

NC Purpose of Study

A high-quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational knowledge and concepts, pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes.

Intent	Implementation	Impact
At Broadway Junior School we believe that a high quality science education provides the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. Science has changed our lives and is vital to the world's future prosperity, and all pupils should be taught essential aspects of the knowledge, methods, processes and uses of science. Through building up a body of key foundational 'Big Ideas', pupils should be encouraged to recognise the power of rational explanation and develop a sense of excitement and curiosity about natural phenomena. They should be encouraged to understand how science can be used to explain what is occurring, predict how things will behave, and analyse causes. Science in our school is about developing children's ideas and ways of working that enable them to make sense of the world in which they live through investigation, as well as using and applying process skills. The staff here ensure that all children are exposed to high quality teaching and learning experiences, which allow children to explore their outdoor environment and locality, thus developing their scientific enquiry and investigative skills. They are immersed in scientific vocabulary, which aids children's knowledge and understanding not only of the topic they are studying, but of the world around them. We intend to provide all children regardless of ethnic origin, gender, class, aptitude or disability, with a broad and balanced science curriculum.	Teachers create a positive attitude to science learning within their classrooms and reinforce an expectation that all children are capable of achieving high standards in science. Our whole school approach to the teaching and learning of science involves the following: Science will be taught in planned and arranged blocks by the class teacher, to have a subject specific approach. This is a strategy to enable the achievement of a greater depth of knowledge. Through our planning, we involve problem solving opportunities that allow children to find out for themselves. Children are encouraged to ask their own questions and be given opportunities to use their scientific skills and research to discover the answers. This curiosity is celebrated within the classroom. Planning involves teachers creating engaging lessons, often involving high-quality resources to aid understanding of conceptual knowledge. Teachers use precise questioning in class to test conceptual knowledge and skills, and assess children regularly to identify those children with gaps in learning, so that all children keep up. Teachers build upon the learning and skill development of the previous years. As the children's knowledge and understanding increases, and they become more proficient in selecting, using scientific equipment, collating and interpreting results, they become increasingly confident in their growing ability to come to conclusions based on real evidence. Working Scientifically skills are embedded into lessons to ensure these skills are being developed throughout the children's school career and new vocabulary and challenging concepts are introduced through direct teaching. This is developed through the years, in-keeping with the topics.	The impact and measure of this is to ensure children not only acquire the appropriate age related knowledge linked to the science curriculum, but also skills which equip them to progress from their starting points, and within their everyday lives. All children will have: - A wider variety of skills linked to both scientific knowledge and understanding, and scientific enquiry/investigative skills - A richer vocabulary which will enable to articulate their understanding of taught concepts - High aspirations, which will see them through to further study, work and a successful adult life.

Key Vocabulary

Living, dead, never alive, habitat, microhabitat, vertebrate, invertebrate, mammal, bird, fish, amphibian, reptile, insect, flowering plant, non-flowering plant, classify, classification, key, characteristics, similarities, differences, environment, local environment, organism, species.

Knowledge	Skills
Children will know: - Living things can be grouped according to observable characteristics. - Animals can be classified into different groups. - Plants can also be grouped according to their features. - Living things live in habitats suited to their needs. - Classification keys help identify living things. - Similarities and differences help scientists classify organisms. - Local environments contain a variety of living things. - Changes to habitats can affect living organisms.	By the end of the unit, pupils will be able to: - Identify and classify common animals. - Group plants using observable characteristics. - Compare similarities and differences between living things using scientific vocabulary. - Use simple classification keys. - Observe and identify living things in the local environment. - Record observations carefully. - Ask scientific questions. - Collect and present simple data. - Draw conclusions from observations.

Enrichment Opportunities

- Bug hunt around the school grounds.
- Visit the school garden or local park.
- Create a class field guide to local wildlife.
- Link with Geography through local habitats.
- Invite a local wildlife expert or ranger.
- Build bug hotels for the school ground

Learning Objectives/End Points

Pupils will be able to:

- Group animals according to their characteristics.
- Compare living things using appropriate scientific vocabulary.
- Group plants using observable features.
- Identify living things in the local environment.
- Use a simple classification key accurately.
- Explain why classification is useful.
- Describe how habitats support living things.
- Recognise that environmental changes can affect habitats.

Key Questions/Learning Objectives/End Points

Identifying and grouping animals	Comparing living things by discussing similarities and differences. (<i>Oracy Focus</i>)	Identifying and group plants.	Exploring the school grounds and identify living things in their habitats.	Using and creating simple classification keys	TAPS focussed Assessment - investigating living things in the local environment
Sort animals into vertebrates and invertebrates, then into mammals, birds, fish, amphibians and reptiles.	Use paired discussion and sentence stems to compare animals using scientific vocabulary before sharing ideas	Sort leaves, flowers and pictures of plants into groups using observable features	Outdoor bug hunt and habitat survey. Record findings in tally charts or simple field notes	Use branching keys to identify collected organisms or picture cards before creating their own simple key	Conduct a habitat survey using the TAPS assessment, identifying organisms, recording evidence and drawing conclusions about the local environment
Starter (10 mins) Show pictures of different animals. Ask: <i>How could we group these animals?</i> Main (40 mins) Introduce vertebrates and invertebrates. Teach the five vertebrate groups. Children sort animal cards into groups and explain their choices. Plenary (10 mins) "Odd One Out" game using animal pictures.	Starter (10 mins) Display two animals. Think-Pair-Share: <i>How are they similar? How are they different?</i> Main (40 mins) Model sentence stems: "Both animals..." "However..." "One difference is..." Children compare different animals before sharing with another pair. Plenary (10 mins) Children share one comparison using scientific vocabulary.	Starter (10 mins) Show different leaves and flowers. Ask: <i>What do you notice?</i> Main (40 mins) Explore flowering/non-flowering plants and different leaf shapes. Children group real plants or photographs and explain their reasoning. Plenary (10 mins) Discuss why scientists group plants.	Starter (10 mins) Discuss how to work safely outdoors. Predict what animals might be found. Main (40 mins) Conduct a bug hunt around school. Record living things found and where they were found. Discuss habitats and microhabitats. Plenary (10 mins) Share the most unusual organism found.	Starter (10 mins) Introduce a simple yes/no key. Main (40 mins) Use branching keys to identify animals. Children create their own simple classification key using pictures. Plenary (10 mins) Swap keys with another group and test whether they work.	Starter (10 mins) Recap habitats and classification. Main (40 mins) Complete the TAPS Local Environment Study. Observe organisms in the school grounds. Record findings using tally charts or tables. Answer assessment questions using evidence. Plenary (10 mins) Discuss: Which habitat had the greatest variety of living things? Why do you think this was? How could we improve habitats around our school?

Substantive Knowledge

- Living things are grouped according to shared characteristics.
- Vertebrates and invertebrates are major animal groups.
- Plants can be classified using observable features.
- Classification keys help identify organisms.
- Habitats provide food, shelter and suitable conditions.
- Local environments support many different species.
- Environmental changes can positively or negatively affect habitats

Careers

Linking Curriculum Learning to Careers

Discuss how the skills developed in this unit are used in a range of careers, including:

- Zoologist
- Wildlife Ranger
- Wildlife Conservationist
- Animal Behaviourist
- Zookeeper
- Animal Care Assistant
- Wildlife Rehabilitation Officer
- Animal Welfare Officer
- Veterinary Surgeon
- Veterinary Nurse
- Plant Scientist
- Florist
- Garden Designer
- Groundskeeper
- Horticultural Technician
- Biologist
- Park Ranger
- Countryside Officer
- Forestry Worker
- Forester
- Woodland Manager
- Ranger

Transferable skills such as Fieldwork Curiosity Observation Investigation Problem Solving Teamwork
Communication Research Organisation Attention to detail Classification Data handling Critical thinking
Decision making Creativity Resilience Responsibility Confidence Care for Living Things

Learning from Career and Labour Market Information

- Introduce pupils to careers linked to wildlife, conservation, environmental science, ecology, animal care, horticulture and habitat management. Explore jobs pupils may encounter in local parks, nature reserves, zoos, gardens and environmental organisations.

Addressing the Needs of Each Pupil

- Provide opportunities for all pupils to explore environmental careers through outdoor learning, practical investigations, classification activities, fieldwork, discussion and role play. Recognise different strengths, including observation, organisation, communication, practical skills, creativity and problem-solving.

Linking Curriculum Learning to Careers

Explicitly link classification to zoologists and taxonomists; animals and habitats to zoologists, ecologists, vets and wildlife rangers; plants to botanists, horticulturalists and gardeners; fieldwork to environmental scientists and ecological surveyors; and habitat protection to conservationists and environmental officers.

Encounters with Employers and Employees

- Invite a wildlife ranger, ecologist, gardener, zookeeper, conservation worker or environmental scientist to speak to pupils. Pupils could prepare questions about their role, equipment, workplace, skills and the scientific knowledge they use.

Experiences of Workplaces

- Explore photographs, videos or virtual tours of nature reserves, wildlife centres, zoos, botanical gardens, environmental laboratories and conservation projects. Pupils identify the different people who work together to protect and understand living things.