	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.	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 
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	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.	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.	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.

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	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.	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**

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.

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.

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.

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.
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.
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.
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.	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?
	What makes animals living things?	What do animals need to survive?	What is a habitat?	Do all habitats have the same animals?
Changes and Cycles  Cycles are made of changes from one stage to another.	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.
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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.

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.	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.

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.	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.	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 all light 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.	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.	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.

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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.	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.

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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.	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.
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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.	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.

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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.	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 

	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.	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.

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	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.	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.
	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.

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	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.	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.

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	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.	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.

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	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.	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.	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.
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	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.	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.

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	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.	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.
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