Science overview Autumn 1

Science	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Unit	Seasonal Changes	Habitats	Movement and Nutrition	Digestion and Food	Mixtures and Separation	Classifying Big and Small
Outline	Reflecting on their own experiences, children learn about the four seasons and the weather associated with each. Pupils explore how seasonal changes affect trees, daylight hours and our choices about outfits. They plan and carry out their own weather reports, considering the knowledge required for this job.	Considering the life processes that all living things have in common, pupils classify objects into alive, was once alive or has never been alive. Pupils explore global habitats, naming plants and animals that can be found there. They learn how a range of different living things depend on each other for food or shelter. Pupils explore this further by creating food chains to show the sequence that living things eat each other for energy to grow and stay healthy.	Studying the human skeleton, children identify key bones and compare them to other animals explaining the role within the body. Pupils explore how changes in muscles result in movement and the implications these discoveries have in the scientific development of prosthetic limbs. They study how energy is used by the body, what constitutes a balanced diet in humans and how research contributes to nutritionist expertise.	Using models, children describe the function of key organs in the digestive system. Pupils identify the types of human teeth to create their own model and investigate factors that impact our dental health. They compare human teeth to other animals' and consider this in the light of prior knowledge about predators, prey and food chains. Children take on the role of a naturalist investigating animal faeces for clues about diet, digestion and dentition.	Pupils explore different types of mixtures and the different methods that can be used to separate them. They dissolve a range of substances, identify different solutions and investigate how temperature affects the time taken to dissolve. They design and create a water filter, sieve soil and evaporate solutions.	Children broaden their knowledge of how vertebrates, invertebrates, plants and micro-organisms are grouped using shared characteristics. They discover how Carl Linnaeus developed the Linnaean and binomial systems for classifying and naming living things. Pupils use and produce classification keys to sort and identify organisms
Learning objectives	• To identify how the weather changes across the four seasons. • To identify events and activities that take place in different seasons. • To recognise how trees change across the four seasons. • To recognise that daylight hours change across the	• To identify some of the characteristics of living things. • To recognise the difference between things that are alive, were once alive or have never been alive. Working scientifically: To classify objects into groups. • To identify plants and animals in different habitats.	• To explain the role of a skeleton. Working scientifically: To group animals based on their physical properties. • To recognise the main bones in the body. Working scientifically: To measure and sort data. • To explain how muscles are used for movement. Science in	• To describe the function of the human digestive system. Working scientifically: To evaluate a model. • To recognise the different types of human teeth and their roles in eating. Science in action: To describe real observation methods and evidence collected.	• To describe mixtures. Working scientifically: To research using a range of secondary resources. • To explain the process of sieving. Working scientifically: To draw and annotate a diagram to explain a concept. • To explain the process of filtering. Working scientifically To identify	• To explain how organisms are classified using the Linnaean system. • To classify the cold-blooded vertebrate groups using their common characteristics. • To classify the warm-blooded vertebrate groups using their common characteristics.

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	four seasons. Working scientifically: To record data in a pictogram. • To observe changes across the four seasons. Working scientifically: To gather and record data about how seasons change over time. • To plan and carry out a weather report.	• To identify how a habitat provides animals and plants with what they need to survive. Working scientifically: To carry out research to find answers to questions. • To recognise how animals and plants depend on each other. • To recall how animals get their food from plants and other animals.	action: To explore scientific advances. • To explain how food is an essential energy source for animals. Working scientifically: To gather and compare data to answer questions. • To identify the main nutrient groups and their simple functions. Working scientifically: To record information using secondary sources. • To explain what makes a balanced diet. Science in action: To explore how knowledge has progressed over time and different jobs use this information.	• To explain how to care for our teeth. Working scientifically: To plan an enquiry by considering which variables should be changed, measured and controlled. Science in action: To determine why scientists need to work collaboratively and evaluate experiments. • To recognise that differences in teeth relate to an animal's diet. Working scientifically: To classify animals based on their diet. • To recognise producers, predators and prey in food chains. Working scientifically: To analyse trends in line graphs and form conclusions using scientific knowledge. • To recognise that animal poo can give us clues about digestion, teeth and diet. Working scientifically: To construct a results table for recording observations.	testable questions and how to answer them • To describe solutions and how they can be identified. Working scientifically: To make observations about solutions. • To identify which factors affect the time taken to dissolve. Working scientifically: To plan a fair test with consideration of variables and measurements. • To describe the process of evaporation.	• To classify invertebrates. • To describe how the plant kingdom is organised (based on shared characteristics). Working scientifically: To produce a working classification key. • To describe and classify micro-organisms. .

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Key Skills	• Name the four seasons in order and describe the typical weather in each. • Name some activities and events in the four seasons. • Describe the appearance of a tree's leaves in each season. • Recall that summer has the most daylight hours and winter has the least daylight hours. • Record data about the temperature across the four seasons. • Label a map of the UK with capital cities and seasonal weather symbols. • Complete a pictogram and use it to answer simple questions. • Record data about the temperature across the four seasons	• Ask questions to further their knowledge. • Recall some life processes, giving examples of how they apply to plants and animals. • Classify objects into alive, never been alive and was once alive, giving reasons for their choices. • Match different plants and animals to their habitats. • Give examples of how animals use their habitat for food and shelter. • Recall that plants produce their own food for energy. • Name living things that are producers and place a producer at the beginning of a food chain. • Use arrows to show the order in a food chain.	• Recall the three key functions of the skeleton (movement, support and protection). • Describe a vertebrate, invertebrate, endoskeleton and exoskeleton and use this information to group animals. • Identify and name the skull, spine, ribs and pelvis on a diagram. • Recall that muscles cause movements in the body, some of which we can control consciously. • Describe that muscles can cause a movement by shortening and pulling on a bone. • Recall that animals, including humans, need to eat food to survive. • Describe some examples of how energy is used by the body and make comparisons about the energy demands between people. • List some of the seven nutrient groups. • Name foods that are good sources of nutrient groups and	• Label key organs found in the digestive system and describe each of their functions. • Describe the functions of the four different types of adult, human teeth, using key vocabulary. • Know that good dental care involves brushing their teeth twice a day with toothpaste and a soft toothbrush. • Produce a food chain that begins with a plant and has arrows that move up the food chain. • Define a producer, predator and prey and identify examples in food chains. • Describe digestion, teeth and diets when talking about the observed poo clues. • Write a letter that uses a range of scientific vocabulary from the unit. • Evaluate a strength or weakness of the digestive system model. • Describe an example of evidence that can be used to study teeth. • Identify some of the variables that need to be kept the same,	• Define the term mixture and name some common examples. • Define the term sieving and explain how sieving separates mixtures. • Define the term filtering and explain how filtering separates mixtures. • Define the terms solution and dissolve and name some common examples of solutions. • Recall some factors that affect the time taken to dissolve. • Describe the effect of temperature on the time taken to dissolve. • Define the term evaporating and explain how evaporating separates solutions. Identify when sieving, filtering and evaporating should be used. • Research a mixture to find out what substances it is made from. • Draw and annotate a diagram to explain how sieving separates a solid-solid mixture. Identify and justify which type of enquiry	• Define the term 'organism' and name the seven life processes of all living things. • Describe the work of Carl Linnaeus. Define the term 'vertebrate' and name the vertebrate groups. • Describe the characteristics of fish, amphibians, reptiles, birds and mammals. • Compare the characteristics of the vertebrate groups. • Define the term 'invertebrate'. Describe the characteristics of worms, snails, spiders and insects. • Compare the characteristics of the invertebrate groups. • Name the plant groups. • Describe the characteristics of flowering plants, ferns, mosses and conifers. • Define the term 'micro-organism' and name some examples.

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			describe what they are needed for in the body. • Compare two different meals and explain which is more balanced by naming the nutrient groups and commenting on the relevant proportions. • Record measurements of different bones and use the data to sort them into size order. • Describe some ways scientific research has improved the field of bionics/prosthetics, such as the choice of materials or linking their movement to muscles in the arm. • Find relevant data on food packaging and make numerical comparisons.	predict an outcome and identify limitations to the experiment. • Recall that scientific research needs repeated results before use in society. Identify trends in a predator-prey graph. • Draw a results table that has space for observations about different poo samples.	to use to answer my testable question. • Identify solutions by observing and describing their appearance. • Suggest which variables to change, measure and control when investigating how temperature affects the time taken to dissolve. • Choose which measurements to take and how long to take them for.	• Use a classification key to group and identify organisms. • Make a simple classification key.
Key Vocab	conclusion data deciduous tree evergreen tree pictogram predict record season sunrise sunset symbol temperature thermometer	alive analyse camouflage carnivore classify coastal dead depend diet energy excretion food chain growth	balanced diet bone carbohydrate endoskeleton exoskeleton fat fibre invertebrate joint mineral movement muscle nutrient	absorb canine carnivore digest faeces food chain herbivore incisor large intestine molar mouth oesophagus omnivore	control variable crystallising dissolve evaporation evaporation method filtering insoluble mixture particle sieve sieving soluble solution	amphibian binomial system bird characteristic classify classification key cold-blooded conifer exoskeleton fern fish flowering plant insect

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	weather	habitat herbivore life process mammal movement nutrition ocean	protection protein skeleton support vertebrate vitamin water	predator premolar prey producer saliva small intestine stomach	variable	invertebrate life process Linnaean system Mammal Micro-organism Microscopic moss
Key Questions	Which season has the warmest weather? Name something that happens in Spring. Name something that happens in Autumn. Which season has the fewest daylight hours?	Which word describes how living things get rid of waste? What is it like in a woodland habitat? What is the name of something that hunts and kills it's food? Give an example of how living things depend on each other in an ocean habitat?	What are the three key functions of the skeleton? Which bones protect the heart? Which nutrient group is used as an energy store and helps us to keep warm? What is a balanced diet?	Where does the digestive system begin? Which part of the digestive system absorbs nutrients into the blood? Which order do the teeth go in form the front to the back of the mouth? Which tooth type helps grind and crush food? What is a carnivore? Someone has found a dinosaur fossil and wants to know if the dinosaur was a herbivore, carnivore or omnivore. What evidence should they look for to give them some clues?	Which method could you use to separate flour and water? Wat type of mixture does sieving separate? What process has to happen for a solution to be made? Name a factor that will increase the time taken to dissolve. How many substances are in a mixture? Explain how the process of sieving works.	Who invented a system for classifying living things that is still used today? Which vertebrate group usually gives birth to live young? Compare the characteristics of insects and spiders.