

Term	Autumn 1 (Biology)	
Year R	Asking and answering questions and vocabulary	
Concept	Investigating and exploring	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> • Children need knowledge of new vocabulary. • Children need to know how to explore. • Children need knowledge of the natural world around them to be able to name things like “I can see a tree, acorn, plant, bee, butterfly, spider, squirrel, etc” • Children need to know what the same and different mean. • Children need to know how to find two things which are the same and or different. • Children need to know where their main body parts are. (head, arms, legs, hands and feet) • Children need to know what they use their eyes, ears and nose for. • Children need to know that they grow into adulthood. • Children need to know what the weather is like each day (ongoing – part of daily routines, recording day and weather) 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> • Children will learn to hold conversation when engaged in back-and-forth exchanges with their teacher and peers. • Children will learn how to respond and make comments about what they have heard (or seen) and ask questions to find out what something is. • Children will learn how to use their sense of hearing to discriminate between simple obvious sounds.
Vocabulary		
Year 1	Identifying and naming, vocabulary, asking and answering questions	
Concept	Investigating and exploring	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> • Children need to know what plants are. • Children need to know the difference between wild and garden plants. • Children need to know the names of some common wild and garden plants in order to identify them. • Children need to know what deciduous and evergreen trees are and know the names of some. • Children need to know the names of the basic parts of flowering plants and trees (e.g. stem, petals, roots, leaves, crown, branches and trunk). • Children need to know what fish, amphibians, reptiles, birds and mammals are. • Children need to recognise and name some common fish, amphibians, reptiles, birds and mammals. • Children need to know what observing means. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> • Children will begin to ask simple questions and answer them by using simple equipment to observe closely. • Children will learn to use a magnifying glass to observe more closely.
Vocabulary		
Year 2	Identifying, naming and describing, asking and answering questions	
Concept	Comparing and contrasting/classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> • Children need knowledge of the basic needs, structure and classification of animals and humans, plants and trees. (revisiting from year 1) • Children need to know the main differences between birds, fish, amphibians, reptiles, mammals and invertebrates. (revisiting from year 1) • Children need to know the similarities and differences between carnivores, herbivores and omnivores and know how to show their reasoning. (revisiting from year 1) • Children need to know the main differences between adult animals and humans and their offspring. • Children need to know the similarities and differences between parents and their children. • Children need to know what living, dead and never been alive mean. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> • Children need to practise observing closely, using simple equipment. (revisiting from year 1) • Children need to practise identifying and classifying, and learn ways to sort and organise data. (revisiting from year 1) • Children need to practise gathering and recording data, in order to answer questions.
Vocabulary		

Term	Autumn 2 (Chemistry and Physics)	
Year R	Identifying, naming and describing, asking and answering questions, vocabulary	
Concept	Comparing and contrasting	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know some important processes and changes in the natural world around them, including the seasons (noticing that trees lose their leaves in Autumn and the Oak tree drops acorns. (ongoing) Children need to know that Autumn is part of the year and that some children were born in Autumn etc. Children need knowledge of what hibernation and nocturnal mean. Children need to know how to plan a simple project and talk about what they may need and what they need to do (I am going to play in the sand because I want to make a sandcastle) Children need knowledge of different ways to do things. Children need to have knowledge of different environments (the class, immediate area and nature trail) Children need knowledge of patterns in the environment (tree, leaf, brick, tyre rubbings) to be able to talk about them and recognise them in other things Children need to know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences (by playing with a farm, garage, train set) and what has been read in class; Children need to know about changing states of matter (what happens if the sand/mud is wet or dry – texture, exploring these natural materials and observing how they can be changed. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn how to ask questions to find out about something. Children will learn how to use a pulley and water pump to explore forces and structures.
Vocabulary		
Year 1	Identifying, naming and describing, asking and answering questions, scientific equipment vocabulary	
Concept	Comparing and contrasting	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know what a season is. Children need to know that in the United Kingdom we experience four seasons (spring, summer, autumn and winter). Children need to know some of the key features associated with each season, such as weather and how day length changes. Children need to know a range of everyday materials (wood, metal, glass, plastic, water and rock). (revisiting from Year R) Children need to know that a material can be used to make multiple different items. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will practise identifying different materials and will learn how to distinguish between an object and the material it is made from. Children will practise using their observations to suggest answers to questions.
Vocabulary		
Year 2	Asking and answering questions, scientific equipment, measurements and data, predicting and testing, summarising and concluding	
Concept	Investigating and exploring/ classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need knowledge that there are many different materials (revisiting from year 1). Children need to know that materials have different desirable and measureable qualities and are therefore best suited to different purposes. (revisiting from year 1) Children need knowledge of how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn to predict what they think the outcome of a test will be. Children will learn to draw conclusions about certain things, meaning that they can suggest answers to their initial questions.
Vocabulary		

Term	Spring 1 (Biology)	
Year R	Asking and answering questions, scientific equipment, sources of evidence, identifying, naming and describing, vocabulary	
Concept	Classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know that Winter is part of the year and that some children were born in Winter etc. Children need to know what the sense taste means. Children need to know that fruit and vegetables are part of a healthy diet. Children need knowledge of the natural world around them to be able to describe things like "I can see a big tree, green plant, buzzing bee etc" Children need to know how to explore and make sense of the natural world around them to be able to make observations (using senses) Children need knowledge of new vocabulary (frogspawn, tadpole, etc) to make distinctions in their observations. Children need to know that a magnifying glass makes things look bigger. Children need to know that observing means to look closely at something. Children need to know that frogs look different as they develop. Children need to know that humans have babies. Children need to know that fruit/veg decays over time (ongoing) (pumpkin). Children need to know about seeds and bulbs. Children need to know some of the things that plants need to grow. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn how to use their sense of sight, taste and smell when naming and describing different fruit.
Vocabulary		
Year 1	Asking and answering questions, sources of evidence, identifying, naming and describing, vocabulary	
Concept	Classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know what fish, amphibians, reptiles, birds and mammals are. (revisiting from Autumn 1) Children need to recognise and name some common fish, amphibians, reptiles, birds and mammals. (Revisiting from Autumn 1) Children need to know what carnivores, herbivores and omnivores are. Children need to know what it means to group, classify, identify, describe and compare. Children need to know about the differing structures of fish, amphibians, reptiles, birds and mammals, including pets. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn to ask and answer questions by identifying and classifying.
Vocabulary		
Year 2	Measurements and data, predicting and testing, summarising and concluding, sources of evidence, describing	
Concept	Comparing and contrasting/Classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know how to use sources of evidence and their knowledge of materials to compare and contrast the different properties of materials and use this to explain why certain materials are used for particular purposes. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children need to know how to use sources of evidence and their knowledge of materials to explain why the properties of materials are useful for deciding which materials to use.
Vocabulary		

Term	Spring 2 (Chemistry and Physics)	
Year R	Identifying, naming and describing, scientific equipment, measurements and data, summarising and concluding, vocabulary	
Concept	Comparing and Contrasting	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know that Spring is part of the year and that some children were born in Spring etc. Children need to know some important processes and changes in the natural world around them, including the seasons (noticing that trees are beginning to show signs of new life (blossom) and plants are beginning to grow (ongoing). Children need to know that observing means to look closely at something. (revisiting) Children need to know that when observing they can see things more clearly and identify changes which are one way (baking) and which are reversible (melting ice). Children need to know the names of basic materials, such as, wood, metal, plastic, glass. Children need to know that by using their sense of touch they can identify some simple properties of materials (hard, soft etc.) Children need to know which materials are most effected by water. Children need to know that some toys can be pushed or pulled. Children need to know that some toys go faster or slower when pushed. Children need to know that some toys and simple everyday appliances need electricity/batteries to work. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn how to ask questions to clarify their understanding, find out how something works, how things are similar and different, which alternative is better, how things change and how they happen. Children will learn how to use their observations and ideas to suggest answers to questions. Children will learn how they can use equipment provided to help them observe.
Vocabulary		
Year 1	Identifying, naming and describing, scientific equipment, measurements and data, summarising and concluding, vocabulary	
Concept	Comparing and Contrasting	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know a range of everyday materials (wood, metal, glass, plastic, water and rock). (revisiting from Year R and from Autumn 2) Children need to know that a material can be used to make multiple different items. (revisiting from Autumn 2) Children need to know words that can be used to describe the properties of materials (e.g. hard/soft, shiny/dull, rough/smooth, bendy/rigid, waterproof/not waterproof, absorbent/not absorbent, opaque/translucent/transparent etc.) 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn to ask and answer questions by performing simple tests.
Vocabulary		
Year 2	Asking and answering questions, sources of evidence, identifying, naming and describing, summarising and concluding	
Concept	Comparing and Contrasting /Classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need knowledge of how to categorise plants. Children need to know the structural features of different (real) flowering plants. (revisiting from Year 1) Children need to know what habitats are in order to identify appropriate habitats to meet the needs of both animals and plants. Children need to understand that there isn't always one specific answer to a question. Children need to understand that we can find the answers through reading, researching, observing and testing. Children need to understand how they can classify things e.g. by using a Venn diagram. Children need to know how to gather information. Children need to know how to research information. Children need to know what relevant information/data is and where to find it. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn to compare and contrast mammals with amphibians. Children will learn to compare the types of food that different animals require. Children will learn to categorise animals and plants according to the conditions they require to explain their findings. Children will learn to observe and describe how seeds and bulbs grow into mature plants and find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.
Vocabulary		

Term	Summer 1 (Biology)	
Year R	Asking and answering questions, measurements and data, predicting and testing, summarising and concluding, vocabulary	
Concept	Investigating and Exploring	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know some similarities and differences between the natural world around them and contrasting environments, such as a trip to a farm or wildlife park. Children need to know the names of a range of common animals, insects, fish and amphibians. Children need knowledge of where they might find them. Children need to know that some animals eat meat, plants or both. Children need to know that some animals make suitable pets and others do not to compare and contrast them. Children need to know that dinosaurs are extinct and what it means. Children need to know what happens in the life cycle of a butterfly and plants to understand some important processes and changes in the natural world around them. (revisiting frogs) Children need to know the meaning of metamorphosis, chrysalis, life cycle and begin to know how to explain it to others. Children need to know some common plants and what they look like so that they can identify them (daisy, dandelion, sunflower, daffodil, bean, potato). Children need to know that plants grow from seeds and bulbs and what they need. (revisiting) Children need to know that information can be found in books, internet and from other people (revisiting) Children need to know how to use their senses to make comparisons and talk about what they have noticed or found out. Children need to know what a season is, how seasons relate to months of the year and the characteristics of each of the four seasons. Children need to know the names and recognise some wild and garden plants and trees. Children need to know the names and recognise birds, fish, amphibians, reptiles, mammals and invertebrates. Children need to know the five senses including functions and location on the body. Children need to know the importance of exercise, main body parts, eating the right amounts of different types of food and hygiene (ongoing – through P.E. lessons). Children need to know how seeds and bulbs grow into mature plants and describe how plants need water, light and a suitable temperature to grow and stay healthy. (ongoing to allow children to observe, investigate and record their findings). 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn how they can record an observation by drawing pictures of animals and plants. Children will learn other ways of recording simply (tick sheet, labelling a diagram) some of the processes they have observed.
Vocabulary		
Year 1	Asking and answering questions, measurements and data, predicting and testing, summarising and concluding, vocabulary	
Concept	Investigating and Exploring	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know the names for parts of the human body and where these can be found. Children need some understanding of the function of different human body parts. Children need to know what senses are and understand which sense (sight, hearing, smell, touch and taste) is associated with which body part. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn to gather and record data, to help them draw conclusions and answer questions.
Vocabulary		
Year 2	Asking and answering questions, predicting and testing, summarising and concluding, sources of evidence	
Concept	Comparing and contrasting/Investigating and Exploring	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know the similarities and differences in the growth of seeds and bulbs. Children need to know how to record knowledge to describe a healthy diet for a human. (lists, tables etc.) Children need to know how to use sources of evidence and their knowledge of habitats to explain why a habitat for a plant or animal is suitable. Children need to know how to use sources of evidence and their knowledge of habitats to explain why habitats differ from one another, i.e. a rabbit and a frog. Children need to know how to record knowledge to describe the differences between animals. (lists, tables etc.) Children need to know how to use sources of evidence and their knowledge of food chains to explain the differences between herbivores and carnivores. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children need to know how to use their knowledge of how plants grow to explain how to revive a plant (i.e. one that has been kept in the fridge, dark etc.) Children need to know how to use sources of evidence and their knowledge of food types to explain why each group is important to humans.
Vocabulary		

Term	Summer 2 (Chemistry and Physics)	
Year R	Asking and answering questions, sources of evidence, identifying, naming and describing, vocabulary	
Concept	Classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know that Summer is part of the year and that some children were born in Summer etc. Children need to know that there are seven days in a week and that the weather might be different each day. Children need to know that the weather is usually warmer in Summer, the trees are in leaf and to be able to compare changes that can be reversed (ice). Children need to know what clothes are best suited to different weather conditions and be able to explain their thinking. Children need to know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class in order to understand them., e.g natural and built environments. Children need to know the names of basic materials, such as, wood, metal, plastic, glass and some simple properties. (revisiting) Children need to know other ways of recording simply (tick sheet, labelling a diagram) some of processes they have observed. Children need to know that some materials stick together and others do not, which materials are easier to join together and which tools to use. Children need to know that when exploring materials (paint, brushes and other tools, paper and other materials to paint on) using all their senses, that the paper becomes damp, how paint behaves when it is thicker and thinner, how different techniques of applying paint have different results, and how colours change when mixed. Children need to know a range of everyday materials (wood, plastic, glass, metal, water and rock). Children need to know that a material can be used to make more than one item. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn how to describe a problem they encounter and suggest a way to solve it. Children will learn how to distinguish between an object and the material it is made of. Children will identify and compare the uses of a range of everyday materials.
Vocabulary		
Year 1	Asking and answering questions, sources of evidence, identifying, naming and describing, vocabulary	
Concept	Classifying	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need to know a range of everyday materials (wood, metal, glass, plastic, water and rock). (revisiting from Year R, Autumn 2 and Spring 2) Children need to know that a material can be used to make multiple different items. (revisiting from Autumn 2 and Spring 2) Children need to know words that can be used to describe the properties of materials (e.g. hard/soft, shiny/dull, rough/smooth, bendy/rigid, waterproof/not waterproof, absorbent/not absorbent, opaque/translucent/transparent etc.) (revisiting from Spring 2) 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children will learn to gather and record data, to help them draw conclusions and answer questions. (revisiting from Summer 1) Children will practising identifying and classifying materials.
Vocabulary		
Year 2	Identifying, naming and describing, scientific equipment, measurements and data, summarising and concluding, vocabulary	
Concept	Comparing and Contrasting/ Investigating and exploring	
Knowledge and Skills	<p>Crucial Knowledge:</p> <ul style="list-style-type: none"> Children need a knowledge of analysing data and knowing what to do with it. Children need to understand how to record their findings; therefore they will need a knowledge of note-taking, using a learn-pad, using a tally chart etc. and will know how to use their findings to answer questions. 	<p>Using Knowledge as a Skill:</p> <ul style="list-style-type: none"> Children need to know how to use their knowledge of materials to explain how some objects were made from their original material. Children need to know how to group materials on the basis of their properties to be able to explain their reasoning. Children need to know how to group objects based on the materials they are made of and explain their groupings. Children need to know ways of recording retrieved information.
Vocabulary		