Riverside Academy

Science long term plan

Year group	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Nursery	• Name, sort and describe autumn materials found at school and home. • Name features on a face. • Name animals found on a farm and identify the sounds that they make.		• Use senses to explore ice. • Use simple language to talk about 'cold weather' animals. • Use simple language when identifying flowers in the outdoor environment. • Care for flowers in the outdoor environment.		• Use simple language to make observations about growing plants. • Care for a sunflower when growing it from a seed. • Learn how and when to brush teeth. • Learn about safari animals.	
Reception	• Sort, describe and compare autumn materials found at school. • Name and describe nocturnal and diurnal animals. • Make simple observations about plants and trees changing in autumn.		• Learn how to look after teeth. • Make observations to describe African animals. • Investigate what happens to chocolate when it is heated. • Investigate what happens to water when it freezes.		• Make simple observations to explain the life cycle of a bean and a tadpole. • Name and describe different minibeasts. • Look after a range of insects in the classroom.	
Year 1	<u>Animals including Humans</u> • Explore and sort animal groups: mammals, fish, amphibians, reptiles and birds • Group animals with different diets: carnivore, herbivore and omnivore • Label body parts of humans and other animals • Senses • Investigate what we use our senses for <u>Seasons</u> • Make observations during an autumn walk around the school • Film and present a weather report about Autumn • Observe changes from autumn to winter • Record changes in the weather using the weather station around school • Film and present a weather report about Winter		<u>Everyday Materials</u> • Describe properties of materials such as wood, metal, glass and plastic • Distinguish between an object and the material from which it is made • Compare and group everyday objects by their properties • Investigate which material is the best material to use for an umbrella <u>Seasons</u> • Observe changes from winter to spring • Record changes in the weather using the weather station • Film and present a weather report about spring		<u>Plants</u> • Label parts of a flowering plant • Name common garden plants that we have grown in the classroom • Discover deciduous and evergreen trees and wild plants in our local area <u>Seasons</u> • Observe changes from spring to summer • Record changes in the weather using the weather station • Film and present a weather report about summer	
Year 2	<u>Uses of everyday materials</u> • Identify and compare objects and the materials they are made from • Classify the uses of everyday objects and materials • Explain why some materials are more suitable than others • Investigate objects and materials that can or cannot be shaped		<u>Animals including humans</u> • Research the life cycles of different animals and present in an interesting way • Find out about and describe the basic needs of animals for survival • Describe the importance for humans of exercise, eating the right amounts of different types of food and hygiene		<u>Living things and their habitats</u> • Explore and compare things that are living and things that are not • Create and act out food chains to identify different sources of food • Identify and name different plants and animals food in different habitats, including microhabitats • Describe how different habitats provide the basic needs for plants	<u>Plants</u> • Investigate how seeds and bulbs grow • Investigate what plants need to grow to healthily - *water, light and suitable temperature*

				and animals	
Year 3	<u>Rocks</u> • Research how rocks are formed and group and describe them by their properties • Understand how fossils are formed • Discover the significance of rock as a building material • Investigate what rock is best for making a structure (permeability/strength) • Explore the local environment to compare rocks and their purposes	<u>Magnets</u> • Understand that magnets attract or repel each other and some materials and not others • Discover which materials are magnetic around school • Investigate! How some coins are magnetic • Understand how different forces can act at a distance	<u>Animals</u> • Understand that animals including humans need the right types and amounts of nutrition • Know that animals get nutrition from what they eat and they cant make their own food • Group animals with and without skeletons • Identify that some animals, including humans, have skeletons and muscles for support, protection and movement • Compare and contrast the diets of different animals	<u>Plants</u> • Research the main parts of flowering plants • Investigate what a plant needs to grow – *air, light, water, nutrients, soil* • Investigate the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal • Explain pollination and seed dispersal • Investigate best conditions for plant growth • Discover how water is transported through a plant • Observe growth over time and apply growth data mathematically	<u>Light and Shadow</u> • Discover how light is emitted from the sun and is reflected from different surfaces • Investigate how shadows are formed when light is blocked and how they change • Compare how shadows change throughout the day • Notice how light is reflected off of surfaces
Year 4	<u>States of Matter</u> • Compare and group materials – *solid, liquid and gas* • Compare the difference in the particles of solids, liquids and gases • Investigate the cooling and heating of chocolate and ice • Compare the different states that water can be • Investigate the effect of temperature on the process of evaporation using wet towels • Investigate the role of evaporation and condensation in the water cycle using cress	<u>Electricity</u> • Research how and why electricity occurs • Discover common appliances that run on electricity • Research how to stay safe when using electricity • Construct a simple series electrical circuit, identifying and naming its basic parts • Investigate whether or not a lamp will light in a simple series circuit • Investigate common conductors and insulators • Recognise that a switch opens and closes a circuit	<u>Animals including humans</u> • Research the functions of the basic parts of the digestive system in humans • Compare the different types of teeth in humans and their functions • Investigate how different liquids affect our teeth • Create and compare a variety of food chains	<u>All Living Things</u> • Research how living things can be grouped in a variety of ways • Compare vertebrates by their similarities and differences • Explore invertebrates found in the local environment • Create tables and classification keys showing the characteristics of living things • Use classification keys to identify living things in the local and wider environment • Explore changes and dangers in the local habitat • Discover how environments can change and how this can affect habitats	<u>Sound</u> • Explore how sounds are made through vibration • Explore how high and low sounds are created • Explore musical instruments, and how they change pitch • Recognise that vibrations from sounds travel through a medium to the ear, by making string telephones • Investigate the best material for absorbing sound

		and associate this every day appliances			
Year 5	<u>Forces</u> • Investigate gravity and air resistance by creating and launching parachutes • Design, create and make boats that are streamlined against water resistance • Explore the concept of friction, using newton meters • Discover Isaac Newton's role in explaining gravity	<u>Properties and Changes of Materials</u> • Apply knowledge of solids, liquids and gases to decide how mixtures might be separated • Collect water from different sources in our local environment and make own filters • Compare and group everyday materials on the basis of their properties – *hardness, solubility, transparency, conductivity and response to magnets* • Discover that some changes are reversible and some are not	<u>Animals, including humans</u> • Identify changes the human body goes through from birth to old age • Create a timeline to illustrate the stages of human growth • Compare gestation periods of different mammals	<u>Living Things and their habitats</u> • Compare and describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird • Discover the life process of reproduction in some plants and animals	<u>Earth, Moon and the Sun</u> • Know how the Earth, and other planets, move around the Sun in the solar system • Describe the Moon's orbit around the Earth • Explain how the Earth's rotation causes day and night • Explore how shadows change in length as the relative position of the sun changes throughout the day
Year 6	<u>Animals including humans</u> • Circulatory system – • Explore the function of the heart Investigate the effect of exercise on heart rate • Dissect actual hearts • Impact of diet, exercise, drugs and lifestyle on the way the body works- • Make large tubes to show how arteries can become clogged • Describe the ways nutrients and water can be transported in humans and animals	<u>Living things and their habitats</u> • Visit the local quarry to classify a range of plants by their characteristics • Research the role of Carl Linneaus, a pioneer of classification	<u>Evolution and inheritance</u> • Discover how fossils provide information and evidence that living things have changed over time • Explore the work of palaeontologists such as Mary Anning and Charles Darwin • Research the features of an animal or plant and its adaptions that make it suited to its environment • Invite dog owners of crossbreeds to discover the effect of variation in offspring	<u>Light</u> • Know that light appears to travel in straight lines • explain that objects are seen because they give out or reflect light into the eye • Know that we see things because light travels from light sources to our eyes or from light sources to objects and then to our eyes • Use shadow puppets to explain why shadows have the same shape as the objects that cast them <u>Electricity</u> • Know which symbols represent which component in a circuit • Explain what would happen to the brightness of a lap or the volume of a buzzer when the number and voltage of cells is increased • Give reasons for how components function in a circuit when components are increased or decreased	