



The Worshipful Company of Fruiterers

ORCHARDS

*'FROM BUD TO
BEAKER'*

**Bramley Apple
Schools Project**



'FROM BUD TO BEAKER'

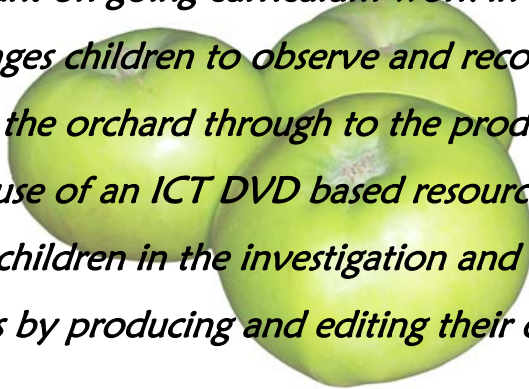
Teacher's Notes

The Worshipful Company of Fruiterers Bramley Apple Schools Project, 'From Bud to Beaker' offers primary school children enormous opportunities to utilise their own community orchard as the basis for considerable and relevant on-going curriculum work in the classroom.

It encourages children to observe and record the development of fruit in the orchard through to the production of juice.

With the use of an ICT DVD based resource it seeks to stimulate children in the investigation and development of their ideas by producing and editing their own film.

Note: This project includes information for teachers and questions for the pupils to consider and a power point presentation for the white board.



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THE HISTORY OF THE BRAMLEY APPLE

Southwell in Nottinghamshire is where the story of the Bramley apple began in 1809 shortly after Nelson's victory at the Battle of Trafalgar in 1805. The story starts with a family called Brailsford who lived in a cottage on Church Street, Southwell when the eldest daughter, Mary Anne who was playing in the kitchen decided to plant some pips into a flower pot from the apples her mother was preparing. One of these pips germinated and grew and grew until it was too big for the pot so it was planted in their cottage garden. It grew into a tree which later produced a unique apple, unknown to Mary Anne who inherited the cottage with her sister after their parent's death. In 1846 Matthew Bramley the local inn keeper and butcher bought the cottage along with this tree and lived there until his death in 1871.



Henry Merryweather born in 1839 became a gardener and when his eldest son Henry reached the age of 10 years he joined him working in the gardens at Norwood Hall and became a first class nurseryman, later they started their own nurseries in Southwell. Henry Merryweather junior, one day was so impressed with a basket of apples which was being carried by Mr Musson, another gardener, that he enquired as to which orchard they came from. These apples came from Tatham's Orchards now part of Merryweathers' original nursery. The tree they came from had been top grafted from the original tree which was growing in Mr Matthew Bramley's garden.



Painting of Matthew Bramley

Mr Musson directed young Henry Merryweather to Matthew Bramley who was,

'at once struck with the marvellous appearance of this wonderful variety and asked for its name,'

and Mr Bramley said,

"It is my apple raised in my garden and is called Bramley's Seedling".



Henry collected as much graft wood as he could and grafted all the trees which he had room for, creating a legacy for the fruit we know today as Bramley. The first recorded sale is in Henry Merryweather's book of accounts for 1862. On 31 October that year he sold "Three Bramley apple trees for two shillings to Mr George Cooper of Upton Hall".

Apples from the grafted tree were first exhibited before the Royal Horticultural Society's fruit committee in 1876 and nine years later Bramley's Seedling received a first class certificate at the Apple Congress, Chiswick on 11th October, 1883 and the Royal Jubilee Exhibition of Apples in 1887.

The tree once grown from a pip still stands in the garden although blown down by the wind at the turn of the century where it re-rooted itself.



The Original Bramley Apple Tree

The first commercial orchard was planted at Norwood Park Southwell ensuring the fame of the Bramley's reputation would spread even further. Commercial

plantings grew and helped feed the nation during the two world wars and now 85,000 tonnes of Bramleys are produced annually in commercial orchards.

The Bramley apple, the world's most famous culinary (cooking) apple, has a unique and distinctive tangy flavour due to its natural acidity and is used in savoury as well as sweet dishes, for pies and pastries to jams and juices.

IN 2009 BRAMLEY'S SEEDLING CELEBRATES ITS 200TH ANNIVERSARY.



TRADITIONAL ORCHARDS

Traditional orchards are a distinctive feature in the local landscape. They can be recognised by the wide planting distance of large majestic trees of old and often scarce varieties on a standard rootstock. Old traditional orchards are those which can be at least fifty years of age and often consist of apple, pear, cherry, plum, damson as well as cobnut. These orchards provide a valuable habitat for flora and fauna e.g. woodpeckers and owls, often supporting rare species of



insects. Now the true value of these neglected traditional orchards as a landscape feature is just being realised, instigating the restoration of those surviving traditional orchards which will help to conserve our local heritage and support biodiversity. Today many people are choosing to plant new traditionally managed orchards. Traditional grazing by sheep encourages a more extensive wild flower population than that found in modern commercial orchards.

MODERN COMMERCIAL ORCHARDS



Commercial production of fruit has changed dramatically over the last fifty years with the mass grubbing of less viable traditional orchards leaving just a few scattered throughout the countryside. Modern commercial orchards are typified by small trees at close planting spaces managed intensively without the traditional sight of sheep grazing beneath the boughs.

IDEAS FOR ACTIVITY 1

THE COMMUNITY ORCHARD

Visit fruit trees in your school garden or your Community orchard in your village.

1. How old are the trees in your community orchard?

This can be determined by counting the rings on a cut through trunk of a tree if you can find one. Most of the traditional community orchards are at least 50 – 70 years old.

2. Are they big trees, how tall do you think they are?

Some of the trees can reach between 9 – 12 metres (30 – 40 feet)

3. How far apart are they growing?

Traditional trees are usually planted between 8 metres to 12 metres apart. Commercial orchards are planted at a much smaller spacing in the row often 1.5 – 2 metres and between the rows 3.5 – 4.5 metres.

4. Are they growing in straight lines?
5. Do you know what this type of orchard is called? (i.e. traditional or commercial)
6. What type of fruit grows on them?



BRAMLEY APPLE



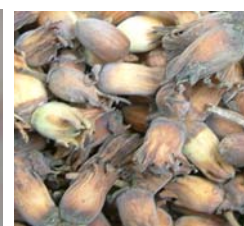
CHERRY



PEAR



PLUM



COBNUT

7. Do you know what varieties you may find in the orchard?
8. Why do you think so many different varieties were grown?

Consider locality (local varieties), weather (frost vulnerability), durability (transportation to market), storage (opportunities to store) and personal preference.

| Traditional Fruit Varieties | | | | |
|---|---|---|---|--|
| Apple | Cherry | Pear | Plum | Cobnut |
| Bramley Seedling Beauty of Bath Worcester Pearmain James Grieve Early Victoria Grenadier Cox's Orange Pippin Blenheim Orange | Frogmore Bigarreau Napoleon Bigarreau Early Rivers Bradbourne Black Black Tartarian Amber Heart, Gaucher Bigarreau Morello | Doyenne du Comice Conference Williams' Bon-Chretien Catillac Dr Jules Guyot Emile d'Heyst Pitmaston Duchess | Rivers' Prolific The Czar Victoria Old Greengage Kent Bush Frogmore Damson Monarch | Kentish Cob Cosford Butler Gunslebert |

IDEAS FOR ACTIVITY 2

THE FRUIT YEAR

Consider how the fruit tree changes through the year from blossom to leaf fall

These pictures show twigs on a fruit tree at different times of the year.



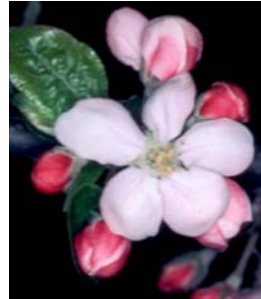
FLOWER BUD



BUD BURST



FLOWER BURST



PINK BUD



FULL FLOWER



HONEY BEE
ON FLOWER



PETAL FALL



GREEN FRUIT
FORMATION



BRAMLEY APPLE

1. Have you seen these stages in the orchard?
2. Can you match the sentences with the correct picture?

In winter, the buds are already formed on the twigs.

When the temperature rises in the spring the buds burst open.

Blossom flowers are open and the bees visit them.

Small fritlets appear.

The fruits swell and grow until they are ripe and ready to be picked.

Encourage the children to observe and record fruit trees at different times of the year. The class could survey the number and type of insects visiting the blossom in the spring.

Encourage the children to predict answers to the questions and to suggest further ideas which they could investigate. Possible questions might be:

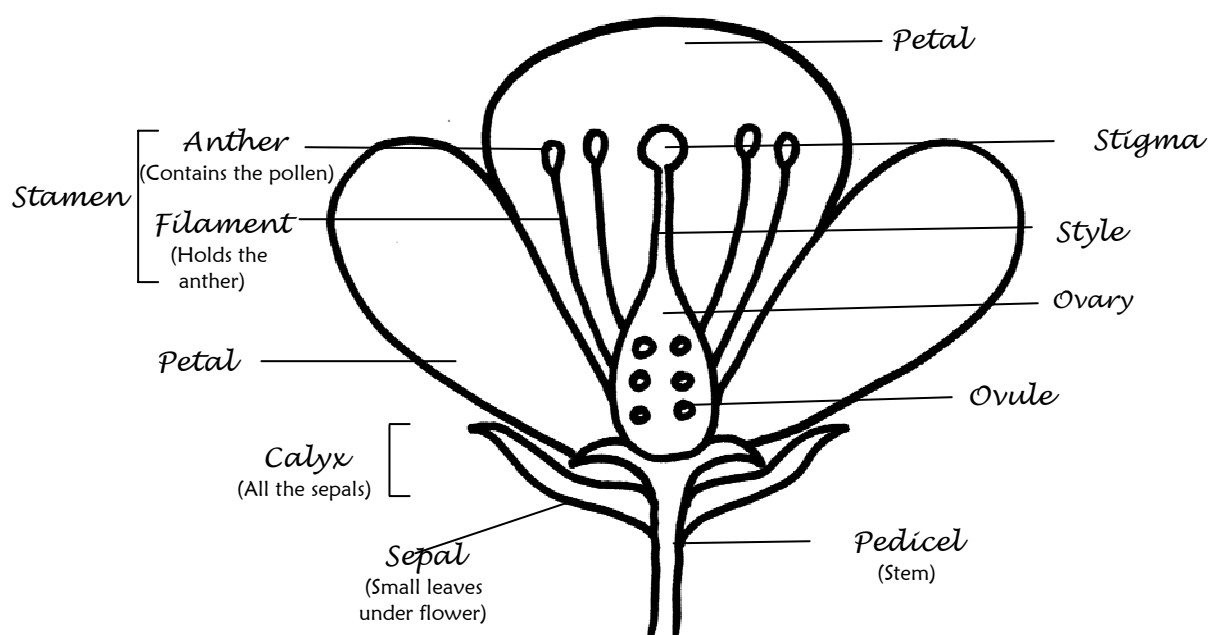
1. Compare the size and shape of different varieties of apple or other fruit?
2. Do the apples vary in colour between varieties?
3. Select five different varieties of apple, how many different colours can be seen?

IDEAS FOR ACTIVITY 3

POLLINATION

Pollination is needed for the production of fruit.

Can you draw a picture of a flower with a bee visiting it?



Fruitlets appear only on those flowers when bees and other visiting insects have brushed pollen from another variety onto the stigma of the flowers. The pollen then passes down through the style into the ovary. The ovule is the reproductive cell which will become the seed when fertilised by pollen. Wind can also blow the pollen onto the stigma. When this happens we say the flower has been pollinated and a fruit will grow with seeds in it.

Some varieties of fruit are self fertile but most are not. In an orchard there needs to be at least two different varieties of the same fruit and with some apples such as Bramley there must be three different varieties of apples so that pollination can take place.

1. Look in the orchard at the flowers about 4 weeks after the blossom has died what do you see?
2. Can you see the small fruit forming?
3. How big are the fruit that are forming?
4. How many fruitlets are there in a bunch?
5. What fruit do you think they are?
6. What colour do you think the fruit will be when it ripens?
7. Why do trees have fruits?

The fruit is the way the tree carries its seeds. The seeds can now be planted and grow into new plants and so produce more fruit.

IDEAS FOR ACTIVITY 4

FRUIT PICKING

Fruit has its season, but not all fruits ripen at the same time. This means the fruit picking season lasts from June to the end of October depending on what fruit you are picking. Often a good indicator of ripeness is that the fruit is juicy when sampled.

Cherries are picked in June and July, plums are picked from July to September and apples, pears and cobnuts are picked from August to October. Pickers must work carefully so that they do not squash or bruise the fruit. Cherries, plums and cobnuts are picked carefully into kibsey baskets and apples and pears are picked into specially designed picking buckets.



APPLES



CHERRIES



PEARS



PLUMS



COBNUT

Can you draw a picture of the fruit on the tree?

1. What do you think the baskets looked like when they were picking this orchard 50 years ago?
2. What do you think the pickers wore and why?
3. What do you think the fruit is picked into today?
4. Why do you think that the containers have changed?
5. How much do you think the baskets weighed when they were full or how many apples and cherries would it take to fill them?



APPLE PICKING BASKET
(Used 50 years ago)



CHERRY KIBSEY BASKET
(Used 50 years ago and today)



APPLE PICKING BUCKET
(Used today)

The fruit from a traditional orchard is picked from a long ladder which is placed high in the crook of a branch in the tree. Many years ago this was placed in the tree by the ladder boy or ladder mover who was in charge of the safety of the pickers.

Traditional fruit ladders were long and tapered at the top with the base being heavy giving stability. The ladders length is indicated by the number of rungs. These can range from twenty five up to sixty five rungs. The sides of the ladders were made from sweet chestnut, pine or spruce, seasoned oak or beech was used for the rungs.



PICKING IN THE ORCHARD
CIRCA 1930-40'S



PICKING IN THE ORCHARD 2008

In modern commercial orchards apples are now grown on a dwarfing rootstock which determines the size of the tree. Most of the fruit can be picked by pickers on the ground. Sometimes a tripod ladder is used to reach the top of the tree.

Ideas which the children might consider;

- The difficulties and dangers of picking apples from huge trees
- The best shape for growing and tending the tree, and harvesting the fruit

HOW TO PICK THE FRUIT

When three to six months have passed from flowering it is then time to pick the fruit.

Hold the fruit gently in the hand and lift it upwards where the natural joint is in the stalk or the strig. The fruit should come away at that joint. Do not pull since the fruit could come away without the stalk and the fingers will leave bruise marks on the fruit which will then deteriorate rapidly.

1. What time of the year is it and what type of fruit can you find in your community orchard?
2. Does it look ripe and what colour is it?
3. Watch how the fruit is picked and then see if you can pick it.
4. Are there lots of fruit growing together?
5. Can you see any difference in the length of stalk between varieties?
6. Can you see any difference in the shape and colour of the different varieties?

All of these characteristics are used with others to determine the different varieties.

IDEAS FOR ACTIVITY 5

FRUIT TASTING

After three to six months of growing now is the time to taste the fruit.

Encourage children to add to the descriptive words on the flavour wheel.

Bring as many varieties to the class as you can and let the children examine, smell and taste them.

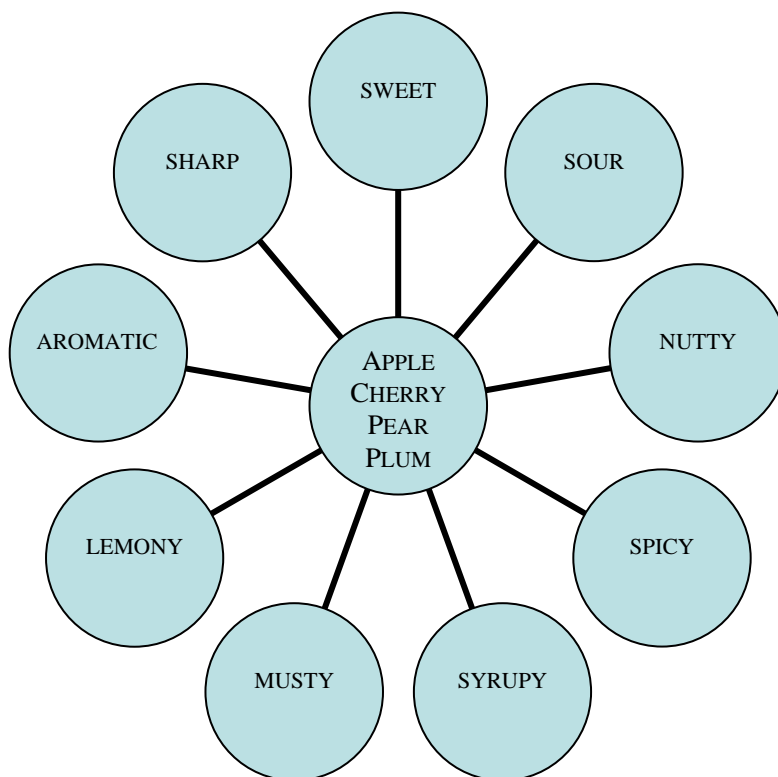
Take the utmost care over hygiene when children are tasting apples, cherries, pears and plums in the

classroom. Ensure all fruit is washed before tasting. Dispose of any waste material carefully. Make sure the fruit is in perfect condition (no rotting areas or earwigs).

1. What flavours can you taste?
2. Do you like the flavour?
3. Is the fruit juicy?
4. Does it have pips or stones?
5. How many pips or stones does the fruit have?

Consider putting together a colour wheel and ask the children to select the different colours they can see in the fruit. This will then help them to mix colours if they want to paint a picture of the fruit.

yellow black orange green plum claret lime
red crimson cream burgundy apricot gold



IDEAS FOR ACTIVITY 6

FRUIT JUICE

What can we do with the fruit once it is harvested?

There are numerous opportunities to use the fruit in many different dishes. Alternatively fruit can be pressed to produce a drink. A fruit press will squeeze pound upon pound of fruit and generate gallons of delicious juice which can be drunk immediately. Fresh home-made juice tastes far better than most mass-produced commercial juices, many of which are made from reconstituted imported concentrates.

Each apple variety can produce a different flavour so it's good to experiment with different varieties and blends.

How do we produce fruit juice?

Once you have collected your fruit from the orchard, make sure it is clean and there are no signs of decay or mould.

1. What shape is the fruit?
2. How large is the fruit?
3. How many apples or cherries do you think you need for one bottle of juice?



The main process in juice production

There are two stages in juice production depending on what type of fruit is being used;

- first the fruit may need crushing before pressing
- secondly the juice is pressed from the crushed fruit, collected and bottled

Apples and pears need crushing to give pomace (a grated consistency) this will make it easier to extract the juice. Make sure that the fruit is clean and damage free. Freezing and then thawing the apples before pounding will make the job easier. Crushing is essential because a body of unbroken fruit presents a great resistance to pressure (even hydraulically powered commercial cider presses are fed with finely milled apples). Cutting apples into slices is not sufficient.

Food processors and liquidisers produce too fine a puree for pressing.

FRUIT PRESSES

The simplest of presses such as the Vigo press or a more traditional press could be used. Once the fruit has been crushed, the pomace or pulp can then be placed in the press.

SMALL HOME APPLE PRESS



The pomace is placed in the press and pressed by a wooden piston putting pressure on the fruit forcing juice out through the slits in the wooden cage. These slits are called staves. The closeness of these staves reduces the escape of pomace, pips and skin and a mesh filter can be used to further reduce the amount of solids in the juice.

Look at the press

1. Can you see the slits in the small side press?
2. Weigh the fruit to check how much you have placed in the press.
3. Can you turn the handle to press the juice out?
4. Do you need a lot of strength?
5. How long does it take until the last drop of juice is squeezed from the pomace?

As the fruit is being pressed the juice flows onto the base plate of the press and out through the lip into a jug, bowl or bucket. This can be drunk straight away.

1. What colour is the juice?
2. Is the juice clear or cloudy?
3. How much juice has been collected in the jug.
4. Can you work out how many fruit you need to press to make a bottle of juice?

It will take about thirteen apples to make a bottle of juice

5. How many apples will you need to make you a beaker of juice?
6. What does the juice taste like?
(Refer to the flavour wheel, the children may like to add their own flavours.)
7. Try different varieties of fruit and compare their flavours, which do you like best?

Once the pomace has been pressed dry the press can be unwound and the dry pomace removed. The pressed pomace can be composted or fed to livestock.

1. What type of livestock do you think would like to eat this pomace? (Think about pigs)

TRADITIONAL COMMERCIAL APPLE PRESSES

Traditional commercial presses consist of a green oak seasoned hardwood frame with a large single or twin press, press racks, press cloths called cheeses and a chuter tray in which the juice is collected and then funnelled into a jug or collecting container. These presses are often used for extracting juice for the purpose of making cider.

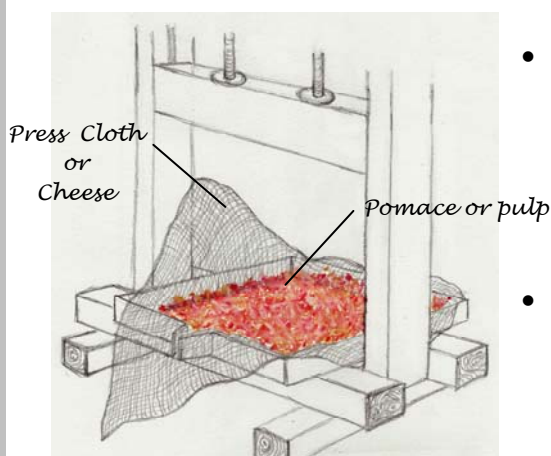
The Vigo Rack & Cloth Press needs around a sack of apples for each pressing. A 25kg sack of apples will produce about 30 bottles of juice.



VIGO RACK AND CLOTH PRESS

TO PRESS THE JUICE

- Put a container under the outlet hole of the press bed since juice will start to flow from the pomace or pulp even before the screw is tightened down.



- Place a rack on the stainless steel bed of the press, then the former (a square sided tray without a bottom), and finally a cloth diagonally so that the corners can be folded over into a square.
- The pomace is placed in the cloth and the corners are now folded over to give a neat square and the former removed. The second rack can now be put on top of the full cloth.
- Repeat this process until you have six filled cloths (cheeses), making sure they are reasonably straight or they will press unevenly when pressure is applied.
- Place the heavy wooden top block onto the pomace ensuring the metal plate on the top lines up with the screw. Pressure can now be exerted with the screw.
- A long slow pressing over the course of several hours will result in more juice being extracted.



COOKING WITH BRAMLEY APPLES

Here is a very easy recipe which the pupils can do at school or home. For more recipes look at the Bramley Kids website listed below.



BRAMLEY APPLE MUFFINS

250g plain flour + 3 tsp (15ml) baking powder

110g white granulated sugar

1 ½ tsp mixed spice

1 egg

½ tsp salt

150ml milk

80ml corn oil

170g Bramley apple peeled, cored and grated or chopped

Demerara sugar for dusting

1. Oven 190 – 200C/Gas 5
2. Line a Muffin tin with muffin cases
3. In a bowl mix together all the dry ingredients

(excluding the demerara sugar) leaving a well in the middle

4. Mix all the wet ingredients and the apple
5. Pour the wet into the dry and stir until just combined
6. Spoon into the muffin cases, sprinkle with demerara sugar
7. Bake in the middle of the oven for 20 – 25 minutes.

Makes 10 – 12 muffins

For more recipes and ideas for uses for Bramley apples go to the Bramley Kids Bramley Apple Educational Website:

www.bramleykids.com

Other details about Bramley Apples can be found on the Bramley Apple Website:

www.bramleyapples.co.uk



The Worshipful Company of Fruiterers

Over the 700 years of its history the company has assumed different roles.

In early times it was a classical medieval guild governing its trade, maintaining quality, training apprentices, caring for its members and doing other charitable works. By late Victorian time its connections with the trade had atrophied, but the company's function as a City of London institution prospered. During the last century the Fruiterers returned to the Company. Now, just over half the members are involved in the fruit industry.

Companionship and conviviality have been, and remain, the golden thread that has sustained the Company over the centuries and through many changes.

Objectives

- To promote excellence across all sectors of the fruit industry
- To support education and research within the fruit industry
- To provide support to the Lord Mayor and the City of London Corporation
- To be active in raising funds for charity
- To foster, within the Livery, a spirit of good fellowship

We would like to acknowledge Celia Stevens, née Merryweather, for the Bramley Story, The National Fruit Collections for the use of their Bramley flower photographs (Crown Copyright) and the Bramley Campaign.