Life Cycles

Key Stage 2 Science
Teachers' notes

This unit is based on ***QCA Science Unit 5B 'Life Cycles'***. The activities that can be undertaken in the wood will vary with the time of year. The unit is best used either in the late spring or early summer when woodland plants are in flower or in autumn when trees produce fruit and seeds.

Learning Objectives Covered by this Work

- Know that flowering plants reproduce.
- Know about the life cycle of flowering plants including pollination, fertilisation, seed production, seed dispersal and germination.
- Know that plants produce flowers with male and female organs.
- Know that insects pollinate some flowers.
- Know that seeds are formed when pollen from the male organ fertilises the female part.
- Observe and compare fruits and seeds and use results to draw conclusions.
- Know that seeds can be dispersed in a variety of ways.
- Consider conditions that might affect germination and growth including the need for water, warmth and light.
- Know that if living things did not reproduce, they would eventually die out.

Before the Visit

Using real examples and drawings of flowers and seeds:

- Observe flower structure, learning the names and function of flower parts.
- Explain pollination and fertilisation.
- Find out how seeds are dispersed and why plants produce so many seeds.
- Introduce the term 'life cycle'.

In the Woodland

Find examples from all stages of the life cycle of trees, from the production and germination of the seed, through the growth of a sapling to maturity, and then to old age, death and decay. Record these on the pupil worksheet.

Revise the purpose and structure of flowers and find examples of different kinds. Choose one flower each and (without picking it) study using a hand lens, looking for the parts identified in the classroom. Observe the flower for five minutes, recording evidence of insect pollination. Consider how the frequency of insect pollination observed might relate to the time of year. Look for evidence of seed formation once flowering has finished (e.g. in bluebells).

Look for examples of berries (e.g. holly), other seeds distributed by animals (e.g. acorns) and seeds distributed by wind (e.g. ash & sycamore). Consider the ways in which the seeds are adapted to their particular method of dispersal.

Remind children that once seeds have been dispersed they need to germinate and grow. Choose two contrasting areas of woodland, for example one with tall mature trees and another with dense growth of young trees; or an area under beech (which usually inhibits regeneration) and another under native tree species.

Use pegs and string to mark 3 by 3 metre squares in each area. Measure light levels in each square (relate to estimated fraction of canopy cover) and record and compare the frequency of young trees.

Collect tree seeds for germination tests in the classroom.

Consider the factors that might affect the success of each stage of reproduction in the woodland environment, for example the availability of suitable insects for pollination, animals to disperse the seeds, suitable soil conditions for germination, availability of light for growth.

Follow-up Work

Test germination in controlled conditions in the classroom using both seeds collected from the woodland and other seeds.

Relate findings to germination and growth in the woodland environment. Consider the fact that the successful reproduction of the trees is vital not just for the survival of that species but for the existence of the woodland itself.

Life Cycles

Can you find examples of each of these stages in the life cycle of a tree?
Which species of tree do your examples come from?

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Pupil sheet

	A drawing of my own example	**Type of tree**
Seed 		
Germinating seed 		
Sapling 		
Mature Tree 		
Dying tree 		
Dead Wood