

Year: 3/4 Subject: Science		Topic Question: <i>Where does our food go?</i>		Term - Autumn 1	Curriculum - A	
PoS: Animals Including Humans Y4						
Prior Knowledge - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) - Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans) - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans) - Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food; they get nutrition from what they eat. (Y3 - Animals, including humans)			Key Vocabulary Digestive system, digestion, mouth, teeth, saliva, oesophagus, stomach, small intestine, nutrients, large intestine, rectum, anus, teeth, incisor, canine, molar, premolars, herbivore, carnivore, omnivore, producer, predator, prey, food chain		Outcome Poster or information sheet	
Future Learning - Identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood. (Y6 - Animals, including humans) - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans) - Describe the ways in which nutrients and water are transported within animals, including humans. (Y6 - Animals, including humans)			First hand experiences (enrichment) Make a digestive system		World of Work Dentist, Doctor	
National Curriculum PoS - Describe the simple functions of the basic parts of the digestive system in humans. - Identify the different types of teeth in humans and their simple functions. - Construct and interpret a variety of food chains, identifying producers, predators and prey		Key Knowledge		Possible evidence		
		Food enters the body through the mouth. Digestion starts when the teeth start to break the food down. Saliva is added and the tongue rolls the food into a ball. The food is swallowed and passes down the oesophagus to the stomach. Here the food is broken down further by being churned around and other chemicals are added. The food passes into the small intestine. Here nutrients are removed from the food and leave the digestive system to be used elsewhere in the body. The rest of the food then passes into the large intestine. Here the water is removed for use elsewhere in the body. What is left is then stored in the rectum until it leaves the body through the anus when you go to the toilet. Humans have four types of teeth: incisors for cutting; canines for tearing; and molars and premolars for grinding (chewing).		- Can sequence the main parts of the digestive system - Can draw the main parts of the digestive system onto a human outline - Can describe what happens in each part of the digestive system - Can point to the three different types of teeth in their mouth and talk about their shape and what they are used for - Can name producers, predators and prey within a habitat - Can construct food chains		
		Application of Key Skills		Possible evidence		
Working Scientifically - Asking relevant questions and using different types of scientific enquiries to answer them - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identifying differences, similarities or changes related to simple scientific ideas and processes - Using straightforward scientific evidence to answer questions or to support their findings		- Research the function of the parts of the digestive system. - Create a model of the digestive system using household objects. - Explore eating different types of food to identify which teeth are being used for cutting, tearing and grinding (chewing). - Classify animals as herbivores, carnivores or omnivores according to the type of teeth they have in their skulls. - Use food chains to identify producers, predators and prey within a habitat. - Use secondary sources to identify animals in a habitat and find out what they eat.		- Can use diagrams or a model to describe the journey of food through the body explaining what happens in each part - Can record the teeth in their mouth (make a dental record) - Can explain the role of the different types of teeth - Can explain how the teeth in animal skulls show they are carnivores, herbivores or omnivores - Can create food chains based on research		

Year: 1 and 2 PoS:		Subject: Science		Topic Question: <i>How do we know electricity is there?</i>		Term - Autumn 2		Curriculum - A		
Prior Knowledge Children know about similarities and differences in relation to places, objects, materials and living things. They talk about the features of their own immediate environment and how environments might vary from one another. They make observations of animals and plants and explain why some things occur and talk about changes. (Early Learning Goal)					Key Vocabulary Battery, wires, circuit, cells, bulb, buzzer, switch, conductor, insulator.			Outcome Video Explanation		
Future Learning - Associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit. (Y6 - Electricity) - Compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches. (Y6 - Electricity) - Use recognised symbols when representing a simple circuit in a diagram. (Y6 - Electricity)					Stimulus Explorify Odd One Out			World of Work Electrician		
National Curriculum PoS - Identify common appliances that run on electricity. - Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. - Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. - Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. - Recognise some common conductors and insulators, and associate metals with being good conductors. Working Scientifically - Asking relevant questions and using different types of scientific enquiries to answer them - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identifying differences, similarities or changes related to simple scientific ideas and processes - Using straightforward scientific evidence to answer questions or to support their findings					Key Knowledge			Possible evidence		
					Many household devices and appliances run on electricity. Some plug in to the mains and others run on batteries. An electrical circuit consists of a cell or battery connected to a component using wires. If there is a break in the circuit, a loose connection or a short circuit, the component will not work. A switch can be added to the circuit to turn the component on and off. Metals are good conductors so they can be used as wires in a circuit. Non-metallic solids are insulators except for graphite (pencil lead). Water, if not completely pure, also conducts electricity Children in Year 4 do not need to use standard symbols for electrical components, as this is taught in Year 6.			- Can name the components in a circuit - Can make electric circuits - Can control a circuit using a switch - Can name some metals that are conductors - Can name materials that are insulators		
					Application of Key Skills			Possible evidence		
					- Construct a range of circuits. - Explore which materials can be used instead of wires to make a circuit. - Classify the materials that were suitable/not suitable for wires. - Explore how to connect a range of different switches and investigate how they function in different ways. - Choose switches to add to circuits to solve particular problems, such as a pressure switch for a burglar alarm. - Apply their knowledge of conductors and insulators to design and make different types of switch. - Make circuits that can be controlled as part of a DT project. N.B. Children should be given one component at a time to add to circuits			- Can communicate structures of circuits using drawings which show how the components are connected - Use classification evidence to identify that metals are good conductors and non-metals are insulators - Can incorporate a switch into a circuit to turn it on and off - Can connect a range of different switches identifying the parts that are insulators and conductors - Can add a circuit with a switch to a DT project and can demonstrate how it works - Can give reasons for choice of materials for making different parts of a switch - Can describe how their switch works		

Year: Subject: Science PoS: Sound Y4		Topic Question: How can we hear sound?		Term - Spring 1 and 2	Curriculum - A 
Prior Knowledge Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. (Y1 - Animals, including humans)			Key Vocabulary Sound, source, vibrate, vibration, travel, pitch (high, low), volume, faint, loud, insulation	Outcome Explanation writing answering Big Question	
Future Learning - Sound needs a medium to travel, the speed of sound in air, in water, in solids. (KS3) - Sound produced by vibrations of objects, in loud speakers, detected by their effects on microphone diaphragm and the ear drum; sound waves are longitudinal. (KS3) - Auditory range of humans and animals. (KS3) - Pressure waves transferring energy; use for cleaning and physiotherapy by ultra-sound. (KS3)			Stimulus Carousel of activities exploring vibration First hand experiences (enrichment) Practical experiments measuring sounds over distance and though different insulation materials	World of Work Audiologist, Musician	
National Curriculum PoS - Identify how sounds are made, associating some of them with something vibrating. - Recognise that vibrations from sounds travel through a medium to the ear. - Find patterns between the pitch of a sound and features of the object that produced it. - Find patterns between the volume of a sound and the strength of the vibrations that produced it. - Recognise that sounds get fainter as the distance from the sound source increases.		Key Knowledge A sound produces vibrations which travel through a medium from the source to our ears. Different mediums such as solids, liquids and gases can carry sound, but sound cannot travel through a vacuum (an area empty of matter). The vibrations cause parts of our body inside our ears to vibrate, allowing us to hear (sense) the sound. The loudness (volume) of the sound depends on the strength (size) of vibrations which decreases as they travel through the medium. Therefore, sounds decrease in volume as you move away from the source. A sound insulator is a material which blocks sound effectively. Pitch is the highness or lowness of a sound and is affected by features of objects producing the sounds. For example, smaller objects usually produce higher pitched sounds.		Possible evidence - Can name sound sources and state that sounds are produced by the vibration of the object - Can state that sounds travel through different mediums such as air, water, metal - Can give examples to demonstrate how the pitch of a sound are linked to the features of the object that produced it - Can give examples of how to change the volume of a sound e.g. increase the size of vibrations by hitting or blowing harder - Can give examples to demonstrate that sounds get fainter as the distance from the sound source increases	
Working Scientifically - Asking relevant questions and using different types of scientific enquiries to answer them - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identifying differences, similarities or changes related to simple scientific ideas and processes - Using straightforward scientific evidence to answer questions or to support their findings		Application of Key Skills - Classify sound sources. - Explore making sounds with a range of objects, such as musical instruments and other household objects. - Explore how string telephones or ear gongs work. - Explore altering the pitch or volume of objects, such as the length of a guitar string, amount of water in bottles, size of tuning forks. - Measure sounds over different distances. - Measure sounds through different insulation materials		Possible evidence - Can explain what happens when you strike a drum or pluck a string and use a diagram to show how sounds travel from an object to the ear - Can demonstrate how to increase or decrease pitch and volume using musical instruments or other objects - Can use data to identify patterns in pitch and volume - Can explain how loudness can be reduced by moving further from the sound source or by using a sound insulating medium	

Year: 3 and 4 Subject: Science PoS: Animals including humans Y3		Topic Question: <i>How does your skeleton help you?</i>	Term - Summer 1	Curriculum - A	
Prior Knowledge - Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals. (Y1 - Animals, including humans) - Identify and name a variety of common animals that are carnivores, herbivores and omnivores. (Y1 - Animals, including humans) - Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets). (Y1 - Animals, including humans) - Find out about and describe the basic needs of animals, including humans, for survival (water, food and air). (Y2 - Animals, including humans) - Describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene. (Y2 - Animals, including humans)			Key Vocabulary Nutrition, nutrients, carbohydrates, sugars, protein, vitamins, minerals, fibre, fat, water, skeleton, bones, muscles, support, protect, move, skull, ribs, spine, muscles, joints	Outcome Annotated Diagram of the Skeleton	
Future Learning - Describe the simple functions of the basic parts of the digestive system in humans. (Y4 - Animals, including humans) - Identify the different types of teeth in humans and their simple functions. (Y4 - Animals, including humans) - Construct and interpret a variety of food chains, identifying producers, predators and prey. (Y4 - Animals, including humans) - Recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function. (Y6 - Animals, including humans)			Stimulus Plus, Minus Interesting Discussion Time First hand experiences (enrichment)	World of Work Doctor, Physiotherapist	
National Curriculum PoS - Identify that animals, including humans, need the right types and amount of nutrition, and that they cannot make their own food – they get nutrition from what they eat. - Identify that humans and some other animals have skeletons and muscles for support, protection and movement. Working Scientifically - Asking relevant questions and using different types of scientific enquiries to answer them - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions - Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions - Identifying differences, similarities or changes related to simple scientific ideas and processes - Using straightforward scientific evidence to answer questions or to support their findings	Key Knowledge Animals, unlike plants which can make their own food, need to eat in order to get the nutrients they need. Food contains a range of different nutrients – carbohydrates (including sugars), protein, vitamins, minerals, fats, sugars, water – and fibre that are needed by the body to stay healthy. A piece of food will often provide a range of nutrients. Humans, and some other animals, have skeletons and muscles which help them move and provide protection and support.		Possible evidence - Can name the nutrients found in food - Can state that to be healthy we need to eat the right types of food to give us the correct amount of these nutrients - Can name some bones that make up their skeleton, giving examples that support, help them move or provide protection - Can describe how muscles and joints help them to move		
	Application of Key Skills - Classify food in a range of ways. - Use food labels to explore the nutritional content of a range of food items. - Use secondary sources to find out the types of food that contain the different nutrients. - Use food labels to answer enquiry questions e.g. How much fat do different types of pizza contain? How much sugar is in soft drinks? - Plan a daily diet to contain a good balance of nutrients. - Explore the nutrients contained in fast food. - Use secondary sources to research the parts and functions of the skeleton. - Investigate patterns asking questions such as: Can people with longer legs run faster? Can people with bigger hands catch a ball better? Compare, contrast and classify skeletons of different animals.		Possible evidence - Can classify food into those that are high or low in particular nutrients - Can answer their questions about nutrients in food, based on their gathered evidence - Can talk about the nutrient content of their daily plan - Use their data to look for patterns (or lack of them) when answering their enquiry question - Can give similarities e.g. they all have joints to help the animal move, and differences between skeletons		

Year: 3/4 Subject: Science PoS: Year 4 States of Matter		Topic Question/Title: <i>How can water change?</i>		Term - Summer 2 Curriculum - A		
Prior Knowledge - Distinguish between an object and the material from which it is made. (Y1 - Everyday materials) - Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. (Y1 - Everyday materials) - Describe the simple physical properties of a variety of everyday materials. (Y1 - Everyday materials) - Compare and group together a variety of everyday materials on the basis of their simple physical properties. (Y1 - Everyday materials) - Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses. (Y2 - Uses of everyday materials) - Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. (Y2 - Uses of everyday materials)				Key Vocabulary Solid, liquid, gas, state change, melting, freezing, melting point, boiling point, evaporation, temperature, water cycle		Outcome Plastic bag model of the water cycle.
Future Learning - Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets. (Y5 - Properties and changes of materials) - Know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution. (Y5 - Properties and changes of materials) - Use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating. (Y5 - Properties and changes of materials) - Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic. (Y5 - Properties and changes of materials) - Demonstrate that dissolving, mixing and changes of state are reversible changes. (Y5 - Properties and changes of materials) - Explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible, including changes associated with burning and the action of acid on bicarbonate of soda. (Y5 - Properties and changes of materials)				Stimulus Outdoor activities with water and ice First hand experiences (enrichment)		World of Work Water treatment operative, chemist
National Curriculum PoS - Compare and group materials together, according to whether they are solids, liquids or gases. - Observe that some materials change state when they are heated or cooled, and measure or research the temperature at which this happens in degrees Celsius (°C). - Identify the part played by evaporation and condensation in the water cycle and associate the rate of evaporation with temperature. Working Scientifically - Asking relevant questions and using different types of scientific enquiries to answer them - Setting up simple practical enquiries, comparative and fair tests - Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers - Gathering, recording, classifying and presenting data in a variety of ways to help in answering questions - Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts and tables - Reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions		Key Knowledge A solid keeps its shape and has a fixed volume. A liquid has a fixed volume but changes in shape to fit the container. A liquid can be poured and keeps a level, horizontal surface. A gas fills all available space; it has no fixed shape or volume. Granular and powdery solids like sand can be confused with liquids because they can be poured, but when poured they form a heap and they do not keep a level surface when tipped. Each individual grain demonstrates the properties of a solid. Melting is a state change from solid to liquid. Freezing is a state change from liquid to solid. The freezing point of water is 0oC. Boiling is a change of state from liquid to gas that happens when a liquid is heated to a specific temperature and bubbles of the gas can be seen in the liquid. Water boils when it is heated to 100oC. Evaporation is the same state change as boiling (liquid to gas), but it happens slowly at lower temperatures and only at the surface of the liquid. Evaporation happens more quickly if the temperature is higher, the liquid is spread out or it is windy. Condensation is the change back from a gas to a liquid caused by cooling. Water at the surface of seas, rivers etc. evaporates into water vapour (a gas). This rises, cools and condenses back into a liquid forming clouds. When too much water has condensed, the water droplets in the cloud get too heavy and fall back down as rain, snow, sleet etc. and drain back into rivers etc. This is known as precipitation. This is the water cycle.		Possible evidence - Can create a concept map, including arrows linking the key vocabulary - Can name properties of solids, liquids and gases - Can give everyday examples of melting and freezing - Can give everyday examples of evaporation and condensation - Can describe the water cycle		
		Application of Key Skills		Possible evidence		

• Using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions • Identifying differences, similarities or changes related to simple scientific ideas and processes • Using straightforward scientific evidence to answer questions or to support their findings	• Observe closely and classify a range of solids. Observe closely and classify a range of liquids. • Explore making gases visible e.g. squeezing sponges under water to see bubbles, and showing their effect e.g. using straws to blow objects, trees moving in the wind. • Classify materials according to whether they are solids, liquids and gases. • Observe a range of materials melting e.g. ice, chocolate, butter. • Investigate how to melt ice more quickly. • Observe the changes when making rocky road cakes or ice-cream. • Investigate the melting point of different materials e.g. ice, margarine, butter and chocolate. • Explore freezing different liquids e.g. tomato ketchup, oil, shampoo. • Use a thermometer to measure temperatures e.g. icy water (melting), tap water, hot water, boiling water (demonstration). • Observe water evaporating and condensing e.g. on cups of icy water and hot water. • Set up investigations to explore changing the rate of evaporation e.g. washing, puddles, handprints on paper towels, liquids in containers. • Use secondary sources to find out about the water cycle	• Can give reasons to justify why something is a solid liquid or gas • Can give examples of things that melt/freeze and how their melting points vary • From their observations, can give the melting points of some materials • Using their data, can explain what affects how quickly a solid melts • Can measure temperatures using a thermometer • Can explain why there is condensation on the inside the hot water cup but on the outside of the icy water cup • From their data, can explain how to speed up or slow down evaporation • Can present their learning about the water cycle in a range of ways e.g. diagrams, explanation text, story of a water droplet
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