



St Joseph's Catholic Primary School

Science Medium Term Plan Overview

YEAR 2 PLANTS

Knowledge and Understanding

Statutory Requirements

2b1: observe and describe how seeds and bulbs grow into mature plants

2b2: find out and describe how plants need water, light and a suitable temperature to grow and stay healthy.

Knowledge and Understanding

Pupils should use the local environment throughout the year to observe how different plants grow. Pupils should be introduced to the requirements of plants for germination, growth and survival, as well as to the processes of reproduction and growth in plants. Note: Seeds and bulbs need water to grow but most do not need light; seeds and bulbs have a store of food inside them.

Pupils might work scientifically by: observing and recording, with some accuracy, the growth of a variety of plants as they change over time from a seed or bulb, or observing similar plants at different stages of growth; setting up a comparative test to show that plants need light and water to stay healthy.

KS1 - Working Scientifically

ks1w1: asking simple questions and recognising that they can be answered in different ways

ks1w2: observing closely, using simple equipment

ks1w3: performing simple tests

ks1w4: identifying and classifying

ks1w5: using their observations and ideas to suggest answers to questions

ks1w6: gathering and recording data to help in answering questions

Lessons:

- 1) Explain how flowering plants reproduce – through pollination by flying insects. Draw diagrams to explain.
- 2) To label the main parts of a plant – leaves, flower, stem, roots – and describe their function.
- 3) To sequence the different stages in a plant's life – germination, growth, flowering and seed production. Complete diagram and explain the four stages.
- 4) Record how the height of a plant changes over time – plant bulbs and help them to grow by giving them soil, water and sunlight. Over a six-week period, children measure the height of the plant, sketch it and describe it.



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- 5) Investigate what seeds need to germinate – set up 6 pots, 5 of which have an ingredient missing, make predictions and after week sketch and describe what has happened.
- 6) Investigate what bulbs need to start growing again – learn about the function of bulbs. Carry out an investigation into what bulbs need to start growing again.
- 7) Investigate what plants need to grow well. Plan and carry out an investigation.
- 8) Investigate the needs of different plants. Make predictions and observe plants over a 3-week period.

VOCABULARY:

Reproduction, pollination, leaves, flower, stem, roots, germination, seed production, growth, flowering, bulbs, investigation, soil, water, sunlight

YEAR 2 ANIMALS INCLUDING HUMANS

Knowledge and Understanding

Statutory Requirements

2c1: notice that animals, including humans, have offspring which grow into adults

2c2: find out about and describe the basic needs of animals, including humans, for survival (water, food and air)

2c3: describe the importance for humans of exercise, eating the right amounts of different types of food, and hygiene.

Pupils should be introduced to the basic needs of animals for survival, as well as the importance of exercise and nutrition for humans. They should also be introduced to the processes of reproduction and growth in animals. The focus at this stage should be on questions that help pupils to recognise growth; they should not be expected to understand how reproduction occurs.

The following examples might be used: egg, chick, chicken; egg, caterpillar, pupa, butterfly; spawn, tadpole, frog; lamb, sheep. Growing into adults can include reference to baby, toddler, child, teenager, adult.

Pupils might work scientifically by: observing, through video or first-hand observation and measurement, how different animals, including humans, grow; asking questions about what things animals need for survival and what humans need to stay healthy; and suggesting ways to find answers to their questions.

KS1 - Working Scientifically

Statutory Requirements

ks1w1: asking simple questions and recognising that they can be answered in different ways

ks1w2: observing closely, using simple equipment

ks1w3: performing simple tests

ks1w4: identifying and classifying



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ks1w5: using their observations and ideas to suggest answers to questions

ks1w6: gathering and recording data to help in answering questions

Lessons:

1. To sequence and describe the life cycle of different animals – create 3 of their own.
2. To sequence the different stages in a human life.
3. To match the young of different animals to their adult form – explain what changes have taken place as their offspring have grown.
4. To explain what humans need to survive – sort needs into 'essential' and 'non-essential' needs.
5. Explain what animals need to survive – sort needs into those animals need to survive and those they don't need to survive.
6. Explain why it is important to be clean when preparing and eating food – importance of cleanliness.
7. Investigate how exercise produces changes in the body – carry out an investigation into the muscles used when performing different activities.
8. To explain how the different food groups help us to stay healthy.

Vocabulary

Life cycle, survive, offspring, essential needs /non essential needs, cleanliness, clean , exercise, muscle hygiene.

Food groups: bread, cereal, potatoes (carbohydrates); fruit and vegetables; meat and fish; milk and dairy; fats and sugars

YEAR 2 USES OF EVERYDAY MATERIALS

Knowledge and Understanding

2d1: identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses

2d2: find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching.

Pupils should identify and discuss the uses of different everyday materials so that they become familiar with how some materials are used for more than one thing (metal can be used for coins, cans, cars and table legs; wood can be used for matches, floors, and telegraph poles) or different materials are used for the same thing (spoons can be made from plastic, wood, metal, but not normally from glass). They should think about the properties of materials that make them suitable or unsuitable for particular purposes and they should be encouraged to think about unusual and creative uses for everyday materials.



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Pupils might find out about people who have developed useful new materials, for example John Dunlop, Charles Macintosh or John McAdam.

Pupils might work scientifically by: comparing the uses of everyday materials in and around the school with materials found in other places (at home, the journey to school, on visits, and in stories, rhymes and songs); observing closely, identifying and classifying the uses of different materials, and recording their observations.

KS1 - Working Scientifically

Statutory Requirements

ks1w1: asking simple questions and recognising that they can be answered in different ways

ks1w2: observing closely, using simple equipment

ks1w3: performing simple tests

ks1w4: identifying and classifying

ks1w5: using their observations and ideas to suggest answers to questions

ks1w6: gathering and recording data to help in answering questions

Lessons:

1. Identify the materials that different objects are made from.
2. Investigate the properties of different materials
3. Explain how materials are useful in different situations – look at 8 different objects, identify the material they are made from and explain why they are suitable in each situation.
4. Suggest suitable materials for new situations.
5. Group objects by the material they are made from – look for objects in the classroom, identify their main materials and draw pictures of them, grouping by material.
6. Investigate and compare the properties of different metal objects – carry out an investigation into the properties of 8 different metal objects.
7. Explain how inventors have made new materials – learn about three inventors of new materials: John Dunlop, John McAdam, Charles Macintosh.
8. Investigate how we can change the shape of different objects – by squashing, bending, twisting and stretching.

VOCABULARY:

Range of materials e.g : leather, plastic, card, wood, metal, glass , rubber, stone, paper , fabric

Range of properties e.g.: squashing, bending, twisting and stretching, transparent, float, (see year 1 vocab too) attracted to a magnet, tough, flexible/inflexible/ rigid, light, heavy, strong, insulating, smooth, rough, waterproof, absorbent, transparent, opaque, fragile, reflective.

YEAR 3 PLANTS



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Knowledge and Understanding

Statutory Requirements

3a1: identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers

3a2: explore the requirements of plants for life and growth (air, light, water, nutrients from soil, and room to grow) and how they vary from plant to plant

3a3: investigate the way in which water is transported within plants

3a4: explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal.

Pupils should be introduced to the relationship between structure and function: the idea that every part has a job to do. They should explore questions that focus on the role of the roots and stem in nutrition and support, leaves for nutrition and flowers for reproduction. Note: Pupils can be introduced to the idea that plants can make their own food, but at this stage they do not need to understand how this happens.

Pupils might work scientifically by: comparing the effect of different factors on plant growth, for example, the amount of light, the amount of fertiliser; discovering how seeds are formed by observing the different stages of plant life cycles over a period of time; looking for patterns in the structure of fruits that relate to how the seeds are dispersed. They might observe how water is transported in plants, for example, by putting cut, white carnations into coloured water and observing how water travels up the stem to the flowers.

Lower KS2 - Working Scientifically

Statutory Requirements

lks2w1: asking relevant questions and using different types of scientific enquiries to answer them

lks2w2: setting up simple practical enquiries, comparative and fair tests

lks2w3: making systematic and careful observations and, where appropriate, taking accurate measurements using standard units, using a range of equipment, including thermometers and data loggers

lks2w4: gathering, recording, classifying and presenting data in a variety of ways to help in answering questions

lks2w5: recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables

lks2w6: reporting on findings from enquiries, including oral and written explanations, displays or presentations of results and conclusions

lks2w7: using results to draw simple conclusions, make predictions for new values, suggest improvements and raise further questions

lks2w8: identifying differences, similarities or changes related to simple scientific ideas and processes

lks2w9: using straightforward scientific evidence to answer questions or to support their findings.

Lessons:



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1. Investigate how competition for resources affects plant growth – grow ‘onion sets’ in pots and make observational drawings and measure the height of the plants over a period of 4 weeks. Use these measurements to complete a line graph to show the growth of all plants.
2. To identify the main parts of different flowering plants - identify parts of food plants including: roots, tuber, stem, bulb, trunk, branch, leaf, flower and fruit. Discuss which part of the plant we normally eat.
3. Explain the functions of the different parts of a flowering plant – flower, stem, leaves and roots.
4. Investigate the needs of different plants – compare the growth of a tomato plant , a cactus plant and cress when grown in sand rather than in compost . identify the variable, make a series of observational drawings and explain what happened.
5. To investigate how water is transported in plants - children to predict and measure how long it takes for coloured liquid to rise up the stem of a carnation and colour its petals. Draw the flower at the start of the investigation, at the end of the investigation and predict what would happen if the flower had a shorter stem.
6. Describe the life cycle of a flowering plant – germination, growth, flowering, and fertilisation/seed production.
7. Explain different methods of pollination in flowering plants – insect pollination, wind, animal and water pollination
8. Explain the different methods of seed dispersal in flowering plants – by gravity, wind, water and animals. Examine 6 different images of fruits and seeds and try to explain how they might be dispersed.

Vocabulary

Line graph, roots, tuber, stem, bulb, trunk, branch, leaf, flower and fruit, cactus, cress, sand, compost, variable germination, growth, flowering, and fertilisation/seed production. insect pollination, wind, animal and water pollination, petals, stem, nectar, stamen (male part) , stigma (female part).