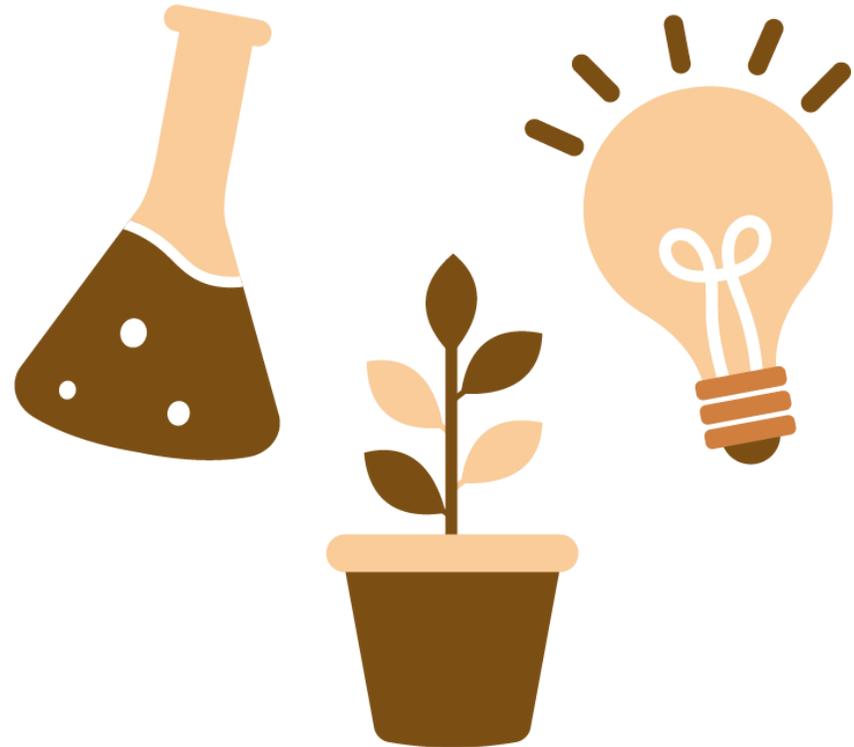


# United Curriculum

## Primary Science

Information for School Websites



**United Curriculum**  
Primary

Part of United Learning

# Principles of the Science Curriculum



The United Curriculum for science provides all pupils, regardless of their background, with:

## Substantive knowledge:

- Ensuring pupils **master** core content through the development of key concepts and **timely revisiting** of key knowledge
- Sequencing the curriculum and selecting knowledge to allow for gradual development of **vertical concepts** – the ‘big ideas’ in science – to provide firm foundations for KS3 and KS4
- **Preventing common misconceptions** that are often formed at an early age and prove problematic at the later stages of pupils’ science education
- Purposefully teaching appropriate knowledge that **goes beyond the KS1 and KS2 national curriculum**, to aid current and future understanding, and to smooth the transition to KS3
- Encouraging pupils to apply and **make connections** between the disciplines of science, the wider curriculum and the wider world

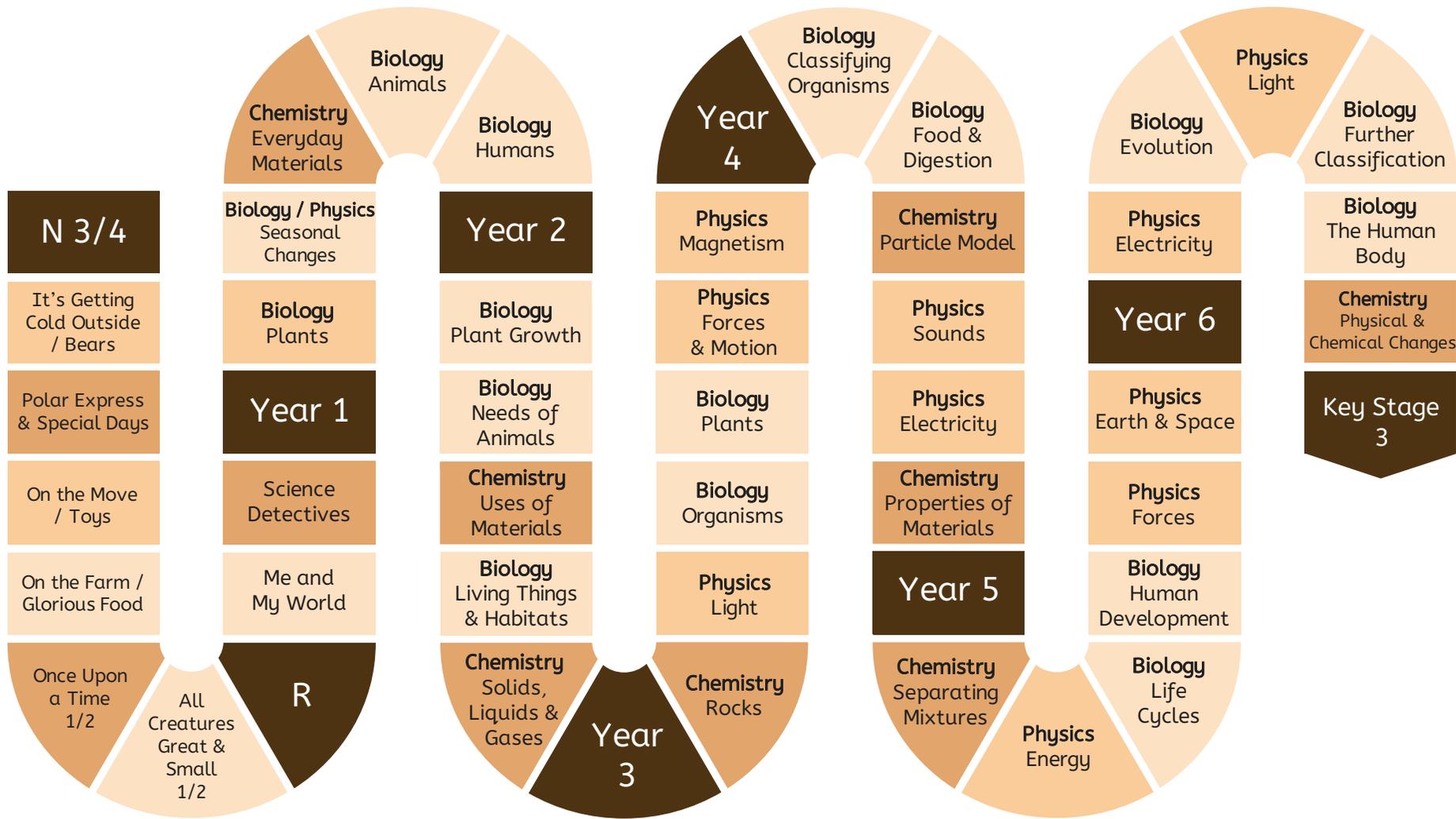
## Disciplinary knowledge:

- Sequencing Working Scientifically elements so that they are **explicitly taught** and practised alongside the substantive knowledge, and regularly reviewed and built upon across the years and key stages
- Making deliberate and **explicit links to other curriculum areas** – particularly geography and mathematics – to ensure there is a consistent approach to teaching content, and that pupils are always **first taught content in the most relevant subject**. For example, pupils are taught how to construct bar charts or calculate the mean in mathematics before they are applied in science
- Planning practical tasks that have a **clear purpose**: to demonstrate or prove substantive concepts, or to allow pupils to deliberately practice working scientifically skills in a relevant context

## Curiosity and excitement about science:

- Selecting examples and applications of science that **inspires pupils’ curiosity** about the world and natural phenomena
- Ensuring that all pupils **can see themselves reflected** in the science curriculum, by highlighting present-day role models and the contributions of scientists from a wide range of backgrounds; and considering social and cultural values around scientific ideas

# United Curriculum: Science



# United Curriculum: Science



	N3-4	Reception	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Autumn 1	<b>It's getting cold outside / Bears</b> Weather where we live, habitats where bears live		<b>BIOLOGY</b> <b>Plants</b> Identifying and naming common plants and describing basic structures	<b>BIOLOGY</b> <b>Plant growth</b> Plants grow from seeds, and require water, light and a suitable temperature	<b>CHEMISTRY</b> <b>Rocks</b> Comparisons of types of rocks and how fossils are formed	<b>BIOLOGY</b> <b>Classifying organisms</b> Introduction to classifying animals and their environment	<b>CHEMISTRY</b> <b>Separating mixtures</b> Identifying and separating mixtures; reversible and non-reversible changes	<b>PHYSICS</b> <b>Electricity</b> Investigating variations in series and parallel circuits, and how electricity is generated
Autumn 2	<b>Polar express / Special days</b> Melting and freezing; natural and artificial materials		<b>BIOLOGY / PHYSICS</b> <b>Seasonal changes</b> Observing changes across four seasons and describing associated weather	<b>BIOLOGY</b> <b>Needs of animals</b> Animals need water, food and air to survive and to have offspring	<b>PHYSICS</b> <b>Light</b> Relationship between light and how we see; the formation of shadows	<b>BIOLOGY</b> <b>Food &amp; digestion</b> The human digestive system and food relationships in ecosystems	<b>BIO / CHEM / PHYSICS</b> <b>Energy</b> Introducing the concept of energy stores and energy transfers; relate this to prior knowledge	<b>BIOLOGY</b> <b>Evolution</b> Fossils; introduction to the idea that adaptation may lead to evolution
Spring 1	<b>On the Move / Toys</b> Exploring pushes, pulls and magnets		<b>CHEMISTRY</b> <b>Everyday materials</b> Distinguishing objects from their material, and describing simple properties	<b>CHEMISTRY</b> <b>Uses of materials</b> Comparisons of an object's material with its use; impact of bending, twisting on solid objects	<b>BIOLOGY</b> <b>Organisms</b> The role of muscles and skeletons; the importance of nutrients	<b>CHEMISTRY</b> <b>Particle model and states of matter</b> States of matter in relation to particle arrangement	<b>BIOLOGY</b> <b>Life cycles</b> Life cycles of a mammal, amphibian, insect, bird, and some reproduction processes	<b>PHYSICS</b> <b>Light</b> How light travels and is reflected, and how this allows us to see
Spring 2	<b>On the Farm / Food Glorious Food</b> Life cycles of farm animals and plants	<b>Spring in our step</b> Wildlife and weather in spring and winter; habitats around our school	<b>Consolidation and review</b>	<b>BIOLOGY</b> <b>Living things &amp; habitats</b> Introduction to habitats, micro-habitats, and simple food chains	<b>BIOLOGY</b> <b>Plants</b> Features of flowering plants and what they need to survive	<b>PHYSICS</b> <b>Sounds</b> Relationship between strength of vibrations and volume of sound	<b>BIOLOGY</b> <b>Human development</b> Human development to old age	<b>BIOLOGY</b> <b>Further classification</b> Further classification of organisms based on characteristics
Summer 1	<b>Once upon a time 1 / 2</b> Properties of materials and exploring mixtures		<b>BIOLOGY</b> <b>Animals</b> Naming reptiles, fish, amphibians, birds and mammals; carnivores, herbivores, omnivores	<b>CHEMISTRY</b> <b>Solids, liquids and gases</b> How the same substances can exist as solids, liquids and gases	<b>PHYSICS</b> <b>Forces &amp; motion</b> Introducing pushes and pulls; opposing forces, and balanced forces	<b>PHYSICS</b> <b>Electricity</b> Simple series circuits	<b>PHYSICS</b> <b>Forces</b> Gravity, air and water resistance and friction; introduction to pulleys	<b>BIOLOGY</b> <b>Functions of the human body</b> Human circulatory system; transport of nutrients within the body
Summer 2	<b>All creatures great and small 1 / 2</b> Life cycles of animals in trop. rainforests, sea, and grasslands	<b>Science detectives</b> Properties of materials and habitats around the world	<b>BIOLOGY</b> <b>Humans</b> Human body parts and senses	<b>Consolidation and review</b>	<b>PHYSICS</b> <b>Magnetism</b> Contact and non-contact forces, including friction and magnetism	<b>CHEMISTRY</b> <b>Properties of materials</b> Considering physical and chemical properties	<b>PHYSICS</b> <b>Earth and space</b> Movements of planets and the Moon, and relationship to day and night	<b>CHEMISTRY</b> <b>Physical and chemical changes</b> Identifying physical and chemical changes