

SCIENCE learning springboards

Pappus

Close observation ivy: evolution and inheritance

Collect ivy from school grounds or garden and observe

Aim: To know how plants are adapted to suit their environment in different ways and that adaptation may lead to evolution.

Resources: a wide variety of ivy leaves and stems; magnifiers

Activity:

Pupils look for a variety of types of ivy, and collect a very long stem from each, some from lower on the plant and some from higher up. If you chose to bring examples into class, then snip it into pieces so each group of pupils can observe close up.

These are some questions you can ask the pupils to explore:

- Take a leaf from the bottom of the plant and a leaf from the top. Look carefully at the shapes. Are they the same?
- How many leaf shapes and colour variations can you find on one plant?
- What differences and similarities do you notice?
- How do different species of ivy differ? (clue: look for leaf colour and texture, smell, size)
- Find out what 'arborescent ivy' is. Can you find examples of juvenile and adult ivy?
- Look closely at the live stalk. Can you see tiny roots?
- Ivy is a very vigorous plant; do you think these stems will grow if planted? Place a stem with rootlets on, onto a pot of compost. Weigh down a section of the stem with a stone and water the pot daily. Watch what happens over the next week or two.
- These rootlets are also called 'adventitious' roots that help ivy to stick to walls. Why do some people think that ivy can damage walls?



More springboards:

- Science Learning Springboard: Propagation

Success criteria: students can:

- ✓ describe why ivy needs to climb a tree or wall
- ✓ explain how ivy is able to climb to the top of a tree
- ✓ identify features of an ivy plant that makes it suited to its habitat
- ✓ propagate ivy in water or compost.

Key vocabulary:

Similarities, differences, compare, vigorous, adventitious, arborescent.

Ivy: a late nectar source for insects

Pupils collect ivy and use the *Pappus* Plant ID sheet for ivy

Aim: To understand the importance of late nectar sources for insects (the best time of year for this activity is Autumn) and observe the difference between young and older ivy stems.

Resources: arborescent ivy (mature ivy) stems; *Pappus* Ivy Plant ID sheet

Activity:

- Collect young and older Ivy plants in the rounds.
- Juvenile (young) ivy is a flexible climbing plant that sends out long stems seeking vertical surfaces to climb up.
- When it becomes a tall mature shrub (around 10 years old), ivy stops scrambling and begins flowering and reproducing. This mature stage is called 'arborescent' (tree like').
- Spot older ivy plants, which also have greenish flowers in the Autumn. It is probably buzzing with insect life.
- Research which insects need this late source of nectar in the autumn and winter. Without pollinating insects (e.g. butterflies, wasps and bees) we would have fewer food choices.



Pollination



<http://polli-nation.co.uk>

Bee-keepers say ivy provides the last main source of nectar for bees and butterflies in late September and October, to top up their reserves before winter hibernation. Listen quietly to the roar of bees on ivy on a late Autumn day.

As well as flowers and nectar, look out for very small insects on ivy plants, (usually aphids, whiteflies, and mealy bugs) and the creatures that in turn, eat them.

More springboards:

- *Pappus* resource library: University of Sussex – Ivy and its insects information sheet
- Science Learning Springboard: Plant propagation

Key vocabulary:

Arborescent, juvenile, pollination, nectar

Success criteria: pupils can

- ✓ use a search engine to find out about the ivy plant
- ✓ use observation skills to examine an ivy plant and identify it as a late source of nectar for insects
- ✓ understand and explain why ivy is important for bees, butterflies and other insects

