

CUSP SCIENCE Handbook

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MIXED AGE SEQUENCE
PROGRESSION AND SEQUENCE TABLES

September 2023

Written and updated by Alex Bedford

PROGRESSION AND SEQUENCE

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Study module by study module from Year 1 – Year 6
Includes Tier 2 and Tier 3 vocabulary reference

PURPOSE


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REFERENCE: teachers can clearly see the cumulative nature of the curriculum model as well as a quick point of reference to connect prior learning.

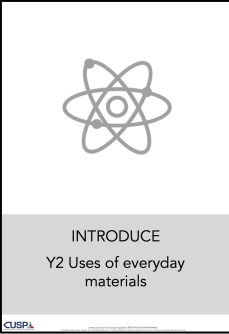
QUALITY ASSURANCE: subject leaders know the substantive concepts, knowledge and vocabulary that pupils should remember and use when running Pupil Book Study.

KS1	Autumn	Spring	Summer
Cycle 1 2023 – 2024 (Year 2)	Living things and their habitats Animals, including humans	Uses of everyday materials Revisit Living things and their habitats / materials	Plants Revisit Living things and their habitats / Animals, including humans
Cycle 2 2024 – 2025 (Year 1)	Seasonal changes and daily weather Introduce Plants – (trees) Animals, including humans	Everyday materials Revisit 1: Animals, including humans	Plants Revisit 2: Plants, Animals including humans
LKS2			
Cycle 1 2023 – 2024 (Year 4)	Living things and their habitats States of matter	Animals, including humans	Electricity Sound
Cycle 2 2024 – 2025 (Year 3)	Rocks Animals, including humans Revisit Rocks	Forces and magnets Plants	Plants continued... Light
UKS2			
Cycle 1 2023 – 2024 (Year 6)	Electricity Animals including humans (circulatory system)	Animals including humans (water transport) Light	Living things and their habitats Evolution and inheritance
Cycle 2 2024 – 2025 (Year 5)	Properties and changes of materials Animals, including humans	Forces (Gravity and Galileo) Earth in space	Living things and their habitats Forces continued


CUSP Science Progression Tables – Keeley Alborough and Alex Bedford

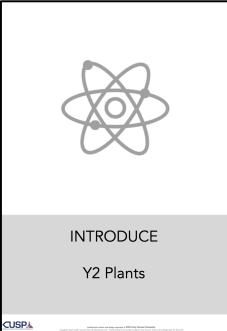
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y2 Living things and their habitats </p>  <p>INTRODUCE Y2 Living things and their habitats</p> <p>CUSPA</p>	<p>Biology The study of living things, including</p> <p>Characteristics of living things</p> <p>Relationship of living things and their environment.</p>	<p>EYFS – Natural Word</p> <p>Y1 Plants</p> <p>Y1 Animals including humans</p> <p>Y1 Revisit Animals, including humans</p> <p>Y1 Second revisit of Animals, including human and plants</p>	<p>Characteristics of living things What is alive and what is not? What do all living things have in common?</p> <p>Location of living things Where do plants and animals live? What plants and animals live in our local environment?</p> <p>How living things are connected What are food chains? How are they connected? Why do plants and animals need each other?</p>	<p>thrive depend producer consume prey predator</p>	<p>oxygen nutrition respiration sensitivity reproduction excretion</p>

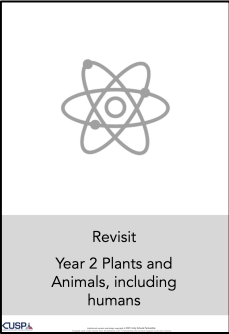
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y2 Animals, including humans</p>  <p>INTRODUCE Y2 Animals, including humans</p> <p>CUSPA</p>	<p>Biology</p> <p> </p> <p>The study of living things, including</p> <p>Reproduction</p> <p>Basic needs</p> <p>Diet and exercise for humans</p> <p>.</p>	<p>EYFS – Natural Word</p> <p>Y1 Plants</p> <p>Y1 Animals including humans</p> <p>Y1 Revisit Animals, including humans</p> <p>Y1 Second revisit of Animals, including human and plants</p>	<p>Animals and change REMEMBER: what is an animal?</p> <p>How do animals change as they mature?</p> <p>Air, water and food How do we change as we mature?</p> <p>What do all animals need to stay alive?</p> <p>Health and food Keeping healthy: why do we exercise?</p> <p>Keeping healthy: why do we eat different types of food?</p>	<p>healthy</p> <p>survive</p> <p>exercise</p> <p>heart</p> <p>lungs</p> <p>muscles</p>	<p>hygiene</p> <p>larva</p> <p>pupa</p> <p>vertebrates</p> <p>invertebrates</p> <p>metamorphosis</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y2 Use of everyday materials </p>  <p>CUSPA</p>	<p>Chemistry* the study of the composition, behaviour and properties of matter</p>	<p>EYFS Natural world Y1 Everyday materials</p>	<p>Materials What are materials used for? Categorise and compare wood, metal, plastic and glass.</p> <p>What are materials used for? Categorise and compare ceramics, rock, paper and card, and fabric.</p> <p>Changes What happens when we squash, bend, twist or stretch a material?</p> <p>Purpose What's the right material for the job?</p> <p>What's the most absorbent material?</p> <p>Who invented waterproofing?</p>	<p>artificial brittle extracted fabric manufactured natural</p>	<p>ceramic durable inflexible reflective rigid translucent</p>


*Adapted from BBC Bitesize

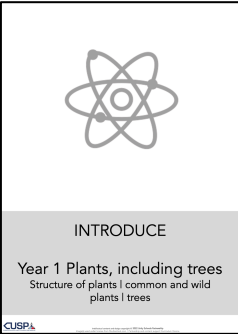
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y2 Revisit Living things and their habitats Use of everyday materials </p>  <p>REVISIT Year 2 Living things and their habitats Everyday materials</p>	<p>Biology The study of living things, including</p> <p>Characteristics of living things</p> <p>Relationship of living things and their environment</p> <p>Chemistry* the study of the composition, behaviour properties of matter</p>	<p>Y1 Animals, including humans</p> <p>Y1 Plants</p> <p>Y2 Living things and their habitats</p> <p>Y2 Uses of everyday materials</p>	<p>Materials What is it made from?</p> <p>Characteristics of living things Compare: what is alive, what is not alive and what has never been alive?</p> <p>Apply it What materials do our pets have or need? Why is that?</p>	<p>artificial brittle extracted fabric manufactured natural</p>	<p>ceramic durable inflexible reflective rigid translucent</p>
				<p>thrive depend producer consume prey predator</p>	<p>oxygen nutrition respiration sensitivity reproduction excretion</p>

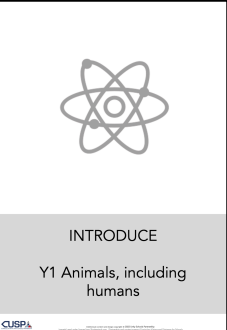
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y2 Plants I</p> 	<p>Biology The study of living things, including</p> <p>Growth Health</p> <p>Relationship of living things and their environment</p>	<p>EYFS – Natural Word</p> <p>Y1 Plants</p> <p>Y1 Animals, including humans</p> <p>Y2 Living things and their habitats</p>	<p>Growing from a seed How do seeds germinate and what happens?</p> <p>Growing from a bulb What happens when bulbs sprout?</p> <p>Healthy plants What do plants need to thrive and be healthy?</p> <p>What can happen if plants don't get the things they need?</p> <p>What do I notice about plants around the school? How are they healthy? How are they unhealthy?</p> <p>Show what you know How do seeds and bulbs grow?</p> <p>What do plants need to be healthy?</p>	<p>wither dormant mature bulb anchor sustain</p>	<p>germination perennial carbon dioxide glucose clone</p>

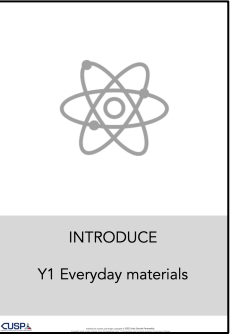
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y2 REVISIT Plants, and Animals, including humans</p> 	<p>Biology</p> <p> </p> <p>The study of living things, including</p> <p>Growth</p> <p>Health</p> <p>Relationship of living things and their environment</p> <p>Reproduction</p> <p>Basic needs</p> <p>Diet and exercise for humans</p>	<p>EYFS – Natural Word</p> <p>Y1 Plants</p> <p>Y1 Animals, including humans</p> <p>Y2 Animals, including humans</p> <p>Y2 Living things and their habitats</p> <p>Y2 Revisit Living things and their habitats</p>	<p>EXPLAIN-IT How do seeds and bulbs grow?</p> <p>SUMMARISE-IT What do I know about animals, including humans?</p> <p>INTERLEAVING and EXPLAIN-IT What do plants need to thrive and be healthy?</p>	<p>wither</p> <p>dormant</p> <p>mature</p> <p>bulb</p> <p>anchor</p> <p>sustain</p> <hr/> <p>healthy</p> <p>survive</p> <p>exercise</p> <p>heart</p> <p>lungs</p> <p>muscles</p>	<p>germination</p> <p>perennial</p> <p>carbon dioxide</p> <p>glucose</p> <p>clone</p> <hr/> <p>hygiene</p> <p>larva</p> <p>pupa</p> <p>vertebrates</p> <p>invertebrates</p> <p>metamorphosis</p>

KS1 Science Cycle 2 (Year 1 Content)

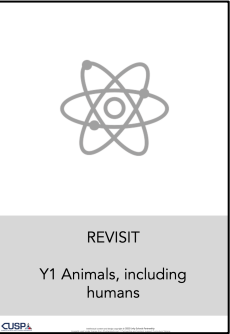
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 Seasons and weather Day and night </p>  <p>INTRODUCE Y1 Changes Seasons and weather Day and night</p> <p>CUSPA</p>	<p>Physics* The study of energy forces mechanics waves structure of atoms physical universe Earth in Space</p> <p>*Adapted from BBC Bitesize</p>	<p>Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. Explore the natural world around them, making observations and drawing pictures of animals and plants. Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter.</p>	<p>Seasons and weather What are the four seasons? What's the weather like in Autumn, Winter, Spring and Summer? Day to night Why does day become night?</p>	<p>dawn dusk mild rotate soaked weather</p>	<p>month season spring summer autumn winter</p>


Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 Plants, including trees </p> 	<p>Biology The study of living things, including</p> <p>Common plants and trees in a local environment</p>	<p>Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. Explore the natural world around them, making observations and drawing pictures of animals and plants. Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter.</p>	<p>Structure of plants What are the parts of a plant?</p> <p>Wild and common plants What are wild plants and where do you find them? What are garden plants and where do you find them?</p> <p>Trees What makes a tree? What types of tree are there? (Trees that live around my school) What's the difference between trees?</p>	<p>bud trunk branch bark seed wild</p>	<p>nutrients stem deciduous evergreen</p>

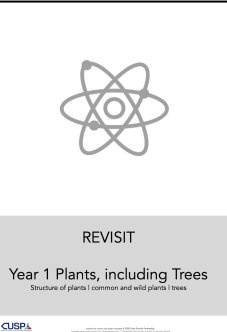
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 Animals, including humans </p> 	<p>Biology The study of living things, including</p> <p>Types of animals Food animals eat Senses</p>	<p>Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. Explore the natural world around them, making observations and drawing pictures of animals and plants. Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter.</p>	<p>Animals What is an animal? What types of animals are there? What is similar and what is different?</p> <p>Eating What does food tell us about an animal?</p> <p>Senses What makes me an animal? What senses do I have?</p>	<p>blood senses young feathers fur scales</p>	<p>mammal amphibian reptile herbivore carnivore omnivore</p>

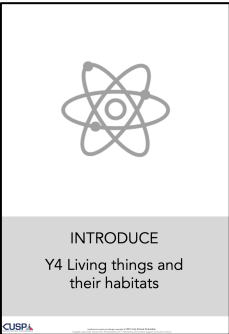
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 Everyday materials </p> 	<p>Chemistry* the study of the composition, behaviour and properties of matter</p>	<p>Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>The Natural World Explore the natural world around them, making observations and drawing pictures of animals and plants. Explore the natural world around them, making observations and drawing pictures of animals and plants. Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter.</p>	<p>Materials What are materials? What are things made of in school?</p> <p>Properties How can I describe materials? Which materials are waterproof and which are not? Which materials are transparent and which are opaque?</p> <p>Use what you know What's the best material for the job? Why?</p>	<p>absorb rough smooth waterproof metal plastic</p>	<p>materials properties flexible transparent opaque physical</p>

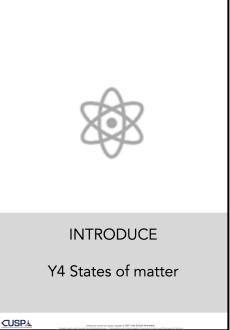
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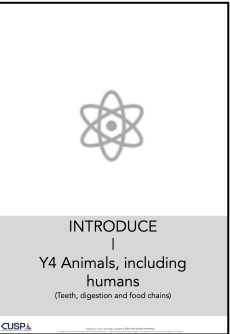
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 REVISIT Animals, including humans </p> 	<p>Biology The study of living things, including</p> <p>Types of animals Food animals eat Senses we have</p>	<p>Y1 Animals including humans</p>	<p>Revisit and name it What features do animals have? Use the cues and single words in knowledge note to focus on vocabulary. Consolidate by talking and writing sentences on the page next to the knowledge note.</p> <p>Describe it Retrieve and complete labels on the knowledge organiser. What are the features of the animal group? Go further by writing sentences or drawing diagrams on the page next to it.</p> <p>Describe it Continue to describe the features of each animal group. Go further by writing sentences / draw diagrams on the page next to it.</p> <p>Sort it Compare animal groups – what do you notice is similar and what is different? Go further by writing sentences / draw diagrams on the page next to it.</p>	<p>blood senses young feathers fur scales</p>	<p>mammal amphibian reptile herbivore carnivore omnivore</p>

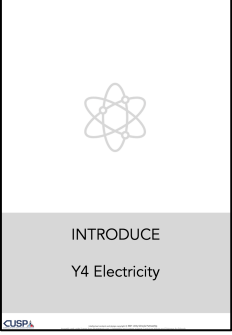
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 SECOND REVISIT Plants and Animals, including humans </p>  <p>Second Revisit Year 1 Plants and Animals, including humans</p>	<p>Biology The study of living things, including</p> <p>Types of animals Food animals eat Senses we have</p> <p>Common plants and trees in a local environment</p>	<p>Y1 Animals including humans</p>	<p>Remember it Animals, including humans</p> <p>Elaborate it Animals, including humans</p>	<p>blood senses young feathers fur scales</p>	<p>mammal amphibian reptile herbivore carnivore omnivore</p>
		<p>Y1 Plants</p>	<p>Remember it Plants</p>	<p>bud trunk branch bark seed wild</p>	<p>nutrients stem deciduous evergreen</p>

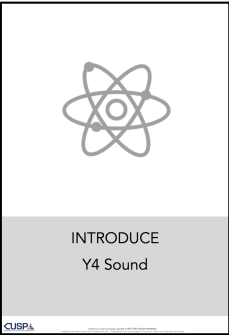
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y1 REVISIT Plants, including trees MODULAR SEQUENCE</p> 	<p>Biology The study of living things, including</p> <p>Common plants and trees in a local environment</p>	<p>Managing Self Manage their own basic hygiene and personal needs, including dressing, going to the toilet, and understanding the importance of healthy food choices.</p> <p>The Natural World</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Explore the natural world around them, making observations and drawing pictures of animals and plants.</p> <p>Understanding some important processes and changes in the natural world around them, including seasons and changing states of matter.</p>	<p>Structure of plants What are the parts of a plant?</p> <p>Wild and common plants What are wild plants and where do you find them?</p> <p>What are garden plants and where do you find them?</p> <p>Trees What makes a tree?</p> <p>What types of tree are there? (Trees that live around my school).</p> <p>What's the difference between trees?</p>	<p>bud trunk branch bark seed wild</p>	<p>nutrients stem deciduous evergreen</p>


Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y4 Living things and their habitats I</p>  <p>INTRODUCE Y4 Living things and their habitats</p> <p><small>CUSPA</small></p>	<p>Biology The study of living things, including</p> <p>Grouping</p> <p>Classification</p> <p>Environmental change and impact</p>	<p>Y1 Plants</p> <p>Y1 Animals, including humans</p> <p>Y2 Living things and their habitats</p> <p>Y2 Plants</p> <p>Y3 Plants</p>	<p>Living things What are the characteristics of living things?</p> <p>Vertebrates and invertebrates What animals are vertebrates?</p> <p>What animals are invertebrates?</p> <p>Plants What groups are plants classified in?</p> <p>Classification keys What is classification? How do I use a key?</p> <p>Environmental changes What happens if the environment in a habitat changes?</p>	<p>classification environment interdependence interact beneficial hierarchy</p>	<p>vertebrate invertebrate biotic ecosystem species niche</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y4 States of matter I</p> 	<p>Chemistry* the study of the composition, behaviour and properties of matter</p>	<p>Y1 Everyday materials Y2 Use of everyday materials Y3 Forces and magnets</p>	<p>What is matter? What does 'state' mean?</p> <p>What are solids, liquids and gases?</p> <p>Melting: how do materials change state?</p> <p>Evaporating: how do materials change state?</p> <p>Condensing: how do materials change state?</p> <p>Summary: how do materials change their state of matter?</p>	<p>permanent particle solid liquid gas vapour</p>	<p>evaporate condense melt matter state volume</p>


Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y4 Animals, including humans</p> <p> </p> 	<p>Biology</p> <p> </p> <p>The study of living things, including</p> <p>Structure of digestive system</p> <p>Function of digestive system</p> <p>Relationship food chains</p>	<p>Y1 Plants</p> <p>Y1 Animals, including humans</p> <p>Y2 Living things and their habitats</p> <p>Y2 Plants</p> <p>Y3 Plants</p> <p>Y4 Living things and their habitats</p>	<p>Teeth and eating What teeth do humans have? What do they do?</p> <p>How does our mouth and teeth help digestion? What's the process?</p> <p>Can teeth tell us what animals eat?</p> <p>The digestive system What are the parts of the digestive system? What do they do?</p> <p>How does digestion work? What's the process?</p> <p>Food chains What are food chains How do they work?</p> <p>How do I construct and interpret a food chain?</p> <p>SUMMARY How are teeth, digestion and food chains connected?</p>	<p>expel compact digestion acid stomach intestines</p>	<p>incisor canine molar enzyme saliva peristalsis</p>

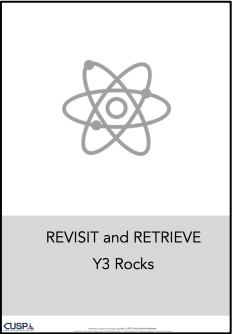
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<p style="text-align: center;">Y4 Electricity </p> 	<p>Physics* The study of energy forces mechanics waves structure of atoms physical universe Earth in Space</p>	<p>Y1 Seasonal changes Y1 Everyday materials Y2 Uses of everyday materials Y3 Forces and magnets</p>	<p>Sources of electricity What appliances use electricity? What sort of power makes them work?</p> <p>Components Name it - what are the components in a simple series circuit?</p> <p>Apply what you know Diagnose it – what are the effects of changing circuit components and batteries?</p>	<p>associate identify portable effect appliance series</p>	<p>component electrical insulator electrical conductor circuit hypothesis variable</p>

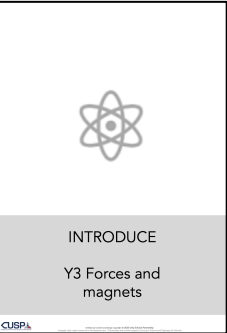
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y4 Sound </p> 	<p>Physics* The study of energy forces mechanics waves structure of atoms physical universe Earth in Space</p>	<p>Y1 Seasonal changes Y1 Everyday materials Y2 Uses of everyday materials Y3 Forces and magnets Y4 Electricity</p>	<p>Properties What is sound?</p> <p>Movement How does sound travel?</p> <p>Pitch and loudness What is the pitch and loudness of sound?</p>	<p>produce property source frequent regular affect</p>	<p>vibrate pitch volume medium vacuum sound wave</p>

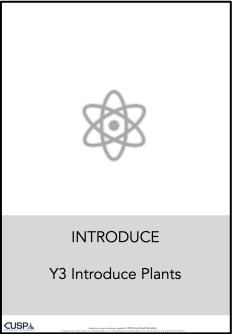
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y3 Rocks I</p> 	<p>Chemistry* the study of the composition, behaviour and properties of matter</p>	<p>Y1 Everyday materials Y2 Use of everyday materials</p>	<p>Types How are rocks formed? What types of rocks are there?</p> <p>Change Can rocks change? How can we test a rock to see if it is limestone or chalk?</p> <p>Soil Is soil just dirt? What makes soil?</p> <p>Fossils How are fossils formed? Elaborate and remember rocks, soils and fossils.</p>	<p>cemented compacted decay prehistoric soil transform</p>	<p>fossil igneous magma metamorphic minerals sedimentary</p>

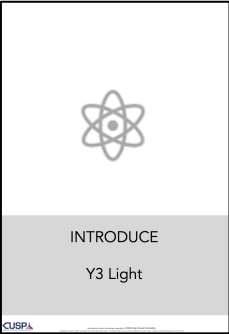
*Adapted from BBC Bitesize

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y3 Animals, including humans </p>  <p>INTRODUCE Y3 Animals, including humans</p>	<p>Biology The study of living things, including</p> <p>Amount and type of nutrition</p> <p>Structure of humans and animals</p>	<p>EYFS Natural world</p> <p>Y1 Animals, including humans</p> <p>Y2 Animals, including humans</p> <p>Y2 Living things and their habitats</p>	<p>Food What effect does the food we eat have?</p> <p>Skeleton Where is my skeleton and what does it do?</p> <p>Muscle Where are my muscles and what do they do?</p>	<p>minerals skeleton skull voluntary involuntary nerves</p>	<p>biceps triceps vertebrae vitamins proteins carbohydrates</p>


Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y3 Revisit rocks I</p> 	<p>Chemistry* the study of the composition, behaviour and properties of matter</p> <p>*Adapted from BBC Bitesize</p>	<p>Y1 Everyday materials Y2 Use of everyday materials</p>	<p>Types How are rocks formed and what types are there?</p> <p>Change Remember: how can rocks change?</p> <p>Fossils Remember: how are fossils formed and how do we know?</p>	<p>cemented compacted decay prehistoric soil transform</p>	<p>fossil igneous magma metamorphic minerals sedimentary</p>

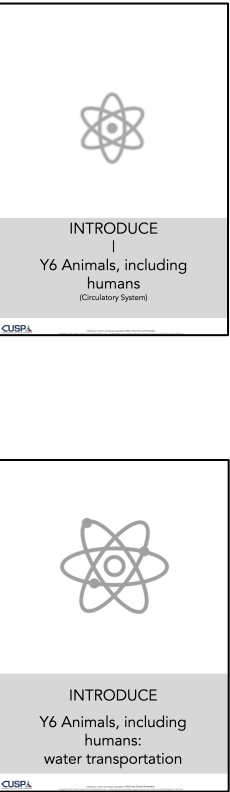
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y3 Forces and Magnets</p> 	<p>Physics*</p> <p> </p> <p>The study of energy forces</p> <p>mechanics</p> <p>waves</p> <p>structure of atoms</p> <p>physical universe</p> <p> </p> <p>Earth in Space</p>	<p>Y1 Seasonal changes</p> <p>Y1 Everyday materials</p> <p>Y2 Uses of everyday materials</p>	<p>Contact force and friction</p> <p>What are contact forces?</p> <p>How do surfaces affect the motion of an object?</p> <p>How does friction affect moving objects?</p> <p>Non-contact force</p> <p>What is a non-contact force?</p> <p>How is this different to a contact force?</p> <p>Magnetic force</p> <p>How do magnets attract and repel?</p> <p>Which materials are magnetic? Forces and magnetism summary.</p>	<p>consequence</p> <p>contact</p> <p>force</p> <p>attract</p> <p>north</p> <p>south</p>	<p>magnet</p> <p>resistance</p> <p>friction</p> <p>repel</p> <p>pole</p> <p>magnetic field</p>

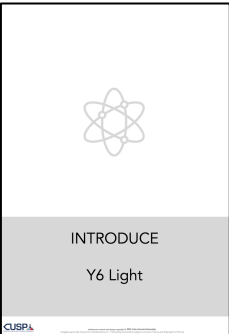
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y3 Plants I</p> 	<p>Biology The study of living things, including</p> <p>Structure and function</p> <p>Food and survival</p> <p>Life systems</p> <p>Reproduction</p>	<p>Y1 Plants</p> <p>Y1 Animals, including humans</p> <p>Y2 Living things and their habitats</p> <p>Y2 Plants</p>	<p>Flowering plants What are the parts of a flowering plant? What do they do?</p> <p>Food and survival Do all plants need the same things to thrive and grow?</p> <p>How do leaves make food for the plant?</p> <p>How does water move through a plant?</p> <p>Flower function What do flowers do?</p> <p>What is pollination?</p>	<p>adapt essential glucose transport variety vital</p>	<p>transpiration stoma pollination stamen pistil photosynthesis</p>

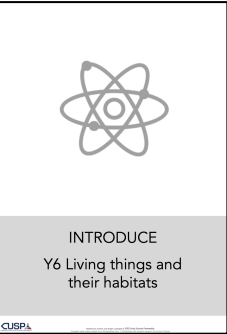
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y3 Light </p> 	<p>Physics* The study of energy forces mechanics waves structure of atoms physical universe Earth in Space</p>	<p>Y1 Seasonal changes Y1 Everyday materials Y2 Uses of everyday materials Y3 Forces and magnets</p>	<p>Seeing Do we need light to see things?</p> <p>Shadows How are shadows formed?</p> <p>Changing variables What happens to the size of a shadow when the object moves closer to, or away from, the light source?</p>	<p>absence cast (shadow) impenetrable reflect shadow source (light)</p>	<p>constant dependent independent illuminate translucent variable</p>

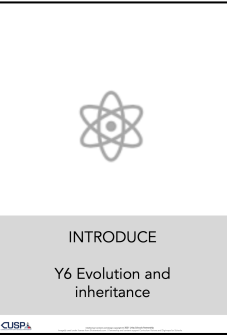
UKS2 Science Cycle 1 (Year 6 Content)


Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y6 Electricity I</p>  <p>INTRODUCE Y6 Electricity</p>	<p>Physics Matter Forces and motion Sound, light and waves Electricity and magnetism</p>	<p>Y1 Everyday materials (chem) Y2 Uses of everyday materials (chem) Y3 Light Y4 States of matter Y4 Sound Y4 Electricity Y5 Forces Y5 Earth in Space</p>	<p><u>Do-it</u> What is electricity? How does it work? How do we build and represent a series circuit? What are the components in a series circuit?</p> <p><u>Test-it</u> How does the number of cells and voltage affect components in a circuit?</p> <p><u>Diagnose-it</u> What are the effects and consequences of changing circuit components and batteries?</p>	<p>Component Consequence Systematic Represent Source Generate</p>	<p>Proton Neutron Electron Terminal Series Voltage</p>

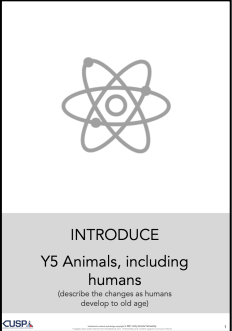
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y6 Introduce animals, including humans</p> 	<p>Biology The study of living things</p> <p>Structure and function of the circulatory system Health and exercise</p>	<p>Y1 Animals, including humans identify animals – mammal, reptile, bird, amphibian, fish</p> <p>Y2 Animals, including humans Reproduction and basic needs</p> <p>Y3 Animals, including humans Nutrition Structure of humans and animals</p> <p>Y4 Animals, including humans Human digestion</p> <p>Y5 Animals, including humans Lifespans and life cycles, growth and change</p>	<p>Blood and blood vessels What is blood made of and why do we need it? Why do our bodies need nutrients and how are they transported? What is our circulatory system?</p> <p>The functions of the heart What is our heart like inside? How does it work? Who influenced what we know about our circulatory system?</p> <p>The effect of exercise, drugs and lifestyle What can we do to keep healthy? Present and explain what we know about the circulatory system, nutrients and keeping healthy.</p> <p>Digestion and circulation Remember circulation and digestion: how are these two systems connected?</p> <p>Removal of waste Where are the kidneys and what do they do?</p> <p>Keeping healthy How do kidneys keep us healthy?</p>	<p>Cell Chamber System Circulation Vessel Clot Filter Expel Substance Function Regulate Transform</p>	<p>Plasma Platelet Artery Capillary Vein Ventricle Kidney Bladder Urine Excretion Toxin Nutrient</p>

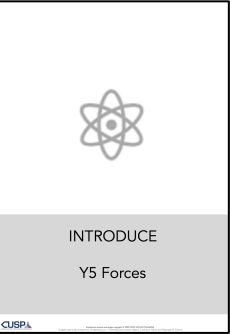
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y6 Light </p> 	<p>Physics Matter</p> <p>Forces and motion Sound, light and waves Electricity and magnetism Earth in Space</p>	<p>Y1 Everyday materials</p> <p>Y2 Uses of everyday materials</p> <p>Y3 Light</p> <p>Y4 States of matter</p> <p>Y4 Sound</p> <p>Y4 Electricity</p> <p>Y5 Forces</p> <p>Y5 Earth in Space</p>	<p>Properties of light How does light travel? What colour is light made of?</p> <p>Reflection Reflection - how does light help us to see objects? Which surfaces make the best reflectors?</p> <p>Colour Why do we see objects as a particular colour?</p> <p>Refraction What happens to the appearance of objects when placed in water?</p>	<p>Impurity Emit Absorb Constituent Filter Artificial</p>	<p>Refraction Incidence Spectrum Prism Lux Piment</p>

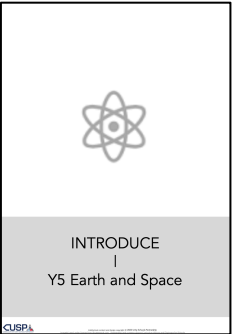
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y6 Living things and their habitats I</p> 	<p><u>Biology</u> I The study of living things, including</p> <p>Pioneering scientists Classification</p>	<p>Y1 Plants</p> <p>Y2 Plants</p> <p>Y3 Plants</p> <p>Y3 Living things and their habitats</p> <p>Year 4 Living things and their habitats</p> <p>Y5 Living thing and their habitats</p>	<p><u>Pioneering scientists</u> Who was the scientist Carl Linnaeus and what did he do?</p> <p><u>Classification</u> How do we classify vertebrates? How do we classify invertebrates we know? How do we classify invertebrates we don't know? How do we classify invertebrates we don't know?</p> <p><u>Apply</u> What animals can I classify? What animals and plants exist in my local environment?</p>	<p>Characteristic Interdependence Specific Categorise Primitive Hierarchy</p>	<p>Fungus Arthropod Taxonomy Kingdom Phylum Genus</p>

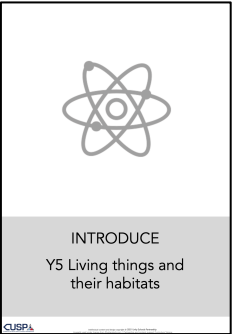
Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y6 Evolution and Inheritance </p> 	<p>Biology The study of living things</p> <p>Change Evolution Adaption Environment</p>	<p>Y3 Plants</p> <p>Y4 Living things and their habitats</p> <p>Y5 Living things and their habitats</p> <p>Y6 Living things and their habitats</p>	<p><u>Change over time</u> How have living things changed over time? How do we know? How has life evolved over time?</p> <p><u>Biological change</u> What is DNA and what does it do? Are all offspring identical to their parents?</p> <p><u>Theories of evolution</u> Darwin and Wallace – what evidence did they share to argue the case for evolution? Survival of the fittest - how have animals adapted and evolved to suit their environment?</p>	<p>Characteristic Adaptation Acquire Theory Modify Generation</p>	<p>Evolve Survival Species Clone Inherit Fossil</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y5 Properties and changes of materials</p>  <p>INTRODUCE Y5 Properties and changes of materials</p>	<p>Chemistry* the study of the composition, behaviour properties of matter</p>	<p>Y1 Everyday materials Y2 Uses of everyday materials Y3 Rocks Y3 Light Y4 States of matter</p>	<p>Properties, mixtures and solutions What properties do materials have? How do we use them? What is a mixture? What is a solution? (Solubility) Separation of materials How can we separate materials from a mixture? (Sieving and filtration) How can we separate materials from a solution? (Evaporation) Reversible and irreversible change What changes are reversible? What changes are irreversible?</p>	<p>property particle separate combine recover comparative</p>	<p>atom molecule chemical (changes) physical (changes) reversible reaction</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y5 Animals, including humans</p> <p> </p> 	<p>Biology</p> <p> </p> <p>The study of living things</p> <p>Lifespan and life cycle</p> <p>Change and growth</p>	<p>Y1 Animals, including humans</p> <p>Y2 Animals, including humans</p> <p>Y3 Animals, including humans</p> <p>Y4 Animals, including humans</p>	<p>Life What is the human timeline?</p> <p>Growth How do we change into adults?</p> <p>Compare How do human and animal lifespans compare?</p>	<p>development</p> <p>diverse</p> <p>unique</p> <p>generation</p> <p>mature</p> <p>equipped</p>	<p>adolescence</p> <p>puberty</p> <p>gestation</p> <p>embryo</p> <p>foetus</p> <p>womb</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y5 Forces I</p> 	<p>Physics Matter Forces and motion Sound, light and waves Electricity and magnetism Earth in Space</p>	<p>Y3 Forces and magnetism Y3 Light Y4 States of matter Y4 Electricity Y4 Sound</p>	<p>Non-contact and contact forces Remember gravity. When is friction helpful and when is it not?</p> <p>Resistance What is the effect of air resistance? Air resistance investigation</p> <p>Inspirational scientist Who was Galileo Galilei?</p> <p>Resistance What's the effect of water resistance?</p> <p>Levers, pulleys and gears How do levers help us? How do pulleys and gears help us?</p>	<p>opposite reaction advantage displace weight mass</p>	<p>pulley gear pivot fulcrum lever upthrust</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y5 Earth and Space </p> 	<p>Physics Matter Forces and motion Sound, light and waves Electricity and magnetism Earth in Space</p>	<p>Y3 Forces and magnetism Y3 Light Y4 States of matter Y4 Electricity Y4 Sound Y5 Forces</p>	<p>Position, relationship / movement of planets / spherical bodies. What are the planets in our solar system? (Planet comparison) How does the view of the Moon change in a solar month? (Moon phases, moon diaries) The effect of the Earth's rotation, tilt and orbit has on day, night and seasons. Why does the rotation of the Earth result in day and night? Why is the Earth's tilt (axis) responsible for the seasons?</p>	<p>luminous phenomenon attraction approximately relative apparent</p>	<p>orbit axis crescent gravitational waxing waning</p>

Year group, Unit Title and Name	Substantive concept	Previous Learning	Big Ideas/Key Questions/Learning Foci	Tier 2 Vocabulary	Tier 3 Vocabulary
<p>Y5 Living things and their habitats </p> 	<p>Biology The study of living things, including</p> <p>Structure Order Life cycles Reproduction</p>	<p>Y1 Plants</p> <p>Y2 Plants</p> <p>Y3 Plants</p> <p>Y3 Living things and their habitats</p> <p>Year 4 Living things and their habitats</p>	<p>Mrs GREN – Recap of life processes</p> <p><u>Life Cycles</u> What’s the difference between a mammal and amphibian?</p> <p>What’s the difference between an insect and a bird?</p> <p>What is similar and what is different between the life cycle of a mammal, amphibian, insect and bird?</p> <p><u>Inspirational scientists</u> Who was Maria Merion and what did she do?</p> <p><u>Reproduction</u> How do living things reproduce?</p> <p>Plants and animals – what’s the life process of reproduction.</p>	<p>deduce process re-form transform adolescence contrast</p>	<p>embryo sexual metamorphosis incubate biochemical fertilisation</p>