1A Box Tree Detectives

Classroom and School Grounds

Project Box Resources

- ✓ Beginning with Box Powerpoint slides 1-9
- ✓ DVD – *Growing Wild* (3.59 mins)
- ✓ What is Box? worksheet (1 per group
- ✓ Laminated maps of the Chilterns and cards X 6
- ✓ *Box Detective* worksheets X 10
- ✓ Leaf ID dial x 10
- ✓ *Leaf shape and pattern* sheets x 10

Additional resources

- ✓ Magnifying glasses
- ✓ Pencils, clipboards and pencils
- ✓ World maps or atlases
- ✓ Samples of yew, holly and box (optional)

Activities (1-2 lessons)

Introduction. What do you know about Box trees? Explain that the largest native box woodland in the country is found in the Chilterns at Great Kimble and that we are lucky to have this woodland because box woodlands are rare. Play the *DVD 'Growing Wild'* section.
Divide the class into groups of 5/6 with one *What is Box?* worksheet per group. Play the DVD a second time. Each group notes and discusses key points for their chosen section. Power point **slide 3**.
Box in the Chilterns and near your school. Working in groups, use **slide 5** and the laminated maps of the Chilterns with the description cards to locate significant areas of Box. Find the closest area of Box trees to your school. Plan a route to this area; calculate time and distance by coach or by foot.
Finding Box. Using their memory of the DVD and power point **slide 9**. Discuss the similarities and differences between evergreen and deciduous trees. How has each adapted to the colder weather in winter? In small groups use the *Box Detective* sheets to see if Box grows in the school grounds. Compare samples of three native evergreens - Box, Yew and Holly .
Box in the world. Use a world map on power point **slide 4** or atlases to locate the UK and regions in the world where Box grows as a native plant. Explain that the UK is at the northern edge of its range, although gardeners help it to grow in places where it would otherwise struggle. In groups, carry out ICT research on the climate of each country mentioned.
Comparing Box to other trees. What are the key features of leaves that help us to identify and distinguish different tree species? Show power point **slide 6**. Discuss vein pattern, leaf margin, colour, shape, size, how it feels to touch. In pairs, investigate the school grounds and look for leaves with features shown on *Leaf Shape and Pattern sheet.* Each pair can choose a leaf from the ground, it is important to highlight that leaves should not be removed from trees. Hold the leaf to the light to reveal the vein pattern and leaf margin shape. Make a wax rubbing of the leaf or draw carefully including the vein pattern and leaf margin. Annotate the leaf with key identifying features, including length and width (at the widest point). Finally use the leaf dial or ID sheets to identify your leaf. Compare your leaf with a box leaf. What are the differences and similarities?

Extension / follow-up activities

- ○In groups carry out ICT research on the climate of one country mentioned and contrast with the Chilterns.
- ○Develop the leaf detective activity and sort leaves using Venn and Carroll diagrams.
- ○Create branching keys and ID sheets for trees in your school grounds.
- ○Develop a tree trail using plans of the school grounds.

1A Teacher's Notes

Classroom and School Grounds

Learning Outcomes

- To understand Box the importance of Box for the ecology and history of the Chilterns.
- To use maps to locate important areas of Box locally and globally.
- To develop tree ID skills and recognise key features of Box .
- Develop scientific vocabulary linked with classifying and identifying trees

Curriculum Connections

Science: Working scientifically; Plants (yr 3); Classifying living things (yr 4); Classification (yr 6)
Geography: Name and locate counties, cities, regions and features of UK; use 4 and 6 figure grid references (yr 5/6); Map skills.
History: Local history study

Preparation / Key Notes

The activities on this card work as an introduction to what Box is and where it can be found locally and globally. It also serves to introduce the pupils to tree identification skills.

Background Knowledge

Box trees are not well known or appreciated in comparison with other trees such as oak or ash. As a result, box is often not included in books about trees. However, box trees are a native tree and they are characteristic of the Chilterns. Globally, there are 70 species of the genus Box (*Buxus)* which are a mixture of deciduous and evergeen. They are native to Western and Southern Europe, Southwest, Southern and Eastern Asia, Africa, Madagascar, Northern South America, Central America, Mexico, Cuba and the Caribbean. The majority of species are either tropical or subtropical, with the Chilterns being at the northern edge of its native range.

Buxus sempervirens is the native evergreen 'English Box' that grows in semi-natural woodlands on the chalk slopes of the Chiltern hills. Box has also been widely planted for garden decoration and also as shelter for pheasants kept for shooting sport. It can tolerate the dry conditions that result from rainwater percolating into the chalk and it thrives on steep slopes where other trees topple because any fallen box boughs root into the ground. The leaves are small, dark green and oval measuring between 10–25mm in length. The leaves are entire, smooth, thick and glossy and grow in opposite pairs along the branch. Their hard waxy leaves are frost resistant and resist transpiration of water.

Web-site links and further resources

Glossary for understanding parts of plants for ID purposes www.nhm.ac.uk/nature-online/british-natural-history/urban-tree-survey/identify-trees/glossary/index.
Interactive ID via computer or tablet www.nhm.ac.uk/nature-online/british-natural-history/urban-tree-survey/identify-trees/tree-key/index (box not included)
Good ID sheets www.naturedetectives.org.uk/packs/pack_spotting

Adaptation in leaves www.sciencemadesimple.com/plants-in-winter

heritage lottery fund LOTTERY FUNDED
The Chilterns Conservation Board
Chilterns Box Woodland Project