

# PRUNING FRUIT TREES

Learn about the parts of a tree and why it's important to prune fruit trees



Please note: This resource suggests ideas around curriculum based activities linked to pruning – it is not a guide on how to prune! See links provided for guidance in the skill of pruning.

---

## LEARNING OUTCOMES

KS2 Science Yr 3 & 4

- Recording findings using simple scientific language, drawings, labelled diagrams, keys, bar charts, and tables
- Making systematic and careful observations and, where appropriate, taking accurate measurements using standard units
- Identify and describe the functions of different parts of flowering plants: roots, stem/trunk, leaves and flowers
- Describe the life process of reproduction in fruiting plants Understand the features of a woody plant and how trees grow
- Explore the part that flowers play in the life cycle of flowering plants, including pollination, seed formation and seed dispersal

KS2 Mathematics & numeracy Yr 3 & 4

- Measure, compare, add and subtract: lengths (m/cm/mm)
- Identify right angles; identify whether angles are greater than or less than a right angle

---

## RESOURCES

- Coats, scarves and hats (warm clothes for visiting your trees in the winter!)
- Secateurs for pruning
- Rulers and tape measures
- Clipboards and pencils to record number of fruit buds and branch lengths
- Paper and pencils for drawing back in the classroom
- Crayons for bark and leaf rubbings
- Section of larger diameter branch/log to show growth rings

### TREE OBSERVATION – PARTS OF A BRANCH (10 MIN)

Go out to your orchard and find an apple tree

#### ● Why has the tree got no leaves?

Where are the leaves? What do the leaves do? Where do new leaves come from? Why do some trees still have their leaves in the winter?

*Deciduous, or broadleaf trees lose their leaves in autumn in preparation for the winter when the tree becomes 'dormant', which is a bit like a tree version of hibernation. Chlorophyll is the green chemical that captures the sunlight and this breaks down in autumn so the other colours - red, yellow, then brown, are then visible.*

#### ● What happens to the fallen leaves?

*They then fall to the ground where they are broken down by the actions of worms and many tiny living things called microorganisms and the leaves are turned into food for the tree to suck up with its roots. This food is then turned back into new leaves in the following spring. This is a cycle in tune with the cycle of the seasons.*

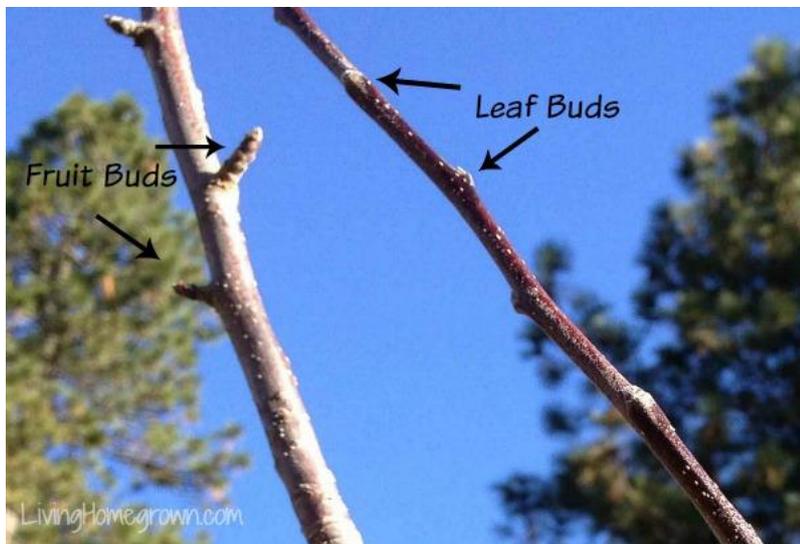
#### ● What is the role of a branch?

*Branches hold leaves up to the sky so they can capture energy from the sun to create food for the plant (photosynthesis). The branches form the 'crown' of the tree. Large branches are known as '**Boughs**' and small branches '**twigs**'.*

🍇 What are the different parts of a branch?

*How do young twigs differ from older branches? Look at the different buds – what are buds? What will the different buds become in the spring?*

*A bud is an undeveloped shoot or flower from which new leaves, shoots or flowers grow. The buds of a*



*fruit tree develop a protective 'shell' of scales to protect the bud from the winter cold. Show the difference between a **fruit bud** (much larger and fatter, protruding at a wider angle from the branch on a little stalk, or **spur**) from a **leaf bud** (smaller, flat against the branch). Find a fruit bud and open it up to look inside. Explain that each of these fruit buds will produce a flower that has the potential to be pollinated by a visiting insect and form into a fruit.*

## AGE A BRANCH (10 MIN)

🍇 How can we tell the age of a branch?

Is there a way we can do this without cutting a branch and counting the growth rings?

*As well as growing in thickness as annual rings, branches grow in length outwards and can be aged easily using the following method:*

- Working your way from the tip of a branch, run your fingers down its length until you reach the bud scar where the previous year's growth ended (see diagram). This first length is the youngest growth that took place during the last or current growing season (depending on what time of the year you look). This is 1 year growth and it tends to only have flat leaf buds and will often be a different colour to older wood, and much smoother/shinier
- The next length, that is likely to be a slightly different colour, is 2 year's growth. This may have fruit buds as well as leaf buds
- The next length is 3 year's growth and should look more textured and less smooth, and may have fruit buds that have formed branched fruiting spurs
- You can continue like this all the way to the trunk of the tree to age the whole branch
- You can see how well the tree grew in each of these years: the longer the growth in any given year, the better it grew

INSERT COMPLETED BRANCH DIAGRAM

 **What factors might determine how well the tree grows in a year?**

*The weather might cause variability in rainfall and sunlight, both of which will effect growth. Whether or not the tree was fed, weeded and mulched will also have an impact.*

**PRUNING – WHAT IS IT AND WHY DO WE DO IT? (20 MIN)**

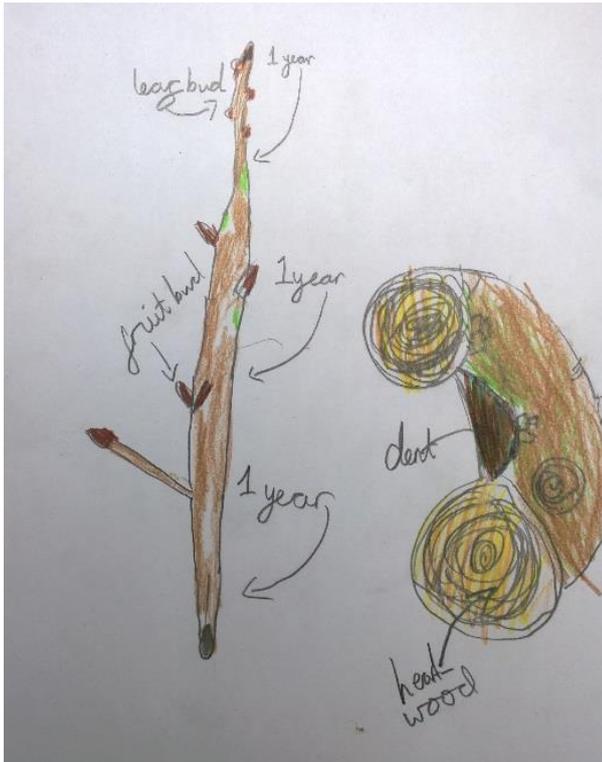
 **What is pruning?**

Why do we cut our own hair and finger nails? Have you heard of Bonsai trees?

*Pruning is a little bit like giving a plant a haircut! We cut hair and nails to prevent them from getting too long and brittle, and to generate new growth. We cut out old and dead branches that no longer produce healthy fruit and this stimulates healthy new growth. It helps to us keep the tree in a good shape to allow sunlight to reach the fruits; allows us to harvest the fruit easily; prevents disease; makes pruning easier in the years to come. We use special tools called **secateurs** for pruning small branches, and pruning saws for larger ones.*

 **Would you like to have a go at pruning?**

-  Demonstrate the correct and safe use of the secateurs.
-  With the children, choose a small branch that needs to be cut and carefully help the child to use the secateurs to cut it (Note: the smaller the branch, the easier it will be to cut, so choose young, thin branches for the children). If possible, ensure that each child has a go at making a pruning cut.



## DRAW A BRANCH (15 MIN)

### Who wants to draw an apple branch?

- Take some of your pruned branches from the ground back to the classroom
- Have each child draw an annotated diagram of a winter branch
- Key features to include/annotate:

branch, one year old wood, two year old wood, leaf bud, fruit bud.

## TIME TO RECAP (5 MIN)

### What have we learned today?

Why do deciduous trees lose their leaves for the winter?

What is the role of a branch and why do they need to be strong in fruit trees?

What are buds and what do the two main bud types produce?

What is pruning and why do we do it to fruit trees?

## EXTENSION ACTIVITY IDEAS

- Why not make a leaf mould bin so you can learn about composting while creating a great, free soil improver for your school orchard/food growing garden?
- Drawing a branch will help to reinforce the learning and could be the start of a seasonal art project that documents the changes of the trees through the year.
- Count the number of fruit buds on a branch, mark it with a ribbon and return in the summer to see how many develop into fruit – express as a fraction plot the data onto charts
- Why not use your orchard to learn about angles? Find and measure as many different angles as you can in the orchard (where branches join the trunk, the sides of planters, benches etc). Learn that wider angles are stronger in construction and that branches that are 60-90 degrees from the trunk are the best load-bearing branches for holding heavy crops of fruit.

## HOW TO PRUNE – TEACHERS NOTES & RECOMMENDED RESOURCES

The best way to learn how to prune is to find help from a local person who is knowledgeable about fruit trees. Try parents, local horticulturalists, or your local tree nursery and ask if someone would be happy to visit the school and share their skills.

This lesson plan is best used once the teacher has an understanding of how to prune, or, in the presence of an adult with pruning skills.

Although you will be able to carry out some pruning on a tree as part of this lesson plan, only the youngest of fruit trees may be fully pruned during a one hour lesson as they are small and don't require many cuts to be made. You may consider pruning them over a period of a few outdoor lessons, or make a start during lesson and complete during an afterschool club.

A good tip is to tie small pieces of ribbon or material onto the branches that you have pruned so that if you need to finish working on a tree at a later date, you can easily tell which branches have already been pruned.

Why not consider asking an experienced pruner to come and run a training session for interested staff and parents and have the trees pruned as part of that? The more skilled people involved in your orchard project, the better the chances of long term success for the project.

The following guides and books will also be useful:

- How To Prune An Apple Tree: A Guide For Real People With Imperfect Trees:  
<https://www.waterstones.com/book/how-to-prune-an-apple-tree/chloe-ward/9780993059308>
- *(Excellent, easy to follow guide and cheap at £4 at the time of writing)*
- Natural England: Formative Pruning of Young Trees:  
<http://publications.naturalengland.org.uk/publication/23006>
- (Free download)
- Natural England: Maintenance Pruning: <http://publications.naturalengland.org.uk/publication/25004>
- (Free download)
- Garden Organic: School Fruit Manual:  
[https://www.gardenorganic.org.uk/sites/www.gardenorganic.org.uk/files/resources/public/Fruit\\_Manual\\_Combined.pdf](https://www.gardenorganic.org.uk/sites/www.gardenorganic.org.uk/files/resources/public/Fruit_Manual_Combined.pdf)
- (Free download)
- RHS Pruning and Training – Revised New Edition:  
<https://www.waterstones.com/book/rhs-pruning-and-training/dk/9781405363129>
- (Very good guide, covers many different types of fruit tree and different pruning styles)