Birley Spa Primary Academy
A L.E.A.D. Academy

Birley Spa Primary Academy - Science Curriculum Progression

	EYFS	Year 1	
Plants	**ELG – Understanding The World**	**National Curriculum.** Pupils should be taught to: • identify and name a variety of common wild and garden plants, including deciduous and evergreen trees • identify and describe the basic structure of a variety of common flowering plants, including trees.	**National Curriculum.** Pupils should be taught to: • Observe and describe how seeds and bulbs grow into mat • Find out and describe how plants need water, light and a s
	• Plant seeds and care for growing plants • • Understand the key features of the life cycle of plants	• Identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. • Identify and describe the basic structure of a variety of common flowering plants, including trees.	• Observe and describe how seeds and bulbs grow into mature pla • Find out and describe how plants need water, light and a suitable
Animals including Humans	**ELG – Understanding The World**	**National Curriculum.** Pupils should be taught to: • identify and name a variety of common animals including fish, amphibians,reptiles, birds and mammals • identify and name a variety of common animals that are carnivores, herbivoresand omnivores • describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • identify, name, draw and label the basic parts of the human body and say whichpart of the body is associated with each sense.	**National Curriculum.** Pupils should be taught to: **Animals, including humans** • notice that animals, including humans, have offspring whi • find out about and describe the basic needs of animals, inc • describe the importance for humans of exercise, eating th **Living things and their Habitats** • explore and compare the differences between things that • identify that most living things live in habitats to which th different kinds of animals and plants, and how they deper • identify and name a variety of plants and animals in their h • describe how animals obtain their food from plants and ot name different sources of food
	• Name their 5 senses • Understand the key features of the life cycle of butterflies • Understand that minibeasts have similar features	• Identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals • Identify and name a variety of common animals that are carnivores, herbivores and omnivores • Describe and compare the structure of a variety of common animals (fish, amphibians, reptiles, birds and mammals, including pets) • Identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense.	• Notice that animals, including humans, have offspring which gro • Find out about and describe the basic needs of animals, includin • Describe the importance for humans of exercise, eating the right • Explore and compare the difference between things that are livi • Identify that most living things live in habitats to which they are animals and plants, and how they depend on each other. • Identify and name a variety of plants and animals in their habitat • Describe how animals obtain their food from plants and other a food.

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Materials and States of Matter		**ELG – Understanding The World**	**National Curriculum** Pupils should be taught to: **Everyday Materials** • distinguish between an object and the material from which it is made • identify and name a variety of everyday materials, including wood, plastic, glass,metal, water, and rock • describe the simple physical properties of a variety of everyday materials • compare and group together a variety of everyday materials on the basis of their simple physical properties.	**National Curriculum** Pupils should be taught to: **Uses of Materials** • identify and compare the suitability of a variety of particular uses • find out how the shapes of solid objects made from
		• Talk about and sort collections of natural materials beginning to use their senses • Investigate floating and sinking • Talk about why things happen and how things work in relation to traditional tales (eg why did the chair break when Goldilocks sat on it?)	• Distinguish between an object and the material from which it is made • Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock • Describe the simple physical properties of a variety of everyday materials • Compare and group together a variety of everyday materials on the basis of their simple physical properties.	• Identify and compare the suitability of a variety of every particular uses. • Find out how the shapes of solid objects made from som
Seasons		• Understand the effect of seasons on the natural world, discussing when and how things grow and what clothes you wear in different seasons. • Begin to recognise the features of changing seasons and the affect that this has on us. • Begin to understand change over time (continuing to care for the plants they have planted in the garden).	**National Curriculum** Pupils should be taught to: • observe changes across the four seasons • observe and describe weather associated with the seasons and how day length varies.	
Working Scientifically			**National Curriculum** • asking simple questions and recognising that they can be answered in different ways • observing closely, using simple equipment • performing simple tests • identifying and classifying • using their observations and ideas to suggest answers to questions • gathering and recording data to help in answering questions	

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EYFS End Points	
Communication and Language	• Understand 'why' questions, like: "Why do you think the caterpillar got so fat?" • Learn new vocabulary. • Ask questions to find out more and to check what has been said to them. • Articulate their ideas and thoughts in well-formed sentences. • Describe events in some detail. • Use talk to help work out problems and organise thinking and activities, and to explain how things work and why they might happen. • Use new vocabulary in different contexts.
Personal, Social and Emotional Development	• Make healthy choices about food, drink, activity and toothbrushing. • Know and talk about the different factors that support their overall health and wellbeing: - regular physical activity - healthy eating - toothbrushing - sensible amounts of 'screen time' - having a good sleep routine - being a safe pedestrian
Understanding the World	• Use all their senses in hands-on exploration of natural materials. • Explore collections of materials with similar and/or different properties. • Talk about what they see, using a wide vocabulary. • Begin to make sense of their own life-story and family's history. • Explore how things work. • Plant seeds and care for growing plants. • Understand the key features of the life cycle of a plant and an animal. • Begin to understand the need to respect and care for the natural environment and all living things. • Explore and talk about different forces they can feel. • Talk about the differences between materials and changes they notice. • Explore the natural world around them. • Describe what they see, hear and feel while they are outside. • Recognise some environments that are different to the one in which they live. • Understand the effect of changing seasons on the natural world around them.

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Year 1 Areas of Study						
	Half Term Coverage	To be taught throughout the year				
	Topic	Seasonal Changes (to be completed throughout the year)	Everyday materials	Animals, including humans	Plants	Seasonal Changes
	Key Knowledge	● Knows when each of the four seasons occurs. ● Knows what the features of autumn are and what happens to trees in this season. ● Knows that days are longer in summer (sunshine hours) than in winter. ● Observe changes across the four seasons.	● Distinguish between an object and the material from which it is made. ● Can identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock. ● Describe the simple physical properties of a variety of everyday materials. ● Know how the properties of a material can make it useful for a range of different purposes (for example, plastic is waterproof so it can be used to coat fabric for clothing but can also be used for outdoor play equipment). ● knows why and how the properties of materials make them particularly useful for specific purposes (for example, stone is a hard, heavy and durable material so is useful for construction of buildings). ● knows that different materials can share the same properties (for example glass and plastic can both be transparent).	● Knows and can identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals e.g. cat, robin, adder, frog, salmon. ● Knows and can identify and name a variety of common animals that are carnivores, herbivores and omnivores. ● Can identify, name, draw and label the basic parts of the human body and say which part of the body is associated with each sense. *For instance: The Skelton Dance - https://www.youtube.com/watch?v=e54m6XOpRgU* .	● Knows and can identify and name a variety of common wild and garden plants, including deciduous and evergreen trees. ● Knows and can identify and describe the basic structure of a variety of common flowering plants, including trees.	● Knows about and can describe weather in different seasons over a year. ● Knows and can describe the features of different seasons and how they change through the year
	Cross Curricular Links (Examples)	● Maths: Creation of a pictogram ● Art: Create seasonal artwork	● D&T: Children attempt to create a waterproof roof for a lego model	● P.E. investigate the effects of exercise on the human body. ● Art - Animal sculptures ● Maths - non-standard measurements of parts of the body.	● Literacy: Writing instructions for how to plant a seed. ● Art: Create a plant collage and label with key vocabulary. *For instance Flower pressing, using pressed flowers and leaves to create collages, bookmarks*	● Maths: Handling (weather) Data ● Art: Seasonal Artwork
KS1 Skills End Points (Working scientifically): ● Asks simple questions and recognises that they can be answered in different ways. ● Observes closely, using simple equipment. ● Performs simple tests. ● Can identify and classify. ● Uses their observations and ideas to suggest answers to questions. ● Gathers and records data to help in answering questions.	Key Skills **FOR INSTANCE**	● Gather and record data about weather conditions in autumn, drawing on observation and using simple equipment (such as a container to measure rainfall) *.* ● Use data to create a pictogram and use this to describe changes in day length over the seasons. ● Use their evidence to describe some other features of the weather, surroundings, themselves, animals, and plants found in autumn. ● Demonstrate their knowledge in different ways e.g. creating seasonal artwork, creating a pictogram (and use this to ask and answer related questions).	● Compare and group together a variety of everyday materials on the basis of their simple physical properties. ● Classify objects made of one material in different ways e.g. a group of objects made of metal. ● Classify one type of object made from a range of materials e.g. a collection of spoons made of different materials. ● Chosen an appropriate method for testing an object for a particular property. ● Use their test evidence to answer the questions about properties e.g. Which cloth is the most absorbent? ● Test the properties of objects e.g. absorbency of cloths, strength of party hats made of different papers, stiffness of paper plates, waterproofness of shelters.	● Make first hand close observations of animals from each of the groups (city farm). ● Compare the structure of two animals from the same or different group e.g. wings, feathers, vertebrates/invertebrates. ● Classify animals using a range of features e.g. lay eggs/give birth to live young. herbivore, omnivore (these terms do not have to be explicitly taught). ● Identify animals by matching statements to named images. ● Take measurements of parts of the body and present results in a table to interpret. ● Conduct simple sense experiments. Which part of my body is good for feeling, which is not? Which food/flavours can I	● Can sort and group parts of plants using similarities and differences e.g. the shape of leaves, the colour of the flower/blossom. ● Can use simple charts and Venn diagrams etc. to identify and classify plants. ● Use photographs and their own observations to talk about how plants change over time (e.g. seed to sapling to tree) and over the year (deciduous and fruit bearing trees). * ● Plant seeds and observe how they grow and change by making simple observations. * ● Point to and name the parts of a plant, recognising that they are not always the same e.g. leaves and stems may not be	● Collect information about the weather regularly throughout the year** ● Present this information in tables and charts to compare the weather across the seasons. ● Collect information, regularly throughout the year, of features that change with the seasons e.g. plants, animals, humans. ● Present this information in different ways to compare the seasons** ● Gather data about day length regularly throughout the year and present this to compare the seasons. ● Use gathered evidence to describe the general types of weather and changes in day length over the seasons.** ● Use evidence to describe some other features of their surroundings, themselves, animals, plants that change over the seasons** ● Demonstrate knowledge in different ways e.g. creating seasonal artwork.

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				identify by taste? Which smells can I match?	green, the leaves are different shapes.	
	School Context (Examples)	• Children can learn about seasonal change in the school grounds	• Identify the materials key local buildings are made from and discuss why those materials have been used.	• Senses discussed and explored within school. What do we see, hear, touch, smell and taste every day? • Local area - animals at Heeley City farm.	• Planting seeds using the outdoor classroom resources.	• Children visit the same areas in the school grounds and locality from Autumn term to draw comparison.

Year 2 Areas of Study					
	Half Term Coverage	**To be taught throughout the year**			
	Topic	Use of everyday materials	Plants	Animals, including humans	Living things and their habitats
	Key Knowledge	• Knows and can explain why some materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard are particularly suited to specific purposes. • Knows how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. • Knows the difference between materials that are transparent, translucent and opaque. For instance: Morph and his shape changing exploits https://www.bbc.co.uk/programmes/p013bhgy	• Knows that plants may grow from either seeds or bulbs. • knows that seeds and bulbs can germinate and then grow into seedlings and then continue to grow into mature plants. • Knows that mature plants may have flowers which then develop into seeds, berries and fruits etc. • knows that seeds and bulbs need to be planted at particular times of the year and will germinate and grow at different rates. • knows that some plants are better suited to growing in full sun and some grow better in partial and full shade. • Knows that plants need water, light and a suitable temperature to grow and stay healthy For instance: The Life Cycle of Daffodils. https://www.youtube.com/watch?v=ZBcw-xK5FEE	• Can describe how animals including humans have offspring which grow into adults, using the appropriate names for the stages. • Knows that to survive animals need sunlight, water, air, food and a suitable habitat (including shelter for protection from predators and the environment. For instance: What do Humans Need To Stay Healthy? http://www.bbc.co.uk/guides/zxvkd2p#ztbdjxs	• Knows and can explain the differences between things that are living, dead, and things that have never been alive. • Knows that most living things live in habitats to which they are suited. • Knows and can describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other. • Knows and can name a variety of plants and animals in their habitats, including micro-habitats. • Knows and can describe how animals obtain their food from plants and other animals, using the idea of a simple food chain, and identify and make the different sources of food. For instance: What is A Food Chain? https://www.bbc.com/education/clips/z96r82p
	Cross Curricular Links (Examples)	Maths: Investigate the transparency of objects, recording class data in a table and drawing simple conclusions from the findings.	Maths: Can use simple charts and Venn diagrams etc. to identify and classify plants.	• Literacy: Refer back to Y1 text; The Hungry Caterpillar • PE: investigation into the effects of physical exercise • Literacy: Creation of pet owner's guide	Art: Charcoal drawing of Animals in their habitats
KS1 Skills End Points (Working scientifically): • Asks simple questions and recognises that they can be answered in different ways. • Observes closely, using simple equipment. • Performs simple tests. • Can identify and classify. • Uses their observations and ideas to suggest answers to questions. • Gathers and records data to help in answering questions.	**Key Skills**	• Classify and sort materials by their properties e.g. manmade, natural. • Investigate and observe what happens to different materials during testing and use this to inform explanation of their properties. • Investigate which materials are fit for a purpose e.g. What is the best material for an umbrella? • Explain from their observations how materials change when a force is exerted on them by squashing, bending, twisting and stretching. • Investigate the transparency of objects, recording class data in a table and drawing simple conclusions from the findings. • Ask and answer questions about everyday materials.	• Make close observations of seeds and bulbs. • Classify seeds and bulbs. • Research and plan when and how to plant a range of seeds and bulbs. • Look after the plants as they grow – weeding, thinning, watering etc. • Make close observations and measurements of their plants growing from seeds and bulbs. • Make comparisons between plants as they grow. • Can spot similarities and difference between bulbs and seeds.	• Ask questions and use secondary sources to find out about the life cycles of some animals. • Observe animals growing over a period of time e.g. chicks, caterpillars, a baby. • Ask questions of a parent about how they look after their baby. • Ask pet owners questions about how they look after their pet. • Investigate the effect of exercise on their bodies. • Classify food in a range of ways, including using the Eatwell guide. • Investigate washing hands, using glitter gel. • Describe, using diagrams, the life cycle of some animals, including humans, and their growth to adults e.g. by creating a life cycle book for a younger child.	• Explore the outside environment regularly to find objects that are living, dead and have never lived. • Classify objects found in the local environment. • Observe animals and plants carefully, drawing and labelling diagrams. • Create simple food chains for a familiar local habitat from first hand observation and research. • Create simple food chains from information given e.g. in picture books (Gruffalo etc.). • Can sort into living, dead and never lived. • Can give key features that mean the animal or plant is suited to its microhabitat. • Using a food chain can explain what animals eat. • Can explain in simple terms why an animal or plant is suited to a habitat.

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				●Measure/observe how animals, including humans, grow. ● Collate what they know about looking after a baby/animal by creating a parenting/pet owners' guide. ● Explain how development and health might be affected by differing conditions and needs being met/not met.	
	School Context (Examples)	● Children to compare the uses of everyday materials in and around the school with materials found in other places	● Children observe plants and the conditions they are growing in around the school grounds. Visit to the Botanical Gardens	● Use animals in school; chicks in EYFS if available, if not, children to metamorphosis of caterpillar to butterfly in own classroom. ● Interview community members (parents, family members) about looking after a baby and/or a pet ● Refer to school dinner menu; each day provides from each food group	● Exotic animal visit to school Weston Park Museum Habitats workshop.

Y1 End Of Year Expectations:	**Y2 End Of Year Expectations:**
Plants • I name a variety of common wild and garden plants. • I name the petals, stem, leaf and root of a plant. • I name the roots, trunk, branches and leaves of a tree. Animals, including humans • I name a variety of animals including fish, amphibians, reptiles, birds and mammals. • I classify and name animals by what they eat (carnivore, herbivore and omnivore). • I sort animals into categories (including fish, amphibians, reptiles, birds and mammals). • I sort living and non-living things. • I name the parts of the human body that I can see. • I link the correct part of the human body to each sense. Everyday materials • I distinguish between an object and the material it is made from. • I explain the materials that an object is made from. • I name wood, plastic, glass, metal, water and rock. • I describe the properties of everyday materials. • I group objects based on the materials they are made from. Seasonal changes • I observe and comment on changes in the seasons. • I name the seasons and suggest the type of weather in each season.	Plants • I describe how seeds and bulbs grow into plants. • I describe what plants need in order to grow and stay healthy (water, light & suitable temperature). Animals, including humans • I explain the basic stages in a life cycle for animals, including humans. • I describe what animals and humans need to survive. • I describe why exercise, a balanced diet and good hygiene are important for humans. Living things and their habitats • I identify things that are living, dead and never lived. • I describe how a specific habitat provides for the basic needs of things living there (plants and animals). • I identify and name plants and animals in a range of habitats. • I match living things to their habitat. • I describe how animals find their food. • I name some different sources of food for animals. • I explain a simple food chain. Uses of everyday materials • I identify and name a range of materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard. • I suggest why a material might or might not be used for a specific job. • I explore how shapes can be changed by squashing, bending, twisting and stretching.