

## Science Curriculum Overview

'Children leave Rood End with an enthusiasm and curiosity for science and understand how it can influence their futures'

|                | Aut 1   | Aut 2   | Spr 1  | Spr 2  | Sum 1                                   | Sum 2  |
|----------------|---|---|--|--|---|--|
| Year 1         | Animals including humans  | Seasonal changes  | Everyday materials   | Seasonal changes   | Seasonal changes                        | Plants   |
| Objectives     | I can name a variety of common animals<br>I can understand carnivore, herbivore and omnivore<br>I can identify the main parts of the human body<br>I can explore human senses<br>I can compare the structure of a variety of animals  | I can observe changes over time   | I can name a variety of everyday materials<br>I can say what material an object is made from<br>I can describe the properties of materials<br>I can explore if a material is waterproof<br>I can explore if a material is absorbant<br>I can classify a material according to its properties   | I can observe changes over time  | I can observe changes over time         | I can name a variety of plants<br>I can name a variety of garden plants, fruits and vegetables<br>I can compare different types of trees<br>I can describe the basic structure of a plant<br>I can identify seeds in a plant<br>I can observe the growth of a plant  |
| Investigations | Exploring human senses  |   | Material matching.<br>Grouping materials according to their properties.<br>Is a material waterproof?<br>Will a material absorb liquid?   |  |   | Plant hunt at the local park<br>Investigate the structure of a plant<br>Investigate seeds in a fruit<br>Investigate the growth of a plant  |
| Key Vocab      | human, animal, carnivore, herbivore, omnivore, body, senses, mammals, birds, reptiles, amphibians, fish   | Seasons, Autumn, Spring, Summer, Winter   | material, object, properties, waterproof, absorbant, classify,   | Seasons, Autumn, Spring, Summer, Winter  | Seasons, Autumn, Spring, Summer, Winter | plant, tree, fruit, vegetable, seed, grow  |
| Equipment      |   |   | Measuring cylinder   |  |   | Magnifying glass   |
| Experiences    |   | Visits to the park  |  | Visits to the park   | Visits to the park                      |  |
| Year 2         | Living things and their habitats  | Animals including humans  | Everyday materials   |  |   | Plants   |
| Objectives     | I can describe and name a variety of plants and animals in their habitat<br>I can name a variety of animals and describe their habitats<br>I can explore how different plants and animals depend on each other<br>I can create a simple food chain<br>I can compare things that are living, dead and never been alive<br>I can identify that most living things live in habitats to which they are suited | I can explain that animals have offspring that grow into adults<br>I can observe how humans grow into adults<br>I can describe a simple life cycle<br>I can describe the basic needs of animals for survival<br>I can investigate what humans need to stay healthy                                      | I can describe the properties of different materials<br>I can identify different objects made from the same material<br>I can compare the suitability of different materials<br>I can explore why some materials are more suitable for certain uses<br>I can investigate the most suitable material for a particular use<br>I can explore how the shapes of solid objects can be changed |  |   | I can explore how some plants contain seeds.<br>I Know that seeds and bulbs have a store of food inside them<br>I can describe how seeds/bulbs grow into mature plants<br>I can explore what plants need to grow and be healthy<br>I can explain what plants need to grow and be healthy   |
| Investigations | Identifying plants and animals in their environment.<br>Identifying animals in microhabitats.<br>Investigate dead, living and never alive.<br>Investigate the most suitable habitat (choice chamber)  | Human growth investigation<br>What do humans need to stay healthy?  | Properties of materials investigation.<br>Materials that objects are made from.<br>Best paper for a drinking straw.<br>Most suitable material for a raincoat.<br>Explore how the shapes of solid objectss can be changed.  |  |   | Investigate seeds inside fruit<br>Investigate what is inside a seed<br>What do seeds need to germinate?<br>What do plants need to grow and be healthy?   |
| Key Vocab      | Plant, animal, habitat, microhabitat, depend, food chain, dead, living, never alive, suitable, suited   | animal, human, adult, grow, offspring, life cycle, water, food, air, survival, healthy  | properties, material, object, suitable, unsuitable   |  |   | Plant, grow, food, seed, bulb, healthy, germinate,   |
| Equipment      | Pooter, magnifying glass,   |   |  |  |   | magnifying glass   |
| Experiences    | Trip to park  |   |  |  |   |  |
| Year 3         | Rocks   | Forces and magnets  | Light  | Animals including humans   |   | Plants   |
| Objectives     | I can identify the 3 different types of rocks<br>I can observe the physical properties of rocks<br>I can investigate what soil is made from<br>I can describe how fossils are formed<br>I can discuss how different living things have become fossils<br>I can plan and deliver an oral presentation  | I can identify push, pull and magnetic forces<br>I can compare how things move on different surfaces<br>I can record data<br>I can identify some magnetic materials<br>I can explore the strength of different magnets<br>I understand how the properties of magnets make them useful in everyday items | I understand that we need light to see things<br>I can observe how light is reflected from surfaces<br>I understand that sunlight can be dangerous<br>I can explain how shadows are formed<br>I can observe how shadows change<br>I can describe how and why shadows change  | I can explore why humans have skeletons<br>I can compare animal and human skeletons<br>I can report on a scientific enquiry<br>I can identify and group animals with and without skeletons<br>I know that humans need the right type of nutrition to survive |   | I can identify the different parts and functions of a flowering plant<br>I can investigate how water is transported in plants<br>I can make systematic and careful observations<br>I can explore the requirements of plants for life and growth<br>I can explore different types of seed dispersal<br>I can describe the life cycle of a flowering plant |
| Investigations | Observing and grouping igneous, sedimentary and metamorphic rocks.<br>Observing permeable and impermeable rocks.<br>What is soil made from?<br>How fossils are formed.  | Push, pull or magnetic force.<br>How things move on different surfaces (friction).<br>Magnetic and non-magnetic materials.<br>The strength of different magnets.  | Identifying light sources<br>How light reflects and travels in straight lines<br>How shadows are formed<br>How and why shadows change  | Types and purpose of muscles.<br>Comparing animal and human skeletons<br>Planning a healthy menu   |   | How water is transported in plants<br>Different types of seed dispersal  |
| Key Vocab      | Rock, igneous, metamorphic, sedimentary, permeable, impermeable, organic matter, fossil, palaeontologist, geologist   | Force, magnet, magnetic, non-magnetic, push, pull, friction, surface, attract, repel  | light, dark, darkness, shadow, reflect, sunlight,  | human, animal, skeleton, muscle, diet, nutrition   |   | Plant, flowering, transported, life, grow, life-cycle  |
| Equipment      | Magnifying glass, pipet, funnel, beaker, filter paper   | magnet  | torch, mirror, smoke machine,  | Animal and human x-rays  |   |  |

| Experiences    |   |  | Smoke machine in class  | P.E coach activity  |  | Sticky buds dispersal activity   |
|----------------|---|--|---|---|--|--|
| Year 4         | States of matter  | Animals including humans   | Sound   | Electricity   |  | Living things and their habitats   |
| Objectives     | I can compare and group solids and liquids<br><br>Needs updating on MTP   | I can identify different parts of the digestive system<br>I can explore how teeth are damaged and how to keep them healthy<br>I can describe the basic parts of the digestive systems<br>I can compare different animals teeth<br>I can construct a food chain   | I can identify how sounds are made<br>I can recognise that vibration from sounds travel to the ear<br>I can find patterns between the pitch of a sound and the object that created it<br>I can match two sounds<br>I can recognise how sound gets fainter as the distance from it increases<br>I can record results in different ways   | I can identify common appliances that run on electricity<br>I can construct a simple electrical circuit<br>I can construct a simple electrical circuit with various components<br>I can explore conductors and insulators<br>I can make a switch that opens and closes a circuit<br>I can make a circuit with a purpose   |  | I can group vertebrates and invertebrates<br>I can sort vertebrate animals into groups<br>I can sort invertebrates into groups<br>I can classify living things according to their characteristics<br>I can identify and group a variety of living things<br>I can identify and group a variety of living things in the local environment   |
| Investigations |   | That our teeth are part of our digestive system.<br>Comparing different animals' teeth.  | That sound is made by something vibrating.<br>High pitch and low pitch.<br>Making and matching two sounds.<br>How sound gets fainter as the distance from it increases.   | Constructing a simple circuit.<br>Making a switch that opens and closes a circuit.<br>Exploring conductors and insulators.<br>Constructing a circuit with a purpose.  |  | Identify and classify living things in the local environment   |
| Key Vocab      |   | animal, human, digestive system, teeth, food chain, producer, predator, prey   | Sound, pitch, high, low, vibrate, ear, fainter, louder  | Electricity, circuit, components, switch, battery, mains electricity, conductor, insulator, safety  |  | habitat, living things, vertebrate, invertebrate, characteristics, environment   |
| Equipment      |   | Mirror, animal and human x-rays  | test tubes  | circuit equipment, batteries  |  | pooters  |
| Experiences    |   |  |   |   |  | Trip to the canal  |
| Year 5         | Properties and changes of materials   | Forces and Magnets   | Earth and space   | Living things and their habitats  |  | Animals including humans   |
| Objectives     | I can explore how some materials dissolve in a liquid to form a solution<br>I can explore reversible changes<br>I can explore how a mixture might be separated<br>I can explain that some changes in materials are not reversible<br>I can explore thermal conductivity<br>I can group materials according to their properties                    | I can explore the force of gravity<br>I can identify the effects of air resistance<br>I can identify the effects of water resistance<br>I can identify the effects of friction<br>I can explore how some mechanisms allow a small force to have a greater effect | I can name the planets in the solar system<br>I can describe the movement of the planets relative to the sun<br>I can describe the movement of the moon relative to the earth<br>I can explain how the Earth rotates on its axis<br>I can explain how the Earth's rotation is linked to day and night<br>I can understand how ideas about the solar system have changed   | I can describe sexual reproduction in a flowering plant<br>I can describe the movement of the planets relative to the sun<br>I can describe asexual reproduction in plants<br>I can describe the life cycles of mammals and birds<br>I can explore the difference between animal life cycles<br>I can explore life cycles from around the world<br>I can investigate the work of an animal behaviourist or naturalist |  | I can describe the stages in the growth and development of humans<br>School nurse puberty talk<br>I can describe the changes humans experience in puberty<br>I can describe the gestation period of a variety of animals<br>I can explore how a human grows before birth<br>I can describe how humans change in old age  |
| Investigations | That some materials will dissolve in a liquid.<br>Reversible changes.<br>Separating materials in different ways.<br>Irreversible changes.<br>Exploring thermal conductivity.<br>Grouping materials according to their properties.   | Exploring gravity.<br>Air resistance (parachutes)<br>Water resistance.<br>Exploring friction.<br>Exploring how levers affect forces.   | Describe the movement of the planets relative to the sun.   | Flowering plant dissection.<br>Planting different fruits and vegetables. Do they grow?  |  | Formulate a healthy lifestyle plan for an elderly person<br>How humans grow before birth   |
| Key Vocab      | material, properties, changes, dissolve, liquid, solution, soluble, reversible, irreversible, separate, thermal conductivity, magnetic  | Force, gravity, resistance, friction, mechanism, lever, gears, water, air  | Earth, space, planets, sun, rotate, axis, day, night, solar system, Geocentric, Heliocentric  | Living things, plants, habitats, asexual, sexual, reproduction, life cycle, mammals, birds, behaviourist, naturalist  |  | Animals, humans, growth, development, puberty, gestation period, birth, old age, healthy   |
| Equipment      | Funnel, filter paper, beakers, sieve, magnet,   | Stopwatches, tall cylinders (1000mL), bicycle wheel,   | inflatable planets  | tweezers  |  |  |
| Experiences    |   | Making parachutes  |   | Dissect a flower  |  | School nurse visit   |
| Year 6         | Animals including humans  | Light  | Evolution   | Electricity   |  | Living things and their habitats   |
| Objectives     | I can name and locate the main body organs<br>I can explain the function of the heart<br>I can describe the human circulatory system<br>I can describe the function of the lungs<br>I can take measurements and interpret results<br>I can describe the respiratory system<br>I can describe the impact of exercise, diet and drugs on our bodies | I can explore how light travels to the eye<br>I can explore how light travels in straight lines<br>I can explore how shadows relate to the object that cast them<br>I can describe the main functions of the eye<br>I can experiment with making rainbows        | I can identify reasons for extinction.<br>I can research using internet resources<br>I can explain a paleontologist's findings and contributions to understanding<br>I can describe and explain inheritance<br>I can describe a naturalist's findings and contributions to understanding<br>I can explore how environmental changes affect animals<br>I can describe how different plants are adapted to their environments | I can match component images to components<br>I can investigate how components in a circuit can be affected by voltage<br>I can use recognised symbols to draw a circuit diagram<br>I can explore the dangers of electricity<br>I can design a circuit with a purpose   |  | I can give reasons for classifying living things based on their similarities and differences<br>I can describe how living things are classified into groups<br>I can classify a creature based on its characteristics<br>I can describe and investigate microorganisms<br>I can identify the characteristics of different types of microorganisms<br>I can use what I have observed to make a conclusion<br>I can classify organisms found in my local habitat |
| Investigations | Research the function of the human heart<br>How the circulatory system works<br>Function of the lungs/ measuring lung capacity  | Light travels in straight lines<br>How shadows relate to the object that cast them<br>How rainbows are formed  | How environmental changes affect animals  | How components in a circuit are affected by voltage<br>Design a circuit with a purpose  |  | What conditions make mould grow?<br>Create a field guide for a local habitat<br>Creating and classifying a new creature  |
| Key Vocab      | animal, human, organs, oxygen, lungs, heart, intestines, liver, kidney, brain, oesophagus, stomach, oxygen, carbon dioxide, drugs, exercise   | Light, shadow, rainbow, eye, pupil, iris, retina   | Evolution, extinction, palaeontologist, inheritance, adapt, naturalist, environment, environmental, animals, plants, living things  | Electricity, component, voltage, symbols, danger, purpose   |  | Habitat, living things, classify, characteristics, organisms, microorganisms   |
| Equipment      | Tape measures   | Smoke machine, mirror, torch   |   | circuit equipment   |  |  |
| Experiences    |   | Smoke machine  |   |   |  | Trip to local habitat  |