

FIFTH AND SIXTH CLASSES - PLANT AND ANIMAL LIFE

Teacher Guidelines:

- p. 57 - 86

Linkage:

- Environmental awareness and care – recycling materials for construction / caring for plants and animals
- Materials: Properties and characteristics eg. rough, smooth, shiny, big, small etc Clothes we wear in different seasons.
- Sound: Identifying animal sounds from tapes / sounds in the environment
- Light: Light as a form of energy essential for growth of plants - photosynthesis.

Integration:

- Visual Arts: pictorial representation of observations / construction of simple bird feeders / papier mache models of plants and animals / using recyclable materials to make pots or model houses for growing plants
- Camouflage paintings / make collages or 3D models of different animals from local or wider environments / make habitat displays from any suitable medium.
- Maths: Sorting activities using pictures – Measuring growth of plants – displaying graphically information such as number and type of trees / types of plants / types of minibeasts in our school grounds etc.
- Music: Identifying animal sounds from tapes / Music appreciation – Carnival of the animals / Peter and the wolf etc
- Geography: Exploring natural environments
- Language development – English and Gaeilge
- SPHE: Personal hygiene / washing hands / health and safety issues / wearing gloves when working outdoors.

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Content Objective:

- **OBSERVE, IDENTIFY AND EXAMINE THE ANIMALS AND PLANTS THAT LIVE IN LOCAL HABITATS AND ENVIRONMENTS**

Local stream, river or pond, rock pool, seashore

Aspect of a local rural landscape (e.g. soil, hedgerow, forest, peatland, field):

aspect of a local urban area (e.g. areas around school, park, waste ground

Some suggested activities:

- Initiating observations in the outdoor environment (Exemplar 11, Teacher Guidelines p. 62)
- Keeping a diary of a habitat within school grounds or surrounding areas eg. hedgerow / woodland / stream / waste ground / pond. Observe / record

the variety of plants and animals at different times of the year.(Exemplar 12, Teacher Guidelines p.64)

- Adopt a tree – keep a seasonal diary of some common trees in the school grounds/surrounding areas drawing leaves / fruit / seed / twig once or twice a month etc. Record changes in a diary or by using a digital camera. Compare and contrast different trees –according to leaf shape / fruits / seeds / twigs / time of budding and leaf fall etc.
- Tree trail: Select some trees in the school grounds or surrounding area. Decide on 8 stops approx – ask some open / closed questions on selected tree. Questions on the senses could also be included etc. Senior classes could make out a simpler tree trail / school trail for junior classes.
- Minibeasts: Collect some minibeasts for close observation (Exemplar 17, Teacher Guidelines p. 78). Use questions to encourage children to observe and describe animals (Exemplar 13, Teacher Guidelines p 66). Classify and identify living things (Exemplar 15, Teacher Guidelines p. 70)
- Create own habitat outside with logs, stone, old carpet, old tyre, sink, barrel or create a vivarium inside using damp moss, stones, gravel, damp sand, earth and leaves in a large see through container.

Some suggested investigations:

- Estimate the number of plants or animals in a habitat. A coding system or scale against which they can consider their estimations will be required. (Exemplar 14, Teacher Guidelines p. 68) Investigate and record results. A bar chart of the frequency of plants can be drawn up. Compare it with the vegetation from other habitats.
- Set up a transect in a habitat using a long piece of string and bamboo rods placed in soil. Different environmental conditions should be taken into account eg. shady / sunny area damp / dry area if possible. Record the length and height of plants along the line. Transects show how the plant and animal life changes within an area. All the plants that grow along the line could be observed (using hoops) and identified. (Exemplar 14, Teacher Guidelines p. 68)

Some suggested designing and making:

- A bird table.
- A bird bath

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Content Objective:

- **DEVELOP AN INCREASING AWARENESS OF PLANTS AND ANIMALS FROM WIDER ENVIRONMENTS**

Some suggested activities:

- Examine pictures / photos of seashore / woodland habitats (i.e. those

children would not be most familiar) and list animals and plants that the children recognise. Which of these can also be found in local habitats? Why / why not?

- Visit a habitat that the children would not be familiar with locally eg bog or seashore. Prior to visit ask the children to do an annotated drawing including the various plants/animals they expect to see when they get there. Afterwards compare prediction to reality and describe differences between this and another habitat studied.
- Compare and contrast two ecosystems eg. arctic / desert / polar / rainforest / tropical regions and list animals and plants that the children recognise. How are the plants and animals in these regions similar/different? How have they adapted? Would an elephant survive in the arctic? Would a polar bear survive the desert? What about a cactus?
- Organise class into groups to complete projects such as “Animals/Plants from around the world” Research answers to questions such as: What is the largest land mammal, the oldest tree etc. What animal is responsible for the greatest number of human deaths on Earth? ...Mosquito!!
- Visit a zoo, wildlife park or farm.

Some suggested investigations:

Some suggested designing and making:

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Content Objective:

- **IDENTIFY THE INTERRELATIONSHIPS AND INTERDEPENDENCE BETWEEN PLANTS AND ANIMALS IN LOCAL AND OTHER HABITATS**
Plants and animals depend on, compete with, each other
Concept of food chains and food webs

Some suggested activities:

- Examine a habitat; ask children to consider what each organism feeds on, availability of food, shelter, light, water, variety of plants and animals etc. How do hedgerows support thrushes, insects, snails, berries, bees, flowers etc Food chains can be established and recorded by observing animals as they feed.
- Consider interrelationships and interdependence on the seashore / woodland / bog / old wall etc
- Study a pond (Late spring and summer are the best times). Ponds are very small and self-contained ecosystems. (Exemplar 16, Teacher Guidelines p. 73). Children should consider what feeds on each of the pond organisms? What is the food for each pond organism? Food chains can be established by

observing animals as they feed. Food webs (which incorporates all the food chains in the pond) may be explored by children when they have a firm understanding of food chains.

- Use commercial food chain cards or make up some cards which children then group and place in sequence.
- Put labels on each child with the name of a plant or animal. Each child has to find and place a hand on the shoulder of its energy provider. All chains should lead back to the “sun” placed in the centre of the room.

Some suggested investigations:

Some suggested designing and Making:

- Mobiles of food chains with words or pictures hanging from a coat hanger with cotton threads.

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Content Objective:

- **BECOME AWARE OF THE SUN AS A SOURCE OF ENERGY FOR PLANTS THROUGH PHOTOSYNTHESIS**

Some suggested activities:

- Discuss whether light is necessary for plants to grow. Discuss where plants usually grow eg. garden, house, field, forests etc Investigate the conditions necessary for plants to grow healthily eg. light, water, heat etc. Choose two plants. Place one in a cupboard for a week and the other to grow in normal conditions. Compare and contrast both plants after a week. Observe, describe and record results.
- Place a 2cm wide piece of black sugar paper across a leaf of a houseplant. Secure at either end using paperclips. What happens to the covered part of the leaf after a few days? What does this show us?
- Observe and describe grass in a small area. Cover some grass with a shoebox and leave for a few days. What changes occur – colour etc? Remove the shoebox and check the grass in a few days. Record observations.
- Grow several seeds in shoebox houses with chimneys and windows. Ask the children to explain why the seeds grow out the windows / chimneys.

Some suggested investigations:

- Do plants need light to grow? Plant four pots of beans and place them in different amounts of light at different distances from a window. Observe and record what happens.

Some suggested designing and making:

- Model houses made from shoeboxes with chimneys and windows.

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Content Objective:

- **OBSERVE AND EXPLORE SOME WAYS IN WHICH PLANT AND ANIMAL BEHAVIOUR IS INFLUENCED BY, OR ADAPTED TO, ENVIRONMENTAL CONDITIONS**

Location factors for plants and animals habitats, including food supply and physical conditions

Use of colour and camouflage by animals

Some suggested activities:

- Habitat study eg hedgerow. Children could observe different plants and animals. Discussion on why a snail / bees / thrush/ live there etc.? Discuss why it is that most of the wild flowers grow in early spring.
- Tree study: What plants would you expect to find under the tree. Would they be different to plants found in the middle of the field? Why?
- Around the school grounds look for living things which are camouflaged eg. woodlice, spiders. Why do some creatures need camouflage? Discuss how camouflage is used for protection and bright colours serve as a warning (Ladybird) Why is it easy to spot a ladybird but almost impossible to spot and catch woodlice / earthworm?
- Discuss adaptation of plants and ability to survive environmental conditions eg. daisies / cactus / pine trees / holly / dandelions(roots) etc Compare a cactus and a geranium. What special feature has the cactus to help it survive the desert conditions? Why is a seal suited to its environment?
- Play unlikely habitats game – take it in turns to suggest an animal and an unlikely habitat eg. a fish living in a tree / a lion living in a pond etc

Some suggested investigations:

- Do woodlice prefer damp or dry conditions? Do woodlice prefer light or dark conditions? (Exemplar 19, Teacher Guidelines p. 82)
- Are snails always found in damp conditions?
- Do worms like dark conditions?

Some suggested designing and making:

- A woodlouse habitat with four chambers – damp bright / damp dark / dry bright / dry dark.

FIFTH AND SIXTH CLASSES - PLANT AND ANIMAL LIFE

Content Objective:

- **RECOGNISE THAT THERE IS A GREAT DIVERSITY OF PLANTS AND ANIMALS IN DIFFERENT REGIONS AND ENVIRONMENTS**

Some suggested activities:

- Compare and contrast two different habitats - a local habitat with a habitat further away eg. deciduous and coniferous forest / woodland and seashore habitats
- Compare and contrast two ecosystems eg. arctic / desert / polar / rainforest / tropical regions and list animals and plants that the children recognise. How are the plants and animals in these regions similar/different? How have they adapted? Would an elephant survive in the arctic? Would a polar bear survive the desert? What about a cactus?
- Organise class into groups to complete projects such as "Animals/Plants from around the world" Research answers to questions such as: What is the largest land mammal, the oldest tree etc. What animal is responsible for the greatest number of human deaths on Earth? ...Mosquito!!
- Use videos / library books for reference material.

Some suggested investigations:

Some suggested designing and making:

FIFTH AND SIXTH CLASSES - PLANT AND ANIMAL LIFE

Content Objective:

- **GROUP AND COMPARE LIVING THINGS INTO SETS ACCORDING TO THEIR SIMILARITIES AND DIFFERENCES**
similarities and differences between members of the same groups or species

Some suggested activities:

- Sort plants into sets using different criteria. Children may group according to colour or size at first and then think of different ways of sorting and grouping eg. plants according to flowering, non flowering, colour, number of petals etc. Put different types of plants with similar characteristics together in groups. (Teacher Guidelines p.70) Record results.
- Find and identify particular types of animals with different characteristics eg. many legs - no legs / shells / wings / feelers / scales / animals that live

alone or in groups / animals that live on the ground or under stones etc
Notice details of the animals shape and proportions, where it is jointed,
and textures and patterns of its body. Group and sort these sets. Make
observational drawings of these animals. (Exemplar 15, Teacher
Guidelines p. 70)

Some suggested investigations:

Some suggested designing and making:

FIFTH AND SIXTH CLASSES - PLANT AND ANIMAL LIFE

Content Objective:

- **BECOME FAMILIAR WITH THE CHARACTERISTICS OF SOME MAJOR GROUPS OF LIVING THINGS**

*mammals, insects, arachnids, amphibians, fish, birds, reptiles
flowering and non-flowering plants, fungi and bacteria*

Some suggested activities:

- Examine pictures or photos of various animals and plants from the categories mentioned above. Identify them, discuss their differences and similarities and then sort them into groups. Label the groups with suitable titles. Which group do humans / whales / dolphins / mushrooms / seaweed etc belongs to?
- Is it a plant/an animal? Show pictures of living thing and ask the question. Alternately children can draw up a table with 3 columns: plants, animal, don't know.
- Introduce micro-organisms (e.g. viruses, bacteria, fungi, single-celled organisms) by looking at their effects e.g. illness, plant damage, fermentation etc.
- Discuss the need for immunization, personal hygiene and keeping food fresh. (Health and Safety packs)

Some suggested investigations:

Some suggested designing and making:

FIFTH AND SIXTH CLASSES - PLANTS AND ANIMAL LIFE

Content Objective:

- **CONSTRUCT AND USE SIMPLE KEYS TO IDENTIFY LOCALLY OCCURRING SPECIES OF PLANTS AND ANIMALS**

Some suggested activities:

- Children can sort animal and plants into sets using their own criteria eg. colour or size. They can think of different ways of grouping and regrouping animals eg has wings / shells / fur / hair or plants eg flowering / colour / no. of petals / no. of leaflets etc. Encourage the children to look at each of the subsets and choose a question that will help divide that into further subsets eg. Does it have a shell or not? Does it have a single leaf or lots of leaflets? (Teacher Guidelines p. 70)
- Provide opportunities to use commercially produced binary (branching keys) and numbered keys to identify different plants eg trees or animals. Discuss advantages and disadvantages.
- Use the keys (Teacher Guidelines p. 72) to help identify tree twigs in winter or animals with legs or no legs.
- Children can use and develop keys by sorting the plants and / or animals in the whole set into two groups. They can divide each of these into two further groups and so on until they end up with only one plant or animal in each group. Keep it simple by starting with just a few plants and animals at first.

Some suggested investigations:

Some suggested designing and making:

- Construct a simple type of key to differentiate between a small number of common flowers, trees, minibeasts, animals etc
- Use a computer to design a key.

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Content Objective:

- **BECOME AWARE OF SOME OF THE BASIC LIFE PROCESSES IN ANIMALS AND PLANTS**

Animals: nutrition, breathing, growth, movement, reproduction (life cycles), use of their senses

Plants: nutrition, reproduction, movement in response to light, use of oxygen and carbon dioxide

Some suggested activities:

- Sort living things into plants or animals – Discuss similarities and differences between plants and animals. Discuss (in a simple way) basic life processes of both plants and animals eg. growth, movement, feeding, breathing, use of senses, reproduction, etc. Make a grid with - plant / animal / not sure. Discuss similarities and differences between plants and animals.
- Set up an artificial habitat (vivarium) in the classroom to allow the children to care for and maintain animals eg. woodlice, spider, snail for a few days.
- Discuss animals where their young are similar to the adult eg. human baby, foal, calf, chicks. Discuss animals where the young are different from the adult eg. caterpillar, tadpole etc.
- Which species of bird prefers which type of food? Compare beaks and food preferences. Is there a connection?
- Do plants move? How? Do they always grow towards light?
- Do all animals feed on the same food and in the same way? Group and sort animals into meat eaters (carnivores), plant eaters (herbivores) and animals that eat both plants and animals (omnivores). How do they eat? Do they chew / tear / swallow etc? .
- Sorting animals according to movement i.e. using 2/4 legs, do they walk / crawl / slide/ swim / fly? Subsets can be made; divide the “fly” group into birds/not birds etc
- Find out about the main stages (life cycles) of some animals including a butterfly, a frog, a cat, a hen etc and sequence pictures of the main stages of growth.
- Discuss why rabbits have long ears / foxes have sharp teeth / herons have long beaks etc.

Some suggested investigations:

- Investigate food preferences of animals eg. what caterpillars / snails / ants / worms / birds like to eat by placing 2 / 3 different foods on a tray, bird table or in a container.
- Investigate animal behaviour eg. whether woodlice prefer light, dark, dry or damp conditions. (Exemplar 19, Teacher Guidelines p. 82)

Some suggested designing and making:

- A vivarium
- A butterfly observatory (www.blackrock-edu.ie)
- A woodlice choice chamber

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Content Objective:

- **INVESTIGATE THE FACTORS THAT AFFECT PLANT GROWTH**

Water, light, soil, temperature

Some suggested activities:

- Grow a variety of seeds eg. tomato, orange, apple, avocado, pumpkin, sunflower, grass, bean or pea etc. After they have germinated what do they need to grow into healthy plants? Test one variable at a time (Fair test: Teacher Guidelines p. 20) Draw diagrams, measure growth, graph results and keep a diary.
- Place a clear container over a patch of grass or over a section of seeds in a seed tray. Observe the effects of this mini greenhouse by comparing it with uncovered grass or seeds.

Some suggested investigations:

- Investigate growing plants in different materials eg pencil shavings, soil, compost / jar of water or shredded paper etc.
- Plant four pots of bean seedlings, observe growth and investigate what happens when one gives plants different amounts of water / light / heat.
- How does water get from the roots to the tips of the leaves? (Exemplar 21, Teacher Guidelines p. 85) Investigate what happens when you place white carnations in coloured water – split the stems and place simultaneously in jars of different – coloured water.

Some suggested designing and making:

- A suitable growth environment for a plant that requires some specialized care eg. a bottle garden for plants that require heat and humidity
www.blackrock-edu.ie
- A wigwam in a plant pot for growing peas or beans. Use 3 twiggy branches or canes intertwined like a wigwam so as the bean or pea seeds (when germinated) will hang onto as they grow upwards. Place a bean or pea seed at the bottom of each cane or twig and predict which one will grow up the fastest?

FIFTH AND SIXTH CLASSES - PLANT AND ANIMAL LIFE

Content Objective:

- **UNDERSTAND SOME WAYS IN WHICH PLANTS REPRODUCE**

Flowering plants and seeds

Non-flowering plants spores

Vegetativity: runner, tubers, bulbs.

Some suggested activities:

- Examine and sort a selection of seeds according to colour / shape / how they get dispersed etc. Ash keys / acorns / haws / sycamore helicopters / rose hips / burdock could be collected in autumn. etc. Discuss any similarities and differences. Why do plants produce seeds? Where do seeds come from?
- Examine familiar flowers and their seed-heads e.g. daffodils, poppies, tulips, dandelion, buttercups, lupins, rose etc. Collect pollen using a cotton bud. Break open seed case to release seeds.
- Sort plants (or pictures of plants) into flowering and non- flowering. Do non-flowering or flowering plants produce seeds? How do they reproduce? Examine fern spores on the underside of the leaves and mushroom spores by placing the mushroom, cap down, on a piece of white paper overnight.
- Examine potatoes, daffodil bulbs, strawberry plants etc and discuss how they can reproduce without using seeds or spores. Plant some strawberry plants and/or potato plants.
- Take cuttings from trees or houseplants and try to grow new plants from these in the classroom.

Some suggested investigations:

- How do seeds travel? Investigate the ways seeds can be dispersed – wind / animal / birds / hitch hike etc. Research seed dispersal methods and investigate which method is used for the seeds in your collection.
- Do the ash helicopters with big wings fall more slowly?
- Do all plants produce the same type/number of seeds? Do all fruits contain the same number/type of seeds?
- Make your own helicopter type seed using paper / blue tack with two wings and investigate how they fly clockwise / anti clockwise etc. Investigate big and small wings.

Some suggested designing and making:

- A helicopter type seed (use paper and blue tack as a weight) for flying in the air.