

Life cycles: seeds

Learning objectives:

- How flowering plants reproduce
- Different methods of seed dispersal
- Close examination of fruits and seeds
- Fruits and seeds provide food for animals and humans
- The conditions that affect seed germination and methods that can be used to test this.

Resources required:

- Plastic bags to collect seeds
 - Pencils
 - Sticky labels for plant and student names
 - Plant pots (use yoghurt pots)
 - Seed identification sheet
- <http://www.naturedetectives.org.uk/find/spot/seeds.htm>

Lesson plan Part 1:

1. Begin with a nature walk, incorporate trees on the grounds (sycamore, oak, alder) and looking for different seeds and fruits describing/discussing how they are dispersed.
2. After the walk the students can get into pairs to collect as many different seed types as possible.
3. Move to the class room for identification. These seeds can be drawn and labelled with a description of how they are dispersed.

Lesson plan part 2:

4. Collection of seeds from the organic garden (as described in 'collecting and sowing seeds').
5. Each student will choose a seed to plant and will label their pot with the species name and their name.
6. Soil and compost can either be ready to use or the students have to mix some depending on the time available.

Nature walk: information given during walk that incorporates different species and methods of dispersal

What are seeds, nuts and fruits? Why do plants make them?

- Seeds are the embryos of the plant
- Plants grow them in order to reproduce more plants, in the same way that animals reproduce and have young.

- In flowering plants, seeds are made by transferring pollen from one plant to another. The pollen fertilises the ovum (female part of the plant) and the seed begins to grow inside it.
- Fruits are the ripened ovary of a flowering plant containing one or more seeds.
- Nuts are dried up, hardened fruits and contain one seed.

How do flowering plants make seeds?

- Bright flowers attract insects that want to reach their nectar for food.
- Bees fly into the flower and become covered in pollen
- When the bees fly to another flower of the same type, it pollinates it as the pollen falls off.

How do plants disperse their seeds?

- Show examples. E.g. dandelion, pine cones, berries, sycamore
- Wind can shake light seeds out of the plant e.g. poppys, old man's beard
- Some seeds are aerodynamic and will fly through the air e.g. sycamore
- Some plants have fruits that are edible e.g. apples, blackberries, plums. Animals and humans will eat these and the seeds inside are spread when they are pooped out the other end!
- Some seeds are hooked or sticky and will attach to the fur of animals or feathers of birds.

Collection of seeds

- Students will be in small groups and will try and collect as many different seed types as they can (either in the organic garden or around the site or both i.e. plants then trees, depending on Emma's advice)
- Ensure students do not eat any berries and that the seeds are placed in a plastic bag.

We will be planting seeds today. What are the conditions needed for a seed to germinate successfully?

- Soil, water, light, warmth, safety from predators (grazing animals, birds)

Back in the classroom: interpretation

- Sort the seeds into groups according to how they are dispersed
- Spare seeds can be cut open to examine the inside
- London students can take their planted seeds back to London to look after.
- See the RSPB website for an exercise on lifecycles that can be given for homework
- http://www.rspb.org.uk/ourwork/teaching/resources/science/plant_life_cycles.asp