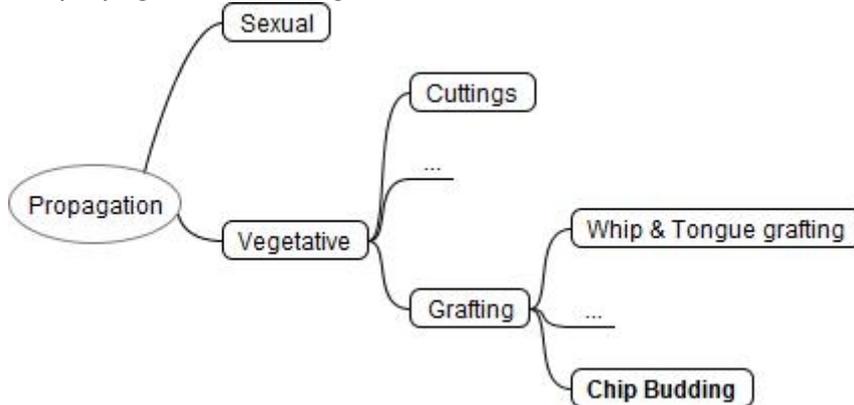


# Chip Budding with ELL

## Background

### Propagation

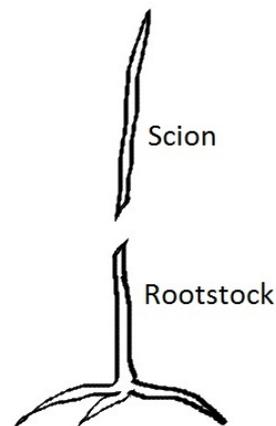
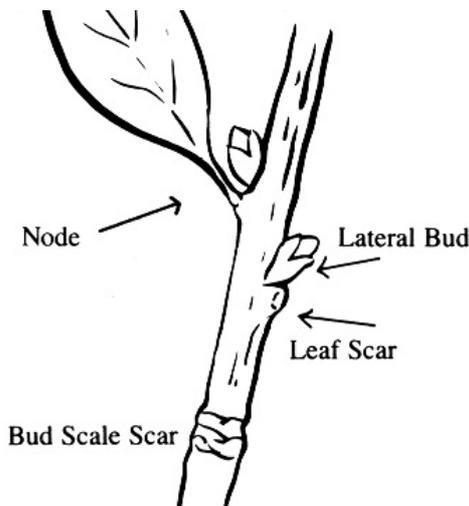
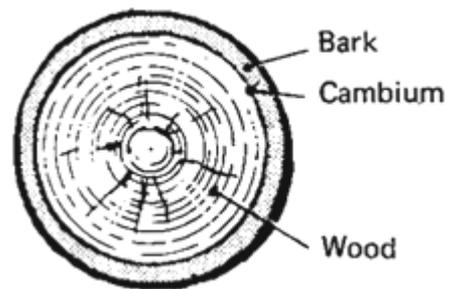
Vegetative propagation is cloning. Different methods are suitable for different plants.



### Basic (very!) botany & jargon

**Cambium:** Contains the plant's vascular system.  
 Carries water and minerals from the roots to the leaves.  
 Carries food back from the leaves after photosynthesis.

**Node:** Has a concentration of actively dividing cells.



**Scion:** Cutting of the plant that we want to reproduce.  
**Rootstock:** Rooted plant that we'll graft the scion onto.

### History

Vegetative plant propagation techniques are ancient. Grafting was in use by the Chinese before 2000 BC & widely used in ancient Greece and Rome.  
 The development of grafting was key to the domestication of fruit trees such as apples and cherries.

# Grafting

## Why?

When simpler propagation methods are inappropriate or not possible. Eg when:

- cuttings don't work
- 'top working' existing trees
- you want particular rootstock characteristics
- you want more than 1 type of plant on the same rootstock

## Which plants?

Scion	Rootstock (RS):		
	Apple M106	Quince C	Hawthorn
Apple	Yes		
Quince		Yes	
Pear		Yes but many incompatible	
Loquat		Yes	
Medlar	Yes	Yes	Yes (best)
True Service Tree		Yes	Yes
Exotic Hawthorn			Yes

Fruit cultivars are usually grafted to the same species, or at least the same genus.

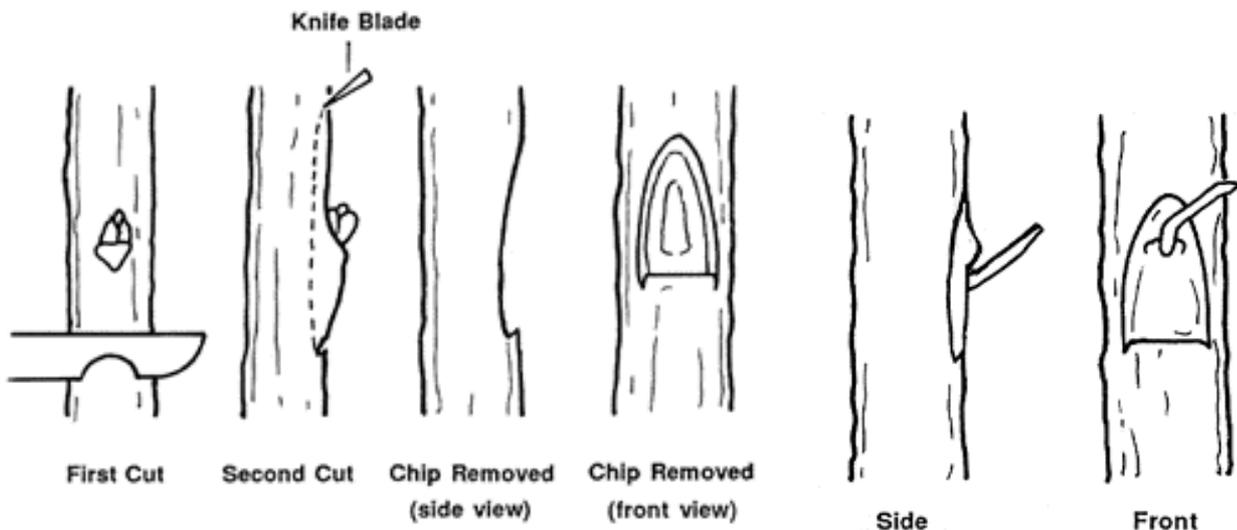
Compatibility is not straightforward. Eg most pears are grown on quince rootstock, but quince cannot be grafted onto pear! Hawthorn is a versatile rootstock.

Rootstocks are usually 1-2 yrs old and can be grown or bought. You can also graft onto existing trees.

This table shows the scion / rootstock combinations we are trying at ELL.

Budding is a form of grafting in which a single bud is used as the scion rather than a section of stem. It is the most commonly used method for fruit tree production in the nursery, but can also be used for topworking plum, cherry, apricots, and peach as well as young apple and pear trees. **(Cherry, plum, apricot, and peach are not easily cleft grafted or whip grafted.)<sup>1</sup>**

## Chip budding



1 From <http://www.extension.umn.edu/distribution/horticulture/components/dg0532c.html>

Chip budding is one of the easier forms of grafting. A bud, rather than a shoot, is attached to a rootstock to make a new plant. With practice, this technique can be mastered by anyone and, as just one bud is needed to make a tree, it is very efficient.

Chip budding is often used for fruit and ornamental, deciduous trees. Trees in the rose family such as apple, cherries, hawthorn, pear, plums and Sorbus are especially amenable to chip budding.

For chip budding, a bud on a sliver of wood, complete with bark is inserted into a matching notch on the rootstock.

Chip budding is carried out between mid-summer and early autumn.

Before you start, you need to choose a rootstock (the plant you will be propagating onto). Rootstocks can often be bought from rootstock growers and nurseries that specialise in the type of plant in question. Alternatively, they can be raised from seed or cuttings.

Choose a rootstock with desirable characteristics; such as a dwarfing habit that makes fruit trees more compact, or a rootstock that resists root diseases, or one that is easier to propagate than the scion (top part of the budded tree).

From mid-summer choose the buds you wish to chip bud, by selecting non-flowering shoots that are a similar diameter to the rootstock, from well-ripened, current season's growth. Remove these 'budsticks' from the parent plant so that they can be budded onto the rootstock.

- To prepare the rootstock, cut off all shoots and leaves from the bottom 30cm of stem.
- To prepare the 'budstick', remove the soft, fleshy, tip growth and remove all leaves with knife or secateurs, leaving 3-4 mm stubs of leaf stalk.
- Using a clean, very sharp knife make a cut 2cm below a bud, inserting the blade about 5mm deep at an angle of 30 degrees.
- Make a second cut about 4cm above the first. Cut down through the wood to meet the first cut, taking care not to damage the bud.
- Then immediately make two cuts in the rootstock about 15cm from the ground to exactly correspond with those on the bud chip and remove the resulting sliver of wood.
- Place the bud chip into the 'lip' of the cut rootstock so that the cambium layers match as exactly as possible. Bind the join tightly with grafting tape, leaving the bud and leaf stalk exposed.
- The tape can be removed once the bud starts to swell. Insert a cane and tie in the new shoot as it develops.
- The following spring, cut back the stock just above the bud. Plant out the following winter after the bud has grown into a new tree.

Failure of buds to take usually results from not cutting accurately enough to get the cambium layers to match. Practise on spare shoots until a really good match can be reliably cut. Some less experienced gardeners like to attach several buds as at least one should take.

### ***Important***

- ***!!! REMEMBER KNIVES ARE DANGEROUS !!!***
- Aligning the cambium is key to success.
- Label everything!

## **Tools**

- Sterilise your tools and don't touch the cut surfaces of the wood.
- We bought 'Parafilm' grafting tape from [www.agroforestry.co.uk](http://www.agroforestry.co.uk). Grafting tape helps support the join and prevents water loss. Parafilm stretches and does not have to be removed.
- A sharp thin blade is important.
- The easiest way to sterilise your blade is with a flame. Let it cool before cutting the plant.
- Secateurs. Keep them sharp and clean.
- Labels. Have them ready before you start.

## **Further information:**

Rootstocks we're using at ELL: **Apple M106**: Semi-dwarfing. The most commonly used. Makes a half standard around 4 m high. Doesn't usually need staking. **Quince C**: Dwarfing, produces bush trees about 4 m high. Requires good growing conditions and staking.

We bought 1 year old rootstocks:

- From [Blackmoor nursery](#): 20 Quince C rootstocks @ £2.40 each + £4.50 delivery.
- From [Frank Matthews](#): 30 hawthorns @ about 85p each and 30 MM106 apple rootstocks @ about £1.90 each + £15 delivery.

There are plenty of books about propagation, and more information on the internet than you could ever get through... Start with Youtube, in particular the grafting videos from this friendly guy:

[StephenHayesUK](#)

## **What now?**

We'll be planting, propagating, learning and eating at ELL throughout the year. You're always welcome to come along and join in.

Mondays and Fridays are our regular days, and you can get in touch to check that we're there and what we'll be doing. Look at our calendar too, on the website: [www.EdibleLandscapesLondon.org.uk](http://www.EdibleLandscapesLondon.org.uk)

Why not go home and try some grafting?

- Got an apple tree in your garden? - Graft some other varieties onto it – particularly later varieties
- Got a hedge? - Graft some tastier fruit onto it.
- Got a favourite fruit tree? - Get some rootstock and clone it.

There are lots of other propagation methods for you to try. Join us in Finsbury Park on the 1st Saturday of October when we'll be gathering tree seeds and planting them in the nursery.

## **Get ready for grafting:**

*Now:* Buy your grafting tape. It doesn't go off and you want to be ready.

*During the year:* When you taste particularly nice fruit, make a note of the tree and ask the owner if you can come back and take scions.

## **Did you know...**

London is FULL of apple trees. There is so much ripe fruit around in early autumn that most of it goes unpicked. However from mid-October the harvest tails off. If you want to plant new trees, please don't add to the glut! Plant a different kind of fruit or choose LATE fruiting varieties of apple. Perhaps graft late fruiting varieties onto existing trees. That way we could have plentiful apples in London all the way to Christmas and beyond.

**Thanks for coming!**

*Now go forth and fill London with fruit...*