



## 2A Reproducing Box

### Project Box Resources

- ✓ Growing on with Box
- Power point Slide 2-
- ✓ DVD 'Growing Wild'
- ✓ How to propagate box step by step guide
- ✓ Gloves & cutting tools
- ✓ Seeds in containers x 6
- ✓ Box Detective ID sheet
- ✓ Small box tree

### Additional resources

- ✓ Compost
- ✓ Clay and junk modelling
- ✓ Collect bags
- ✓ Cards for seed growing game see power point

### Activities

#### Reproduction and lifecycle from seeds

- **Seed growing game:** Cards with oxygen, water, soil and sunlight (warmth and light). These are distributed around a marked area in the school grounds. Half the group are seeds the other half are seed trappers (representing animals that may eat seeds or hard ground where seeds fall and cannot grow.) Within a given time, the seeds have to collect one of each of the cards before being tagged by the seed trappers. Repeat the game but with different seed to trapper ratios. What happens? Once the pupils understand the conditions for seeds to germinate and grow.
- **Seed dispersal and germination role play:** Explain seed dispersal and its importance. In a large open space dress a three pupils as a group of Box trees (label them or let them hold a branch) and another as a deciduous tree, e.g. oak. Gather a group of pupils to be seeds falling near and far from the trees. Tell the seeds to grow into saplings by moving slowly up to their knees. Ask the tree pupil how they feel. Ask the rest of the group. What problems would the tree and the saplings experience?

View power point slide 2 and discuss the ways seeds are dispersed.

**Seed Walk:** Walk in the school grounds or immediate locality and collect a number of different samples of seeds in a bag. In small groups back in the classroom observe the seed samples of Box and compare with the seeds collected. Discuss how they are dispersed.

**Growing plants from cuttings:** Teacher explanation of propagation as an alternative way of reproduction. Follow step by step guide sheet carefully and view the clips mentioned in the teacher's notes to take cuttings of box from the box tree provided. Monitor and record the growth of the Box cutting. Keep the data for future year groups to use.

#### Extension / follow-up activities

- Sort and organise the seeds using Venn or Carroll diagrams
- Write a descriptive piece, create a Powerpoint or design a poster / cartoon to explain the different ways that box can grow – seed, cutting, layering. Refer back to 'Growing Wild' DVD for layering clips.



## 2A Teacher's Notes

### Learning Outcomes

- To understand the life cycle of the Box tree.
- To understand seed dispersal and other methods of growing new plants.
- To develop enquiry skills through predicting and monitoring the growth of seeds and cuttings

### Curriculum Connections

**Science:** Working Scientifically; Plants requirements for life; Understand the lifecycle of flowering plants (yr 3); Observing life cycles of plants and growing new plants from different parts of the parent plant (yr 5)

**English:** Instruction writing

### Preparation/Key Notes

The seed walk activity can occur in your school grounds, immediate locality or during the off-site visits to a Box woodland. This is best carried out during September / October. Propagating from cuttings is also best done end of August/September. When taking plant material, it is necessary to have landowner permission.

### Background Knowledge

**Life-cycle:** Common box is monoecious which means both male and female flowers are found on the same tree. Its flowers open from March. Each cluster of flowers contains several male flowers with a terminal female flower. Box is thought to be both wind and insect pollinated. Female flowers develop into a green / yellow flowers. Female flowers are pollinated by wind and insects including bees and pollination leads to the formation of a swollen green capsule from September. The capsule ripens into a brown, woody case which ultimately bursts open to fling the seeds across the ground within a 2-3m radius from the parent plant.

Box also self-layers, expanding outwards by rooting branches on the ground.

Gardeners can grow box plants by cutting short sprigs from box trees and placing the end of the cutting in soil.

**Reproduction as a means to gain dominance:** Box out-competes other tree species by casting year-round dense shade which discourages germination of any seeds and deters saplings. The largest native box woodland in the country at Great Kimble is dominated by box because it has been allowed to grow for centuries.

### Web-site links and further resources

Clips on propagation [www.youtube.com/watch?v=JaW3g+lJs-c](http://www.youtube.com/watch?v=JaW3g+lJs-c) How to take box cuttings  
[www.youtube.com/watch?v=5O-0seNdM](http://www.youtube.com/watch?v=5O-0seNdM) Boxwood propagation with stem cuttings

Best plants to grow from cuttings:

[http://frugalliving.about.com/od/gardening/qt/Best\\_Plants\\_to\\_Grow\\_from\\_Cuttings.htm](http://frugalliving.about.com/od/gardening/qt/Best_Plants_to_Grow_from_Cuttings.htm)