



Science at Albany Infant and Nursery School



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At Albany Infant and Nursery School, we teach science by meeting the requirements of the national curriculum. We aim to provide the foundations for understanding the world through the specific disciplines of biology, chemistry and physics. 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.

We aim to achieve this by teaching knowledge, skills through high quality sequences of lessons which are designed to help pupils develop their understanding of:

- Looking closely at the natural and human world carefully.
- Teaching knowledge through investigations and questioning.
- Use different types of scientific enquiry to answer their own questions through, testing, observing patterns and changes, grouping and classifying and using books and ICT to consolidate and explain findings.
- Use scientific language and specific vocabulary to communicate ideas.
- Use disciplines of biology, chemistry and physics.
- Learning about the work of famous scientists.

Teaching is designed to take account of our five key curriculum drivers with skills and knowledge taken from our progression documents to ensure age appropriate content. Where appropriate, links are also made to ensure that children's social, moral, spiritual and cultural development is enhanced through science.

Science Foundation Stage ELG and Vocab

Biology	Chemistry	Physics
e.g. Living things	e.g. Everyday Materials	e.g. Seasonal Change

ELG Understanding the World - The Natural World

- Explore the natural world around them, making observations and drawing pictures of animals and plants.
- Know some similarities and differences between the natural world around them and contrasting environments, drawing on their experiences and what has been read in class.
- Understand some important processes and changes in the natural world around them, including the seasons and changing states of matter.

ELG Personal, Social and Emotional Development – Managing Self

- Manage their own basic hygiene and personal needs, including dressing, going to the toilet and understanding the importance of healthy food choices.

Vocabulary

Similarity
 Difference
 Animal
 Plant
 Growth
 Healthy
 Exercise
 Healthy diet
 Food
 Hygiene
 Teeth

Vocabulary

Water
 Ice
 Steam
 Melt
 Freeze
 Boil

Vocabulary

Season
 Change
 Autumn
 Winter
 Spring
 Summer
 Sun
 Snow
 Rain

Science Knowledge and Vocab: Year 1

Biology		Chemistry	Physics
Animals including Humans	Plants	Everyday Materials	Seasonal Change
<ul style="list-style-type: none"> Name common animals Carnivores, etc Human body and senses 	<ul style="list-style-type: none"> Common plants Plant structure 	<ul style="list-style-type: none"> Identify different materials Name everyday materials Properties of materials Grouping materials 	<ul style="list-style-type: none"> The four seasons Seasonal weather
<ul style="list-style-type: none"> Identify and name a variety of common fish, amphibians, reptiles, birds, mammal. Identify and name a variety of carnivores, herbivores and omnivores Describe and compare the structure of common animals (fish, amphibians, reptiles, birds and mammals, including pets) by how they look and how they move Identify, name, draw and label the basic parts of the human body (head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth) Match each part of the human body to each of the 5 senses <p>Vocabulary fish; amphibian; reptile; bird; mammal; carnivore; herbivore; omnivore; skeleton, organ; head, neck, arms, elbows, legs, knees, face, ears, eyes, hair, mouth, teeth, touch, taste, hearing, smell, sight Revise FS vocab [Living Things]</p>	<ul style="list-style-type: none"> Identify and name a variety of common wild and garden plants Identify and name a variety of deciduous and evergreen trees Identify and describe the basic structure of common flowering plants (roots, stem, leaves, flowers, petals, bulb, seed) Identify and describe the structure of trees (leaves, blossom, branches, trunk, fruit, roots, seed) <p>Vocabulary deciduous; evergreen; tree; structure; roots; stem; leaf; flower; petal; blossom; trunk; branch; fruit Revise FS vocab [Living Things]</p>	<ul style="list-style-type: none"> 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 (and brick, paper, fabric elastic, foil) Describe the simple physical properties of a variety of everyday materials (hard/soft, stretchy/stiff, shiny/dull, rough/smooth, bendy, waterproof, absorbent, opaque/transparent). Compare & group together a variety of everyday materials on the basis of their simple properties <p>Vocabulary Materials; plastic; wood; metal; rock; paper; brick; fabric; glass; elastic; foil; hard; soft, stretchy; stiff, rigid; shiny; dull, rough; smooth, bendy, flexible, waterproof, absorbent, opaque; transparent; translucent Revise FS vocab [Every Day Materials]</p>	<ul style="list-style-type: none"> Observe changes across the four seasons Observe and describe weather associated with the seasons and how the day length varies <p>Vocabulary clouds; ice; freezing; melting, temperature, day-length Revise FS vocab [Seasonal Change]</p>

Science Knowledge and Vocab: Year 2

Biology			Chemistry
All living things and their habitats	Animals, including Humans	Plants	Everyday Materials
<ul style="list-style-type: none"> • <i>Alive or dead</i> • <i>Habitats</i> • <i>Adaptations</i> • <i>Food chains</i> 	<ul style="list-style-type: none"> • <i>Animal reproduction</i> • <i>Healthy living</i> • <i>Basic needs</i> 	<ul style="list-style-type: none"> • <i>Plant and seed growth</i> • <i>Plant reproduction</i> • <i>Keeping plants healthy</i> 	<ul style="list-style-type: none"> • <i>Properties of materials</i> • <i>Compare the use of different materials</i> • <i>Changing the shape of materials</i>
<ul style="list-style-type: none"> • Explore and compare the differences between things that are living, dead and things that have never been alive • Identify that most living things live in habitats to which they are suited • Describe how different habitats provide for the basic needs of different kinds of animals and plants and how they depend on each other • Identify and name different plants and animals in their habitats, including micro habitats • Describe how animals obtain their food from plants and other animals, using the idea of a simple food chain and identify and name different sources of food. <p>Vocabulary habitat; microhabitat; living; dead; 'never been alive'; food chain; predator; prey; producer; consumer Revise Year 1 vocab [from Animals, including humans].</p>	<ul style="list-style-type: none"> • Notice that animals, including humans have offspring which grow into adults • Find out about and describe the basic needs of animals, including humans, for survival (water, food, air) • Describe the importance for humans of exercise • Describe the importance for humans of eating the right amounts of different types of food • Describe the importance for humans of hygiene <p>Vocabulary offspring; air; water; carbohydrate; fat; sugar; protein; dairy; fruit; vegetable; germ; bacteria Revise Year 1 vocab [from Animals, including humans].</p>	<ul style="list-style-type: none"> • Observe and describe how seeds and bulbs grow into mature plants • Find out and describe how plants need water, light and the right temperature to grow and stay healthy <p>Vocabulary seed; bulb; water; light; temperature; warmth Revise Year 1 vocab [from Plants].</p>	<ul style="list-style-type: none"> • Identify and compare the suitability of a variety of everyday materials including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses • Find out how shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. <p>Vocabulary squash; twist; bend; stretch Revise Year 1 vocab [from Everyday Materials].</p>

Science Working Scientifically and Vocab: Years 1 and 2

Working scientifically is taught throughout years 1 and 2. Science knowledge can be taught through investigations and questioning. Different types of scientific enquiry are used to answer children's own questions through, testing, observing patterns and changes, grouping and classifying and using books and ICT to consolidate and explain findings. Children use scientific language and specific vocabulary to communicate ideas.

Some Working Scientifically statements are focused on in Year 2 [Can look for patterns; Can use simple secondary sources (e.g. internet, CD-ROMS, books, visitors) to find answers; Can notice patterns and relationships [with help].

- Can explore the world around them.
- Can ask their own questions as they explore the world around them.
- Can begin to recognise ways in which they might answer scientific questions.
- Can use practical science to begin to work with different types of scientific enquiries [children do not have to perform fair tests or make predictions]
- Can carry out simple tests (e.g. simple comparative tests).
- Can make comparisons between different objects, materials and living things and begin to identify, sort and group them.
- Can observe changes over different periods of time and talk about what has happened.
- Can use simple measurements and equipment (e.g. hand lenses, egg timers) to gather data.
- Can look for patterns.
- Can use simple secondary sources (e.g. internet, CD-ROMS, books, visitors) to find answers.
- Can record simple data in a range of ways (e.g. prepared table, take photos, pictorially, tally chart) [with help].
- Can notice patterns and relationships [with help].
- Can talk about findings from relevant enquiries (including research) when suggesting answers to questions [with help].
- Can begin to use simple scientific language when saying what they have done and what they have found out when suggesting answers to questions [with help].

Vocabulary

observe; test; properties; object; record; equipment; explore; investigate; secondary sources; data; table; photograph; tally chart; pattern; measure; compare

Assessment Expectations for Science across Year A and Year B

Year A

Children in science become increasingly familiar with the different groups of animals (*amphibian, reptile, mammal, bird, fish*) and use the terms *carnivore, herbivore* and *omnivore*. Children explore the differences between things that are living, dead and things that have never been alive. They notice that animals, have offspring which grow into adults. They identify and describe the basic structure of common flowering plants (roots, stem, leaves, flowers, petals, bulb, seed) and how seeds and bulbs grow into mature plants. Children learn what a plant needs to grow and stay healthy and describe the basic needs of animals and how these are met. They understand the importance of exercise and hygiene for humans and understand how humans need to access different food types. They identify and name different plants and animals in their habitats and describe how habitats provide for the basic needs of different living things. They distinguish between objects and the materials they are made from, recognising a range of common materials and describing their properties. They investigate how materials can be changed by squashing, bending, twisting and stretching.

When working scientifically, children carry out simple comparative tests and begin to recognise ways in which they might explore and answer scientific questions. Children use simple measurements and equipment to gather data. They begin to record simple data in a range of ways and are beginning to notice patterns and relationships with help. They use simple scientific language when saying what they have done and what they have found. Children are beginning to recognise ways they can answer scientific questions. Children make comparisons between different objects, materials and living things and begin to identify, sort and group them.

Year 1 only

They know the basic structure of the body of humans and can match senses to the appropriate body parts.

Year 2 only

They notice that animals, including humans have offspring which grow into adults and show an understanding of simple food chains. Children compare the suitability of different materials for a particular job.

Year B

Children in science name a variety of common flowering plants and deciduous and evergreen trees and know the basic structure of flowering plants and trees. They become increasingly familiar with the different groups of animals (*amphibian, reptile, mammal, bird, fish*) and use the terms *carnivore, herbivore* and *omnivore*. They identify changes across the four seasons, including the weather and how day length varies. They distinguish between objects and the materials they are made from, recognising a range of common materials and describing their properties. They understand the importance of exercise for humans and understand how humans need to access different food types.

When working scientifically, children carry out simple comparative tests and begin to recognise ways in which they might explore and answer scientific questions. Children use simple measurements and equipment to gather data. They begin to record simple data in a range of ways and are beginning to notice patterns and relationships with help. They use simple scientific language when saying what they have done and what they have found. Children are beginning to recognise ways they can answer scientific questions. Children make comparisons between different objects, materials and living things and begin to identify, sort and group them.

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They notice that animals, including humans have offspring which grow into adults and show an understanding of simple food chains. Children compare the suitability of different materials for a particular job.