Grains

Education Pack

Looking at culture, traditions, and use of grains in society

Activities and Discussion topics for 5-13 year olds







Federation of City Farms & Community Gardens

Contents

Introduction

Grains and bread are universal themes which are valued and used the world over. They act as a vital food source for the majority of the planet, thus creating discussion topics for local activities as well as wider global issues. Young people can learn by hands-on activities, such as bread-making and dough craft, as well as exploring the wider themes of culture and tradition offered in the pack.

The pack can be used for adults and children between the ages of 5 and 13 in working situations, on a farm or inside a teaching room. It can be used as an information source, providing cultural, traditional and domestic references for grains and bread.

The pack is divided into Fact Sheets and Activity Sheets, which complement one another and can be used together or separately. The activity sheets are designed as 'stand-alone' sheets, which can be pulled out and photocopied for distribution with a group.

'The pack aims to be a resource material that can be used both within the Federation of City Farms and Community Gardens network and within schools and young people's educational settings.

It can be used as a handout for visiting groups, and form a starting point for educational activities producing new ideas and leading to further research.

The teachers' notes provide guidance and cross-curricular information to enable the pack to be used within schools, where it is best suited for Key Stage 2 children.

Teachers Notes

Although this pack is aimed at 5-13 year olds, most of its contents are best suited to Key Stage 2 children. It has not been written with reference to specific National Curriculum programmes of study but offers a wider cross-curricular approach to the study of grains. Alternatively, teachers can use individual fact sheets or activities, weaving them into their own existing or future teaching plans. For this purpose, the table and additional notes below identify National Curriculum subject links with reference to specific fact and activity sheets.

The fact sheets and activities serve to provide background and guidance to teachers who will be able to adapt their content to the age and ability of their class of children. However some pages are suitable for direct use with children as photocopiable resources. Some of the craft activities require the manual dexterity of Key Stage 3 children, whilst younger children may need more adult supervision to achieve success.

Grains - Education Pack

Links with the National Curriculum / QCA Schemes of work

Facts and Activities Sheets	**1 Food, traditions & belief**	**2 Grain growing**	**3 Harvesting**	**4 Milling**	**5 Baking**
Literacy	✓	✓	✓	✓	✓
key stage	1, 2	1, 2	1, 2, 3	1, 2, 3	1, 2, 3
Numeracy		✓		✓	✓
key stage		1, 2		1, 2	1, 2
Science	✓	✓	✓	✓	✓
key stage	2	2	2	2, 3	2
Geography	✓	✓	✓	✓	✓
key stage	2	2, 3	2	2	2
History		✓	✓	✓	✓
key stage		1, 2	1, 2	1, 2	1, 2
Religious Education	✓		✓	✓	✓
key stage	1, 2, 3		1, 2, 3	1, 2	1, 2
Design Technology		✓		✓	✓
key stage		1, 2		1, 2	1, 2, 3
Art & Design			✓		✓
key stage			1, 2, 3		1, 2, 3

Literacy:

- Explanatory text (sayings predicting the weather) - Activity 1
- Instructional texts (using recipes and craft skills) - Activities 2, 3, 4
- Use of diagrams to support texts - Activities 3 & 5 & Fact Sheet 2
- Technical vocabulary (associated with grain processing) - Fact sheets 4

Numeracy:

- Number calculations - Activity 4
- Measuring (weighing, timing, temperature) - Activities 2, 4, 5
- Using metric, imperial (-with ref. to historical background) & N & S American measuring units - Activities 2, 4, 5
- Data Handling (surveys) - Activity 4

Science:

- Sc2 - Life & Living processes
- Relating weather sayings to knowledge of plants and animals - Activity 1
- Using yeast as a useful microorganism in bread making - Activities 2
- Yearly crop life cycles linked to religious celebrations - Fact Sheet 3
- Structure and function of parts of wheat seed - Fact Sheet 4
- Nutritional value of wheat - Fact Sheet 4
- Role of grain in human food chains - Fact Sheet 4
- Sc3 - Materials and their properties
- Straw - uses related to properties - Activities 3
- Clay, brick, metal -materials used for oven from past to present - Fact Sheet 5
- Chemical changes by mixing and heating (yeast and cooking) - Activities 4 & 5
- Sc4 Physical Processes
- Forces and friction in milling and grinding - Fact Sheet 4

Religious Education:

- South American religious beliefs and stories relating to crops - Fact Sheet 1
- Past and present religious celebrations and symbols relating to the farming year - Fact Sheet 3, Activities 3,4 &5

Geography:

- Weather predicting from old or traditional sayings - Activities 1
- Seasonal food cycles and the global market place - Fact Sheet 1
- Grain as a world-wide food - Fact Sheet 2
- The farming year related to religious festivals - Fact Sheet 3
- Processing grains into food items - Fact Sheets 4 & 5

History:

- History of cereals - Fact Sheet 2
- Traditions associated with the farming year - Fact Sheet 3
- History of imperial measures - Fact Sheet 4
- History of milling - Fact Sheet 4
- History of baking - Fact Sheet 5

Design Technology:

- Bread making around the world - Activities 2
- Past to present milling technology - Fact Sheet 4
- Nutritional value of wheat - Fact Sheet 4
- Design and make a cereal packet - Activities 4
- Investigating cereal products - Activities 4
- Making a friendship cake - Activities 4
- Skills in decorative bread designs - Activities 5

Art and Design:

- Straw crafts skills - plaiting, winding, looping, binding, bending and fixing - Activities 3
- Making decorative breads by rolling, kneading, twisting, knotting, plaiting techniques, and changing sizes, shapes, textures and colours - Activities 5

Food, tradition and beliefs

Facts 1

From seed to supper

Few of us today follow the full cycle from 'seed to supper', from digging the earth and planting seed, to cooking with the plants that we grow. Most of us live in towns or cities, buy our food in supermarkets and don't know when vegetables, grains and fruits are truly in season. We can buy strawberries at any time of the year now. In fact, most people in Britain can buy foods everyday, out of season, that have travelled across the continents of the world to be on our shelves.

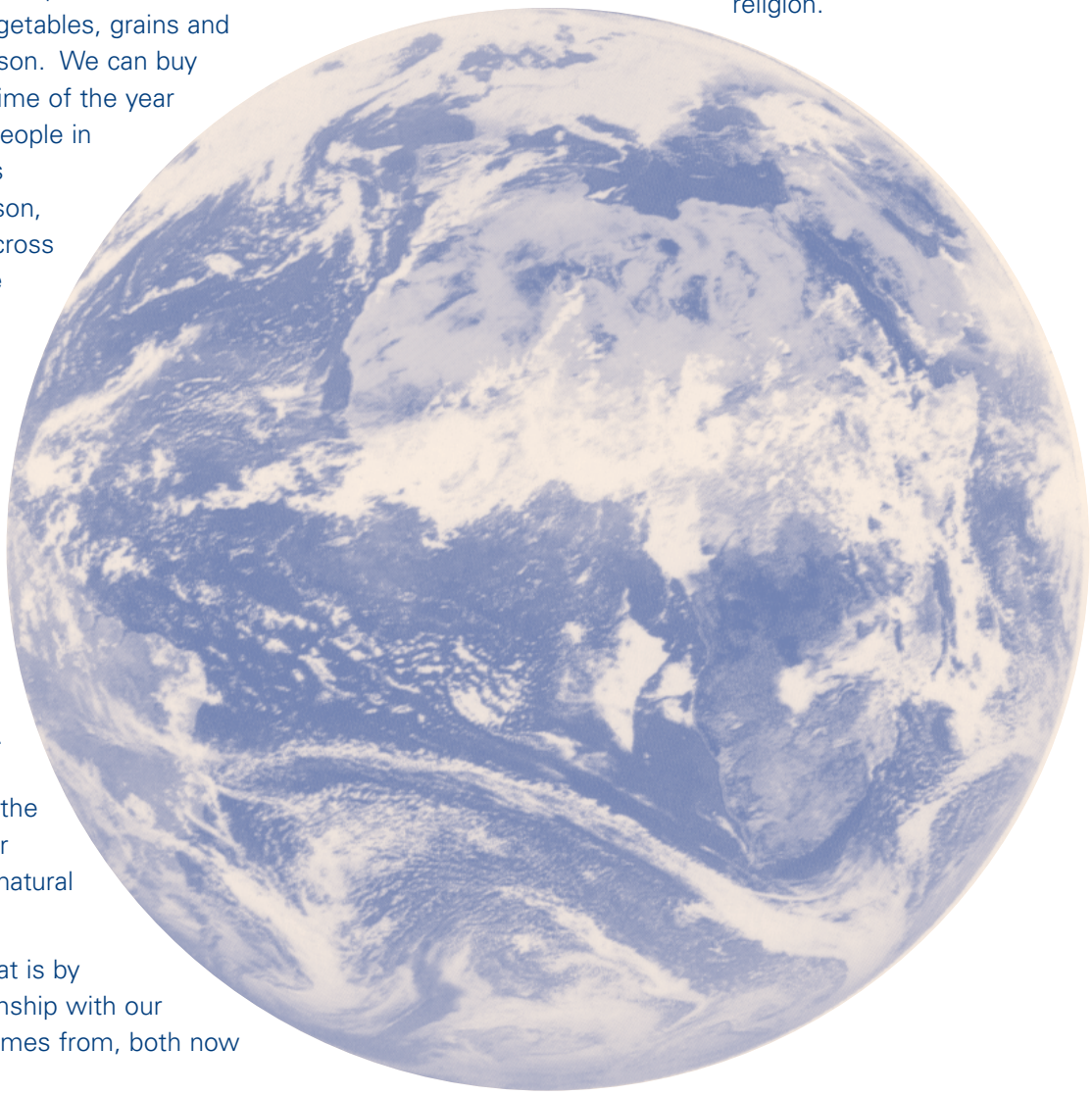
We may no longer be tied to our environment as earlier generations were, shaping their lives around the natural seasonal cycle. However it is essential that we keep in touch with it. Our future viability in living sustainably on the earth depends on our awareness of these natural systems.

One way of doing that is by looking at our relationship with our food and where it comes from, both now and in the past.

Growing grain

Growing grain in Britain has been interwoven into our way of life for millennia. It has shaped many parts of our culture - from the festivals we hold and the kinds of bread we make, to how we weigh and measure things and even how we build our houses. There has clearly been a time when growing grains kept us more in touch with nature than we are today.

For many people across the world, the growing of grain and the making of bread is still a central part of everyday life. Because of this, the activities of grain-growing and bread-making are often close to the heart of their ideas about nature, the world and religion.



Looking at how important growing grain has been to humankind, we might think that we began to learn how to control nature when we learnt to cultivate grain. However, there are many peoples of the world who think that to grow grain means to live in balance with nature - to be working with it, rather than in charge of it.

On the following pages are two illustrations of this way of thinking.

The People of Boyaca in rural Colombia

Facts 1

The rural people from Boyaca say that it is the nature of the earth to give force, "la fuerza." We might think of this force as something like nature's powers. Over and over again people say, "the land gives" - "La tierra da". So, to the people of Boyaca, food is 'given', by the land. In fact, they believe that all wealth comes from the land.

People say that the strength in the earth is given by God and that it is human work to move the land and manage it if they want to gather what it gives. It is seen as great good fortune, luck or destiny to be employed as a farm worker.

The Boyaca people believe that the land has power that is outside of human control and often ask for God's help in farming. As seeding begins, a man says, "In the name of the Lord and the Holy Spirit, may it come up well". People also ask for the help of the wind and the rain, which is thought to be necessary if the crops are to grow. The land, its power and God are all held in the highest esteem. People say, "There is nothing like God and one's garden", as well as "First God, and then maize".

Some areas of land are known to give more force and bigger crops than others. But many of the Boyaca people say that despite this, all their land gives less now and needs much more help from humans. The people believe that this is not the land's fault, for it is tired and needs to rest. It may seem to be common sense that the use of insecticides and herbicides will reduce the amount of human work required on the land. But the Boyaca people believe that these treatments really do nothing for the land's strength and that they would need to put more and more work into the soil, to have a successful harvest. Likewise, they believe that some fertilizers are good - like the ashes from burnt trees, or animal manure, because they add force. Whilst others, such as chemical fertilizers, are bad because they burn the earth, and take away its force.

"There is nothing like God and one's garden"

The Boyaca people believe that food gives energy and spirit and that different foods have different amounts of force. Some people say that maize has the most force and others that beans, lentils or wheat do. This is because the crop that has the strongest amount of force changes from place to place, depending on what the earth gives best in that place.

"Force in work and land and crops is all the same. Nature's strength is the substance of living". A Boyaca saying.

The land gives

Quote from "Colombian Conversations", S. Gudeman and A. Rivera.

The Atitecho People

Facts 1

The Atitecho People live in the highlands of Guatemala and the Chiapas which you will find on the map to the south of Mexico and the United States of America. They are distantly related to the Maya Indians of the past, who are known for their advanced development of ideas such as astronomy, the calendar and hieroglyphic writing.

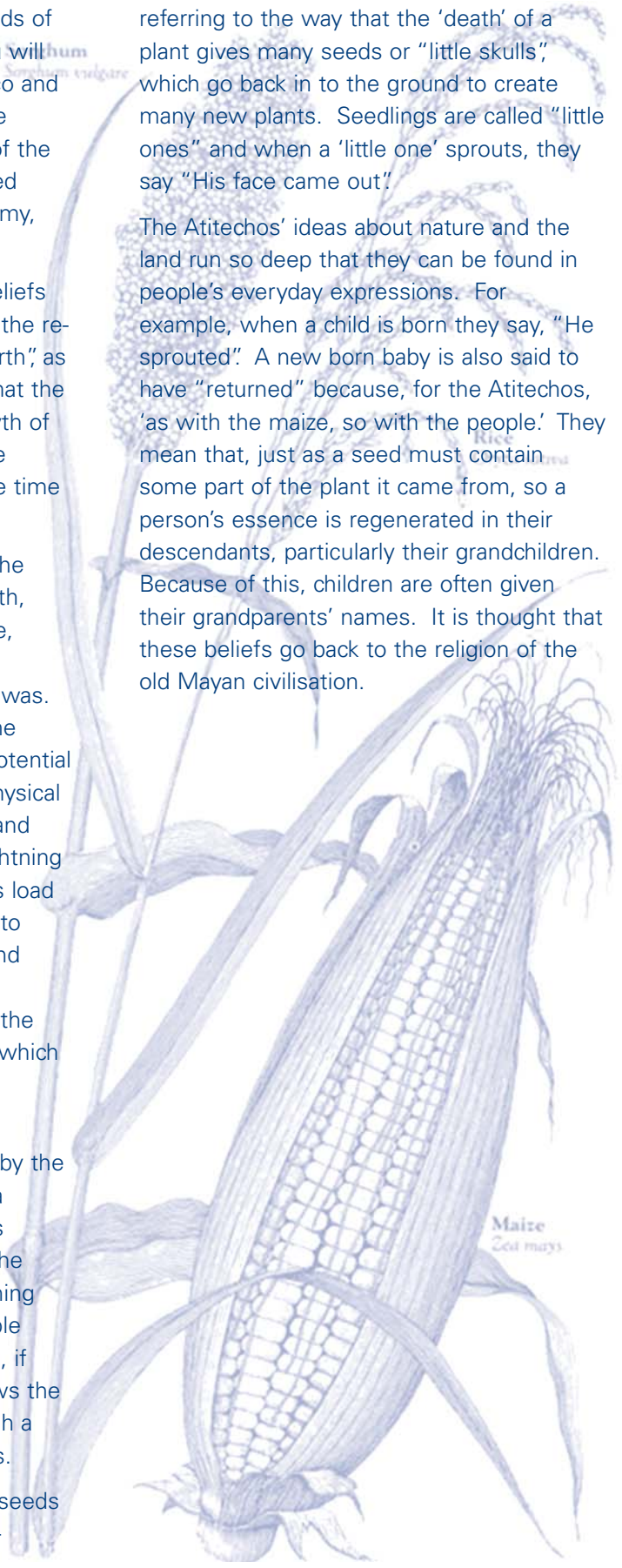
The Atitecho express their religious beliefs through ideas about plant growth and the re-creation of life. "Flowing Mountain Earth", as they call it, is an idea about the way that the world works. It is about how the growth of plants and the life cycle of humans are related to each other, as are things like time and the movement of the stars.

Flowing Mountain Earth is a place at the centre of our planet. In Atitechos' myth, before there was a world or a universe, there was a single, lone maize plant, growing at the centre of all that there was. As the world's creation approached, the maize seeds became pregnant with potential life. The life in the seeds contained physical things such as maize and deer, rocks and rivers, as well as elements such as lightning and segments of time. Eventually this load became too much for the maize plant to support and the cobs fell, smashing and scattering the seed. As time passed numerous seedlings sprang up out of the soil at the foot of the grand, old plant which gave shelter to the young plants and nurtured them.

Finally the old plant was crowded out by the new and since then it has existed as a stump at the centre of the world. This stump represents all that remains of the original mother and father - the beginning and ending of life. The Atitechos people respect this original maize plant which, if properly treated, looks after and renews the world. Sometimes they feed it through a hole in the ground and give it offerings.

To the workers in the field, the maize seeds to be planted are called "little skulls" - referring to the way that the 'death' of a plant gives many seeds or "little skulls", which go back in to the ground to create many new plants. Seedlings are called "little ones" and when a 'little one' sprouts, they say "His face came out".

The Atitechos' ideas about nature and the land run so deep that they can be found in people's everyday expressions. For example, when a child is born they say, "He sprouted". A new born baby is also said to have "returned" because, for the Atitechos, 'as with the maize, so with the people.' They mean that, just as a seed must contain some part of the plant it came from, so a person's essence is regenerated in their descendants, particularly their grandchildren. Because of this, children are often given their grandparents' names. It is thought that these beliefs go back to the religion of the old Mayan civilisation.



The Weather Report

Activities 1

Just like the Atitecho and Boyaca people, the people of Britain have many old stories and sayings about their crops. As a good harvest so often depends on the right conditions, many of these sayings were a way of predicting the weather and the quality of the approaching harvest.

Here are a few examples.

People say...

..that animals such as cows know instinctively when bad weather is coming - that they lie down if it's going to rain and always turn to face a storm

"When April blows his horn (ie is cold and windy), it's good for hay and corn."

..that if crows build their nests high, it means summer will be good and if they build them low, it will be bad

Cut thistles in May
They grow in a day:
Cut them in June,
That is too soon:
Cut them in July,
Then they will die.

Why should the thistles grow back so quickly in May and not in July?

"If the grass grows in January, it grows the worse for it all year"

"Mists in May and heat in June, makes the harvest right soon"

"A cold May and a windy, makes a fat barn and a findy (good harvest)"

A swarm of bees in May
Is worth a load of hay;
A swarm of bees in June
Is worth a silver spoon;
A swarm of bees in July
Is not worth a fly.

Why do you think a swarm of bees in May might be worth 'a load of hay' when in July they weren't 'worth a fly'?

St. Swithin's Day (July 15) if thou dost rain,
For forty days it doth remain.
St. Swithin's Day if thou be fine,
For forty days the sun will shine.

If it rains on St. Swithin's Day it is said that "St. Swithins is christening the apples".

Do you think this is true? What was it like for forty days after the last St Swithins day?

Do you know any other sayings that predict the weather, or give advice about planting, farming and making bread?

Building an oat stack at Twatt Farm, Birsay, Orkney. *Picture courtesy of the Birsay Heritage Trust*

Grain growing

Facts 2

In Central America, **maize** (which we call corn on the cob) has been the main cereal for many thousands of years. Its use can be traced back 7000 years to Mayan farmers who called it zea mays meaning 'that which sustains the Maya.' Early European settlers in America learned how to grow maize from the North American Indians. This helped keep them from starvation.

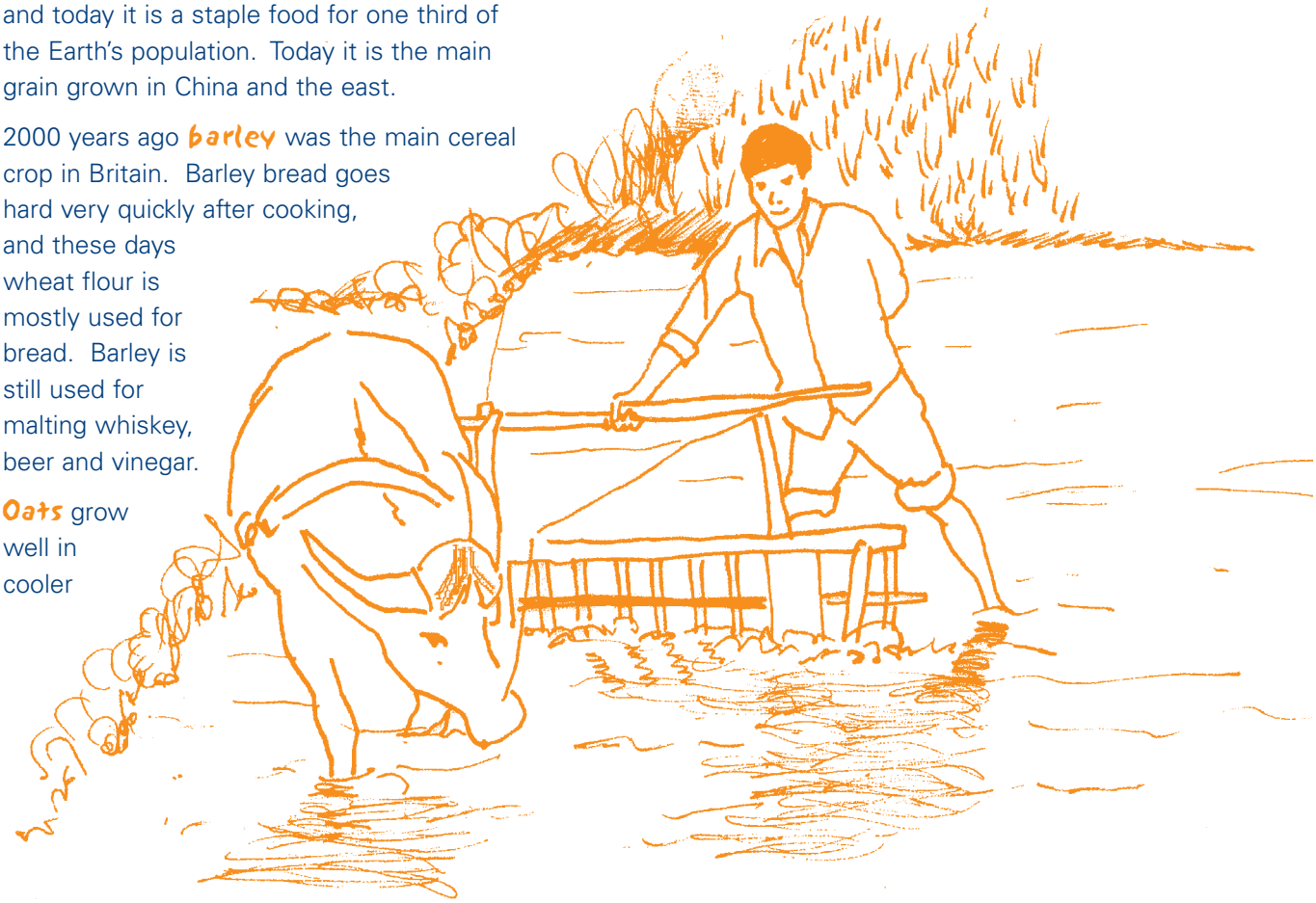
5000 years ago, in Egypt, leavened bread was already being made in beehive ovens using much the same methods we use today. Like us, the Egyptians grew large fields of **wheat**, refined different kinds of flour and used yeast (as did the Chinese at the time). Wheat was so important to the Egyptian way of life that each year the Pharaoh cut the first sheaf with a golden sickle to begin the harvest.

Rice was first grown in the south west Himalayas, India and south east Asia. Its earliest recorded use dates back 5000 years and today it is a staple food for one third of the Earth's population. Today it is the main grain grown in China and the east.

2000 years ago **barley** was the main cereal crop in Britain. Barley bread goes hard very quickly after cooking, and these days wheat flour is mostly used for bread. Barley is still used for malting whiskey, beer and vinegar.

Oats grow well in cooler areas and are popular in the north of England and in Scotland. They are gluten free and mainly made into flat oatcakes, bannocks and porridge.

Rye is a cousin of the oat family used to grow as a weed in fields of wheat and barley. Rye went on to take the place of fair-weather cereals in poorer soils and climates because it is very hardy. Because it grew widely in the colder, northern regions of Europe and Russia, it helped people colonize the land 1500 years ago. Unfortunately, rye is particularly susceptible to a fungus called ergot that causes people to tremble and have visions, an affliction known as Saint Vitas Dance.

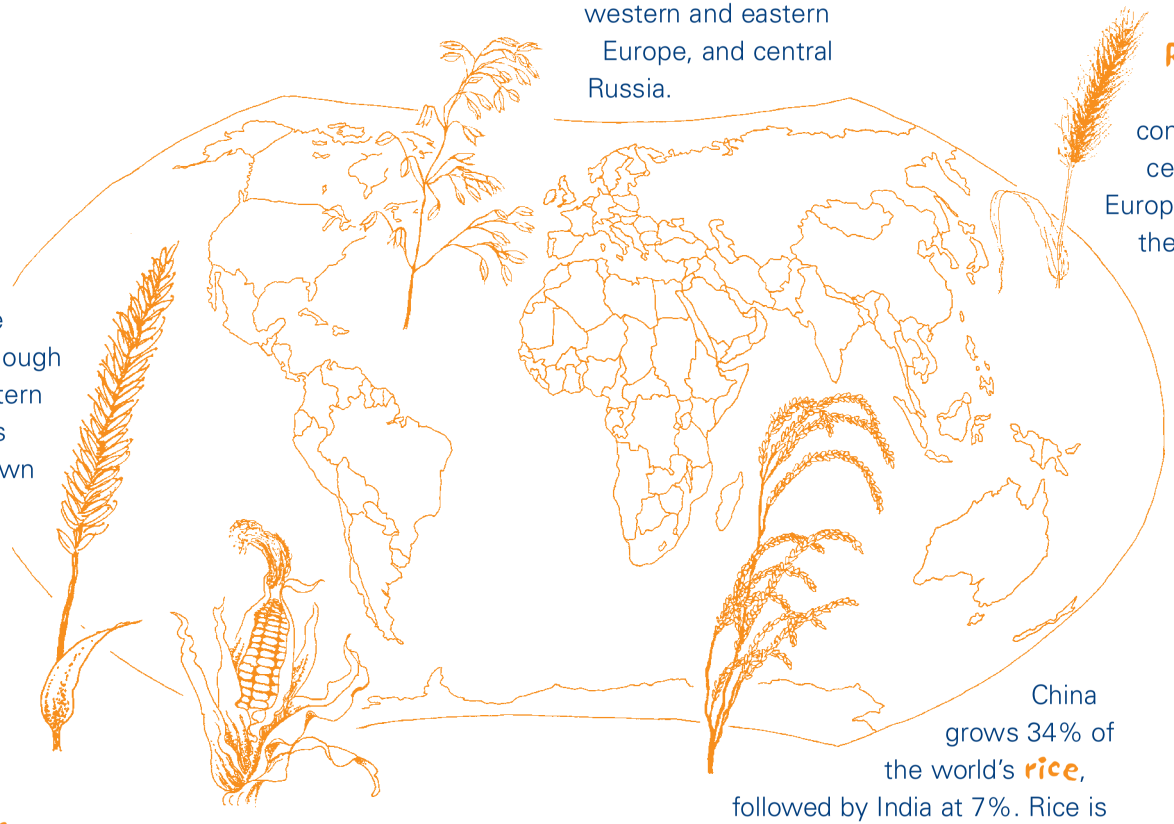


Grain growing worldwide

Oats have a similar spread of growth to that of wheat - principally in the northern hemisphere: Canada and the USA, western and eastern Europe, and central Russia.

Rye producing areas are particularly concentrated in Russia, central and northern Europe, Scandinavia, and the northern states of the USA.

Wheat is grown largely in the USA, Canada and Russia, although practically the whole of western Europe is now regarded as 'wheatland'. Wheat is also grown in China, India, Argentina, Australia and Pakistan.



Maize comes mainly from the corn belt of the USA, but it can also be found in China, South America, central and southern Africa, India, Egypt and parts of

China grows 34% of the world's **rice**, followed by India at 7%. Rice is grown on every continent except Antarctica, although 90% of the world's rice is grown and is eaten in the orient.

Facts 2

Cultivation

Facts 2

Early men and women got their food by hunting animals for meat and by gathering edible, wild plants for their grains, berries, roots or leaves. Because of this they were known as **hunter-gatherers**. Many of them were nomadic and moved around to find the places where the plants grew best, or where the animals that they hunted looked for their own food and water.

Once people learned how to grow and store their own food, they could change their whole lifestyle. This is often said to have been the reason that people first **settled**, as a crop needs to be tended and cared for year round, before it is harvested. As people settled around good growing places, whole communities grew up, villages and towns appeared as people became sure of a regular food supply. It was an important time in history.

Central to cultivating crops was the growing of grain and the making of grain into flour for bread. Bread was, and still is, one of the staple foods of life. It is an almost universal food of humankind. It is made from the basic ingredients of flour, water and salt and the simple but transforming process of baking that changes the flour and water 'dough' mixture into bread.

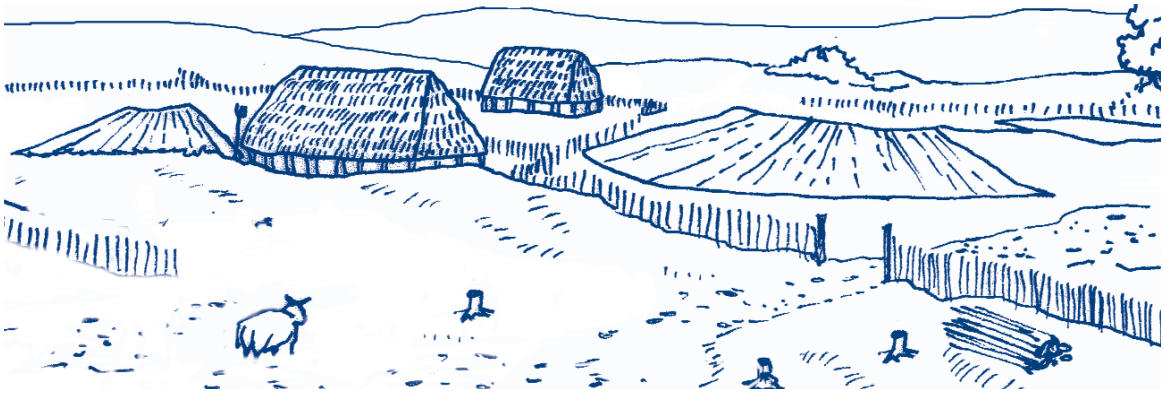
Some of the earliest known grain cultivation was about 10,000 years ago, in Mesopotamia (now called Iraq). In an area called the 'Fertile Crescent,' between the rivers Tigris and Euphrates, wild prairie grasses grew with tiny seeds that were very high in protein.

People began to collect the wild seeds to grow them for crops and so the plants became 'domesticated.' Barley, 'Einkorn' and 'Emmer' wheats were among the first domesticated grains and it was a cross between Emmer and an unknown species that gave us the first bread wheat.

Some hunter-gatherers cooked the grains they had collected. As you can imagine, early baking was very simple compared to some of the recipes we see today. Grains were pounded to flour between stones, mixed with salt and water and cooked on a hot stone in the fire. Most of these breads were flat and were either cooked in this way, or in a metal skillet. They are known as **unleavened breads** and this is how the Indian chapati, the Mexican tortilla and the Iranian lavash are made.

In contrast, **leavened bread** is bread that has risen into a loaf that is usually cooked in ovens, where it can be surrounded by heat. Leavened bread rises because yeast has been added to the bread dough. The yeast acts chemically on the dough to fill it with air and the air bubbles are trapped by gluten in the flour. No one knows the origins of yeast leavening, but some early methods used the yeast from froth on fermenting beer. Nowadays bread yeast is widely manufactured although natural yeasts are still used.

Cultivation is the process by which man has adapted the land, the crops and animals to be of use to him



Sour-Dough Starters and Rye Bread

The main kinds of breads across the world are...

- **flat breads** - made over a fire on a stone or in a skillet
- **soda breads** - made using soda and soured milk
- **leavened breads** - made using yeast
- **sour-dough breads** - bread which is fermented using a bit of the old sour-dough mix from the last bread batch to start the fermentation in the new batch.

This last kind of bread-making, where a bit of the old mix is kept back to start the new, goes back far beyond the times when yeast was manufactured for baking. If you could follow all those loaves back through time you might find the first sour-dough starter, made using the very first leavening agent. If you were there at the time, you would probably find yourself in the Middle East or Russia.

Sour-dough breads have been popular among the Russians for a very long time. They are particularly fond of rye in their bread which, historians now think, enabled the old Russians to migrate into modern-day Russia and the Ukraine 1500 years ago. If this is so, then rye really is at the foundation of Russian history. Aside from using rye grain in bread, the Russians also use it to make kasha - a kind of porridge, and kvass - a refreshing and weak rye beer.

Here are two ways to make a sour-dough starter.

Potato Starter Recipe

- 450gms (1lb) large scrubbed, unpeeled potatoes
- 450gms (1lb) rye flour
- 50gms (2oz) sugar
- 2 level teaspoons salt

1. Boil the potatoes whole and just covered by the water
2. Peel, then mash them in the cooking water
3. Mix in the rye flour, sugar and salt
4. Put in an earthenware bowl and cover with a cloth. Leave for 4 days in a warm place.
5. The mixture should be bubbly and smell strongly of yeast. It is then ready.

Yeast Starter Recipe

- 25gms (1oz) fresh yeast, or 12.5gms ($^1/_2$oz) dried yeast
- 575ml (1 pint) warm water
- 2 level teaspoons honey or sugar
- 340gms (12oz) flour

1. Dissolve the yeast in some of the water with the honey
2. Mix in the flour and water and mix to the consistency of a thick paste
3. Leave to ferment for at least 4 days, stirring in any liquid that separates from the mix

Sour-Dough Starters and Rye Bread

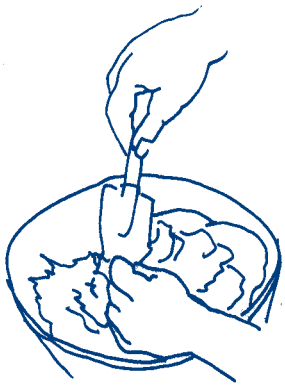
Activities 2

Now have a go at making bread with your starter.

Sour-dough Rye Bread Recipe

- 225gms (8oz) sour-dough starter
- 2 litres (4 pints) potato water or scalded milk
- 1.5kg ($3\frac{1}{4}$lb) rye flour
- 25gms (1oz) salt
- 100gms (4 fl.oz) molasses or honey
- 25gms (1oz) caraway seeds (optional)

1. Add the starter and half the flour to the liquid. Mix, cover with a cloth and leave for 3 hours in a warm place
2. Stir well, then remove 225gms (8oz) of mixture for the next starter



3. Add the rest of the ingredients to the remaining sponge and make a stiff dough
4. Knead on a floured board till no longer sticky
5. Knead to prove and shape into loaves. Cover with a damp cloth until dough rises up to double size. This may take up to 4 hours
6. Bake at 180C/350F/Mark 4 for 1 hour
7. If the bread is a bit heavy, substitute part of the rye flour with strong white flour.

Grain Essentials

- The word 'corn' in English was, in past times, used to describe all sorts of grain - not just maize (corn on the cob). That's why we often call a field of wheat or barley a 'corn field'.

Do you know any recipes using sour-dough?

If so please send to us and we can include it in our Community Recipe Web Page

Harvesting

Facts 3

In the UK, even in the quite recent past, the agricultural year had special festivals in spring, summer, autumn and winter which celebrated the different farming activities that needed to take place at those times.

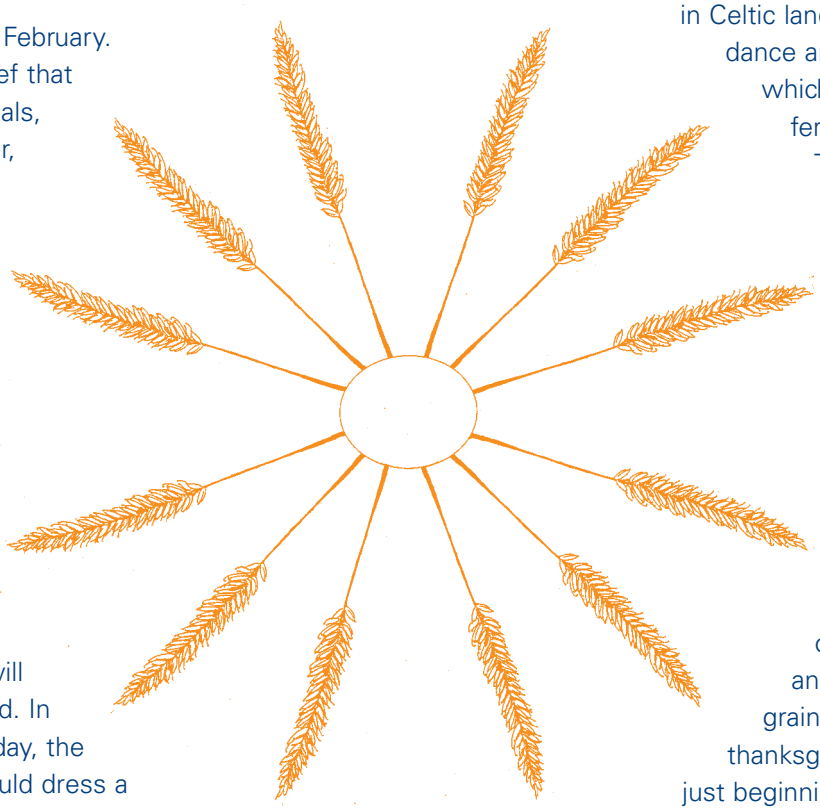
A corn calendar

The following is a summary of some of the main festivals that marked the grain year in Britain. If you know of any more, from Britain or abroad, please let us know.

Plough Monday - the first Monday after the 12th night of Christmas. The blessing of the plough took place in church for a good start to the new year. The plough was then paraded through the streets of neighbouring towns and the ploughmen danced and asked for money for drink. It was believed that hunger and starvation could befall those who refused.

Candlemas - 2nd February. There is an old belief that all hibernating animals, especially the badger, wake upon Candlemas Day and come out to see if it's still winter. If it's sunny, the animals are frightened of their shadows and go back underground for another 40 days. If it's cloudy, they have no shadows and will stay above ground. In Scotland, on this day, the farmer's wife would dress a sheaf of oats in women's clothes and put it in a large basket by the hearth. They called this Bri'id's bed and would say "Bri'id is welcome." If the figure moved in the night it foretold a prosperous harvest and year ahead.

Shrove Tuesday - comes at the beginning of Lent. You may know it better as 'Pancake Day'. On this day it is said that people "threshed the black hen" but few can remember what this means.



St David's Day - 1st March. People planted oats and barley.

Mid-Lent Sunday - Now known as Mother's Day. Children would enact mock battles where winter was defeated by spring.

May Day - 1st May (Beltane). Marked a celebration of the beginning of summer in Celtic lands. People would dance around the May pole which probably represents fertility or the tree of life. The May queen represents the old goddess of spring.

June. In Scotland, there was a procession around the crops in the field with lighted torches.

Lammas - 1st August. On this day there was a blessing of the bread and flour and of the new season's grain crop. This was a thanksgiving for the harvest just beginning. The word Lammas may come from the Saxon word 'Hlaf-mas' meaning half a loaf, referring to the way that some farmers had to give some of their wheat flour to their landlords before the 1st August.

The Saxons called **August** 'Arnmonat' - Harvest Month. Starting with rye and oats, the crops were harvested one after the other up until when the barley was brought in during September, which was called 'Gerst-monat' - Barley Month.

Harvest Home

Facts 3

For centuries, throughout Europe a Corn-Mother or **Harvest Queen** has been an important symbol.

In some parts of Europe, the last sheaf cut in the field was plaited into a **'corn dolly'** or neck, sometimes around an apple. Elsewhere, people thought that whoever cut the last sheaf was killing the corn spirit and would attract bad luck, so all the reapers would swing their sickles in turn so that everyone shared the responsibility. They would then make a corn dolly, to keep until the following year when a new one would replace it.

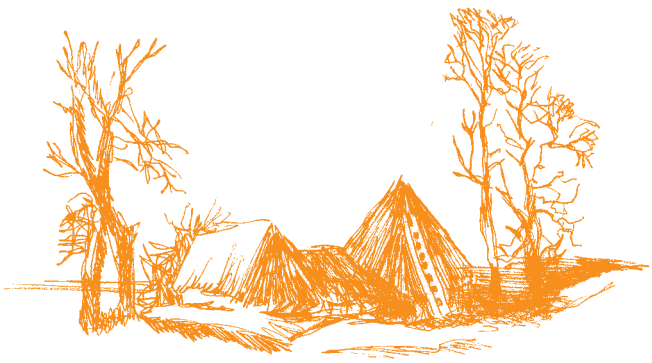
In the north of England the last sheaf of golden corn left standing in the field was set on end and it was said that the harvesters had 'got the kern'. They made a figure crowned with wheat-ears and dressed it in a white frock and coloured ribbons. The figure was hoisted on a pole and carried by the tallest, strongest man. This was the 'kern baby' or harvest queen. She was taken to the barn and set in a high-up place for the **Harvest Home** - a special harvest supper marking the end of the harvest.

The Harvest Home was a great event, anticipated throughout all the hard work of cutting, binding and carrying in the crops. The farmer and his wife would greet everyone at the farm kitchen or the barn, where they put on the feast as a reward for the workers' efforts. Everyone wore their best clothes and there would be all kinds of meat - beef, bacon, ham and chicken and great loaves of home-made bread with butter and gallon jugs of ale or cider.

This is how the harvest was celebrated in Europe up until the 19th century. As hand reaping began to be replaced by machine reaping at this time, customs began to fall out of use. The church also tried replacing the Harvest Home with the 'harvest festival' which was thought to be more respectable, but the church festivals weren't as popular as the more traditional ones.

Grain Essentials

- Half our cereals are used to make things like bread, breakfast and beer. What do you think happens to the other half?
- Farmers need good conditions to grow cereal crops. What do you think good conditions might be? Crops grow better on the eastern side of the UK. Why do you think this might be?



Straw Crafts

Straw makes up about half the 'dry waste' of cereal crops and it was once greatly valued as a by-product of the harvest. Now such 'waste' is dropped on the ground behind the combine harvester, or baled up and used as animal bedding, feed, or not at all.

Some of the old uses for straw have not completely died out and it's interesting to see some of the different traditional uses it can be put to. From earliest times, soft straw, such as barley, was used for human bedding as well as for animals. Straw mattresses were in common use until very recently in Britain and were used for soldiers' beds in the Second World War.

Straw can also be used to provide buffers between ships in harbour, to stuff the collars of working horses and as barriers on race tracks. Houses are roofed, or thatched, with long stiff straw such as rye or long wheat, in some parts of Britain. There is now, also, a growing trend of building whole houses out of straw bales because of its low-energy, environmentally sound properties.

Amongst other things, straw can be used to make rope, baskets, bee-hives, chairseats, the targets in archery, hats and decorations.

Make your own Harvest Queen

Straw for corn dollies should be hollow and long-stemmed. Use wheat for beginners, or oats and rye straw. Barley is not suitable. The best plaiting is done with the length of the stem from the ear down to where the last leaf leaves the stem.

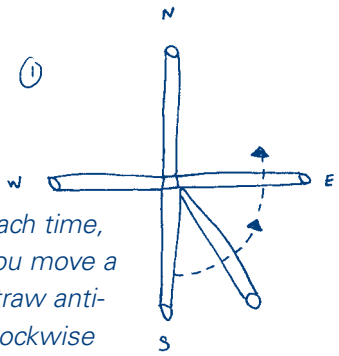
Ideally, cut the straw just before the crop is ripe, while the first joint just below the ear is still green. (Do ask permission from the farmer and cut from the edge of the field.)

1. Strip the side leaves to give a clean stalk
2. If the straw is dry, soak in water for about 15 minutes, let the water drain away and wrap in a damp cloth

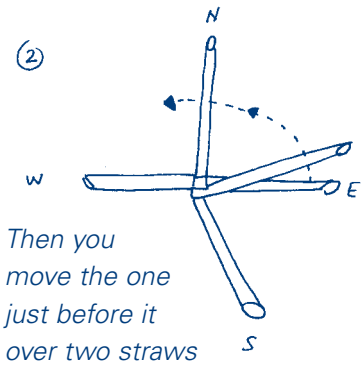
Five Straw Plait

Tie 5 straws together and follow the diagram

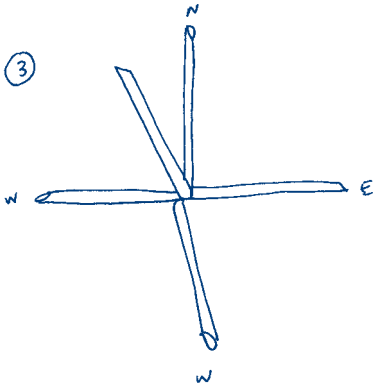
To add a new straw, follow the old short straw with the new one and cut off the old after it has been plaited in.

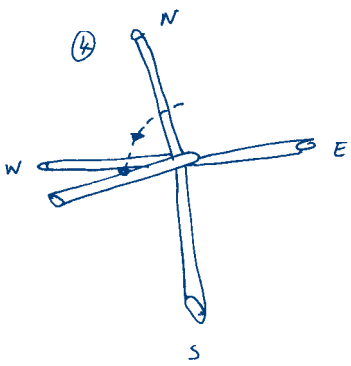


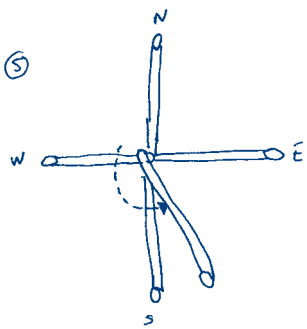
Each time, you move a straw anti-clockwise over two straws



Then you move the one just before it over two straws - and so on...







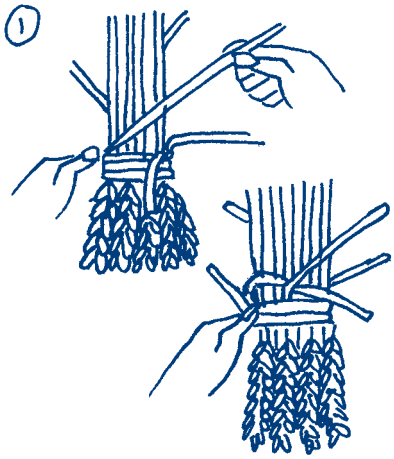
Straw Crafts

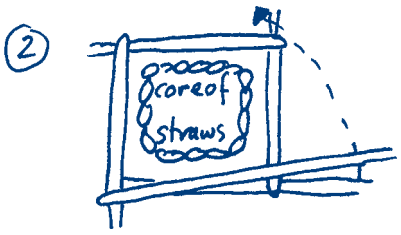
Corn Dolly or Neck

This is a five-straw plait around a core of 18 or so straws that need to have good ears of grain

1. Tie the ends and add 2 or 3 more straws without ears
2. Plait these in a five plait around the core as shown in the picture

Try making other shapes using a core of straw to make the form.

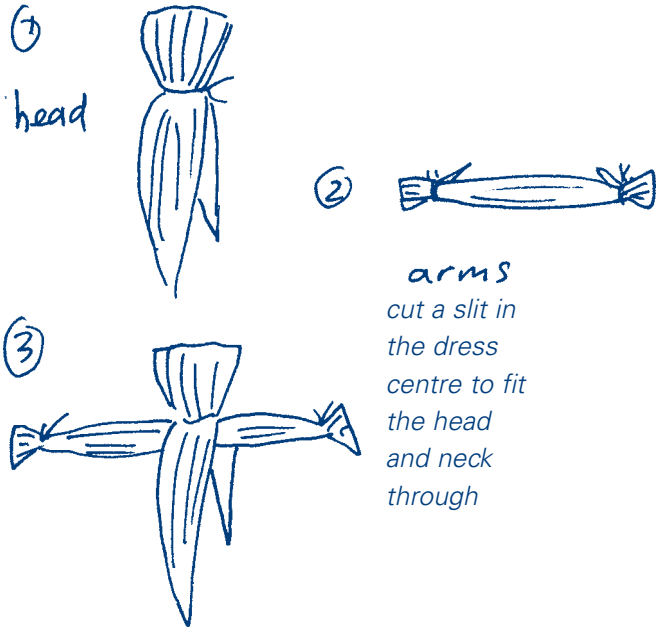




Maize Dollies

If possible, use fresh maize leaves soon after they have been stripped. Use beige cotton for 'tying off', and cotton wool, or sheep's wool, for filling in.

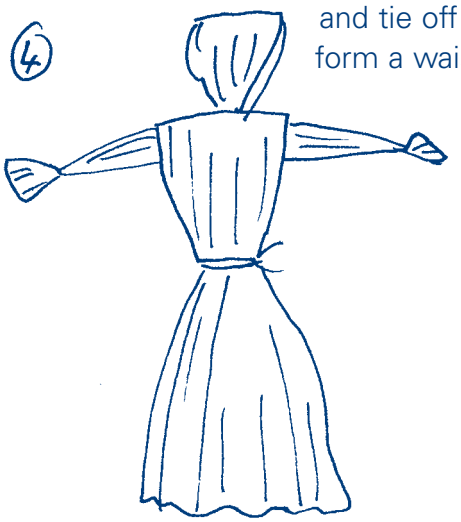
Head and arms are made separately and then fitted together.



For the main body, cut the narrow ends off a large leaf.

Make a slit in the centre to fit the neck through.

Slide in the arms and tie off to form a waist.

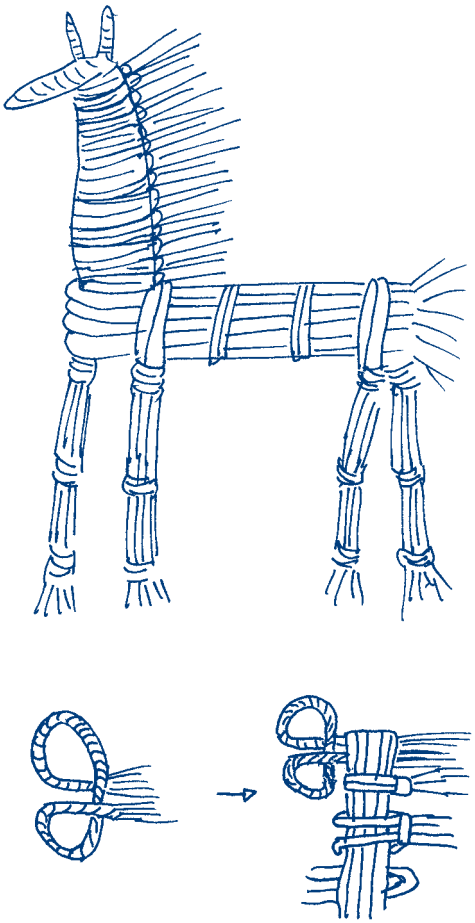


Straw Crafts

Chinese and Hungarian Straw Horse

Use straw without the ears

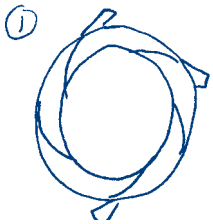
1. First wind its head
2. Fold several long straws over the head
3. Tie them with several (up to 10) looped pieces
4. For the body, place several stems across the lower half, folded in two. Bind together
5. Bind in the front legs
6. Fold straws over the body for the back legs
7. Cut legs to the same length and fluff out the tail

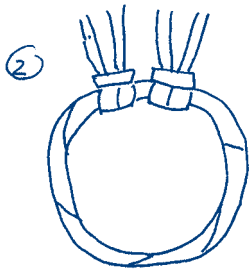


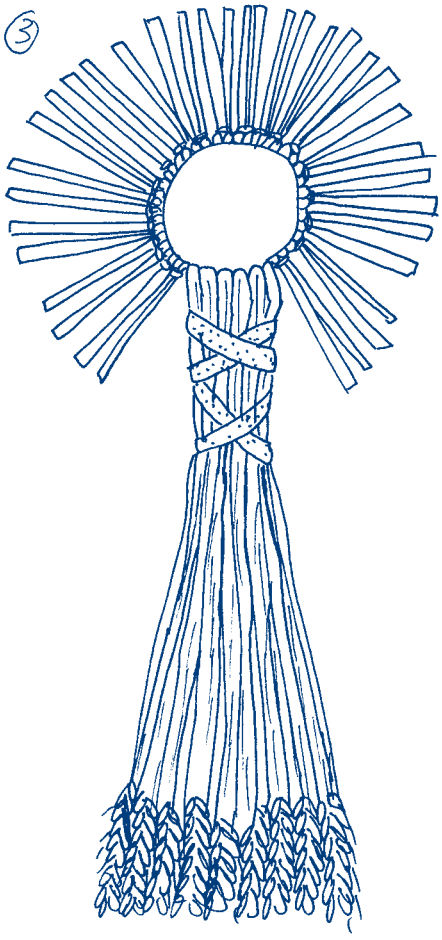
Hungarian Sun Doll

1. Take 2-3 straws and make a circle for the head
2. Loop about 20 straws round the hair
3. Loop 4 or 5 long straws over the circle for the body
4. Bind round the neck
5. Add 4 straws for the arms
6. Bind them in
7. Trim its hair and skirt

You can make this doll in many different styles.



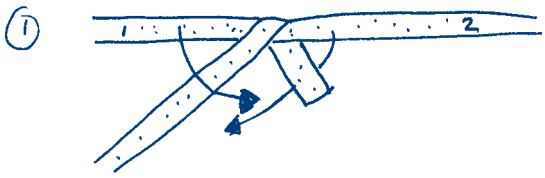




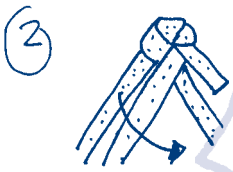
Straw Crafts

Hungarian Bird

1. Take 2 long straws

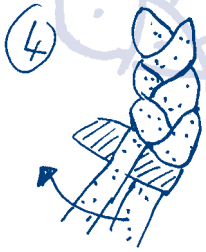


2. Fold one over the other. The short end is the beak

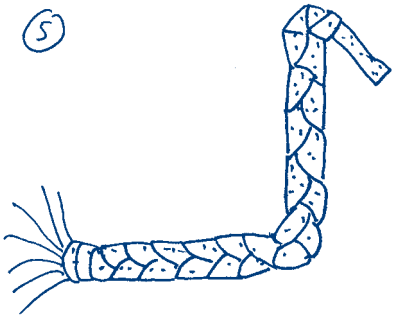


3. Make a 3-plait as in the diagram for the neck

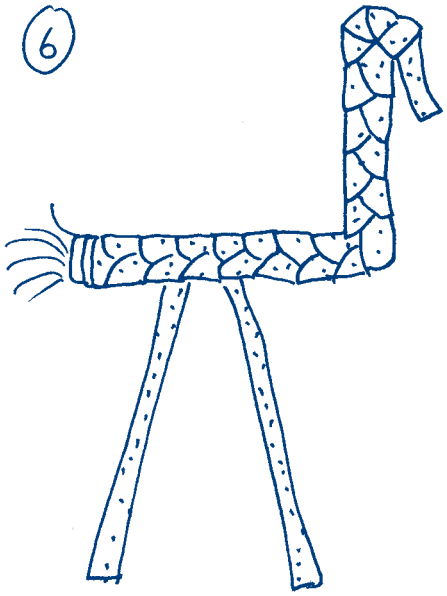
4. Bend round the body



5. Tie it near the end for a tail



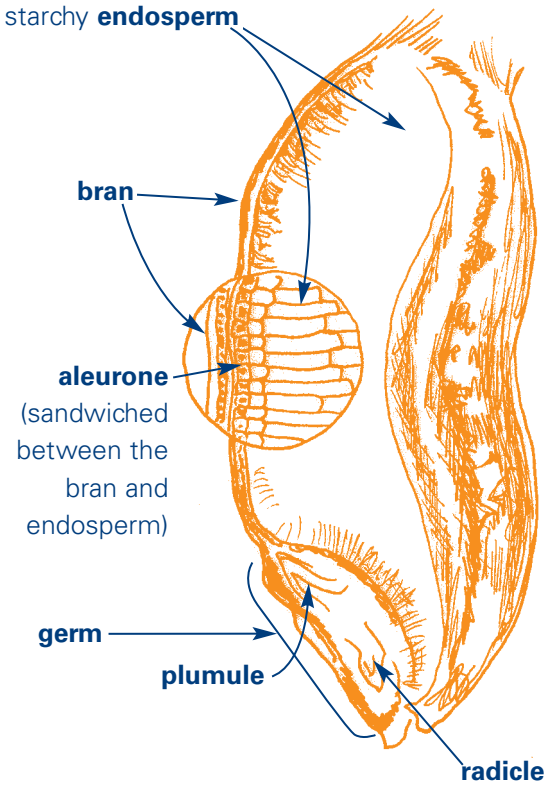
6. Fix in a short straw for legs

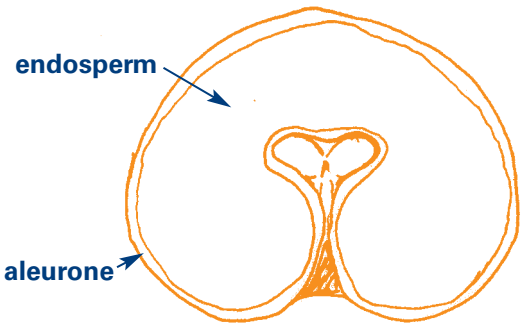


Milling: the wheat grain

Facts 4

In the UK today, bread is most commonly made with wheat grain. A wheat grain is a seed that can be grown into a new wheat plant or become food.





The grain consists of three main parts - the **bran**, the **germ** and the **endosperm**, which is the inner part of the grain.

In addition, between the bran and the endosperm is a layer called the **aleurone**, which contains fat, protein and minerals.

The **bran** is the outer part of the grain. It is tough and fibrous and acts as a strong container for the seed as it is made from five skin-like layers.

Although it was often discarded in the past, bran is now recognised as a valuable food source in itself because it is rich in minerals and is a good source of roughage, which is essential in our diets. Because of this, bran has also become a popular ingredient in high fibre cereals.

The **germ** is the embryo of the wheat plant - the place where everything will grow from. As the germ grows it changes and splits to become a **radicle** and a **plumule**. The radicle will grow into roots and the plumule will become stems, leaves and new ears of wheat grain.

A germ of wheat has up to a third of the protein that can be found in a similar amount of dried milk or meat. It also contains vitamin E, sugar, oil, natural phosphates and enzymes.

In size, the **endosperm** makes up more than four-fifths of the wheat grain. It is the main food reserve on which the young plant lives until it has developed a root system and can get its nourishment from the earth.

Because it is mainly starchy, the endosperm is the main part of the grain used for making white flour.

If a flour is called 'strong' it will have a high gluten content. This is because a large proportion (14%) of the protein in the grain is gluten-producing. Gluten will give bread dough elasticity, which means the dough mixture is better at trapping the gases produced by yeast, helping it rise up during baking to make a loaf.

Grain Essentials

- Half of our cereals are eaten by cattle, sheep and poultry which we then eat as meat, eggs, milk and dairy produce.

Milling

Facts 4

The aim of milling is to break open the grain to get the endosperm out for making flour.

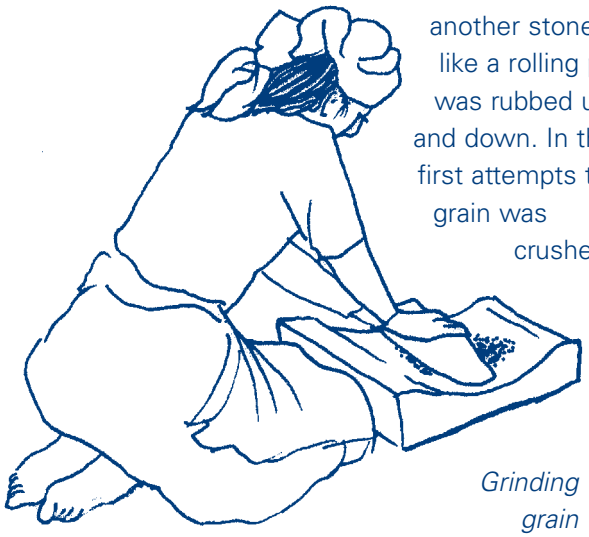
The first job in milling is to separate the grains from the husks - commonly known as **separating the wheat from the chaff**. In more ancient strains of wheat, the chaff really stuck to the wheat and one way of separating the two was to singe the husks until they were dry so the chaff came off easily.

Hunter-gatherers singed their grain on the fire while the early Celts singed theirs by holding a burning stick to the bundle of grain. It was a delicate operation because the sheaf would flare up and the flames had to beaten it out at just the right moment.

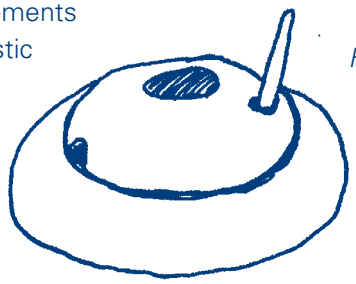
Other early methods included trampling wheat under horses hooves to break it up or beating it with flails and tossing it into the air with a fork, so the wind would carry away the light straw. These days wheat has been bred so that the grain and chaff separate more easily.

Before wheat is milled it is often blended with other varieties of wheat grain to create the quality of flour desired. This is knows as **gristing**.

Originally, **milling** was done by pounding grains between two stones. Then came an early **grinding** mill, known as a **saddle quern**, which was a rectangular bottom stone onto which another stone like a rolling pin was rubbed up and down. In the first attempts the grain was crushed, rather than ground and the result was very coarse flour, contaminated with grit and stones. Improvements led to the domestic **rotary hand mill**, which was introduced to Britain by the Celts. In a rotary mill the base stone remained fixed while the top one could be turned.



Grinding grain on a saddle quern



Rotary hand mill - top stone rotated by handle over bottom, bowl-shaped stone

The Roman army had individual, **lightweight hand mills** which were carried on campaigns so each soldier could grind their own, daily ration of grain into flour. The Romans also developed much larger mills, some turned by donkeys and others by water. **Watermills** found their way to Britain in the Middle Ages and there were 10,000 of them grinding flour in Britain by the end of the first millennium. Two hundred years later, the end of the 12th century saw the introduction of mills that used **wind power**, instead of water, to mill grain.

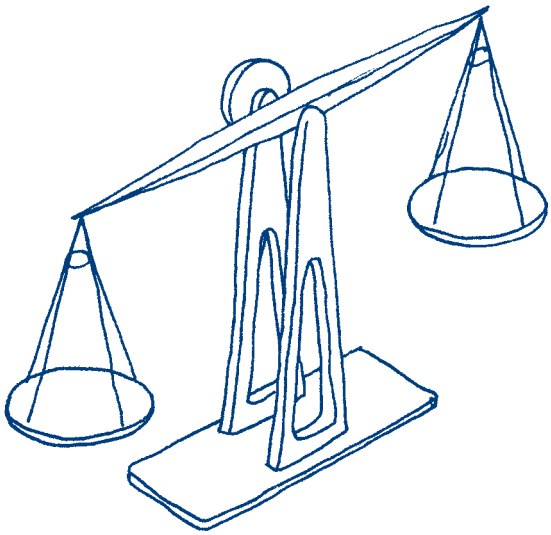
The stones needed in the large mills were usually made from granite but nowadays most of our flour is ground using **steel roller mills. Roller milling** is a more gradual process where the grain is first cracked open before the endosperm is sifted out. The rollers are set closer and closer until the endosperm has been sifted into a uniform texture and the wheatgerm and bran have been separately extracted.

There are many varieties and blends of flour aside from wholemeal and white flour. Brown flour is an 85% flour which means it contains 85% of the original grain. Wheatmeal flour has added wheatgerm and self-raising flour has an added raising agent such as bicarbonate of soda. Flour that is **'stoneground'** will only produce flour with the bran and wheatgerm in, which means it is '100% wholemeal' flour.

Weights and Measures

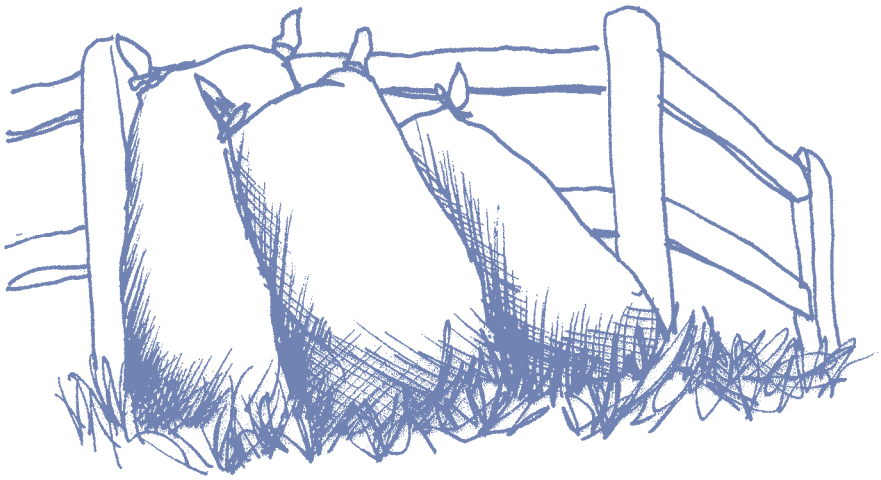
Britain uses the 'metric' system of weights and measures; for example, distance in metres and weight in grammes. Some people still refer to the old 'Imperial' system that measured distance in inches and feet and weight in pounds.

What few people know is that our old system of weight is based on the heaviness of a grain of wheat. Originally, 32 dry grains of wheat made one pennyweight, 20 pennyweights equalled one ounce, and 20 ounces made one pound. Later, this was changed so that a pennyweight only had 24 grains. Later again, an Act of Parliament in 1825 made 5,760 grains the standard 'troyweight' pound.



Activities

- Use dry wheat grains to measure the weight of 10 different objects in the room.
- If you have a good set of scales, find out how many grains there are to a gram. How much does one grain weigh?
- Work out how many grains of wheat your body weighs.
- Do the same with rice and popcorn seed (maize).
- Which grain crop does your breakfast cereal come from? What has been added to it and why do think it has been added?
- Make a survey amongst your friends and find the most popular cereal.
- Design your own cereal and packet. How much would you charge? Would you enclose a free gift and if so, what would it be?
- What other products have cereal in them?



Baking

Facts 5

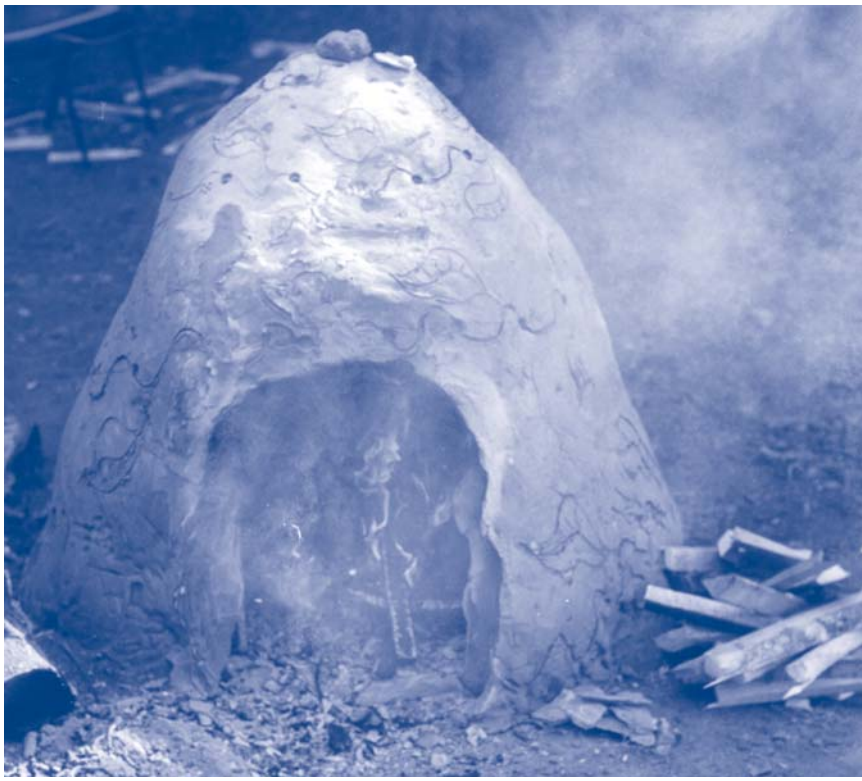
Early baking was done over an open fire, or on a hearth or baking stones, the method was most suitable for making flat breads.

Leavened dough (dough that has yeast in) makes risen loaves that cook best inside a structure. Ancient people from Mesopotamia and Egypt would have used constructions such as a clay pot turned on top of a flat stove, or a clay-brick oven such as a 'tandoor' or a 'beehive' oven. Both the beehive oven and the tandoor are still used in some areas across the Middle East and Asia today and they work on the same principles as they always have done.

Beehive ovens work in much the same way as a storage heater. A fire is lit inside the beehive and built up until it becomes as hot as possible. The fire is then removed, replaced by the bread dough and the doors are shut. The beehive then releases the heat that has been absorbed by the oven walls which bakes the bread.

In Britain brick ovens were used in this way for many hundreds of years virtually unaltered. The earliest surviving ovens, which may have been introduced by the Normans, were found in castles and monasteries. In the late 16th century they became a built-in feature of manor houses, but were usually separated as bake houses, or grain and bake houses. From the year 1600, built-in ovens became more of a feature within houses, as fireplaces became more popular and chimney stacks were built or added on to the medieval buildings.

The bread baking ovens used to be lit using 'faggots' of brushwood, hawthorn or furze.



Wood was then added until the right temperature was obtained which could be worked out by putting a special stone that changed colour, or by throwing in flour and seeing if it coloured brown. When the oven was ready the ashes were raked out and the oven was wiped clean with a damp rag on a stick, which made a hissing noise. The steam gave a good crust to the bread once the loaves were inserted and the door closed.

You could tell when the bread was ready by the smell and the amount of steam that was given off. Once the loaves were removed there would still be enough heat left to cook other items of food. The ovens could hold heat for a whole day and, generally, white bread, scones, rye bread, custards and meringues were cooked in that order. Because it was a lengthy process, baking was often done just once a week. Today, brick ovens are similarly heated up and then switched off while the bread is baked. There are very few brick ovens still used in this country and bakery ovens nowadays are mainly heated by steam, which is carried in steel pipes.

Friendship Cake

This cake works in much the same way as a chain letter, but it is much more tasty - and friendlier! First you make the cake starter, then you grow it, then you can pass on a 1/4 to two friends. They can then do the same with their starters.

Yeast base ingredients

- 1 tsp caster sugar
- 230ml (8fl oz) water
- $1\frac{1}{2}$ tsp dried yeast
- 250g (5oz) flour

How to make the yeast base

1. Dissolve caster sugar in water
2. Whisk in yeast and leave 25 minutes till frothy
3. Stir into flour and leave in a warm place for 3 days. Stir each day.

This is now ready to be used in the cake starter.

Cake starter ingredients

- 325g (10oz) plain flour
- 450ml (16fl oz) milk
- 175g (6oz) caster sugar

How to make the cake starter

1. Mix together your starter, half the flour, half the milk, and half the sugar.
2. Mix well. Chill for 24 hours.
3. Stir once every day for 3 days.
4. On the 4th day, add remaining flour, milk and sugar.
5. Cover for 3 days, stirring each day.

Divide into four parts. Keep $\frac{1}{4}$ for the cake mix, one for your next batch, and pass $\frac{1}{4}$ each on to two friends.

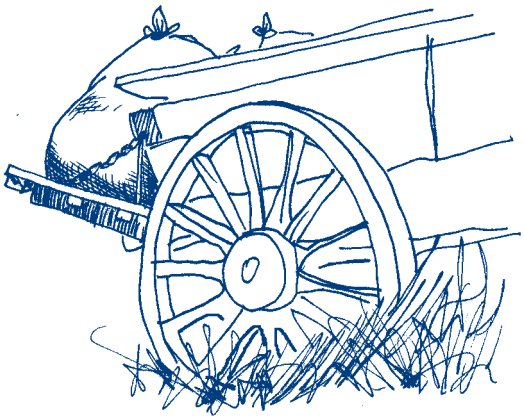
Cake ingredients

- 250g (8oz) plain flour
- 2 tsp baking powder
- $\frac{1}{2}$ tsp bicarbonate of soda
- $\frac{1}{2}$ tsp salt
- 2 tsp cinnamon
- 2 size 3 eggs
- 250g (8oz) caster sugar
- 125g (4oz) raisins
- 125g (4oz) walnuts
- 230ml (8fl oz)
- 1 tsp vanilla essence
- 125g (4oz) apple (cooked to a pulp)
- 62.5g (2oz) demerara sugar

How to make the cake

Mix together all ingredients; sprinkle with the demerara sugar and bake for 90 minutes at 180°c, Gas mark 4, in a 9 inch cake tin.

This activity will work best if you give your friends a photocopy of this page, along with your starter. Get them to copy it for their friends too when they pass it on.



Celebrate and decorate

Activities 5

Many people across the world have been making celebratory and decorative breads for many thousands of years.

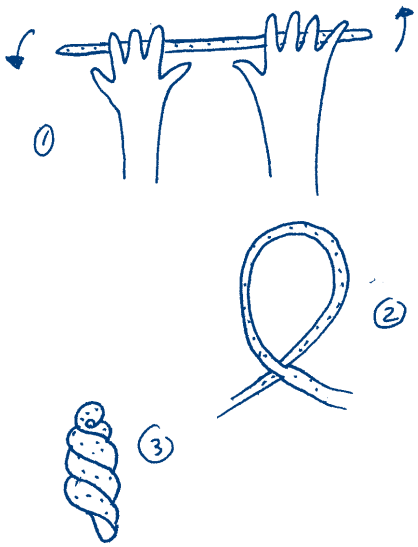
The Egyptians made bread in the shape of fish, birds and pyramids while the Greeks and Romans made bread into images and sacrificed them to the gods. In Europe, gingerbread has been made in fancy shapes for hundreds of years. In fact, most bread making cultures of the world have some special breads they decorate.

Here are some descriptions and pictures of decorative breads. Copy the patterns below or design your own.

The following eight designs are classic British breads which are made using regular bread dough, so you can eat them once you've finished, if you like.

The Twist

1. Carefully roll out a length of dough
2. Pull one end around and cross it over the other
3. Twist the loop on itself and neatly tuck the ends under
4. If you make a very long twist, you can then knot it round on itself by making it into a circle and folding one end into the middle.



The Staffordshire Knot

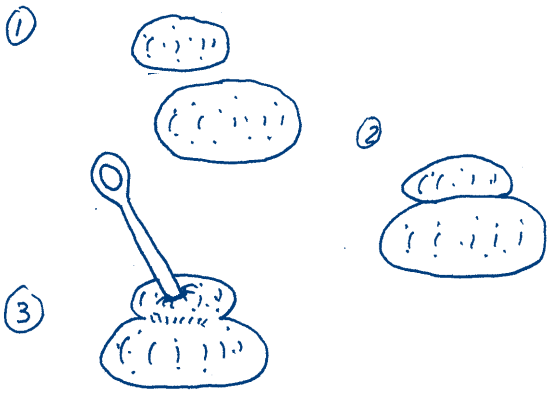
1. Make a long thin roll of dough
2. Make a knot at each end of the roll and then merge them together

The Coburg

1. Make a cross shaped pattern in a round loaf just before it goes in the oven
2. Make a long cut one way, and two short cuts out from the centre

The Cottage

1. Make two balls of dough, one slightly smaller than the other
2. Flatten the bigger ball with the palm of your hand and wet it slightly on top
3. Put the second ball on top of the bigger one
4. Push a spoon handle down through the centre of the two balls to make it stick



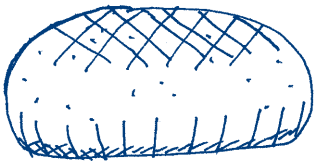
It was believed that cutting a cross into an unbaked loaf released the devil

Welsh and English Cottage Loaves take longer to make than the more familiar loaf shapes and are generally produced by specialist bakers or restaurants

Celebrate and decorate

The Lattice

Do as with the Coburg but make a series of diagonal cuts from opposing directions.

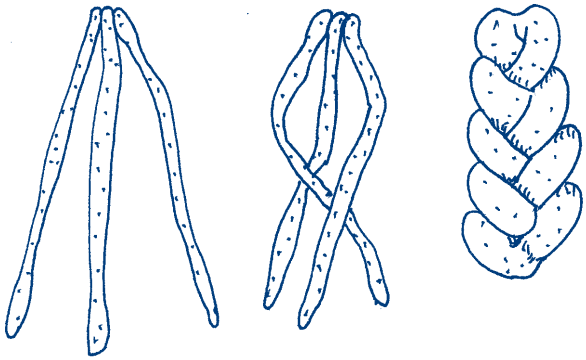


Plaiting

This can be done with three or five strands.

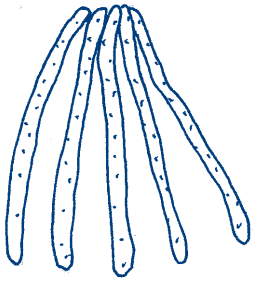
Three Strands

1. Roll out three equal strands of dough
2. Press the ends together with the middle strand on top
3. Take the left and right strands alternately and cross them over the middle strand
4. When you get to the end, tuck the ends underneath

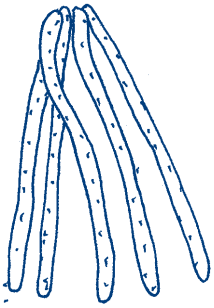


Five Strands

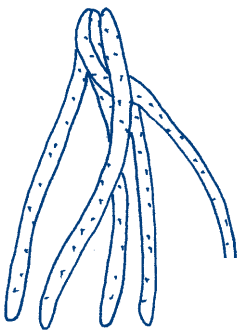
1. Make five thin rolls of dough and cut them to the same length. Arrange them side by side and one in the middle, on top



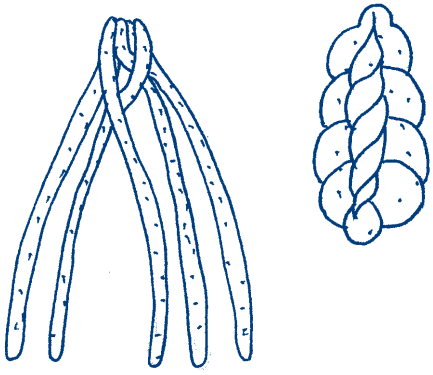
2. Fold the outside, left strand over the next two strands so that it lies in the middle



3. Now fold the outside, right strand over three strands so that it becomes the second strand from the left



4. Continue in this way folding the left strand over two, the right strand over three

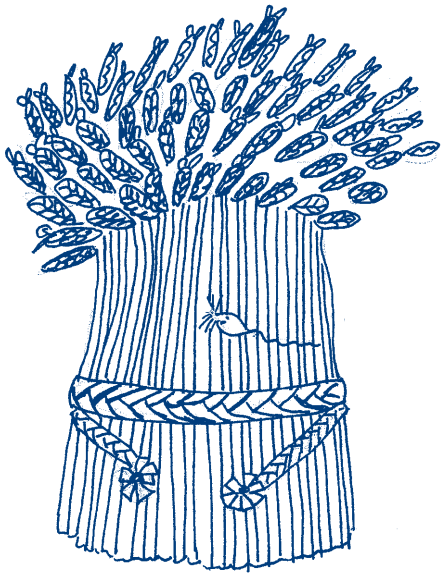


Celebrate and decorate

Activities 5

Wheat Sheaf Harvest Bread

1. Make 500g (1 lb) of dough
2. Press half of it into a rough harvest sheaf shape as a base.
3. Use the rest of the dough to form wheat stalks and bunch these together on the base
4. Model a rope to bind them and do fruit shapes to decorate the base - maybe a mouse to run up it, or a cat on the side. You should model in small scale to allow for the dough rising
5. Brush with milk or melted butter. You can also sprinkle wheat grains on top of the sheaf before baking



6. Bake at Gas mark 7 for ten minutes, then reduce heat slightly for a further 20-25 minutes.

Wheat Sheaf designs are usually made for display in harvest festival celebrations

A Different Kind of Dough

Some countries such as Ecuador, other parts of South America and parts of Europe make inedible breads out of bakers clay, usually made to celebrate special occasions. Baker's clay consists of flour, salt and water mixed together to make a clay-like dough.

Here are two recipes:

Clay-like Mix

- 2 cups flour
- 1 cup table salt
- $^3/_4$ cup water

This mix resembles ceramic clay

Dough-like Mix

- 4 cups flour
- 1 cup table salt
- $1^1/_2$ cups water

This mix is more like dough

For both recipes, make as follows:

1. Mix flour and salt
2. Add water
3. The clay should be soft and smooth, but stiff enough to hold its shape
4. Knead on a floured board for 5-10 minutes. This will make it more elastic and easier to mould

Roll out on a floured board, 1/4 inch thick is good for cut-outs.

Use biscuit cutters or a blunt knife to make shapes.

Don't expose to air for any great length of time. If your work starts to dry out, try spraying it with water

Cook models for 1 hour at 350°F / 140°C, and cook rolled-out objects at 150°F / 60°C for 8 hours (the low temperature stops bubbling).

Celebrate and decorate

Activities 5

Working with your clay

If you want to **hang up your cut-outs**, make a hole in them before you bake them using a hairpin or a piece of bent wire.

If you want to **join on arms and legs**, likewise make holes at the ends of the joints with wire.

Another way of making a model is to press it into a mould.

You can make a mould of any object you would like to copy by:

1. covering it in clingfilm
2. pressing bakers clay over the top, to cover it.
3. Leave for a short time to harden slightly
4. carefully lift it off and bake.

You will then have a mould which you should use in the same way - by pressing bakers clay into it, but use Vaseline or similar, instead of clingfilm.

Colouring and texturing the clay

You can **colour clay** with

- food colours
- coloured inks
- tempera

or

- spices such as turmeric
- Fabric dyes dissolved in water

Fabric dyes dissolved in water and tempera in water give stronger colours - or you could paint it after baking.

You can try using different kinds of flour to get **different texture**.

You can also **glaze** your work, either with egg or milk, before cooking, or with varnish after cooking.

If you seal or wrap your dough clay in clingfilm it will last about a week

Growing grains in the UK

Facts 6

Harvesting

In Britain, our ancestors grew and harvested grains by hand for thousands of years. But in the 18th and 19th centuries, the invention of machines to cut and thresh wheat began to make the whole process a lot easier.

These machines, which were driven by horses or steam power, took some of the back-breaking work out of harvesting. But they also meant far fewer people were needed to work in the fields. This led to unemployment and eventually protests known as the Swing Riots, when some of the machines were smashed and broken.

Farming of cereal grains changed forever in the UK in the middle of the 19th century with the development of the combine harvester, although it took some years before the idea caught on.

A combine harvester at work

Combine harvesters are very clever machines. They carry out several operations at the same time, though the machine is operated by just one person.

The big blades at the front of the machine cut the crop, which is then fed into the heart of the machine where it is spun very fast against a metal grate with holes in it. This is known as 'threshing'. In the process, the grain is pushed through the holes and separated from the ear and straw. The grain is then further "cleaned" over a series of sieves before being moved to a grain tank for unloading. Some combines also gather the straw together to create bales, used for cattle feed and bedding.

Modern combine harvesters are so advanced they use computers and satellite navigation to make sure they work perfectly day in, day out until the whole crop is harvested.

Drying

Although the crops need to be as dry as possible in the fields before they are harvested, they also need to be put aside to dry afterwards, before any threshing can take place. This prevents problems like wheat or corn going mouldy.

After harvest the grain is stored in purpose build stores that are free from pests and the risk of contamination.

Threshing

This term means separating the grain from the stalks. In Britain, this process has also been made simpler and easier since threshing machines were first developed 250 years ago. These huge and noisy machines were rarely bought by farmers because they were too expensive. Instead the farmers rented them and they travelled from farm to farm during harvest time.

These days, threshing is done by the combine harvester and there is no need for a separate threshing machine.

Cut wheat that needs to be threshed

Growing grains in the UK

Facts 6

Winnowing

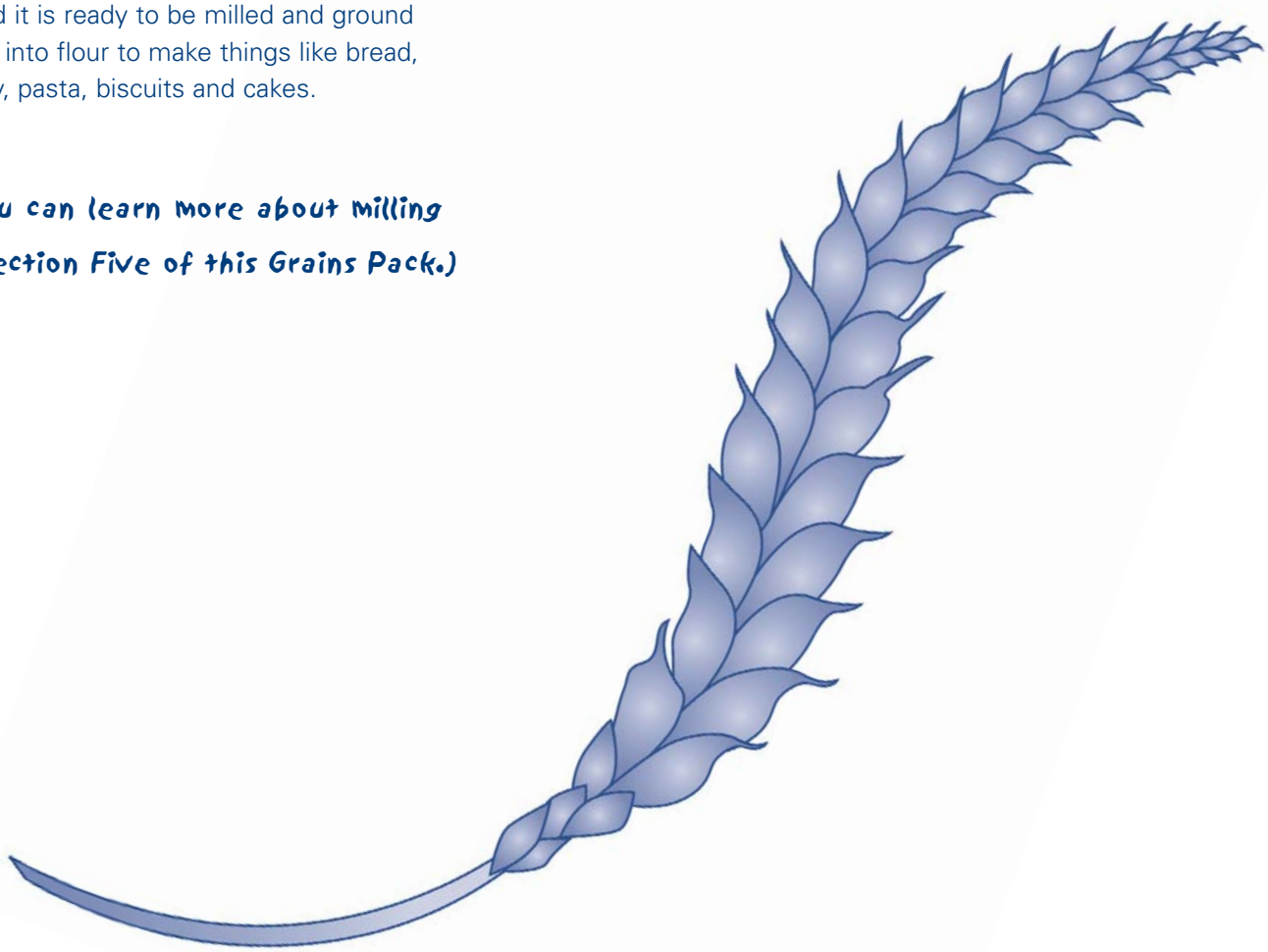
This is how the grains are separated from the chaff. Chaff is the name for the dry, inedible casing of the grain. Traditionally winnowing was done on a windy day, when grains would be thrown up in the air by hand or using a fork. The wind would blow away the chaff while the heavier grains fall to the ground (or into a container).

On farms in the UK today, the cleaning process carried out by winnowing has become part of the work done by combine harvesters.

Once these incredible machines have done their work and the clean grain has been stored it is ready to be milled and ground down into flour to make things like bread, pastry, pasta, biscuits and cakes.

After winnowing inside the harvester, chaff is blown out.

(You can learn more about milling in Section Five of this Grains Pack.)



Grow your own grains

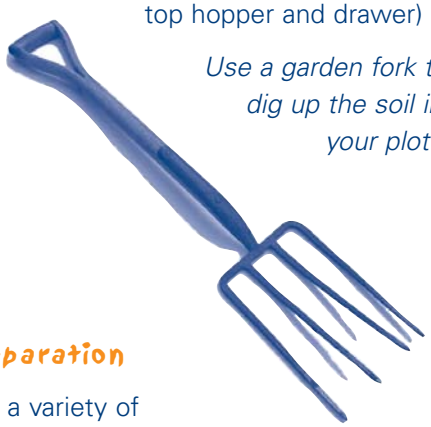
Activities 6

Growing a one square metre crop

You can grow a one metre square patch of grains to create a crop. You may not get much in such a small area, but it will be enough to see how the whole cycle works.

Materials Needed

- Children's spades, digging forks
- Rake
- Hoe (a short thick stick, or a trowel, will do instead)
- 300g of cereal seeds
- Garden netting and canes/stakes to cage against birds
- Strong scissors (for cutting stems)
- Hand-operated coffee-grinder for milling (type with top hopper and drawer)



Use a garden fork to dig up the soil in your plot

Preparation

Use a variety of wheat or other cereals that can be sown in the autumn or early spring.

Find a planting area which is:

1. In a sunny spot
2. In an area which gets some wind (but not too much otherwise stalks may get flattened in gusty weather)
3. Away from anywhere it could get trampled on

Measure out roughly the one square metre area. You can make the plot bigger if you have the space - the more room you have the more crop you can grow and harvest.

Sowing

Prepare the soil by digging and raking it a few times first. You can sow the seed by hand in rows - roughly about 200 seeds per square metre at a depth of 2.5cm. Once sown, cover the seeds with soil.

Overhead watering after sowing causes a crust to form which can prevent the seedlings from emerging. Instead, moisten the soil by filling a nearby furrow or by watering deeply beside the row. If a crust forms because of rainfall, wait until the soil surface dries then break it up carefully.

Stake out canes and cover with netting to prevent birds pecking for seeds or seedlings.

Growing

Seedlings emerge in 4 to 10 days, depending mostly on soil temperature: warmer soil usually means earlier emergence.

As wheat plants mature, the need for water decreases. When a pinched seed feels like soft dough, stop watering. Now the plants will gradually turn brown and dry, ready to harvest.

Wheat ready for harvesting

Grow your own grains

Activities 6

Harvesting

This activity needs to be supervised at all times. Cutting each stalk with a pair of strong scissors is probably the safest method.

The stalks should be bound into sheaves, using wire or string and left to dry out. This should be done in a well-ventilated area free from rodents.

Threshing

Choose a dry day. 'A dry plastic sheet can be laid underneath the wheat. Beat the sheaves with a stick or rub out the grains by hand into a bowl. Alternatively, place the ears into a pillowcase with the stalks poking out the bottom and then hitting repeatedly against a wall.

Alternatively lay the wheat out on a sheet of plastic and hit repeatedly with the back of a spade.

Winnowing

If you do this outdoors it is vital to pick a good day for the job. If it is too windy everything will be blown away, so a gentle breeze is best. Toss the wheat about two feet in the air, allowing the breeze to blow away the chaff while the heavier grains will fall back down to the ground. If doing this indoors, you can use a fan to recreate the wind.

To make the wheat as easy to mill as possible, clean further by using a sieve or seed cleaner.

A handful of cleaned cereal grains

Storing

If you are not using the grain straight away store in a dry, vermin free place. This could be anything from a canvas bag hung up from a wall or door peg, or a wooden or metal bin with a close fitting lid.

Milling

Use a coffee grinder, electric grinder or stone mill if available to demonstrate how the grain is milled (the milled grain may need to be ground further before it can be used as flour). Once you have got your own flour why not add it to some commercial flour and use it for the baking ideas in Activity Five of the Grains Pack (see page 25).

Use a coffee grinder to mill the grains

Science Activity - growing conditions

You can study the effects of the weather, soil and sunlight on crops by creating two plots of crops in different areas. Monitor the growth rate, grain size and weight of a crop using one or more of the following three scenarios:

1. One crop planted in plot with regular direct sunlight, one crop planted in shady area.
2. One crop planted in heavy, clay soil. The other planted in sandy soil.
3. One crop watered regularly, one crop rarely watered.

Bibliography

Field Days
Angela King and Sue Clifford, for Common Ground. Published 1998 by Green Books, Devon.
- poetry about fields.

One Straw Revolution
Masanobu Fukuoka. Published 1992 by The Other India Press, India.
- a 'must-read' adult book about rice permaculture.

The Little Red Hen and the Ear of Wheat
Mary Pinch. Published 1999 by Barefoot Beginners, Bristol.
- children's story book.

Bread Around the World
Odile Limousin. Published 1991 by Moonlight, London.

Discovering Corn Dollies
M Lambeth. Published 1987 by Shire Publications, Princes Risborough.
- more corn dollies - for adults.

Bread and Yeast Cookery
Glynn Christian. Published 1978 by Macdonald Guidelines, London.
- great all round book on bread and grain.

Festivals, Families and Food
D Carey and J Large. Published 1982 by Hawthorn Press, Stroud.
- full of activities, recipes and traditions.

Straw and Straw Craftsmen
Arthur Staniforth. Published 1981 by Shire Publications, Princes Risborough.

The Playground Potting Shed
Dominic Murphy. Published 2008 by Guardian Books, London.
- charming and practical guide to gardening with children.

Further Resources

Websites

The Flour Advisory Bureau
Web resource with educational activities to download.
Website: **www.fabflour.co.uk**

Wee Green School Pack
An introduction to creating wildlife projects within school grounds for nursery and primary aged children. Website: **www.highschoolyards-nur.edin.sch.uk**

Get Your Hands Dirty
A downloadable web-based resource to help teachers considering the issues involved in growing plants or keeping animals in your school grounds.
Website:
www.growingschools.org.uk/resources
For a resource pack cover email:
schoolfarmsnetwork@farmgarden.org.uk

The Grain Chain
The Grain Chain programme is a collaboration of the Home-Grown Cereals Authority (HGCA), Federation of Bakers (FoB) and Flour Advisory Bureau (FAB). The website features information on the process of growing and using grains for children aged from four to 16.
Website: **www.grainchain.com**

Learning Through Landscapes This site has a great deal of information on the development of school grounds.
Website: **www.ltl.org.uk**

Learning Outside the Classroom
A manifesto and web resource promoting the idea that every young person should experience the world beyond the classroom as an essential part of learning and personal development, whatever their age, ability or circumstances.
Website: **www.lotc.org.uk**

Federation of City Farms and Community Gardens (FCFCG)
Produces information packs on subjects such as: community gardening and composting. There is a similar education pack on nomadic shelter called 'The Yurt' aimed at the same 5-13 age range, with links into Key Stage 2 schoolchildren. For details on prices and further materials contact FCFCG on 0117 923 1800.
Website: **www.farmgarden.org.uk**

Places

Your nearest **City Farm or Community Garden is** probably growing grains, including wheats. Contact the Federation of City Farms and Community Gardens on 0117 923 1800 to find your nearest grain growing project or check the website at **www.farmgarden.org.uk**

The Centre for Alternative Technology
Leading centre, based in Machynlleth, Powys, specialising in alternative technology and environmental resources. Tel 01654 703743.
Website: **www.cat.org.uk**

Growing Schools, an initiative run by the Department for Children, Schools and Families has been designed to support teachers in using the "outdoor classroom" as a resource across the curriculum for pupils of all ages.
Website: **www.growingschools.org.uk**

Farming and Countryside Education
FACE is a charity aiming to help educate children and young people about food and farming in a sustainable countryside. The website has various resources for teachers and details about farm visits.
Website: **www.face-online.org.uk**

Publications

Think Food and Farming is the legacy website of the Year of Food and Farming which aimed to help children find out how food is grown and produced; make informed choices about food and healthy nutrition and discover what happens on a real-life farm.
Website:
www.thinkfoodandfarming.org.uk

Compiled by: **Federation of City Farms and Community Gardens**
The Greenhouse
Hereford Street
Bedminster
Bristol BS3 4NA

Tel: 0117 923 1800
Fax: 0117 923 1900

e-mail: admin@farmgarden.org.uk
website: www.farmgarden.org.uk

A company limited by guarantee and registered in England No: 2011023
Registered Charity Number 294494

Research and text by: Stephanie Bunn

Design by: MJT Design 0117 977 5746

Federation of City Farms & Community Gardens