BRABIN'S ENDOWED PRIMARY SCHOOL

Science Curriculum Overview

Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2	Y1 Park Explorers	Y1 My Body and My Senses	Y2 Animal Needs	Y1 Seasonal Changes	Y2 Food Chains and Health	Y1 Everyday Materials
Key Learning	-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. 1.What is That Plant? 2.What Part is That? 3.Is it Evergreen? 4.What is That Flower? 5.How Do Plants Grow? 6.Where do Fruits Come From? -Working Scientifically -Observing closely, identifying and classifying	-Pupils should identify, name, draw, and label the basic parts of the human body and say which part is associated with each sense. 1. What Can Our Bodies Do? 2.What Are the Senses (Smell)? 3.How Do We See? 4. What is that Sound? 5. How Does It Taste? 6.What Can We Feel? -Working Scientifically -Observing closely, identifying, and classifying. -Using simple equipment to observe. -Performing simple tests.	-Learn about animal life cycles; Understand basic needs of animals and humans (food, water, air) 1.Introduction to Life Cycles 2. Babies and Adults 3. Growth and Change 4. What Animals Need 5. Human Life Cycle 6. Summarising and Recording -Working Scientifically -Identifying & -Classifying: - Performing Simple Test -Using Observations to Suggest Answers:.	-Observe changes across the four seasons -Observe and describe weather associated with the seasons and how day length varies 1.What Are the Seasons? 2.What Happens in Spring? 3.What Happens in Summer? 4.What Happens in Autumn? 5.What Happens in Winter? 6.Can We Compare the Seasons? -Working Scientifically -Observing closely using simple equipment; identifying and classifying -Using observations and ideas to suggest answers; gathering and recording data	-Create simple food chains; Learn about human health and the importance of a balanced diet 1. Introduction to Food Chains 2. Producers, Consumers, and Predators 3. Building Food Chains 4. Importance of Health 5. Healthy Diets 6. Summarising and Recording Model -Working Scientifically -Making & Identifying -Gathering Information - Using Ideas to Suggest Answers	-Distinguish between an object and the material -Identify and name a variety of everyday materials, -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. 1.What Is It Made Of? 2.Is It Hard or Soft? 3.Is It Rough or Smooth? 4. What Keeps Us Dry? 5.What Looks Shiny? 6. Which Material is Best? -Working Scientifically -Observing closely, identifying, and classifying. -Performing simple tests.

-National Curriculum Statements

Cycle B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 1/2	Y1 Animal Groups	Y1 Animal Diets	Y2 Local Habitats	Y2 Habitats and Microhabitats	Y2 Growing Plants	Y2 Uses of Everyday Materials
Key Learning	-Identify and name a variety of common animals, including fish, amphibians, reptiles, birds, and mammals -Describe and compare the structure of a variety of common animals 1. Is it a Mammal 2.Can All Birds Fly? 3. What Is A Reptile? 4. Water Or Land? 5. How Do Fish Breathe Underwater? 6. What Makes Animals Different? Working Scientifically -Identifying and classifying -Performing Simple Tests -Asking varied questions; using observations to suggest answers	-Identify and name a variety of common animals that are carnivores, herbivores and omnivores 1.Where does Food Come From? 2. Who Eats Plants? 3.Who Eats Only Meat? 4. Who Eats Both? 5. Who lives underwater? 6. What Are Some Unusual Foods? Working Scientifically -Performing Simple Tests -Observing Closely -Identifying and classifying	Distinguish between living, dead, and never alive; Explore local habitats and how they meet needs 1. Introduction to Habitats 2. Living, Dead, Never Alive 3. Local Habitats 4. Microhabitats 5. Basic Needs in Habitats 6. Summarising and Recording Working Scientifically - Exploring & Observing -Using Simple Equipment -Gathering & Recording Data	Investigate different habitats and microhabitats; Understand how conditions affect living things 1. Exploring Habitats 2. Microhabitats in Detail 3. Conditions and Adaptations 4. Observing Different Habitats 5. Comparing Habitats 6. Summarising and Recording Working Scientifically -Observing Over Time -Using Simple Measurements -Comparative Testing:.	Observe how seeds and bulbs grow; Learn about plant needs (water, light, temperature) 1. Introduction to Plant Growth 2. Germination: Plant seeds and observe early growth 3. Observing Growth 4. What Plants Need 5. Comparing Growth 6. Summarising and Recording Working Scientifically -Asking Simple Questions & Suggesting Answers -Planting Seeds -Observing Closely & Using Equipment -Recording Data:	Compare the suitability of materials for different uses; Explore how materials can change shape 1. Introduction to Materials 2. Sorting Materials 3. Testing Materials 4. Comparing Uses 5. Changing Shapes 6. Summarising and Recording Working Scientifically -Performing Simple Tests -Make predictions, conduct tests, and observe outcomes. - Identifying & Classifying -Recording Data

Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3/4	Y4 *Animals including Humans*	Y3 *The Science of Rocks*	Y4 Electricity	Y3 *Plants*	Y3 *The Science of Light*	Y4 *History of Science*
Key Learning	-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 1.Can we group animals by what they eat? 2.Who eats what? 3.Why are we born without teeth? 4.Why doesn't the stomach digest itself? 5.How big is the small intestine? 6.Are all bacteria bad for us? Working Scientifically -Identifying, Classifying, and Grouping -Comparative testing - Observation over time.	-compare and group together different kinds of rocks on the basis of their appearance and simple physical properties -describe in simple terms how fossils are formed when things that have lived are trapped within rock -recognise that soils are made from rocks and organic matter 1.How can we describe rocks? 2.How do volcanoes make igneous rocks? 3.Where can we find fossils? 4.Can rocks be changed? 5.Can we recycle rocks? 6.Why is soil important? Working Scientifically -Observe and classify -Make predictions -Make models - make simple conclusions using models	-Identify common appliances that run on electricity. - Construct a simple series electrical circuit, identifying and naming its basic parts - Identify whether or not a lamp will light in a simple series circuit. - Recognise that a switch opens and closes a circuit - Recognise some common conductors and insulators. 1. What is electricity? 2.how do we produce electricity for our homes?3. What are the parts of a circuit? 4. What are conductors and insulators? 5. Is electricity safe? 6. How has electricity changed the world? Working Scientifically -Observation over time - Comparative testing -Identifying, Classifying, and Grouping -Research using secondary sources	-Identify and describe the functions of different parts of the flowering plant -Explore the part flowers play in a flowering plants life cycle -Explain the requirements of plants for life and growth and how they vary between plants -Know the way in which water is transported between plants 1.What are the parts of a plant? 2.What do plants need to grow? 3.How does water move around a plant? 4.Why do plants need flowers? 5.How do plants make new plants?6.What are the stages of a plant life cycle? Working Scientifically -Follow and set up a simple practical procedure, making predictions, observation, identifying and classifying, use of secondary data, fair tests and variables, repeats and averages making scaffolded conclusions based on evidence, presenting information, evaluation and repeatability	-Recognise that they need light in order to see things and that dark is the absence of light. -Notice that light is reflected from surfaces. - Recognise that light from the sun can be dangerous and that there are ways to protect their eyes. - Recognise that shadows are formed when the light from a light source is blocked by an opaque object. -Find patterns in the way that the size of shadows change. 1.Light Source or Light Reflector? 2.Transparent, Translucent, or Opaque? 3.What Makes a Good Reflector? 4.What is a Shadow? 5.How Can We Protect Our Eyes from the Sun?6. How Do Telescopes Work? Working Scientifically -Identifying, Classifying, and Grouping - Comparative and fair testing -observing changes	Working Scientifically -Ask relevant questions and use different types of scientific enquiries to answer them - Set up simple practical enquiries, comparative and fair tests - Make systematic and careful observations and, take accurate measurements - Gather, record, classify and present data -Record findings - Use results to draw simple conclusions, make predictions, suggest improvements and raise further questions -Identify differences, similarities or changes -Use straightforward scientific evidence to answer questions or to support finding 1.Did science exist in prehistoric times? 2.How did Ancient Egyptians use science? 3.What was Ancient Greek science? 4.How did Ancient Rome use science? 5.What was science in the Middle Ages? 6.What is modern science?

Cycle B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
Year 3/4	Y4 *Science of Sound*	Y4 *States of Matter*	Y3 *Animals including Humans*	Y4 *Living things and their habitats*	Y3 *Forces and Magnets*	Y3 *The Bee Project*
Key Learning	-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 1. How are sounds made? 2. How does sound travel? 3. How do our ears work? 4. Big or small? 5. High or low? 6. Can you keep the noise down? Working Scientifically -Observation over time -Comparative Testing -Pattern seeking testing -Fair testing	*-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* 1.What are the states of matter? 2.Can we turn a solid into a liquid? 3.What is the opposite of melting? 4.Why do puddles disappear? 5Can we make rain? 6. Do we drink the same water dinosaurs did? Working Scientifically -Classify and observe - Comparative testing, predictions, conclusions and evaluations -Comparative Testing -Method writing	-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 1.Know how living things get energy 2.The different nutrients we need to eat 3.The food requirements for a range of animals 4. The bones in the body 5.The structure and function of bones in other animals 6.How animals move using muscles Working Scientifically -Secondary sources of data - Follow a simple practical procedure	-recognise that living things can be grouped in a variety of ways - explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment - recognise that environments can change and that this can sometimes pose dangers to living things 1. Some ways living things can be sorted 2. The different vertebrate groups and their characteristics 3. The different invertebrate groups and their characteristics 4. How to classify living things based on their characteristics 5. Where to find living things in their habitats 6. How humans have affected animal and plant habitats Working Scientifically -Observe, identify and classify -Interpret and construction classification keys -Make a conclusion based on evidence.	-compare how things move on different surfaces -notice that some forces need contact but magnetic forces can act at a distance -observe how magnets attract or repel each other -compare and group together a variety of everyday materials magnet, and identify some magnetic materials -describe magnets as having 2 poles -predict whether 2 magnets will attract or repel each other based on the positions of the poles 1.How do we make things move?2. What is a force?3. What are some non-contact forces?4. Are all metals magnetic?5. Can you make a magnet stronger?6. Can magnets help us when we are lost? Working Scientifically -Comparative testing -Fair testing	-Explore the part that flowers play in the life cycle of flowering plants -Identify that animals types and amount of nutrition -Recognise that living things can be grouped in a variety of ways -Explore and use classification keys -Recognise that environments can change -Construct and interpret a variety of food chains -Describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird 1.What is a bee? 2.What is inside a hive? 3.What do bees make? 4.How do bees communicate? 5.Who makes honey? 6.What is happening to bees? Working Scientifically -Identifying, classifying, and grouping -Pattern seeking -Comparative testing

Cycle A	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
5/6	*Y5* *Earth and Space*	*Y6* *Electric Circuits*	*Y5* *Living things and their habitats*	*Y5* *Animals Including Humans*	*Y5* *Properties and Changes of Materials*	*Y6* *Animals including Humans*
Key Learning	-describe the movement of the Earth and other planets relative to the sun in the solar system -describe the movement of the Moon relative to the Earth - describe the Sun, Earth and Moon as approximately spherical bodies - use the idea of the Earth's rotation to explain day and night and the apparent movement of the sun across the sky 1. Do objects move in space? 2. Why do we have day and night? 3. Does the Moon change shape? 4. Can we use celestial objects to tell the time? 5. What is the Geocentric Model of the solar system? 6. What is the Heliocentric Model of the solar system? Working Scientifically -Secondary research and modelling	-associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit - 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 - use recognised symbols when representing a simple circuit in a diagram 1.How do electrical appliances work? 2.Why do batteries have voltage? 3.What are the parts of a circuit? 4.What are circuit diagrams? 5.How can we use electricity safely? 6.What is the history of electricity? Working Scientifically - Identifying, classifying, and grouping. -Observing over time -Comparative testing	-describe the differences in the life cycles of a mammal, an amphibian, an insect and a bird -describe the life process of reproduction in some plants and animals 1.Do all animals develop the same way? 2.What is metamorphosis? 3. What is inside a cocoon? 4. Which came first, the chicken or the egg? 5. Why is there variation amongst living things? 6. Do you always need two parents to reproduce? Working Scientifically -Secondary research and modelling	-Describe the changes as humans develop to old age. This includes understanding the stages of the human life cycle, from baby to elderly, and recognising key development milestones along the way. 1.Where does the human life cycle begin? 2.How does a child prepare for adulthood? 3.What is a period? 4.When are new humans made? 5.Do other animals have the same life cycle? 6.What is the last stage of the human life cycle? Working Scientifically -Identifying, Classifying, and Grouping -Comparative Testing -.Pattern Seeking and Research -Using Secondary Sources	-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 -know that some materials will dissolve in liquid to form a solution, and describe how to recover a substance from a solution -use knowledge of solids, liquids and gases to decide how mixtures might be separated, including through filtering, sieving and evaporating -give reasons for the particular uses of everyday materials -demonstrate that dissolving, mixing and changes of state are reversible changes -explain that some changes result in the formation of new materials, and that this kind of change is not usually reversible Working Scientifically Comparative testing, fair tests, variables, co-planning experiments, conclusions and evaluations	-identify and name the main parts of the human circulatory system, and describe the functions of the heart, blood vessels and blood -recognise the impact of diet, exercise, drugs and lifestyle on the way their bodies function -describe the ways in which nutrients and water are transported within animals, including humans L1.What is the human circulatory system? L2.How does blood get around the body? L3.What is in the blood? L4.How do we get water and nutrients?L5. How can we keep our heart healthy? L6. What are some blood disorders? Working Scientifically - Comparative testing - Pattern seeking - Identifying, classifying and grouping - Fair testing - Researching using secondary sources

Cycle B	Autumn 1	Autumn 2	Spring 1	Spring 2	Summer 1	Summer 2
5/6	*Y6* *Evolution and Inheritance*	*Y5* *Forces*	*Y6* *The Science of Light*	*Y5* *The Scientific Method*	*Y6* *Living things and their Habitats*	*Y6* *Preparing for Secondary Science*
Key Learning	-recognise that living things have changed over time and that fossils provide information about living things that inhabited the Earth millions of years ago -recognise that living things produce offspring of the same kind, but normally offspring vary and are not identical to their parents - identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution Lesson 1 What is variation? Lesson 2 Why do adaptations matter? Lesson 3 What are some animal adaptations? Lesson 4 How do plants adapt? Lesson 5 What can fossils reveal? Lesson 6 Who are key figures in evolution? Working Scientifically - Identifying, classifying, and grouping -Researching using secondary sources	-explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object -identify the effects of air resistance, water resistance and friction, that act between moving surfaces -recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect 1.What happens when friction is low? 2.What happens when friction is high? 3.What is air resistance? 4. What is water resistance? 5.What does gravity do? 6.What are some simple machines? Working Scientifically -Observation - comparative testing - fair testing	-recognise that light appears to travel in straight lines - use the idea that light travels in straight lines to explain that objects are seen because they give out or reflect light into the eye - explain 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 the idea that light travels in straight lines to explain why shadows have the same shape as the objects that cast them 1. How does light travel? 2. How does reflection help us see? 3. can we increase reflection? 4. What shapes our shadows? 5. What causes rainbows? 6. Can we make a red apple blue? Working Scientifically - Comparative testing -Observe objects -Researching using secondary sources	**Working Scientifically** -Plan different types of scientific enquiries to answer questions -Take measurements using a range of scientific equipment -Record data and results using tables and graphs - Use test results to make predictions and set up further tests -Report and present findings in written forms and displays -Identify scientific evidence that supports or refutes an idea 1.What is the scientific method? 2.What is a variable? 3.What is the best equipment for the job? 4.Is the data reliable? 5.How did the scientific method transform blood donation? 6.How did the scientific method help us learn about chimpanzees?	-describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals - give reasons for classifying plants and animals based on specific characteristics Lesson 1: How Can We Classify Animals? Lesson 2: How Can We Classify Plants? Lesson 3: What Are Microorganisms? Lesson 4: Are There Some Tricky Classifications? Lesson 5: Can We Study Local Habitats? Lesson 6 Who was Carl Linnaeus? Working Scientifically - Identifying, classifying and grouping - Observing over time, comparative testing	**Working Scientifically** -Develop scientific knowledge and conceptual understanding. -Understand the nature, processes, and methods of science. - Be equipped with the scientific knowledge required to understand the uses and implications of science Lesson 1: How can we improve observations? Lesson 2: Acid or alkali? Lesson 3: How can we separate colours? Lesson 4: What can affect photosynthesis? Lesson 5: How can we change sound?Lesson 6: How is energy transformed?