including humans to breathe.	Growing plants helps keep soil healthy because dead leaves and plants put nutrients back into the soil.	We need plants for food, medicine, and materials to build.	Protecting plant habitats helps all living things.
	Planting trees helps reduce the impact of climate change.	Some plants are endangered – we need to protect them.	Sustainable gardening means using resources wisely like water.	Every ecosystem relies on plants as the producers of energy to survive.
Thinking like a scientist	Scientists classify plants into different groups according to their similarities and differences.	There are four main types of plants: flowering plants, conifers, ferns and mosses.	Flowering plants and conifers produce seeds, but ferns and mosses do not produce seeds.	Most plants on Earth are flowering plants (94%).
	Plants can be identified from their leaf shape and size.	Scientists might use leaves, flowers, habitat, growth habitat, reproduction method, or size to classify plants.	Classification keys help to group and identify different plants.	When we carry out a fair test, we must only change one variable at a time and keep everything else the same.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Plants	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	Why do plants need sunlight?	How do plants use sunlight to make food?	Where do plants store energy?	How do animals and humans get energy from plans?
	Why do plants need the right amount of water?	How do nutrients help plants?	Why do plants need air?	Why do plants need space and the right conditions to grow?
	How do stems, trunks and branches help a plant?	What do roots do for a plant?	What does the stem or trunk carry through the plant?	How do leaves help a plant make food?
	How do plants reproduce?	Why are flower brightly coloured?	What happens after a flower is pollinated?	Why do seeds need to be dispersed far from the parent plant?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	What is the plant life cycle?	What are the stages of a plant's life cycle?	What is germination?	What do seeds need to germinate?
	What do seedlings do as they grow?	How long do different plants live?	How do flowers differ from one another?	What does pollination lead to?
	What happens if you don't give plants water?	What happens to a plant with not enough light?	Why do plants need nutrients in the soil?	Why does a flower need to be pollinated?
Changes and Cycles Cycles are made of changes from one stage to another.	Why shouldn't seeds grow too close to the parent plan?	What happens if a plant's roots are damaged?	How do plants in temperate biomes adapt to winter?	What happens to plants when the environment changes quickly?
	How do plants help us breathe?	How od plants help keep soil healthy?	Why do we need plants?	Why is it important to protect plant habitats?
	How does planting trees help the planet?	Why do we need to protect endangered plants?	What is sustainable gardening?	Why are plants important in ecosystems?
Thinking like a scientist	Scientists classify plants into different groups according to their similarities and differences.	There are four main types of plants: flowering plants, conifers, ferns and mosses.	Flowering plants and conifers produce seeds, but ferns and mosses do not produce seeds.	Most plants on Earth are flowering plants (94%).
	Plants can be identified from their leaf shape and size.	Scientists might use leaves, flowers, habitat, growth habitat, reproduction method, or size to classify plants.	Classification keys help to group and identify different plants.	When we carry out a fair test, we must only change one variable at a time and keep everything else the same.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Plants	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	Scientists organise all living things into different groups according to their characteristics.	Characteristics for classification include leaf or flower shape, habitat and behaviours.	The first level (order) of classification is kingdom.	There are five main kingdoms: plants, animals, fungi and two types of micro-organisms.
	Scientists use Latin names to label every living thing on the planet.	The kingdom of plants (Plantae) is subdivided into four classes: flowering plants, conifers, ferns, and mosses.	Most plants are flowering plants (around 94% of all plants).	The lowest order of classification is a species.
	A species is a group of living things that can reproduce to make offspring like themselves.	Individual plants within a species can look slightly different – this is called variation.	Variation occurs because of either differences in the environment or because of traits inherited (passed down) from parent plants.	Most plants reproduce sexually when pollen from one plant combines with ovules from another plant.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Sexual reproduction leads to greater variation of individuals within a species.	Most plants produce flowers which contain both male parts and female parts within the same flower.	The male parts of the flower are called stamens, which produce pollen.	Each stamen is made up of an anther which holds the pollen on top of a thin stalk called the filament.
	The female part of the flower is called the carpel, which produces the ovules.	The carpel is made up of three main parts: the stigma, the style and the ovary.	The ovaries are at the base of the carpel and produce the ovules.	The stigma is a sticky surface at the top of the carpel which receives the pollen during pollination.
	The style is a tube which joins the stigma to the ovary.	Pollination is how pollen from one plant moves to another.	Pollination can happen by wind, insects, or animals.	Fertilisation happens when pollen reaches the ovules inside the ovary, and a seed can form.
	Some plant species produce separate male and female flowers on the same plant.	A few plant species have separate male plants and female plants but this is less common.	Seed dispersal spreads seeds so new plants can grow away from the parent plant.	Seed dispersal ensures less competition for growth resources.
Changes and Cycles Cycles are made of changes from one stage to another.	Seed dispersal can happen by wind, water, or animals.	Seed pods are adapted to different methods of seed dispersal, such as wings for wind, and hooks for animal fur.	Some plants produce seeds inside fruit so that animals eat, digest and excrete seeds in new locations.	Some plants can produce asexually from leaf and root cuttings, but offspring is identical to the parents and there is no variation.
	Plants have features which help them survive in their environment – these are called adaptations.	Adaptations occur because some traits inherited from parent plants are more helpful for survival.	An individual with a helpful trait is more likely to reproduce and pass on this helpful trait to the next generation.	Over many generations, these helpful traits become common within the species – this is called natural selection.
	Over millions of years, natural selection can lead to new species forming.	The formation of new species through natural selection is called evolution.	Evolution explains the huge diversity of life on Earth as plants adapt to specific environments.	Fossils provide evidence of plants which lived millions of years ago – many of which are species which no longer exist.
Thinking like a scientist	Scientists record what they observe (not what they think they should observe) with as much accuracy as possible.	Scientists have catalogued 391,000 species of plant but there are millions still unknown to science.	Scientists propose theories which help to answer questions.	Scientific theories are based on collected evidence, and they are tested repeatedly by other scientists.
	When the evidence always supports it, the theory becomes trusted scientific knowledge.	Charles Darwin first proposed the theory of evolution in 1859 in his book, *'On the Origin of Species'*.	Charles Darwin faced criticism for his theory because it was a new theory about how life on Earth developed.	The theory of evolution is now accepted as trusted scientific knowledge.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Plants	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	How scientist group living things?	What characteristics do scientists use to classify plants?	What is the first level of classification?	What are the five kingdoms of living things?
	Why do scientists use Latin names for living things?	What are the four classes in the plant kingdom?	What type of plant is most common?	What is the lowest level of classification?
	What defines a species?	What is variation in plants?	What causes variations in plants?	How do plants reproduce?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Why does sexual reproduction lead to variation?	What parts do most flowers contain?	What are stamens and what do they do?	Can you name the parts of the stamen?
	What is the carpel and what does it produce?	Can you name the parts of the carpel?	Where are ovules produced in a flower?	What does stigma do during pollination?
	What is the style and what does it connect?	What is pollination?	How can pollination happen?	What is fertilisation in plants?
	Can a plant have separate male and female flowers?	Do some plants have some separate male and female individuals?	Why is seed dispersal important?	How does seed dispersal help plants grow better?
Changes and Cycles Cycles are made of changes from one stage to another.	What are the ways seeds can be dispersed?	How are seed pods adapted for dispersal?	How do animals help with seed dispersal?	What is asexual reproduction in plants?
	What are adaptations in plants?	How do helpful traits become adaptations?	Why are helpful traits passed on?	What is natural selection?
	How can natural selection lead to new species?	What is evolution?	How does evolution explain plant diversity?	What do fossils tells us about plants?
Thinking like a scientist	Scientists record what they observe (not what they think they should observe) with as much accuracy as possible.	Scientists have catalogued 391,000 species of plant but there are millions still unknown to science.	Scientists propose theories which help to answer questions.	Scientific theories are based on collected evidence, and they are tested repeatedly by other scientists.
	When the evidence always supports it, the theory becomes trusted scientific knowledge.	Charles Darwin first proposed the theory of evolution in 1859 in his book, *'On the Origin of Species'*.	Charles Darwin faced criticism for his theory because it was a new theory about how life on Earth developed.	The theory of evolution is now accepted as trusted scientific knowledge.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Animals	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know	Animals are living things which are all around us.	Minibeasts are very small animals which live in small places, such as under logs and rocks.	Animals deserve respect and need careful looking after.	There are lots of different types of animal.
	Animals all have bodies which look very different to mine.	Animals bodies can be covered in skin, fur, feathers or scales.	Birds are animals with wings and feathers and most birds can fly.	Fish are animals with fins which live in the water.
Energy  Energy is the power needed to make something change or happen.	There are many different types of animals on Earth.	Humans are animals.	Fish are a type of animal which live in the water and have fins and gills but no legs.	Amphibians are a type of animal which sometimes live in water and sometimes live on land.
	Frogs, toads and newts are all types of amphibians.	Birds are a type of animal which has two legs and wings, feathers and beaks.	Reptiles are a type of animal which has scaly skin.	Most reptiles have four legs like lizards and tortoises.
	Snakes are reptiles but they have no legs.	Mammals are a type of animal with fur or hair.	Most mammals have four legs like cats, dogs, monkeys and bears.	Humans are mammals.
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	Some mammals have two legs like kangaroos and humans.	Minibeasts, such as insects, snails and spiders, are animals.	Animals gain energy from the food that they eat.	Some animals only eat plants – these are called herbivores.
	Some animals only eat other animals (meat) – these are called carnivores.	Some animals eat meat and plants – these are called omnivores.	Most animals have the same body parts but they look different.	Animals can sense the world around them using their sight, hearing, touch, taste and smell.
Changes and Cycles	Animals are living things because they move, reproduce, need food and water, and can sense the world around them.	Animals need water, air and food to survive.	A habitat is the environment in which plants and animals live.	Different habitats have different types of animals living there.
	Deserts, rainforests, seashores, woodlands, and polar regions are examples of habitats.	Microhabitats are very small habitats, such as around a pond or in a tree.	Animals and plants depend on each other for survival in a habitat.	Animals are adapted to the habitat in which they live in different ways to help them survive there.
 Cycles are made of changes from one stage to another.	A food chain shows how carnivores eat herbivores which feed on plants in a habitat.	A food chain shows how energy moves through the living things in a habitat.	Adult animals produce offspring which grow up into adults.	Different animals have different stages in their life cycles when growing to adulthood.
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	**Observing over time** is a scientific enquiry which helps us understand how animals change as they grow into adulthood.	Scientists measure time carefully using timers when they are observing over time.	Scientists **notice patterns** such as all animals have bodies but how one type of body is different to another.
	Scientists use differences between types of animals to **group and classify them**, such as the number of legs.	Scientists record their observations in very careful drawings.	Scientists learn about what other scientists have discovered by reading their work.	Scientists use scientific apparatus such as microscopes and magnifying glasses to look closely.

Observing over time 

Noticing patterns 

Comparative and fair testing 

Grouping and classifying 

Research using secondary sources 

	Animals	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know				
Energy Energy is the power needed to make something change or happen.	How many types of animals are there?	Are humans animals?	What makes a fish a fish?	What are amphibians?
	Can you name some amphibians?	What makes a bird a bird?	What makes a reptile a reptile?	Do all reptiles have four legs?
	Are snakes reptiles even though they have no legs?	What makes a mammal a mammal?	Do most mammals have four legs?	Are humans animals?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Do some mammals have two legs?	What are minibeasts?	How do animals get energy?	What is a herbivore?
	What is a carnivore?	What is an omnivore?	Do all animals have the same body parts?	How do animals sense the world around them?
Changes and Cycles Cycles are made of changes from one stage to another.	What makes animals living things?	What do animals need to survive?	What is a habitat?	Do all habitats have the same animals?
	Can you name some habitats?	What is a microhabitat?	How do animals and plants depend on each other?	How are animals adapted to their habitat?
	What does a food chain show?	How does energy move through a food chain?	What do adult animals produce?	Do all animals have the same life cycle stages?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	**Observing over time** is a scientific enquiry which helps us understand how animals change as they grow into adulthood.	Scientists measure time carefully using timers when they are observing over time.	Scientists **notice patterns** such as all animals have bodies but how one type of body is different to another.
	Scientists use differences between types of animals to **group and classify them**, such as the number of legs.	Scientists record their observations in very careful drawings.	Scientists learn about what other scientists have discovered by reading their work.	Scientists use scientific apparatus such as microscopes and magnifying glasses to look closely.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

Animals

Scientists ask questions about the world and carry out enquiries to help them find the answers.

Colour in the core knowledge that you know.

Step 5 (LKS2)

Energy



Energy is the power needed to make something change or happen.

Structures and Systems



Everything is made of smaller parts. When parts work together, it's a system.

Changes and Cycles



Cycles are made of changes from one stage to another.

All animals have bodies which need energy to work well.	Animals cannot make their own energy but gain it from the food they eat.	An animal needs the right nutrition for its own body to grow and function well.	The food an animal acquires its nutrition from is its diet.
An ecosystem is the way that different plants and animals depend on each other for survival within a habitat.	Energy moves through an ecosystem from producers to prey to predators.	Plants are the producers of energy within an ecosystem because they produce food from the sun's light energy.	Herbivores gain their nutrition completely from consuming plants.
Carnivores gain their nutrition from eating the meat of other animals.	An animal which hunts and eats another animal is called a predator.	An animal which is hunted and is eaten by a carnivore is its prey.	Ecosystems often have multiple predators – a small predator can itself be the prey for a larger predator.
An animal at the top of a food chain is often called the apex predator.	All animal bodies are held up or held together by a skeleton.	Animals with skeletons including a backbone are called vertebrates.	There are five main types of vertebrates: birds, fish, reptiles, amphibians, and mammals.
Fish, amphibians, and reptiles are cold-blooded – their body temperature changes with the environment.	Mammals and birds are warm-blooded animals which keep a steady body temperature.	Animals without backbones are called invertebrates.	There are many different types of invertebrates, such as worms, snails, insects, spiders, and centipedes.
Most invertebrates have an exoskeleton (a hard shell on the outside of their body) but some, like worms, have soft bodies instead.	Insects are a specific type of invertebrate with six legs, three body parts, and antennae.	Spiders have eight legs, two body parts and no antennae so they are not insects.	Some invertebrates are not insects because they have many body segments such as worms, centipedes and millipedes.
Vertebrate animals' skeletons have many of the same parts: skull, backbone, ribcage, leg and arm bones.	Skeletons protect the vulnerable internal organs of the body.	The skeletons of different animals are specially adapted for the way they live in their ecosystem.	Muscles are attached to animals' skeletons to help them move.
Animals which need to run fast often have large leg muscles.	Fossils are the remains of animal skeletons or exoskeletons which lived millions of years ago preserved in rock.	The muscles and skeleton system in an animal body is for support, protection and movement.	Every animal has a digestive system to help extract the right nutrition from the food it eats.
The main parts of an animal's digestive system are: mouth, teeth, stomach, and intestines.	Food is cut into smaller pieces by the teeth.	Herbivores have flat teeth called molars for grinding plants.	Herbivores have some sharp teeth for cutting plants called incisors.
Carnivores have sharp, pointy teeth called canines for tearing meat.	Food is broken down into nutrients in an animal's stomach.	The intestines absorb useful nutrients for the body (such as muscles and bones) to use.	Parts of food that are not nutritious are excreted from the body as droppings or faeces (poo).

Thinking like a scientist



Scientists can tell a lot about an animal's diet by examining its droppings and **noticing patterns**.	Scientists organise animals into different groups, often according to their body structure.	There are many different ways to **group and classify** animals, such as body structure, diet, behaviour and habitat.	Scientists who specialise in studying animals are called zoologists.
Zoologists learn more about different animals by **observing them over time** in their natural habitat.	Naturalists are a type of scientist who study whole ecosystems.	Scientists collect data to measure and **observe over time** the damage humans do to ecosystems.	Scientists educate communities to protect ecosystems by creating nature reserves and being living more sustainably.

Observing over time 

Noticing patterns 

Comparative and fair testing 

Grouping and classifying 

Research using secondary sources 

	Animals	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy  Energy is the power needed to make something change or happen.	Why do animals need energy?	How do animals get energy?	Why is nutrition important for animals?	What is an animal's diet?
	What is an ecosystem?	How does energy move through an ecosystem?	Why are plants called producers?	What do herbivores eat?
	What do carnivores eat?	What is a predator?	What is prey?	Can predators also be prey?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	What is an apex predator?	What does a skeleton do for an animal?	What are vertebrates?	What are the five types of vertebrates?
	What does it mean if an animal is cold-blooded?	What does it mean if an animal is warm-blooded?	What are invertebrates?	Can you name some invertebrates?
	What is an exoskeleton?	What makes an insect an insect?	Why aren't spiders insects?	What aren't all invertebrates insects?
	What parts do vertebrate skeletons have?	How do skeletons protect animals?	How are skeletons adapted to an animal's lifestyle?	How do muscles help animals move?
Changes and Cycles  Cycles are made of changes from one stage to another.	Why do fast animals have large leg muscles?	What are fossils?	What is the job of the muscles and skeleton system?	What does the digestive system do?
	What are the main parts of the digestive system?	What do teeth do to food?	What kind of teeth do herbivores have?	What are incisors used for?
	What kind of teeth do carnivores have?	What happens to food in the stomach?	What do intestines do with nutrients?	What happens to the parts of the food the body doesn't have?
Thinking like a scientist 	Scientists can tell a lot about an animal's diet by examining its droppings and **noticing patterns**.	Scientists organise animals into different groups, often according to their body structure.	There are many different ways to **group and classify** animals, such as body structure, diet, behaviour and habitat.	Scientists who specialise in studying animals are called zoologists.
	Zoologists learn more about different animals by **observing them over time** in their natural habitat.	Naturalists are a type of scientist who study whole ecosystems.	Scientists collect data to measure and **observe over time** the damage humans do to ecosystems.	Scientists educate communities to protect ecosystems by creating nature reserves and being living more sustainably.

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Animals

Scientists ask questions about the world and carry out enquiries to help them find the answers.

Colour in the core knowledge that you know.

Step 6 (UKS2)

Energy

Energy is the power needed to make something change or happen.

Structures and Systems

Everything is made of smaller parts. When parts work together, it's a system.

Changes and Cycles

Cycles are made of changes from one stage to another.

Scientists organise all living things into different groups according to their characteristics.	Characteristics for classification include body parts, habitat, diet and behaviours.	The first level (order) of classification is kingdom.	There are five main kingdoms: plants, animals, fungi and two types of micro-organisms.
Scientists use Latin names to label every living thing on the planet.	Animals cannot make their own food but gain energy from eating other living things.	The kingdom of animals (Animalia) is subdivided into vertebrates (with backbones) and invertebrates (without).	Vertebrates are subdivided into five classes: mammals, birds, fish, reptiles, and amphibians.
Invertebrates are subdivided into many different classes, such as spiders, snails, worms, insects, or jellyfish.	A species is a group of living things that can reproduce to make offspring like themselves.	Individual animals within a species can look slightly different – this is called variation.	Variation can be caused by inherited traits or environmental factors (like diet or exercise)
All animals have life cycles that include the following stages: egg, young, adult, reproduction, and death.	The specifics of each stage of a life cycle is different for each class of animal.	Most young (juveniles) look like small adults – this is true for mammals, reptiles and birds.	Amphibians and insects go through metamorphosis with the juvenile looking completely different to the adult.
Sexual reproduction in animals involves male and female adults producing offspring.	Fertilisation in animals occurs when sperm from the male joins with an egg from the female.	Fertilisation in animals can happen outside the body (externally) or inside the female (internally).	Fertilisation occurs internally in mammals, birds, reptiles and most insects.
Fertilisation occurs externally in amphibians and fish.	Birds, reptiles, amphibians and fish lay eggs or spawn where the young develop outside of the female's body.	With mammals, the young grow inside the female's womb and they give birth to live young.	Different mammals have different gestation periods (pregnancy).
Many classes of animals care for their young to help them survive – such as mammals and birds.	Some reptiles and amphibians lay eggs and leave them, while others may guard them for a short time.	Most fish and invertebrates do not care for their young — they lay eggs and leave them to survive on their own.	Some animals migrate to find the best places to reproduce. This helps their young survive and grow.
Some animals travel thousands of miles to reproduce and grow, often returning to the same spot each cycle.	Different animal species have different lifespans.	Different animal species become adults and can reproduce at different ages.	Sexual reproduction introduces variation into offspring which helps a species survive.
Animals have features which help them survive in their environment – these are called adaptations.	Adaptations occur because some traits inherited from parents are more helpful for survival.	An individual with a helpful trait is more likely to reproduce and pass on this helpful trait to the next generation.	Over many generations, these helpful traits become common within the species – this is called natural selection.
Over millions of years, natural selection can lead to new species forming.	The formation of new species through natural selection is called evolution.	Evolution explains the huge diversity of life on Earth as animals adapt to specific environments.	Fossils provide evidence of animals which lived millions of years ago – many of which are species which no longer exist.

Thinking like a scientist

Scientists record what they observe (not what they think they should observe) with as much accuracy as possible.	Scientists have catalogued 1,500,000 species of animals but believe there may be up to 8,000,000 in existence.	About 70% of all known animal species are insects.	Many of the undiscovered animal species live in hard to reach places like tropical rainforests.
Scientific theories are based on collected evidence, and they are tested repeatedly by other scientists.	When the evidence always supports it, the theory becomes trusted scientific knowledge.	Charles Darwin first proposed the theory of evolution in 1859 in his book, *'On the Origin of Species'*.	The theory of evolution is now accepted as trusted scientific knowledge.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Animals	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy  Energy is the power needed to make something change or happen.	How do scientist group living things?	What characteristics do scientist use to classify animals?	What is the first level of classification?	What are the five kingdoms of living things?
	Why do scientists use Latin names?	How do animals get energy?	How is the animal kingdom divided?	What are the five classes of vertebrates?
	What are some classes of invertebrates?	What is a species?	What is variation?	What causes variation in animals?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	What are the stages in an animal's life cycle?	Do all animals have the same life cycle stages?	Do young animals always look like adults?	What is metamorphosis?
	What is sexual reproduction?	What is fertilisation?	Where can fertilisation happen in animals?	Which animals have internal fertilisation?
	Which animals have external fertilisation?	Which animals lay eggs?	How do mammals give birth?	Do all mammals have the same pregnancy length?
	Which animals care for their young?	Do reptiles and amphibians care for their eggs?	Do fish and invertebrates care for their young?	Why do some animals migrate to reproduce?
Changes and Cycles  Cycles are made of changes from one stage to another.	Why do animals return to the same place to reproduce?	Do all animals live for the same amount of time?	Do all animals become adults at the same age?	How does sexual reproduction help a species survive?
	What are adaptations in animals?	How do adaptations help animals survive?	Why are helpful traits passed on?	What is natural selection?
	How can natural selection lead to new species?	What is evolution?	How does evolution explain animal diversity?	What do fossils tell us about animals?
Thinking like a scientist 	Scientists record what they observe (not what they think they should observe) with as much accuracy as possible.	Scientists have catalogued 1,500,000 species of animals but believe there may be up to 8,000,000 in existence.	About 70% of all known animal species are insects.	Many of the undiscovered animal species live in hard to reach places like tropical rainforests.
	Scientific theories are based on collected evidence, and they are tested repeatedly by other scientists.	When the evidence always supports it, the theory becomes trusted scientific knowledge.	Charles Darwin first proposed the theory of evolution in 1859 in his book, *'On the Origin of Species'*.	The theory of evolution is now accepted as trusted scientific knowledge.

Observing over time 

Noticing patterns 

Comparative and fair testing 

Grouping and classifying 

Research using secondary sources 

	Materials and Matter	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know from EYFS	Name lots of everyday objects.	Some things melt when they get warm, such as ice-cream and ice.	Water can freeze into ice on a very cold night or in the freezer.	
Energy Energy is the power needed to make something change or happen.	An object is a thing that has a name and a purpose.	A material is the substance that an object is made from.	Some common materials are wood, metal, plastic, glass and rock.	Some materials are natural like wood and rock.
	Some materials have been made by humans like plastic.	Water is a material.	Many objects are made of more than one type of material.	Scientists talk about the 'properties' of materials which means what they are like and how they behave.
	Different materials have different properties.	The properties of a material tell us what they do when they interact with light, heat, or water.	The properties of a material tell us what they do when they are squeezed or stretched.	We need lots of special words to help us describe the properties of different materials.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	When a material soaks up water, we say it is 'absorbent'.	When a material does not let water through, we call it 'waterproof' (or not absorbent).	When a material lets all light through, we call it 'transparent'.	When a material stops all light getting through, we call it 'opaque'.
	Some materials melt when we heat them up.	Some materials are very hard and can't be squashed or stretched.	Some materials are soft and can be squashed or stretched easily.	Some materials are very brittle and shatter when we hit them with something.
Changes and Cycles Cycles are made of changes from one stage to another.	Metal is a hard, opaque, waterproof material that can be shaped when we make it very hot.	Rock is a hard, opaque and often waterproof material that can be cut with tools but not bent.	Glass is a fragile, transparent material that can be heated up and shaped but shatters easily when hit hard.	Fabric is an absorbent, soft, opaque material that often keeps things warm.
	Plastic is waterproof but can be transparent or opaque. Plastic is easy to bend and shape.	When an object is easy to shape, we say it is 'malleable'.	Objects are made from the material most suited to their use.	Some materials have properties which make them unsuitable for certain uses.
	Glass has no smell or taste, so it doesn't change the taste or smell of the liquid inside the container.	Many objects are made from wood because it is sustainable – we can grow more trees.	The same object can be made using different materials (a wooden spoon or a plastic spoon).	A material can be made to make many different objects.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Materials and Matter	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know from EYFS				
Energy  Energy is the power needed to make something change or happen.	What is an object?	What is a material?	Can you name some common materials?	Can you name some natural materials?
	Which materials are made by humans?	Is water a material?	Can objects be made of more than one material?	What do scientists mean by the 'properties' of materials?
	Can different materials have different properties?	What do material properties tell us about light, heat, or water?	What do material properties tell us about squeezing or stretching?	How do scientists describe what materials are like?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	What do we call materials that soak up water?	What do we call materials that do not let water through them?	What are materials called that allows <u>all light</u> to go through them?	What do we call materials that stops all light getting through?
	What happens to some materials when they are heated?	What are materials like that can't be squashed or stretched?	What are materials like that can be squashed or stretched easily?	What happens to brittle materials when they are hit?
	What are the properties of metal?	What are the properties of rock?	What are the properties of glass?	What are the properties of fabric?
Changes and Cycles  Cycles are made of changes from one stage to another.	What are the properties of plastic?	What does 'malleable' mean?	Why are objects made from certain materials?	Why are some materials unsuitable for certain uses?
	Why is glass used for containers?	Why is wood used to make many objects?	Can the same object be made from different materials?	Can one material be used to make many different objects?
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time  **Noticing patterns**  **Comparative and fair testing**  **Grouping and classifying**  **Research using secondary sources** 

	Materials and Matter	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	A material is the substance that an object is made from.	Scientists talk about the 'properties' of materials which means what they are like and how they behave.	Different materials have different properties.	The properties of a material tell us what they do when they interact with a type of energy like light, sound, heat or electricity.
	The properties of a material tell us what they do when they interact with a force such as pressure or magnetism.	Some materials are magnetic because they are attracted to magnets.	Metals are the only magnetic materials, but not all metals are magnetic.	Iron and steel are magnetic, but aluminium, copper, gold and silver are not magnetic.
	Metals and water are electrical conductors – they allow electricity to flow through them.	All other materials (including air) are electrical insulators – they stop electricity from passing through them.	'Matter' is the scientific word we use to describe everything that exists.	All matter exists in one of three states: solid, liquid, or gas.
	A solid holds its shape.	A liquid forms a pool not a pile.	A gas can escape from an unsealed container.	Most solids become liquids when they are heated.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	When a solid becomes liquid we say it is melting.	Liquids can become solids when they are cooled.	When a liquid becomes a solid, we say it is freezing (or solidifying).	Liquids can become gases when they are heated.
	When a liquid becomes a gas, we say it is evaporating.	Gases can become liquids when they are cooled.	When a gas becomes a liquid, we say it is condensing.	Temperature is a measure of a material's heat energy.
	Temperature is measured in 'degrees Centigrade'.	Centigrade is sometimes called Celsius after its inventor – it is the same scale.	We call the temperature that an entire material changes between liquid and gas its 'boiling point'.	We call the temperature that a material changes between liquid and solid its melting (or freezing) point.
Changes and Cycles Cycles are made of changes from one stage to another.	Water freezes at 0ºC and boils at 100ºC.	Many materials which are solid at Earth's normal temperature range can become liquid at very high temperatures, such as metal and rock.	Some metals have a relatively low melting point and exist as liquid on Earth, such as mercury.	Evaporation is the process where a liquid becomes gas from its surface.
	Water vapour is water in its gaseous state and it is invisible.	When invisible water vapour cools down again it changes back into tiny floating liquid water drops that we see as steam.	When water changes from an invisible gas into visible water droplets, the process is called condensation.	Condensation can be seen when something cold cools the invisible water vapour floating next to it into water droplets.
	Examples of condensation are cold drinks bottles or cans, or dew on the grass after a cold night.	Evaporation can happen at any temperature, but the speed of evaporation increases at higher temperatures.	Water vapour is in the air all around us all of the time.	What are clouds an example of?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that materials are made from.	Thermometers measure temperature (heat energy).
	Scientists find different ways to group materials together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Materials and Matter	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	What is a material?	What do scientists mean by the properties of materials?	Do all materials have the same properties?	What do the properties of a material tell humans about its interaction with energy?
	What do the properties of a material tell humans about its interaction with forces?	Why are some materials magnetic?	Are all metals magnetic?	Which metals are magnetic and which are not?
	What materials allow electricity to flow through them?	What materials stop electricity from passing through them?	What is matter?	What are the three states of matter?
	What does a solid do?	What does a liquid do?	What does a gas do?	What happens to most solids when they are heated?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	What is it called when a solid becomes a liquid?	What happens to liquids when they are cooled?	What is it called when a liquid becomes a solid?	What happens to liquids when they are heated?
	What is it called when a liquid becomes a gas?	What happens to gases when they are cooled?	What is it called when a gas becomes a liquid?	What does temperature measure in a material?
	What unit is temperature measured in?	What is another name for Centigrade?	What is the boiling point of a material?	What is the melting (or freezing) point of a material?
Changes and Cycles Cycles are made of changes from one stage to another.	At what temperature does water freeze and boil?	What happens to solids such as metal and rock at very high temperatures?	Which metal has a low melting point and is a liquid at room temperature?	What is evaporation?
	What is water vapour?	What happens when water vapour cools down?	What is the process called when water vapour becomes visible droplets?	How can condensation be seen?
	What are examples of condensation?	Can evaporation happen at any temperature?	Is water vapour always present in the air?	Clouds are an example of water vapour condensing into liquid form.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that materials are made from.	Thermometers measure temperature (heat energy).
	Scientists find different ways to group materials together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Materials and Matter	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	A material is the substance that an object is made from.	The properties of a material tell us what they do when they interact with a type of energy like light, sound, heat or electricity.	The properties of a material tell us what they do when they interact with a force such as pressure or magnetism.	Properties of materials include reflectivity, solubility, transparency, absorbency, conductivity and magnetism.
	Some materials are magnetic because they are attracted to magnets.	A material that allows electricity or heat to pass through it is called a conductor.	A material that does not allow electricity or heat to pass through it is called an insulator.	Metals have high thermal and electrical conductivity (they allow the energy through easily).
	Water (and other non-metallic liquids) are poor thermal conductors – they hold onto heat for longer than solids.	The ocean takes longer to heat up and to cool down because of its low thermal conductivity.	Moving air carries heat away quickly.	Still air is a good thermal insulator – it doesn't conduct heat away from the warm object.
	Woolly jumpers and other porous materials insulate by trapping air and keeping the heat in the object they are covering.	'Matter' is the scientific word we use to describe everything that exists.	All matter exists in one of three states: solid, liquid, or gas.	Changes involving materials and matter can either be reversible or irreversible.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Reversible changes are changes which can be undone through a scientific process.	Dissolving, mixing and changes of state are reversible changes.	When matter changes state by melting, freezing, evaporating or condensing, it is a reversible change.	When different types of matter have been combined they have formed a mixture.
	Some solids are made of small grains and can be separated from water by sieving.	Solids with even smaller grains can be separated from water by filtration.	Filtration uses a substance with very tiny holes that let pure water through but trap the solid substance.	Some solids, such as sugar and salt, dissolve in water forming a solution.
	To separate a solution, the water is evaporated away leaving the soluble material behind.	Irreversible changes are often chemical changes – they cannot be undone because a new substance has been formed.	Examples of irreversible changes which cannot be undone are rusting, cooking, burning and reacting with acid.	When cake batter is baked in the oven, the heat produces an irreversible chemical change.
Changes and Cycles Cycles are made of changes from one stage to another.	Rusting is is an irreversible change where iron reacts with oxygen and water to form iron oxide (rust).	Chemists work with different materials to find interesting and creative uses for them.	Chemists sometimes make new materials that have desirable properties to solve particular problems.	Manmade materials are called synthetic materials.
	Different materials are used for different purposes depending on their properties.	Metals are used for electrical wiring because they are excellent conductors of electricity.	Metals are used for cooking pans because they heat up quickly due to their high thermal conductivity.	Wood is used for furniture and construction because it is strong, durable and sustainable.
	Plastics are used for packaging because they are lightweight, flexible, and can be easily moulded into different shapes.	Our reliance on plastics is a problem for the world's ecosystems as they do not biodegrade quickly and they cause pollution.	Increasingly, more sustainable materials like paper and cardboard are being used in place of plastics, such as in bags, cups and straws.	A material with properties of high strength, flexibility, and malleability would be a very useful and prized invention.
Thinking like a scientist	Scientists ask questions about the world and carry out enquiries to help them find the answers.	There are five types of scientific enquiry.	Chemistry is the branch of science which focuses on material properties and how matter is structured.	Comparative and fair testing is a large part of scientific enquiry in chemistry.
	With fair testing, only one variable is changed at a time and all other variables are kept the same.	Fair testing ensures that only that one variable is being tested or changed to see its impact.	Measuring by weight using scales or measuring temperature accurately is crucial.	Some of the biggest steps forward in technology have come through scientists working in this field of science.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Materials and Matter	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	What is a material?	What do the properties of a material tell us about its interaction with energy?	What do the properties of a material tell us about its interaction with forces?	What are some examples of material properties?
	Why are some materials magnetic?	What is a conductor?	What is an insulator?	Why do metals conduct heat and electricity well?
	Why does water hold onto heat longer than solids?	Why does the ocean take longer to heat up and cool down?	How does moving air affect heat transfer?	Why is still air a good thermal insulator?
	How do porous materials like woolly jumpers keep heat in?	What is matter?	What are the three states of matter?	What types of changes can happen to materials and matter?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	What is a reversible change?	What are examples of reversible changes?	What changes of state are reversible?	What is a mixture?
	How can solids with small grains be separated from water?	How can solids with very small grains be separated from water?	How does filtration work?	What happens when solids such as sugar or salt dissolve in water?
	How can a solution be separated?	What is an irreversible change?	What are examples of irreversible changes?	What happens when cake batter is baked?
Changes and Cycles Cycles are made of changes from one stage to another.	What causes rusting in iron?	What do chemists do with different materials?	Why do chemists create new materials?	What are manmade materials called?
	Why are different materials used for different purposes?	Why are metals used for electrical wiring?	Why are metals used for cooking pans?	Why is wood used for furniture and construction?
	Why are plastics used for packaging?	Why is reliance on plastics a problem for ecosystems?	What sustainable materials are replacing plastics?	What properties would make a material highly useful and prized?.
Thinking like a scientist	Scientists ask questions about the world and carry out enquiries to help them find the answers.	There are five types of scientific enquiry.	Chemistry is the branch of science which focuses on material properties and how matter is structured.	Comparative and fair testing is a large part of scientific enquiry in chemistry.
	With fair testing, only one variable is changed at a time and all other variables are kept the same.	Fair testing ensures that only that one variable is being tested or changed to see its impact.	Measuring by weight using scales or measuring temperature accurately is crucial.	Some of the biggest steps forward in technology have come through scientists working in this field of science.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	The Human Body	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know	I should know the names of different parts of my body.	I should be able to wash my hands with soap.		
Energy Energy is the power needed to make something change or happen.	Humans are a type of animal.	Humans share many characteristics with other animals, such as having a skeleton, muscles and the same body parts.	Most humans are omnivores.	Our body is made of different parts which all have names.
	Each part of our body has a job to do.	The parts of our body work together in a system.	We have five senses to help us understand the world: sight, hearing, smell, touch, and taste.	Our ears enable us to hear sounds.
	Our eyes enable us to see the world.	Our nose enables us to smell different fragrances.	Our skin enables us to feel different textures and sensations.	Our tongue enables us to taste whether food is sweet or bitter.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Humans need three main things for survival: food, air (oxygen) and water.	It is important that humans have shelter and protection from extremes of cold and heat.	Exercise is important for humans because it helps our bodies to stay healthy.	Oxygen is an important part of the air which our body needs to survive.
	When we exercise, our breathing rate increases because our body needs more oxygen to help our muscles work harder.	When we exercise, our heart beats faster to pump more blood, which carries oxygen, around our body to the muscles.	The human body needs the right sorts of food to help us stay healthy.	Foods that are healthy for our body include fruit and vegetables, meat and fish and healthy (wholemeal) grains.
	We shouldn't eat too many sweets, chocolate, or crisps because they don't give our body what it needs to work well.	Some illnesses are caused by invisible germs that live all around us.	When we are unwell, these germs can spread by coughs and sneezes.	We must wash our hands carefully with soap and water frequently during the day, especially after using the toilet and before we eat.
Changes and Cycles Cycles are made of changes from one stage to another.	Washing our hands is good hygiene and it is a way to keep the germs out of our body which can cause us to become ill.	We should wash our hands more frequently when we are ill and always use a tissue.	Coughing into your elbow is more hygienic than coughing into your hands.	Like animals, adult humans can have offspring – we call these babies.
	Humans have a life cycle which begins when a human is a baby.	A baby is dependent on its parents for survival.	A baby grows into a toddler and then into a child.	A child grows into a teenager and then into an adult.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that are similar.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are very good at working together to find out more about the world.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	The Human Body	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know				
Energy  Energy is the power needed to make something change or happen.	What type of living thing are humans?	What characteristics do humans have in common with other animals?	What kinds of food do humans eat?	Can you name the parts of your body?
	What does each part of your body do?	Do body parts work together?	What are the five senses?	What do ears help you do?
	What do eyes help you do?	What does your nose help you do?	What does your skin help you do?	What does your tongue help you do?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	What are the three main things humans need to stay alive?	Why do humans need shelter?	Why is exercise important for humans?	Why do humans need oxygen?
	What happens to your breathing when you exercise?	What happens to your heart when you exercise?	What kinds of food help humans stay healthy?	Which foods are healthy for your body?
	Why shouldn't humans eat a great deal of sweets and crisp?	What can cause humans to become ill?	How do germs spread?	When should you wash your hands?
Changes and Cycles  Cycles are made of changes from one stage to another.	Why is washing your hands important?	What should humans do for hygiene when they are ill?	Where should you cough to stop germs spreading?	What do we call human offspring?
	When does the human life cycle begin?	Who helps a baby survive?	What does a baby grow into?	What does a child grow into?
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that are similar.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are very good at working together to find out more about the world.

Observing over time  **Noticing patterns**  **Comparative and fair testing**  **Grouping and classifying**  **Research using secondary sources** 







	The Human Body	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	The human body is made up of systems which work together to keep us alive and healthy.	The human body needs energy and nutrients to function, grow, repair and maintain itself.	Humans cannot make their own energy like plants do, but we gain energy from the food that we eat.	Muscles and bones work together to provide support, protection and movement (the musculo-skeletal system).
	The digestive system is how the body extracts energy and nutrients from the food that we eat and gets rid of the waste.	A nutrient is any substance that the body needs to function, grow and repair itself properly.	There are six main types of nutrients: carbohydrates, proteins, fats, vitamins, minerals and water.	Carbohydrates are the main energy source and they are found in grains (including pasta and bread), fruit and vegetables and potatoes.
	Protein is essential for muscle growth and repair. Sources of protein are meat, fish, eggs, beans and nuts.	Fats provide energy and help to protect the internal organs. Sources of healthy fats are fish, oils, dairy products, nuts and seeds.	Vitamins and minerals have lots of jobs keeping the bones, muscles, heart and brain healthy.	Sources of vitamins and minerals are dairy products, fruits and vegetables, nuts and seeds.
	Calcium is an important mineral found in dairy products (milk and cheese) which helps bones to grow strong.	Water is vital for everything your body does. You should drink lots of water every day to stay healthy.	Not all food that we eat is nutritious – some give our body very few nutrients.	A healthy, balanced diet contains lots of fruit and vegetables, sources of protein like meat, fish or nuts, and wholegrains.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	We should aim to eat at least five portions of fruit and vegetables every day.	The human body has a skeleton made of 206 bones.	The smallest bones are inside the ear.	The largest bone in the human body is the femur in your thigh.
	Daily exercise ensures that your muscles and bones stay strong and healthy your whole life.	The main parts of the skeleton are the spine, the skull, the ribcage, the pelvis and the leg and arm bones.	The skull protects the brain and the ribcage protects the heart and lungs.	Digestion is the process in the human body that enables us to get the energy we need from food.
	It takes around 24 – 48 hours for food to pass through the entire digestive system.	Teeth are vital for helping us to bite, tear and chew our food into smaller pieces which our body can digest more easily.	An adult human has 32 teeth but a child has 20 baby (or milk) teeth.	Baby teeth begin to fall out and be replaced by the growing adult teeth when a child is around six or seven years old.
Changes and Cycles Cycles are made of changes from one stage to another.	Incisors are the eight flat teeth at the front of the mouth (four at the top and four at the bottom). They are used for slicing and cutting food.	Canines are the four sharp teeth next to the incisors used for ripping and tearing food.	Molars and premolars are the flat teeth at the back of the mouth used for crushing and grinding food.	Broken down food is then mixed with saliva which makes it easier to swallow.
	The tongue is a muscle which moves food around all the teeth and to the back of the mouth ready to be swallowed.	The tongue is covered in taste buds which are used to detect five different tastes: sweet, salty, sour bitter and umami (savoury).	Food travels down the oesophagus which has muscles to squeeze food down to the stomach.	It takes about seven seconds for food to move down the oesophagus.
	The oesophagus is a separate tube to the windpipe (trachea) which we use for breathing.	Food spends about 2 or 3 hours in your stomach where special chemicals called enzymes break the food down further into a squishy substance called 'chyme'.	The small intestine extracts nutrients from the chyme and moves them to the bloodstream and around the body.	The waste that our body can't use moves into the large intestine and then out of the body as faeces (poo) when we go to the toilet.
Thinking like a scientist	Scientists ask questions about the world and carry out enquiries to help them find the answers.	There are five types of scientific enquiry used to answer questions.	Scientists measure the energy that we get from different foods using 'calories'.	Adult humans need about 2000 calories per day but this is dependent on age, gender and activity.
	Nutritional information is written on the back of food packaging and can be **compared per 100g.**	Food can be **grouped and classified** in different ways according to its nutrient content.	When scientists measure the effect of different nutrients, they must change only one variable each time.	Scientists **observe over time** the impact of exercise on bones, muscles and fat in the human body.









Observing over time | **Noticing patterns** | **Comparative and fair testing** | **Grouping and classifying** | **Research using secondary sources**







	The Human Body	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy  Energy is the power needed to make something change or happen.	What do the systems in the human body do?	Why does the human body need energy and nutrients?	Where do humans get their energy from?	How do muscles and bones help the human body?
	What is the function of the digestive system?	What is a nutrient?	What are the six main types of nutrients?	What nutrient gives the human body most of its energy?
	What helps human muscles grow and repair?	What do fats do for the human body?	What do vitamins and minerals help keep healthy in humans?	Where can sources of vitamins and mineral be found?
	Which mineral helps human bones grow strong?	Why is water important for the human body?	Does all food give the human body what it needs?	What does a healthy diet include for humans?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	How many portions of fruit and veg should humans eat each day?	How many bones are in the human skeleton?	Where are the smallest bones in the human body?	What is the largest bone in the human body?
	Why is daily exercise important for human bones and muscles?	What are the names of the main parts of the skeleton?	What does the skull protect? What does the ribcage protect?	What is the process of digestion?
	How long does digestion take in the human body?	What do human teeth help do with food?	How many teeth do adult and child humans have?	When do baby teeth start to fall out in humans?
Changes and Cycles  Cycles are made of changes from one stage to another.	What are incisors and their role?	What are canines and their role?	What are molars and premolars and their role?	What helps food become easier to swallow for humans?
	What does the human tongue do when eating?	What tastes can the human tongue detect?	Where does food go after humans swallow it?	How long does food take to travel down the oesophagus in humans?
	What is the difference between the oesophagus and the windpipe in humans?	What happens to food in the human stomach?	What does the small intestine do in humans?	Where does waste go after digestion in humans?
Thinking like a scientist 	Scientists ask questions about the world and carry out enquiries to help them find the answers.	There are five types of scientific enquiry used to answer questions.	Scientists measure the energy that we get from different foods using 'calories'.	Adult humans need about 2000 calories per day but this is dependent on age, gender and activity.
	Nutritional information is written on the back of food packaging and can be **compared per 100g.**	Food can be **grouped and classified** in different ways according to its nutrient content.	When scientists measure the effect of different nutrients, they must change only one variable each time.	Scientists **observe over time** the impact of exercise on bones, muscles and fat in the human body.

Observing over time 

Noticing patterns 

Comparative and fair testing 

Grouping and classifying 

Research using secondary sources 







	The Human Body	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	A human life cycle begins when sperm from a male fertilises a female's egg.	After fertilisation, the embryo grows into a foetus inside the female's womb. This time is called 'pregnancy' or 'gestation'.	The gestation period of humans is 9 months.	When a baby is born, it depends on its parents for survival for many years.
	An infant human can only drink milk – either from the mother's breast or from a bottle – for the first six months whilst it has no teeth.	A juvenile human is called a child. During childhood, children become increasingly independent but still reliant on their parents in many ways.	When a human is changing from a child to an adult, they are an 'adolescent'.	The process of changing from a child to an adult is called 'puberty'.
	During puberty, a human body changes in different ways.	Puberty in boys causes a deeper voice, larger genitals, hair to grow on the face, and stronger muscles.	Puberty in girls causes breasts to develop and menstruation to begin.	Menstruation is the body's way of ensuring that there is a new womb lining available for a potential foetus every month.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Both boys and girls become taller during puberty and grow hair under their arms and around their genitals.	Puberty starts and ends for different people at different ages.	A typical human lifespan is around 80 years.	When a person becomes very old, their body becomes weaker, with worsening eyesight and hearing.
	Sometimes old people's brains do not think as clearly or as quickly as they did when they were younger.	The digestive system is how the body extracts energy and nutrients from the food that we eat and gets rid of the waste.	The circulatory system is the way in which nutrients and oxygen are transported around the body to reach the parts that need them.	The circulatory system is made up of the heart, the lungs, and the network of blood vessels which carry blood.
	Blood is the liquid that transports essential nutrients and oxygen around the body (5 litres in an average adult).	There are three main types of blood vessels: arteries, veins and capillaries (totalling 60,000 miles in length!).	Arteries are the thickest and carry oxygen-rich blood away from the heart at high pressure.	Veins carry low-oxygen blood back towards the heart.
Changes and Cycles Cycles are made of changes from one stage to another.	Capillaries are the smallest blood vessels which carry blood to every part of the body.	The heart has four chambers called the left and right atrium and left and right ventricle.	The lungs breathe in oxygen to transfer to the blood and breathe out carbon dioxide which is a waste product.	Low-oxygen blood enters the heart through the right atrium and then is pumped by the right ventricle out to the lungs.
	At the lungs, the blood releases carbon dioxide to be breathed out and takes on oxygen to be taken around the body.	The blood returns from the lungs to the left atrium and is then pumped around the body from the left ventricle.	The main artery carrying oxygen-rich blood away from the body is called the aorta.	Blood consists of red blood cells which carry oxygen and white blood cells which fight infection.
	Platelets in our blood clot when we get cut, forming a scab, to ensure the body doesn't lose too much blood.	Most blood cells are made inside your bones (200 billion each day!).	An average adult heart rate is between 60 and 100 BPM (beats per minute) when at rest.	Our heart rate increases when we exercise to provide our working muscles with more oxygen and energy.
	30 minutes of vigorous exercise five times per week keeps our heart and lungs healthy.	Daily exercise helps to keep our bones and muscles strong through to old age.	Taking drugs, smoking cigarettes and vaping can all damage our body's health leading to illness or disease.	Although our bodies are good at repairing themselves, poor care during youth can last your whole life.
Thinking like a scientist	Scientists ask questions about the world and carry out enquiries to help them find the answers.	There are five types of scientific enquiry used to answer questions.	Scientists repeat experiments to ensure that the results are reliable.	Scientists measure carefully and record the results they get not the results they think they should get.
	When measuring heartbeats, scientists take an average of repeated readings to ensure accuracy.	Doctors will often take a blood test to investigate why someone is unwell.	Scientists record their method carefully so that other scientists can see exactly what they did to get the results.	Scientists present their findings in a variety of ways, such as tables and graphs, to help others understand them.









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	The Human Body	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy  Energy is the power needed to make something change or happen.	When does the human life cycle begin?	What happens after fertilisation in humans?	How long is the gestation period for humans?	Why do babies depend on their parents?
	What can infant humans drink in the first six months?	What is a juvenile human called?	What is the stage between childhood and adulthood called?	What is the name of the process where a human changes from a child to an adult?
	What happens to humans during puberty?	What changes happen to boys during puberty?	What changes happen to girls during puberty?	What is menstruation for in the human body?
	What changes happen to both boys and girls during puberty?	Does puberty start and end at the same age for all humans?	What is the typical human lifespan?	What happens to the human body in old age?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	How can ageing affect the human brain?	What does the digestive system do in the human body?	What does the circulatory system do in the human body?	What parts make up the circulatory system?
	What does blood do in the human body?	What are the three main types of blood vessels?	What do arteries do in the human body?	What do veins do in the human body?
	What are capillaries and their main function?	What are the four chambers of the human heart?	What do the lungs do in the human body?	How does low-oxygen blood travel through the heart and lungs?
Changes and Cycles  Cycles are made of changes from one stage to another.	What happens to blood at the lungs?	How does oxygen-rich blood travel from the lungs to the body?	What is the main artery that carries oxygen-rich blood from the heart?	What do red and white blood cells do?
	What is the function of platelets when the human body is cut?	Where are most blood cells made in the human body?	What is the average adult heart rate at rest?	Why does heart rate increase during exercise?
	How much exercise helps keep the heart and lungs healthy?	How does daily exercise help bones and muscles?	What can damage the human body's health?	Why is it important to care for the human body during youth?
Thinking like a scientist 	Scientists ask questions about the world and carry out enquiries to help them find the answers.	There are five types of scientific enquiry used to answer questions.	Scientists repeat experiments to ensure that the results are reliable.	Scientists measure carefully and record the results they get not the results they think they should get.
	When measuring heartbeats, scientists take an average of repeated readings to ensure accuracy.	Doctors will often take a blood test to investigate why someone is unwell.	Scientists record their method carefully so that other scientists can see exactly what they did to get the results.	Scientists present their findings in a variety of ways, such as tables and graphs, to help others understand them.

Observing over time 

Noticing patterns 

Comparative and fair testing 

Grouping and classifying 

Research using secondary sources 

	Energy and Forces	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know from EYFS	You can make things move by pushing or pulling them.	We need lots of energy to run around and play.	Water flows down from high places to the ground.	Some objects stick to magnets.
	Food gives us energy.	The Sun gives us warmth and light and helps things grow.	Some things need batteries or electricity to make them work.	You can make a musical instrument make a sound by hitting it or blowing it or plucking it.
Energy Energy is the power needed to make something change or happen.	Energy makes things move.	Energy makes things grow.	Energy makes things change.	Energy makes things happen.
	Energy comes in different forms.	Light is a type of energy.	Sound is a type of energy.	Heat is a type of energy.
	Movement is a type of energy.	Electricity is a type of energy.	Energy can be stored in food or batteries.	Plants get their energy from the Sun.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Animals and humans get the energy they need from the food they eat.	When animals sleep and plants are dormant, they are saving energy.	When we exercise, we use lots of energy.	When we exercise, we can feel the energy we use as heat because we get hot.
	Making a fire provides us with heat and light energy.	When we bake, the heat energy changes the batter into a cake.	Lots of things we use need electrical energy to work.	A force is a push or a pull.
Changes and Cycles Cycles are made of changes from one stage to another.	When we push an object under the water, there is a force pushing it back up.	If we push a toy car with more force, it will travel further.	When we stretch an elastic band, we can feel the force pushing back against us.	When we pull a tug of war rope, the team with the biggest force wins.
	Sometimes magnets move together with a pull force.	Sometimes magnets push away from each other with a push force.	Some forces are very strong.	Some forces are quite weak.
	The wind is a type of force that can move things.	Moving water like a stream or river provides a force that pushes objects along with it.	When we throw a ball, the force of the throw gives the ball energy.	When you push the pedals of a bicycle, the force makes the bicycle move.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists work together and share ideas.

Observing over time | **Noticing patterns** | **Comparative and fair testing** | **Grouping and classifying** | **Research using secondary sources**

	Energy and Forces	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know from EYFS				
Energy  Energy is the power needed to make something change or happen.	What makes things move?	What makes things grow?	What makes things change?	What makes things happen?
	Can you name the different forms of energy?			
	Can you name the different forms of energy?		Where can energy be stored?	Where do plants get their energy from?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	Where do animals and humans get their energy from?	What happens when animals sleep and plants are dormant?	What happens when we exercise?	
	What energy does making a fire provide?	How does energy change the ingredients when making a cake?	What things need electrical energy to work?	What is a force?
	What happens when we push an object under the water and let go?	What happens if we push a toy car with more force?	What doe we feel when we stretch an elastic band?	Who wins in a tug of war?
Changes and Cycles  Cycles are made of changes from one stage to another.	How do magnets move together or apart?		Do forces have different strengths?	
	What can the wind do to objects?	What does moving water do to objects?	What gives a ball energy when we throw it?	What makes a bicycle move?
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
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Observing over time  **Noticing patterns**  **Comparative and fair testing**  **Grouping and classifying**  **Research using secondary sources** 

	Energy and Forces	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	Energy is the power needed to make things happen or change.	Energy comes in lots of different forms such as light, sound, heat, movement, chemical and electrical energy.	Energy can be changed from one type of energy to another.	A force is a push or a pull.
	Forces change energy from one type to another.	Forces can transfer energy from one object to another.	Forces can be contact or non-contact.	Friction is a contact force that slows objects down when they are moving against each other.
	The rougher a surface, the greater the force of friction.	Smooth surfaces have less friction.	Magnetism is a non-contact force.	Magnetism is a force that can attract (pull) or repel (push).
	All magnets have a north pole and a south pole.	Poles that are different attract; poles that are the same, repel.	All magnetic objects are made of metal.	Not all metals are magnetic.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Our eyes use light energy to allow us to see – we cannot see without light.	Darkness is just the absence of light.	Light sources emit their own light (stars, lamps, fire, bioluminescence).	We see objects because light hits their surface and is reflected into our eyes.
	The moon is not a light source – it reflects light from the Sun.	Transparent and translucent (partly see-through) materials allow light to pass through them.	Shadows are formed when opaque objects block light from a light source.	We should never look directly at bright light sources like the Sun as they can damage our eyes.
	Our ears use sound energy to allow us to hear.	Sounds are made when something vibrates rapidly back and forth.	Vibrations occur when a force is applied to an object.	Vibrations from the source of the sound travel through materials (air, water, solids) to reach our ears.
Changes and Cycles Cycles are made of changes from one stage to another.	The volume of a sound increases when the vibrations are bigger or the source of the sound is nearer.	The pitch of a sound is how high or low the sound is.	Larger or longer objects vibrate more slowly, which results in a lower pitch sound.	Music instruments make sound when the string (string), column of air (wind), or object itself (percussion) vibrate.
	Electricity is a form of energy.	For electricity to operate something, a circuit needs to be complete with no gaps.	A simple circuit has a cell (battery), wires and a component (bulb, buzzer, motor).	The component won't work if the circuit is not complete.
	A switch can create a gap in a circuit, stopping the flow of energy and turning the component off.	Materials which allow electricity to pass through them are good conductors.	Metals are good conductors of electricity.	Electricity can be very dangerous: never touch live electric wires or broken electrical appliances.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Electricity is measured in Volts with a Voltmeter.
	Scientists notice patterns when they considering how different forces act on objects.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Energy and Forces	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	What is energy used for in the world?	What are the different forms of energy?	What happens to energy when it changes form?	What is a force?
	How do forces change energy?	How do forces transfer energy between objects?	What are the two types of forces?	What does friction do to moving objects?
	How does surface roughness affect friction?	Why do smooth surfaces have less friction?	What type of force is magnetism?	What can magnetism do to objects?
	What are the poles of a magnet?	What happens when different or same poles meet?	What are magnetic objects made of?	Are all metals magnetic?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	How do human eyes use light energy?	What is darkness?	Can you name different examples of light sources?	How do humans see objects?
	Why is the moon not a light source?	What materials allow light to pass through them?	How are shadows formed?	Why should humans not look directly at bright light sources?
	How do human ears use sound energy?	How are sounds made?	What causes vibrations in objects?	How do sound vibrations travel to human ears?
Changes and Cycles Cycles are made of changes from one stage to another.	What makes the volume of a sound louder?	What is pitch in sound?	How do larger or longer objects affect pitch?	How do musical instruments make sound?
	What is electricity?	What does a circuit need to operate something?	What are the parts of a simple circuit?	What happens if a circuit is not complete?
	What does a switch do in a circuit?	What are materials that allow electricity to pass through them called?	What materials are good conductors of electricity?	Why is electricity dangerous?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Electricity is measured in Volts with a Voltmeter.
	Scientists notice patterns when they considering how different forces act on objects.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Energy and Forces	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	Energy is the power needed to make things happen or change.	Energy comes in lots of different forms such as light, sound, heat, movement, chemical and electrical energy.	Energy is changed from one type of energy to another.	A force is a push or a pull.
	Forces change energy from one type to another.	Forces can transfer energy from one object to another.	Forces can be contact or non-contact.	Objects fall because the Earth pulls them down with a force called gravity.
	Objects that are not supported will fall towards the Earth.	The more massive a star, a moon or a planet is, the stronger its gravitational force.	A force called air resistance slows down objects moving through the air.	A force called water resistance slows down objects moving through water.
	A force called buoyancy pushes floating objects upwards to the surface of the water.	Friction is the force that happens when two surfaces rub against each other, slowing down movement.	Objects with a greater surface area will be affected by a greater force of air or water resistance.	Parachutes use air resistance to slow falling skydivers.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Friction between the brake-pad and a wheel causes a vehicle to slow down.	Levers, pulleys and gear are mechanisms that helpf us move things more easily.	Mechanisms allow us to use a smaller force to move a heavier object or to make a bigger impact.	Isaac Newton first described the theory of gravity in 1687.
	Objects are visible because they emits light energy directly to our eyes or because light is being from their surface.	Light appears to travel in straight lines.	All surfaces reflect at least some light which is why we see them.	Transparent surfaces allow almost all of the light to pass through them, rather than reflecting it, which makes them almost invisible to us.
	Mirrors reflect almost all the light that hits them because very have a very smooth and reflective surface.	A mirror is a very thin reflective coating of silver or aluminium behind a protective layer such as glass.	White light is made of a spectrum of coloured light.	Shadows are the same shape as the object which casts them because light moves in straight lines.
Changes and Cycles Cycles are made of changes from one stage to another.	Electrical energy flows as an electrical current when a circuit is complete.	Energy is stored in a battery.	The voltage of a battery is a measure of the push force given to the electricity.	Adding more cells (batteries) to a circuit provides more voltage.
	The higher the voltage, the brighter the bulb or louder the buzzer in the circuit.	There are special symbols which we use to represent the components of an electrical circuit.	Switches in a circuit can break the circuit and stop electricity flowing to the component.	Electricity can be very dangerous.
	If a part of your body touches an electrical circuit, you will experience an electric shock because your body is completing the circuit.	Electric shocks can be small or lethal depending on the voltage in the circuit.	Water is an electrical conductor and should be kept away from electrical appliances.	Batteries have a voltage of 1.5V but mains electricity has a voltage of 230V at the power socket.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Electricity is measured in Volts with a Voltmeter.
	Scientists notice patterns when they considering how different forces act on objects.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Energy and Forces	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	What does energy do?	What are the different forms of energy?	What happens to energy when it changes form?	What is a force?
	How do forces change energy?	How do forces transfer energy between objects?	What are the two types of forces?	What is gravity and how does it affect objects?
	Why do unsupported objects fall?	How does mass affect gravitational force?	What is air resistance and how does it work?	What is water resistance and how does it affect movement?
	What is buoyancy and how does it help objects float?	What is friction and how does it affect movement?	How does surface area affect resistance?	How do parachutes use air resistance?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	How does friction help stop vehicles?	How do levers, pulleys and gears help us?	How do mechanisms make work easier?	Who was Isaac Newton and what did he discover?
	How do we see objects using light energy?	How does light travel?	Why do we see surfaces?	What happens when light passes through transparent surfaces?
	Why do mirrors reflect light so well?	What is a mirror made of?	What is white light made of?	Why do shadows match the shape of the object?
Changes and Cycles Cycles are made of changes from one stage to another.	When does electrical energy flow in a circuit?	How is energy stored in a battery?	What does voltage tell us about electricity?	What happens when we add more batteries to a circuit?
	How does voltage affect bulbs and buzzers?	How do we represent circuit components?	What does a switch do in a circuit?	Why is electricity dangerous?
	What causes an electrical shock?	How dangerous can electric shocks be?	Why should water be kept away from electricity?	What is the different between battery and mains voltage?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Electricity is measured in Volts with a Voltmeter.
	Scientists notice patterns when they considering how different forces act on objects.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Earth and Space	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know from EYFS	The Sun gives us warmth and light.	There are four seasons: spring, summer, autumn and winter.	The weather can change every day.	The weather is warm in the summer and cold in the winter.
	Some water is good to drink and some water is not.	Minibeasts like worms and beetles live in the soil.	Plants need soil to grow.	Rocks are hard and found all around us.
Energy  Energy is the power needed to make something change or happen.	We live on a planet called Earth.	Earth is shaped like a ball – we call this shape a sphere.	The Earth is made up of the land, the sea, and the sky.	The Earth is a very special planet because it is home to millions of different kinds of living things.
	Weather is the day to day conditions in the air around us.	The weather can be cloudy or sunny.	The weather can be raining or snowing.	The weather can be cold, warm or hot.
	The weather can be windy or still.	In the UK, the weather often changes every day.	We can measure the weather every day using scientific tools.	A rain gauge measures how much rain has fallen.
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	A thermometer measures how hot or cold the air is.	The temperature is usually highest in the afternoon and lowest first thing in the morning.	The climate of a place is the weather we usually expect in that place.	The climate is very different in different parts of the Earth.
	In deserts, the weather is always hot and dry.	In polar regions, the weather is always cold.	In Somerset, the climate is often warm in summer and cool but not too cold in the winter.	It doesn't snow very often in Somerset.
	In Somerset, there is usually a lot of rain which falls throughout the year in every season.	The weather each season can be hard to predict in the UK.	Sometimes in the UK we have wet spells where it rains for may days in a row.	Sometimes in the UK we have dry spells where it doesn't rain for many weeks.
Changes and Cycles  Cycles are made of changes from one stage to another.	Spring is the time of year when plants begin to grow because the weather is getting warmer.	The Spring months are March, April and May.	Summer is the time of year when days are long and nights are short and plants are flowering and fruiting.	The Summer months are June, July and August.
	Autumn is the time of year when most trees begin to lose their leaves and the weather gets cooler.	The Autumn months are September, October and November.	Winter is the time when plants are dormant, days are short, nights are long and the weather is cold.	The Winter months are December, January and February.
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists work together and share ideas.

Observing over time 

Noticing patterns 

Comparative and fair testing 

Grouping and classifying 

Research using secondary sources 

	Earth and Space	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 4 (KS1)
Things I should know from EYFS				
Energy  Energy is the power needed to make something change or happen.	What planet do we live on?	What shape is the Earth?	What are the three main parts of the Earth?	Why is Earth a special planet?
	What is weather?	What types of weather can our planet experience?		
	Can the weather be windy or still?	Does the weather change often in the UK?	How can we measure the weather?	What does a rain gauge measure?
Structures and Systems  Everything is made of smaller parts. When parts work together, it's a system.	What does a thermometer measure?	When is the temperature usually highest and lowest?	What is climate?	The climate is very different in different parts of the Earth.
	What is the weather like in deserts?	What is the weather like in polar regions?	What is the climate like in Somerset?	Does it snow often in Somerset?
	How much rain falls in Somerset?	Is seasonal weather easy to predict in the UK?	What is a wet spell?	What is a dry spell?
Changes and Cycles  Cycles are made of changes from one stage to another.	What happens in Spring?	What are the Spring months?	What happens in Summer?	What are the Summer months?
	What happens in Autumn?	What are the Autumn months?	What happens in Winter?	The Winter months are December, January and February.
Thinking like a scientist 	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists observe how things change over time.	Scientists look closely to see the small parts that things are made from.	Scientists use special equipment like magnifying glasses and microscopes to make small things visible.
	Scientists find different ways to group things together that have similar properties.	Scientists write and draw what they have found very carefully.	Scientists read what other scientists have found out.	Scientists work together and share ideas.

Observing over time  **Noticing patterns**  **Comparative and fair testing**  **Grouping and classifying**  **Research using secondary sources** 

	Earth and Space	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	The Earth is a planet composed mostly of rock and covered mostly in water.	The Earth is around four billion years old.	Rocks are made inside the Earth and on the surface of the Earth.	Most rocks were formed millions of years ago.
	Inside the Earth is very hot and rock here is liquid.	Liquid rock inside the Earth is called magma.	Magma that reaches the surface of the Earth is called lava.	We live on a relatively thin piece of solid rock called the Earth's crust.
	The Earth's crust is many miles thick but like the skin on an apple when compared to the whole Earth.	The very centre of the Earth is made of metal, which makes it like a giant magnet which is how compasses work.	There are three main categories of rock: igneous, metamorphic and sedimentary.	Rocks have different properties such as hardness, porosity (letting water through) and how they react with acid.
	A volcano is an opening in the Earth's crust that allows magma to the surface.	When lava cools back into solid rock, it forms igneous rocks.	Igneous rocks are very hard.	Igneous rocks may have crystals speckled inside them.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	Granite, basalt and pumice are types of igneous rock.	Sedimentary rocks have layers.	Sedimentary rocks may contain fossils. Sedimentary rocks are softer and can crumble easily.	Sedimentary rocks are formed when layers of sediment (mud) are compacted together over time.
	Fossils are the preserved remains of animals which lived millions of years ago.	Fossils form when an animal's body is covered in sediment and then is compacted along with the rock over millions of years.	Fossils appear back at the surface as the rain and the sea erode the rock and expose them again.	Sandstone, limestone and shale are types of sedimentary rock.
	Metamorphic rocks often have stripes or bands inside them.	Metamorphic rocks are very hard.	Metamorphic rocks contain crystals in lines rather than speckled throughout.	Metamorphic rocks form when existing rocks are changed by heat and pressure deep underground.
Changes and Cycles Cycles are made of changes from one stage to another.	Marble is a type of metamorphic rock.	Soil is the thin layer on top of the Earth's crust that plants grow in.	Soil is made from tiny bits of rock, rotted plants, water, air and living things.	Different parts of the world have different types of soil depending on the balance of the soil's component parts.
	71% of the Earth's surface is covered in water.	Only 3% of all the water on Earth is freshwater; the rest is saltwater in the oceans.	The water cycle is how freshwater is delivered to most parts of the Earth's surface.	The Sun's heat causes some water in the ocean to evaporate and become invisible water vapour leaving the salt behind.
	As the water vapour rises, it cools down and condenses into tiny water droplets which form clouds.	Winds blow the clouds and water vapour further inland.	As the water droplets merge and become heavier, they fall to the ground as precipitation – rain or snow.	The water that falls on land flows back to the sea via streams and rivers.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Scientists who study rocks are called geologists.
	Scientists notice patterns when they are examining rocks and soils.	Scientists group and classify rocks and soils depending on their properties.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Earth and Space	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Energy Energy is the power needed to make something change or happen.	What is the Earth mostly made of?	How old is the Earth?	Where are rocks made?	When were most rocks formed?
	What is inside the Earth?	What is liquid rock inside the Earth called?	What is magma called when it reaches the surface?	What do humans live on?
	How thick is the Earth's crust compared to the whole Earth?	What is the centre of the Earth made of and how does it affect compasses?	What are the three main types of rock?	What are some properties of rocks?
	What is a volcano?	What happens when lava cools?	What are igneous rocks like?	What do igneous rocks often contain?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	What are examples of igneous rocks?	What do sedimentary rocks look like?	What might sedimentary rocks contain?	How are sedimentary rocks formed?
	What are fossils?	How do fossils form?	How do fossils appear back at the surface?	What are examples of sedimentary rocks?
	What do metamorphic rocks often look like?	What are metamorphic rocks like?	What do metamorphic rocks contain?	How do metamorphic rocks form?
Changes and Cycles Cycles are made of changes from one stage to another.	What is an example of a metamorphic rock?	What is soil?	What is soil made from?	Why do different parts of the world have different types of soil?
	How much of the Earth's surface is covered in water?	What percentage of Earth's water is freshwater?	What is the water cycle?	What causes water to evaporate from the ocean?
	What happens when water vapour rises?	What moves clouds and water vapour inland?	What happens when water droplets become heavy?	How does water return to the sea?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Scientists who study rocks are called geologists.
	Scientists notice patterns when they are examining rocks and soils.	Scientists group and classify rocks and soils depending on their properties.	Scientists read what other scientists have found out.	Scientists are often working to create new materials to solve a particular problem.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Earth and Space	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	The universe is mostly empty space with stars scattered throughout them.	A star is a huge ball of fire burning the gas from which it is made.	Stars exist in huge groups called galaxies.	One galaxy holds billions of stars.
	There are billions of galaxies in the universe.	There are more stars in the universe than there are grains of sand on Earth.	The Sun is a star just like the ones we see in the night sky.	The Sun is an average-sized star in an average-sized galaxy.
	The Sun appears bigger, brighter and gives us heat because the Earth is much closer to it than any other star.	The galaxy that our star is a part of is called the Milky Way galaxy.	Most stars have planets which orbit around them.	Planets can be made of rock or gas.
	Everything orbiting a star is called its solar system.	There are eight planets in our Solar System.	The four smaller rocky planets nearest the Sun are Mercury, Venus, Earth and Mars.	The four larger 'gas giant' planets are Jupiter, Saturn, Uranus and Neptune.
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	The Sun is much, much larger than the Earth – you could fit over a million Earths inside the Sun.	The Earth orbits the Sun.	Gravity is the pulling force which holds planets in orbit around stars.	A satellite is any object orbiting another.
	Moons are natural satellites, usually made of rock and sometimes with an atmosphere, that are in orbit around planets.	Earth has one moon which is large compared to the planet it orbits.	Larger planets have many moons.	Jupiter has four large moons and many smaller ones.
	The Moon takes 28 days to make one orbit of the Earth.	We see phases of the Moon because different parts of it are lit up by the Sun's reflected light at different points in its orbit.	The Sun, the Moon and the Earth are all roughly spherical in shape.	The apparent movement of the Sun and the Moon through Earth's sky helps us keep track of time – days, months and years.
Changes and Cycles Cycles are made of changes from one stage to another.	It takes Earth 24 hours to make one complete turn on its axis.	The axis of a planet is the imaginary line from pole to pole through the centre of the planet.	When a location on Earth is facing the Sun, it experiences daylight.	When a location on Earth is facing away from the Sun, it experiences night.
	A place on one side of the Earth will experience day at the exact same moment that a place on the other side experiences night.	The Sun does not move but the Earth's rotation appears to make it rise and set.	The Sun appears to rise in the east, moves through the southern sky and sets in the west.	There are 24 hours in one day.
	People have created time zones across the world so that midday is when the Sun appears to be highest in the sky at a location.	At any moment, the time on the clock is different in different time zones across the world.	A year is the length of time it takes for Earth to complete one orbit of the Sun.	In ancient times, a month was the time between one full moon and the next (around 28 days) but this is not exact like days and years.
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Astronomers are scientists who study space.
	Scientists notice patterns when they observe the movement of the stars and the planets in the night sky.	Scientists group and classify objects in the universe depending on their size and what they are made from.	Scientific ideas change with new evidence. For centuries people believed that the Earth was at the centre of the universe.	The Ancient Greeks calculated that the Earth was a sphere and not flat.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

	Earth and Space	Scientists ask questions about the world and carry out enquiries to help them find the answers.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Energy Energy is the power needed to make something change or happen.	What is the universe mostly made of?	What is a star?	What are stars grouped into?	How many stars are in a galaxy?
	How many galaxies are in the universe?	Are there more stars than grains of sand on Earth?	What is the Sun?	What size is the Sun compared to other stars and galaxies?
	Why does the Sun appear bigger and brighter than other stars?	What is the name of the galaxy that contains our Sun?	Do most stars have planets orbiting them?	What are planets made of?
	What is a solar system?	How many planets are in our Solar System?	What are the four rocky planets closest to the Sun?	What are the four gas giant planets?
Structures and Systems Everything is made of smaller parts. When parts work together, it's a system.	How much larger is the Sun than the Earth?	What does the Earth orbit?	What force holds planets in orbit around stars?	What is a satellite?
	What is a moon?	How many moons does Earth have?	Do larger planets have more moons?	How many moons does Jupiter have?
	How long does the Moon take to orbit the Earth?	Why do humans see phases of the Moon?	What shape are the Sun, Moon and Earth?	How do the Sun and Moon help humans keep track of time?
Changes and Cycles Cycles are made of changes from one stage to another.	How long does it take Earth to rotate once on its axis?	What is a planet's axis?	What causes daylight on Earth?	What causes night on Earth?
	Why do different places on Earth experience day and night at the same time?	Why does the Sun appear to rise and set?	Where does the Sun appear to rise and set?	How many hours are in one day?
	Why do people use time zones?	Why is the time different in different parts of the world?	What is a year?	What was a month based on in ancient times?
Thinking like a scientist	Scientists ask questions about the world and use scientific enquiries to help them find the answers.	Scientists only change one variable at a time when completing a comparative or fair testing enquiry.	Scientists look closely to see the small parts that materials are made from when determining their properties.	Astronomers are scientists who study space.
	Scientists notice patterns when they observe the movement of the stars and the planets in the night sky.	Scientists group and classify objects in the universe depending on their size and what they are made from.	Scientific ideas change with new evidence. For centuries people believed that the Earth was at the centre of the universe.	The Ancient Greeks calculated that the Earth was a sphere and not flat.

Observing over time **Noticing patterns** **Comparative and fair testing** **Grouping and classifying** **Research using secondary sources**

Geography Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Place 	The Earth is a sphere and its surface is either land or water.	The Equator is an imaginary line around the broadest part of the Earth. It is the dividing line between the Northern and the Southern Hemisphere.	The furthest you can travel to the North is the North Pole. The furthest you can travel to the South is the South Pole.	There are four compass points: North, East, South, and West.
Space 	The weather is colder closer to the North Pole and the South Pole. The weather is warmer near the Equator.	A continent is a large area of land.	There are seven continents: Europe, Asia, Africa, North America, South America, Australasia, Antarctica.	There are five oceans: the Atlantic, Pacific, Indian, Southern and Arctic Ocean.
Scale 	Seas are smaller than oceans and are nearer to land.	The name of our country is the United Kingdom of Great Britain and Northern Ireland.	The UK is made up of four countries: England, Scotland, Wales and Northern Ireland.	The UK is spread across a group of islands called the British Isles.
Environment 	The two largest islands in the British Isles are Great Britain and Ireland.	The United Kingdom is part of the continent of Europe.	The Republic of Ireland is located on the British Isles but it is not part of the United Kingdom.	The most important city in a country is called its capital city – this is where the government makes its decisions.
Time 	The capital city of the UK is London.	London is also the capital city of England. The capital of Wales is Cardiff; the capital of Scotland is Edinburgh; the capital of Northern Ireland is Belfast.	The UK is surrounded by the Atlantic Ocean, the North Sea, the English Channel, the Celtic Sea and the Irish Sea.	The English Channel separates the British Isles from France.
Human and Physical Interconnections 	Maps show what a place looks like from above. We call this a 'bird's eye view'.	In the UK, there are four seasons: Spring, Summer, Autumn and Winter.	In Summer, the weather is warm, plants grow and there is more daylight.	In Winter, the weather is colder, plants become dormant and there is less daylight.
Sustainability 	The weather is the temperature, precipitation, cloud cover and wind that occurs daily.	Humans live in settlements which increase in size from villages to towns to cities.	Physical features occur naturally in the world, including: beaches, forests, hills, mountains, rivers, seas and oceans.	Human features are built by people, including: houses, shops, factories, farms and harbours.
Earth Systems 	Maps have symbols to show what is in an area.	A key is part of a map that shows what each symbol means.	There are different types of map which show different things.	Political maps show borders between countries. Physical maps show the features of the landscape.
Thinking like a geographer	**Geographers use maps, atlases and globes to help them understand a place.**	**A place is a location that has meaning for humans.**	**Geography is all about the physical world and how humans interact with it.**	**Geographers carry out fieldwork to help them understand the world around them.**

Geography Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 4 (KS1)
Place 	What shape is the Earth?	What is the Equator?	Where is the furthest you can travel North and South?	What are the four compass directions?
Space 	What is the weather like closer to the poles and the Equator?	What is a continent?	Name the seven continents.	Name the five oceans.
Scale 	How are seas different to oceans?	What is the correct name for our country?	What are the four countries in the UK?	What are the islands called which the UK is spread across?
Environment 	What are the two largest islands of this group of islands?	Which continent is the UK a part of?	Where is the Republic of Ireland located?	What is a capital city?
Time 	What is the UK's capital city?	Name the four capital cities of the UK's countries.	Which seas surround the UK?	Where is the English Channel?
Human and Physical Interconnections 	What do maps show?	What is the order of the four seasons?	What is summer like?	What is winter like?
Sustainability 	What is the weather?	How do settlements change in size and what are their names?	What are physical features?	What are human features?
Earth Systems 	Why do maps have symbols on them?	What is a key on a map?	Why do we have different types of map?	What do political and physical maps show?
Thinking like a geographer	**Geographers use maps, atlases and globes to help them understand a place.**	**A place is a location that has meaning for humans.**	**Geography is all about the physical world and how humans interact with it.**	**Geographers carry out fieldwork to help them understand the world around them.**

Geography Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Place 	The UK lies between 50 and 60 degrees North which means we are in the middle latitudes.	There are three types of map: political, physical and topographical.	Political maps show the boundaries of who governs a place, including countries, states and counties.	Physical maps show the features of the landscape.
Space 	Topographical maps show the elevation of the landscape.	A location's elevation is how high or low the ground is compared to sea level.	Some maps such as Ordnance Survey maps combine political, physical and topographical features onto the same map.	Maps are divided into grids to help us locate specific places.
Scale 	Each horizontal and vertical line on a map is labelled with a two-digit number. These can be used to reference each grid square on the map and are called four-figure grid references.	The eight points of the compass are: North, North-East, East, South-East, South, South-West, West, and North-West.	Lines of latitude are the imaginary rings that we draw around the Earth to show how far from the Equator a location on Earth is.	The Equator is zero degrees of latitude. The number increases to 90 degrees of latitude at the pole.
Environment 	At low latitudes (between zero and 30 degrees) the weather is warm all year round and the hours of daylight do not change.	Between 30 degrees and 60 degrees are the middle latitudes. Here there are four distinct seasons.	Above 60 degrees are the high latitudes where the winters are long and very cold and summers are short and mild.	At very high latitudes (near the poles), the sun doesn't set in summer or rise in winter.
Time 	There are seven biomes around the world. A biome is a large area with similar characteristics such as climate, landscape, plants and animals.	The seven biomes are: tropical rainforest, temperate deciduous woodland, coniferous forest (taiga), tropical grassland (savannah), temperate grassland, tundra, and desert.	Different types of forest and grassland grow at low, middle and high latitudes. Forests grow where the climate is wetter, and grasslands grow where the weather is drier.	Desert biomes occur where precipitation is virtually zero. Deserts can be hot or cold and occur at low, middle and high latitudes.
Human and Physical Interconnections 	Lines of longitude help to locate how far east or west a place is on the globe. The zero line of longitude runs through London.	The climate is the usual weather that occurs throughout the year in a particular place.	The climate of a place is a result of its distance from the Equator, its distance from the sea and its elevation.	The further you are from the sea, the more extreme the climate becomes (hotter in summer and colder in winter).
Sustainability 	Humans tend to live together in settlements which range in size: hamlets, villages, small towns, large towns, cities, megacities.	Humans have settled in particular places because there are useful natural resources available to them, such as water, food, energy sources and building materials.	Every human settlement trades resources with other settlements either locally, nationally or internationally.	Places export resources that they have in abundance and import resources which they do not have access to.
Earth Systems 				
Thinking like a geographer	**Geographers use maps to help them understand a place.**	**A place is a location that has meaning for humans.**	**Geography is all about the physical world and how humans interact with it.**	**Geographers carry out fieldwork to help them understand the world around them.**

Geography Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 5 (LKS2)
Place 	Which lines of latitude does the UK lie between?	What are the three types of map?	Which maps show the boundaries of who governs a place?	Which maps show the features of the landscape?
Space 	Which maps show the elevation of the landscape?	What is elevation?	What do Ordnance Survey maps show?	Why are maps divided into grids?
Scale 	What are four-figure grid references?	What are the eight points of the compass clockwise from North?	What are lines of latitude?	What is the Equator?
Environment 	What is the climate like in the low latitudes?	Which lines of latitude mark the middle latitudes?	What is the climate like in the high latitudes?	What is special about the movement of the sun at the highest latitudes?
Time 	What is a biome and how many are there?	Name the seven biomes of the world.	What dictates whether a place has a grassland biome or a forest biome?	Where do desert biomes occur?
Human and Physical Interconnections 	What do lines of longitude help us to do?	What is climate?	What three factors affect a place's climate?	How does proximity to the sea affect a place's climate?
Sustainability 	Explain the size of settlements from smallest to largest.	Why have humans settled in particular places?	What is trade?	What are exports and imports?
Earth Systems 				
Thinking like a geographer	**Geographers use maps to help them understand a place.**	**A place is a location that has meaning for humans.**	**Geography is all about the physical world and how humans interact with it.**	**Geographers carry out fieldwork to help them understand the world around them.**

Geography Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Place 	OS grid references help locate a small space on a map and they always start with 2 letters which tell you which part of the UK you are looking at.	Eastings are the vertical lines moving from left to right on a map; northings are the horizontal lines moving from bottom to top. Four-figure grid references use these two 2-digit numbers to find a square on a map (easting first, then northing) that is 1km x 1km in size.	Six-figure grid references break these squares down into ten further eastings and northings. Insert the new number after the corresponding 2-digit number to locate the 100m x 100m square needed.	Contour lines are often used on maps to connect locations which are at the same elevation above sea level. When contour lines are very close together, this indicates a steep slope. When there are very few contour lines, this indicates a very flat area of land.
Space 	Counties are human (political) boundaries which show areas of land that include many settlements and the rural space between them. Somerset is a large UK county and other counties in SW England are Cornwall, Devon, Dorset, Wiltshire and Gloucestershire.	The Tropic of Cancer is a special line of latitude at around 23 degrees North of the Equator. The Tropic of Capricorn is a special line of latitude at around 23 degrees South of the Equator. The Sun can be directly overhead between these two lines.	The Arctic and Antarctic Circles are special lines of latitude at about 66 degrees North and South. They are the furthest places north and south where the Sun never sets in the summer (for at least one day) and the Sun never rises in the winter (for at least one day). The closer to the poles you get, the more extreme this phenomenon becomes.	Vegetation belts are the zones around the Earth where the climate allows for similar landscapes. These are visible on satellite images of the Earth as east to west stripes, showing belts of tropical rainforest (in the tropics), deserts and semi-arid places (in the sub-tropics), temperate deciduous woodland in the temperate zones and ice sheets in the highest latitudes.
Scale 	Lines of longitude go through the poles and are oriented north to south. They show how far east or west a location is. The zero degrees of longitude line passes through London, UK and is called the Greenwich Prime Meridian.	Time zones are closely (but not exactly) linked with lines of longitude and ensure that the time on the clock matches the Sun's position in the sky. When it is 12 noon in the UK, places further to the east are ahead of this time and places further to the west are behind this time.	There is a special imaginary line in the Pacific Ocean (where very few people live) called the International Date Line where the furthest behind and ahead time zones meet. When you cross this line, you can skip a whole day forwards or backwards.	Water is moved around the planet by the water cycle. Water evaporates from the surface of the ocean and land and rises through the atmosphere.
Environment 	As the water vapour rises, it cools and forms clouds which are often transported inland by the wind. When the raindrops in the cloud become too massive to overcome the force of gravity pulling them down, they fall as precipitation (rain, hail or snow).	Water on the land makes its way from high ground, such as mountains and hills, to low ground, such as lakes and the sea, through networks of streams and rivers.	The Earth's crust is divided into many different pieces called tectonic plates, which are like giant puzzle pieces floating on the liquid mantle beneath. Tectonic plates are constantly moving but at a very, very slow speed (a few cm every year). Hazards such as earthquakes and volcanoes are stronger and more numerous at locations on tectonic plate boundaries.	Earthquakes are caused when the edges of tectonic plates move against each other suddenly, releasing lots of energy and shaking the ground.
Time 	Volcanoes are formed when magma from the mantle breaks through the Earth's crust.	Mountains are formed over millions of years when tectonic plates push against each other. The highest mountain ranges on Earth are the Himalayas in Asia and the Andes in South America.	Biodiversity is the variety of all living things on Earth, including plants, animals, and microorganisms. Biodiversity is important to support healthy ecosystems on Earth.	The tropical rainforest is the most biodiverse environment on the planet. Around 80% of all species of living things we know about live in tropical rainforests.
Human and Physical Interconnections 	The Earth's climate is warming at a rapid rate caused by human industry over the past 200 years. Climate change is a problem because it will cause sea level rise and flooding, more extreme weather events and shift reliable patterns of agriculture around the world.	Because we depend on the Earth Systems of our world working properly, we need to make sure that we don't take more from the Earth than we can replenish. If we live sustainably, we are aiming to have as little impact on the planet overall as we can.	Migration is the movement of people around the planet. People might choose to leave a place because of dangers such as war or lack of food. They might move to new places for job opportunities or to find safety.	Different countries have access to different natural resources such as food which grows in their climate, minerals for use in manufacturing and energy sources. Some countries are very rich in natural resources and others have less.
Sustainability 	Trade is the process by which a country buys and sells its products and resources to other countries. The resources and products that a country sells are called its exports. The resources and products that a country buys are called its imports.	The supply chain consists of different roles: producer, manufacturer, distributor, retailer, and consumer. Trade can happen at different scales: locally, nationally or internationally.	Energy can be made from non-renewable sources (fossil fuels) which are polluting and will one day run out, or renewable sources such as wind, wave and solar energy. Renewable energy is more sustainable and better for the environment but is not as reliable as burning fossil fuels.	There are six main types of renewable energy: solar, wind, hydroelectric, ocean, geothermal and biomass. Different places have different access to renewable energy depending on their location.
Earth Systems 				
Thinking like a geographer	**Geographers use maps to help them understand a place.**	**A place is a location that has meaning for humans.**	**Geography is all about the physical world and how humans interact with it.**	**Geographers carry out fieldwork to help them understand the world around them.**

Geography Core Knowledge		Test a friend by turning the core knowledge into a quiz question.	Colour in the core knowledge that you know.	Step 6 (UKS2)
Place 	How do all OS grid references start?	What are eastings and northings?	How do six-figure grid references work?	How do contour lines work?
Space 	What are counties and name some counties in SW England.	What are the Tropics of Cancer and Capricorn, and which one is in which hemisphere?	What do the Arctic and Antarctic circles show?	Explain vegetation belts.
Scale 	What is the Greenwich Prime Meridian and where is it?	How do time zones work?	Where is the International Date Line?	What is the water cycle?
Environment 	What is precipitation?	How does precipitation get back to the sea?	What are tectonic plates?	What causes earthquakes to occur and where are they most numerous?
Time 	What causes volcanoes to form?	How are mountains formed?	What is biodiversity and why is it important?	Which biome is the most biodiverse on Earth?
Human and Physical Interconnections 	Why is human-induced climate change a problem?	What is sustainability?	What is migration and why does it happen?	What are natural resources?
Sustainability 	Explain how trade works, using the terms ‘import’ and ‘export’,	What are the different elements of the trade supply chain?	What is the difference between non-renewable and renewable energy?	What are the six main types of renewable energy?
Earth Systems 				
Thinking like a geographer	**Geographers use maps to help them understand a place.**	**A place is a location that has meaning for humans.**	**Geography is all about the physical world and how humans interact with it.**	**Geographers carry out fieldwork to help them understand the world around them.**

Art Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 4 (KS1)
Line 	Straight lines have no bends and can make art look strong or ordered.	Curved lines bend and can make art look gentle or flowing.	Lines can lead our eyes up, down, across or around an artwork.	An outline shows an object's edge; pencils, crayons and charcoal make different marks.
Colour 	Red, yellow and blue are primary paint colours used to mix other colours.	Mixing red and yellow paint makes orange.	Mixing yellow and blue paint makes green.	Mixing blue and red paint makes purple.
Shape and Form 	Warm colours, such as red, orange and yellow, can make art feel lively.	Cool colours, such as blue and green, can make art feel calm.	Artists choose colours to show a mood or feeling.	Large brushes cover wide areas; small brushes add detail.
	Shapes are flat; artists combine them to draw objects, places and ideas.	Circles, squares and triangles are geometric shapes that artists can draw or cut out.	Organic shapes are uneven or flowing, like leaves and puddles.	Sculptures are 3D forms with height, width and depth; clay can be rolled, pinched and joined.
Texture and Pattern 	Texture is how a surface feels or looks as if it would feel.	Dots and lines can make a drawing look rough, smooth, soft or spiky.	Rubbing a crayon over paper on a textured surface records its bumps and ridges.	Small details help us recognise things; tools can press details and textures into clay.
Composition 	A pattern repeats lines, shapes or colours in a recognisable order.	Repeating marks can make a visual beat, like a rhythm in music.	Printing transfers paint or ink from a surface onto paper; repeating a print makes a pattern.	Collage joins pieces of paper, fabric or other materials to make pictures, textures and patterns.
	Composition is how parts are arranged; their position affects what we notice first.	Making something larger can show it is important.	Balance means arranging parts so an artwork does not feel too heavy on one side.	Symmetry means two sides match like reflections in a mirror.
Thinking like an artist	**Artists look closely, notice details and imagine new creative ideas.**	**Artists explore materials and enjoy experimenting to find their own style.**	**Artists talk about their work and listen to others, to learn from different points of view.**	**Artists know that every try helps them improve and learn from their mistakes.**

Art Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 4 (KS1)
Line 	Do straight lines bend? How can they make art look?	Do curved lines bend? How can they make art look?	Where can lines lead our eyes in an artwork?	What does an outline show? Name three drawing materials.
Colour 	Which three primary paint colours can we mix to make other colours?	What colour does red and yellow paint make?	What colour does yellow and blue paint make?	What colour does blue and red paint make?
Shape and Form 	Name three warm colours. How can they make art feel?	Name two cool colours. How can they make art feel?	What can an artist show by choosing colours?	Which brush covers wide areas? Which adds detail?
	Are shapes flat or 3D? What can artists draw by combining them?	Name three geometric shapes. How can artists make them?	What are organic shapes like? Name two examples.	What makes a sculpture 3D? Name three ways to shape clay.
Texture and Pattern 	What does texture tell us about a surface?	How can dots and lines make a drawing look?	How do you make a crayon rubbing? What does it show?	Why add small details? How can tools add them to clay?
Composition 	What repeats in a pattern? How is it arranged?	How can repeating marks make a beat like music?	What happens when we print? How can prints make a pattern?	How do we make a collage? What materials can we use?
	What is composition? How does it affect what we notice first?	How can an artist use size to show something is important?	What does balance mean in an artwork?	What does symmetry mean? How do the two sides match?
Thinking like an artist	**Artists look closely, notice details and imagine new creative ideas.**	**Artists explore materials and enjoy experimenting to find their own style.**	**Artists talk about their work and listen to others, to learn from different points of view.**	**Artists know that every try helps them improve and learn from their mistakes.**

Art Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 5 (LKS2)
Line 	Contour lines follow the edges of a subject; looking closely helps us draw its shape.	Lines can suggest movement; sweeping or repeated lines can make a subject look active.	Gesture drawings use quick lines to capture a subject's pose and movement.	Perspective uses lines and size to make a flat picture show depth and distance.
Colour 	Tone means how light or dark a colour is; different tones help show form.	Adding white paint to a colour makes a lighter tint.	Adding a little black paint to a colour makes a darker shade.	Hue is the colour itself, such as red or blue, rather than its lightness or darkness.
Shape and Form 	Adding more water to watercolour makes a paler, more see-through wash.	Wet paint spreads on wet paper; dry paper helps keep painted edges clear.	Testing paint mixtures on scrap paper helps us choose the colour and tone we need.	Brush pressure and direction change the width and shape of painted marks.
	Light and dark tones can make flat shapes look like solid forms with volume.	An object's lit side is usually lighter; shading its darker side helps show its form.	A cast shadow falls where an object blocks light and helps show where it sits.	Scoring clay surfaces, adding slip and pressing them together helps make a strong join.
Texture and Pattern 	Surface quality describes how a surface looks or feels, such as rough, smooth, shiny or dull.	Hatching uses parallel lines; cross-hatching adds crossing lines to build darker tones.	Layering marks, paint or collage pieces builds up colour, texture and depth.	Different marks and materials can suggest textures, such as soft fur or rough bark.
Composition 	Stippling uses dots; placing more dots close together makes an area look darker.	A thin, even layer of printing ink helps raised surfaces leave a clear print.	Changing the spacing or direction of repeated prints changes a pattern's effect.	Collage materials can be cut, torn and layered to create different edges and surface textures.
	The foreground is the part of a picture that appears closest to the viewer.	The background appears behind the main subject and helps show the setting.	When one object overlaps another, it appears to be in front.	Drawing distant objects smaller than similar nearby objects helps show depth.
Thinking like an artist	**Artists look closely, notice details and imagine new creative ideas.**	**Artists explore materials and enjoy experimenting to find their own style.**	**Artists talk about their work and listen to others, to learn from different points of view.**	**Artists know that every try helps them improve and learn from their mistakes.**

Art Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 5 (LKS2)
Line 	What do contour lines follow? How does looking closely help us draw?	How can sweeping or repeated lines make a subject look?	What kind of lines do gesture drawings use? What do they capture?	What does perspective help a flat picture show? What does it use?
Colour 	What does tone mean? What can different tones help show?	How do you make a lighter tint with paint?	How do you make a darker shade with paint?	What does hue mean? Give an example of a hue.
Shape and Form 	What happens to a watercolour wash when you add more water?	How does wet paint behave on wet paper? What helps keep edges clear?	Why should we test paint mixtures on scrap paper?	How can brush pressure and direction change painted marks?
	How can you make a flat shape look like a solid form with volume?	Which side of an object is usually lighter? How does shading help show form?	Where does a cast shadow fall? What does it help show?	What three steps help make a strong clay join?
Texture and Pattern 	What does surface quality describe? Give two examples.	What is hatching? How does cross-hatching build darker tones?	What can we layer in art? What does layering build up?	How can marks and materials suggest textures? Give an example.
Composition 	What marks does stippling use? How can you make an area darker?	What kind of ink layer helps raised surfaces leave a clear print?	What two changes to repeated prints can change a pattern's effect?	How can we change collage materials to create different edges and textures?
	What is the foreground? Where does it appear to be?	Where is the background? What does it help show?	Which object appears to be in front when two objects overlap?	How should the size of similar near and far objects differ to show depth?
Thinking like an artist	**Artists look closely, notice details and imagine new creative ideas.**	**Artists explore materials and enjoy experimenting to find their own style.**	**Artists talk about their work and listen to others, to learn from different points of view.**	**Artists know that every try helps them improve and learn from their mistakes.**

Art Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 6 (UKS2)
Line 	Leading lines guide the viewer's eye towards important parts of an artwork.	In one-point perspective, lines going away from us appear to meet at a vanishing point.	Converging lines move closer together; drawing them towards a vanishing point helps show distance.	Expressive lines use changes in pressure, thickness and direction to suggest feeling or movement.
Colour 	Contrast means a clear difference; light against dark can make an area stand out.	Colour harmony means colours work well together and help an artwork feel connected.	A palette is the set of colours an artist chooses for an artwork.	Colours affect one another; the same colour can look different beside light or dark colours.
Shape and Form 	Complementary colours are opposite on a colour wheel; placed side by side, they create strong contrast.	Colours next to each other on a colour wheel can create a harmonious palette.	A glaze is a thin, see-through paint layer over dry paint that changes the colour beneath.	Blending gradual changes from light to dark helps painted forms look rounded.
	Space is the area around, between or within forms; gaps are part of a sculpture's design.	Proportion compares the sizes of parts; checking these relationships helps make a subject look believable.	A sculpture needs a supporting structure; an inner frame, called an armature, can hold its form.	Viewpoint is where we look from; changing it changes the shapes and forms we see.
Texture and Pattern 	A motif is a repeated visual idea, such as a leaf shape, which can carry meaning.	Visual rhythm uses repetition and spacing to guide the eye through an artwork.	Realism uses carefully observed details, textures and proportions to make a subject look lifelike.	Expression uses choices of marks, colour and texture to communicate feelings, mood or a personal response.
Composition 	Symbolism uses visual choices to suggest ideas; a repeated seed shape might suggest growth.	In relief printing, raised areas carry ink; recessed areas do not print.	Registration means lining up paper and printing blocks so separate colour layers meet in the right places.	Weaving passes threads over and under others; changing colours or thread thickness changes pattern and texture.
	A focal point is the part of an artwork that attracts our attention first.	Emphasis makes something stand out through choices such as size, position or colour contrast.	Framing chooses what to include or leave out, directing attention and changing a picture's meaning.	Repeating selected colours, shapes or textures can connect parts of a composition and help it feel unified.
Thinking like an artist	**Artists look closely, notice details and imagine new creative ideas.**	**Artists explore materials and enjoy experimenting to find their own style.**	**Artists talk about their work and listen to others, to learn from different points of view.**	**Artists know that every try helps them improve and learn from their mistakes.**

Art Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 6 (UKS2)
Line 	What do leading lines guide? Where do they lead it?	In one-point perspective, where do lines going away from us appear to meet?	What do converging lines do? How can they help show distance?	What can we change to make lines expressive? What can they suggest?
Colour 	What does contrast mean? How can light against dark affect an area?	What is colour harmony? How can it make an artwork feel?	What is an artist's colour palette?	Can the same colour look different beside light or dark colours? Why?
Shape and Form 	Where are complementary colours on a colour wheel? What happens when they sit side by side?	Which colours on a colour wheel can help create a harmonious palette?	What is a paint glaze? What does it do to the colour beneath?	How can blending light and dark tones make painted forms look?
	What does space mean in art? Why are gaps part of a sculpture's design?	What does proportion compare? Why should we check these size relationships?	What is an armature? How does it help support a sculpture?	What is viewpoint? How does changing it affect the shapes and forms we see?
Texture and Pattern 	What is a motif? Give an example of a visual idea that could be repeated.	What does visual rhythm use? How does it guide the eye through an artwork?	What does realism aim to show? What should an artist observe carefully?	How can artists use marks, colour and texture to express feelings or mood?
Composition 	What does symbolism do? What idea might a repeated seed shape suggest?	Which areas carry ink in relief printing? Which areas do not print?	What does registration mean in printing? Why must the colour layers line up?	How do threads pass through a weaving? What changes its pattern and texture?
	What is a focal point in an artwork?	What does emphasis do? Name three ways to make something stand out.	What does framing choose? How can it change attention and meaning?	How can repeating colours, shapes or textures help a composition feel unified?
Thinking like an artist	**Artists look closely, notice details and imagine new creative ideas.**	**Artists explore materials and enjoy experimenting to find their own style.**	**Artists talk about their work and listen to others, to learn from different points of view.**	**Artists know that every try helps them improve and learn from their mistakes.**

Design and Technology Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 4 (KS1)
Purpose 	A product is something designed and made to do a job.	A solution is an answer to a problem; products can help solve everyday problems.	A design is a plan for making something; drawings help us share our ideas.	A product's features help it do its job, such as a handle for carrying.
People 	The target user is the person who will use a product.	Designers think about what the user needs and how the product will help.	Appearance means what a product looks like; colours and shapes can appeal to users.	People can have different opinions about the same product.
Materials 	Materials have different properties, such as being stiff, flexible, soft or waterproof.	A suitable material has properties that help a product do its job.	Paper bends easily; card is usually stiffer and can support simple structures.	Folding and rolling are techniques that can make paper stronger and stiffer.
	A structure is made from joined parts; a wide base can help it stand.	Gluing, taping and stitching are joining techniques; different joins suit different materials.	Fabric can be cut and joined; stitches connect pieces using thread.	Food ingredients have different tastes and textures; mixing is a technique for combining them.
Systems 	A product has parts that work together to help it do its job.	Joining parts securely helps a product hold together when it is used.	A wheel turns around an axle; wheels help a vehicle move.	Wheels need space to turn without rubbing against the vehicle's body.
	A slider moves backwards and forwards along a straight path.	A lever is a bar that turns around a fixed point called a pivot.	Pushing or pulling a moving part can make another part move.	Control means making something work in the way we want it to.
Innovation 	A successful product does the job it was designed to do.	Testing a product helps us find what works and what needs improving.	Adapting a design means changing it to suit its purpose or user better.	Inventing means creating something new to solve a problem.
Thinking like a designer	Designers notice problems, ask questions and imagine useful solutions for people.	Designers explore materials, techniques and systems, explaining why their choices suit the purpose and user.	Designers share ideas, listen to feedback and test how well their products work.	Designers learn from each attempt, making changes that help their products work better.

Design and Technology Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 4 (KS1)
Purpose 	What is a product? Why is it designed and made?	What is a solution? How can a product help solve a problem?	What is a design? How can drawings help us share it?	What are a product's features? How does a handle help?
People 	Who is the target user of a product?	What do designers need to find out about the user?	What does appearance mean? How can colours and shapes affect it?	Can people have different opinions about the same product?
Materials 	What are material properties? Name three different properties.	What makes a material suitable for a product?	How do paper and card differ? Which can support a simple structure?	How can folding and rolling techniques change the strength of paper?
Systems 	What is a structure? How can a wide base help it?	Name three joining techniques. Does every join suit every material?	How can fabric pieces be joined? What do stitches use?	How can ingredients differ? Which technique combines them?
Innovation 	How do the parts of a product help it work?	Why do the parts of a product need secure joins?	What does a wheel turn around? How do wheels help vehicles?	Why do wheels need space around them?
	How does a slider move?	What is a lever? What is its turning point called?	How can pushing or pulling one part affect another part?	What does control mean when we use a product?
	What makes a product successful?	What can testing tell us about a product?	What does adapting a design mean?	What does inventing mean? What should an invention help solve?
Thinking like a designer	Designers notice problems, ask questions and imagine useful solutions for people.	Designers explore materials, techniques and systems, explaining why their choices suit the purpose and user.	Designers share ideas, listen to feedback and test how well their products work.	Designers learn from each attempt, making changes that help their products work better.

Design and Technology Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 5 (LKS2)
Purpose 	A design brief describes the problem and what needs to be designed.	Design criteria describe what a product must have or do to be successful.	A functional product works as intended; its features work together to fulfil its purpose.	Quality includes how well a product is made and how well it works.
People 	User requirements describe what a product must have or do to meet someone's needs.	Researching users' preferences helps designers decide which features and appearance will appeal to them.	A product can look appealing but still fail to meet its user's needs.	Feedback from users helps designers judge functionality and choose useful modifications.
Materials 	Natural materials come from plants, animals or the earth; wood and cotton are examples.	Synthetic materials are made by people; nylon is a synthetic material.	Designers compare materials' qualities to choose those best suited to the product.	Materials and products affect the environment through how they are produced, used and discarded.
	Adding triangular supports is a reinforcing technique that stops a frame's shape changing easily.	A seam joins fabric pieces; running stitch is a joining technique, and seam allowance provides space for stitching.	Measuring and marking are techniques that help parts fit together accurately before cutting.	Grating and mixing are food preparation techniques; changing ingredients can change taste, texture and suitability.
Systems 	Components are the individual parts that work together within a system.	A mechanism is a group of parts that work together to create movement.	Linkages connect levers so that movement can pass from one part to another.	Pneumatic mechanisms use air pressure to make parts move.
	An electrical circuit needs a complete path for components such as bulbs to work.	A switch opens or closes a circuit to control an electrical component.	A computer program gives instructions that can control how a product works.	Performance describes how well a product or system does its job.
Innovation 	Research into existing products helps designers learn from solutions that already exist.	A prototype is an early version used to test and develop a design.	Modifications are changes made to improve a product's performance or suitability.	Testing against design criteria helps show whether modifications have made a product better.
Thinking like a designer	Designers notice problems, ask questions and imagine useful solutions for people.	Designers explore materials, techniques and systems, explaining why their choices suit the purpose and user.	Designers share ideas, listen to feedback and test how well their products work.	Designers learn from each attempt, making changes that help their products work better.

Design and Technology Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 5 (LKS2)
Purpose 	What does a design brief describe?	What do design criteria tell us about a product?	What makes a product functional? How do its features contribute?	What two things help us judge a product's quality?
People 	What are user requirements?	How can finding out users' preferences help a designer?	Can an appealing product fail to meet a user's needs? Explain how.	How can feedback help designers improve a product?
Materials 	Where do natural materials come from? Give two examples.	What is a synthetic material? Give an example.	Why do designers compare the qualities of different materials?	At which stages can materials and products affect the environment?
Systems 	How does adding triangular supports reinforce a frame?	What is a seam? What does running stitch do? Why is seam allowance needed?	How do measuring and marking techniques help parts fit together?	Name two food preparation techniques. How can changing ingredients affect a food product?
	What are components? How do they work within a system?	What is a mechanism?	What do linkages connect? What can pass between the parts?	What do pneumatic mechanisms use to make parts move?
Innovation 	What does an electrical circuit need for a bulb to work?	How does a switch control an electrical component?	How can a computer program control a product?	What does performance tell us about a product or system?
	How can researching existing products help a designer?	What is a prototype? Why do designers use one?	What are modifications? What can they improve?	How can design criteria help us judge whether a modification worked?
Thinking like a designer	Designers notice problems, ask questions and imagine useful solutions for people.	Designers explore materials, techniques and systems, explaining why their choices suit the purpose and user.	Designers share ideas, listen to feedback and test how well their products work.	Designers learn from each attempt, making changes that help their products work better.

Design and Technology Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 6 (UKS2)
Purpose 	A specification is a detailed list of what a product must have or do.	Constraints are limits such as time, cost, materials or available equipment.	Designers balance the specification and constraints when choosing between possible solutions.	Testing against a specification provides evidence of how successfully a product fulfils its purpose.
People 	A target market is the group of people a product is designed for.	Aesthetics concern a product's appearance and how attractive it is to its users.	Accessibility means designing products so that as many people as possible can use them.	Different users may need different features; testing with users can reveal barriers to use.
Materials 	Durability describes how well a material resists damage, wear and breaking over time.	Sustainable design considers resources and environmental effects across a product's life.	Renewable resources can be replaced naturally over time, but still need responsible use.	Reusing materials and designing for repair can reduce waste and extend a product's life.
Systems 	Cost-effective materials provide suitable performance without unnecessary expense; cheapest is not always best.	Reinforcing joints is a strengthening technique; suitable material thickness also improves a structure's strength.	Fabric properties, stitching techniques, seams and fastenings affect a textile product's durability and ease of use.	Ingredient proportions and preparation techniques, such as kneading and mixing, affect taste, texture and consistency.
Innovation 	An input is the action, force or information that starts a system working.	An output is the result or action produced by a system.	Gears transfer rotary movement; changing gear sizes can change the speed of the output.	Pulleys and belts transfer rotary movement between parts that can be spaced apart.
	A rotating cam can move a follower up and down; its shape changes the movement.	Programmed systems use inputs and instructions to control outputs such as lights or motors.	Efficiency means doing a job well without wasting time, energy or materials.	Reliability means working consistently over time; repeated testing helps reveal faults.
	Iteration means repeatedly designing, testing and improving a product using what each test reveals.	Refinements are small changes that improve how a design works or meets users' needs.	Optimisation means improving a product to work as effectively as possible within its constraints.	Future designs can build on evaluation, new materials, new technology and changing users' needs.
Thinking like a designer	Designers notice problems, ask questions and imagine useful solutions for people.	Designers explore materials, techniques and systems, explaining why their choices suit the purpose and user.	Designers share ideas, listen to feedback and test how well their products work.	Designers learn from each attempt, making changes that help their products work better.

Design and Technology Core Knowledge		**Test a friend by turning the core knowledge into a quiz question.**	**Colour in the core knowledge that you know.**	Step 6 (UKS2)
Purpose 	What is a specification?	What are constraints? Give three examples.	Why must designers consider both the specification and constraints?	How can a specification help us evaluate a finished product?
People 	What is a product's target market?	What does aesthetics mean in product design?	What does accessibility mean in product design?	Why can testing with different users help improve accessibility?
Materials 	What does durability tell us about a material?	What does sustainable design consider across a product's life?	What makes a resource renewable? Why does responsible use still matter?	How can reuse and repair reduce waste?
Systems 	What makes a material cost-effective? Is the cheapest material always best?	How can reinforcing joints and choosing material thickness improve a structure's strength?	How can fabric, stitching techniques, seams and fastenings affect durability and ease of use?	How can ingredient proportions and preparation techniques affect a food product? Name two techniques.
Innovation 	What is an input?	What is an output?	What movement do gears transfer? How can gear sizes affect output speed?	How can pulleys and belts transfer movement between separated parts?
	How does a cam move a follower? Why does the cam's shape matter?	How do inputs and instructions help a programmed system control its outputs?	What does efficiency mean? Name three things an efficient system avoids wasting.	What does reliability mean? Why is repeated testing useful?
	What is iteration? How does each test inform the next design?	What are refinements? What can they improve?	What does optimisation mean? Why must constraints still be considered?	What can help designers develop better products in the future?
Thinking like a designer	Designers notice problems, ask questions and imagine useful solutions for people.	Designers explore materials, techniques and systems, explaining why their choices suit the purpose and user.	Designers share ideas, listen to feedback and test how well their products work.	Designers learn from each attempt, making changes that help their products work better.