Introduction

This *Dig for Victory Teachers’ Pack* has been designed to give you all the information you need to create your own Dig for Victory themed garden and to demonstrate a few of the many practical ways you can use your ‘outdoor classroom’ to deliver the curriculum with a focus on healthy living and sustainability. Even if you have no space you can just as easily run the activities in this pack with a small container garden, or even grow vegetables in window boxes: the main thing is to get growing!

Dig for Victory was a response to a wartime problem of food shortages but many of its outcomes reflect things we are concerned about today – having access to fresh healthy food, being active and living sustainably. Creating a Dig for Victory garden at your school is a great way to explore these themes with your pupils, as well as investigate the food and lifestyle of the Second World War.

The pack is part of a Dig for Victory project run by the Churchill Museum and Cabinet War Rooms with The Royal Parks. We have created a Second World War and a modern-day allotment side by side in St James’s Park, London for the summer of 2007 which schools and the general public can visit for inspiration.

*Funded by the Department for Education and Skills Growing Schools programme.*

**Further information**

There are many useful websites and further resources available online. We particularly recommend the following sources of information:

- [www.teachernet.gov.uk/growingschools](http://www.teachernet.gov.uk/growingschools) First stop for advice, support and resources
- [www.rhs.org.uk/learning/education/children.asp](http://www.rhs.org.uk/learning/education/children.asp) Royal Horticultural Society site including advisory leaflets, posters and teaching resources
- [www.bbc.co.uk/gardening/htbg](http://www.bbc.co.uk/gardening/htbg) ‘How to be a gardener’ series
- [www.direct.gov.uk](http://www.direct.gov.uk) For information on renting an allotment

On our own websites you will find lots of additional information and activities:

- [www.iwm.org.uk/cabinetlearning](http://www.iwm.org.uk/cabinetlearning) and [www.royalparks.org.uk](http://www.royalparks.org.uk)
Dig for Victory was a campaign launched by the Ministry of Agriculture in 1940 to help combat food shortages in Britain by promoting the planting of allotments in gardens and on public land.

Before the Second World War Britain imported approximately 55 million tonnes, or 3/4 of her food by ship each year. When the Second World War started in September 1939 shipping was attacked by enemy submarines and warships. Cargo ships were also used for war materials rather than food transportation. This resulted in food shortages.

The government had anticipated this, learning from the serious shortages of the First World War, which hit the poor worst, and at the start of the Second World War were ready to launch the rationing scheme and the Dig for Victory campaign. Rationing was introduced on 8 January 1940 and the Dig for Victory campaign was announced on BBC radio on 10 September 1940.

Dig for Victory was very successful. From 815,000 allotments in 1939 the number rose to 1,400,000 by 1943. Vast areas of public land, including the Royal Park Kensington Gardens, were converted into allotments and nearly a million tonnes of vegetables were grown in the peak years of production.

Food grown on allotments was an important supplement to rations. Although vegetables and fruit were never rationed, greengrocers often ran out of particular items such as onions. People, normally women, had to spend many hours each week queuing at shops trying to buy non-rationed foods. In fact by 1942 the government was promoting allotments in the cartoon film *Filling the Gap* as a way to avoid wasting time in queues.
During the Second World War, people were encouraged to grow their own food: they called it ‘Digging for Victory’. In the 21st century, many people are also thinking about having an allotment. This exercise aims to consider the reasons why.

**All pupils will:** Decide which of the statements below apply to the Second World War, which to the present day and, which to both.

**Most pupils will:** Organise the statements to show which are more important and which are less important today.

**A few pupils will:** Discuss whether an allotment could actually solve the problems and issues listed.

**You will need:**
- A copy of the statements below
- Three different coloured pencils
- Scissors
- A sheet of A3 paper and some glue

Here are 9 statements about food in Britain:

- **too much packaging is bad for the environment**
- **fruit and vegetables are better for us if they are really fresh**
- **the government persuaded people to eat potatoes instead of bread made from imported wheat**
- **6 million tons of animal feed and 600,000 tons of vegetables were imported every year**
- **75% of food eaten in Britain was imported**
- **even if imported and scarce food was shared out fairly, there would not be enough to go round**
- **we are worried about the environmental cost of bringing food a long way**
- **ships bringing food were needed to bring war materials**
- **ships were frequently destroyed by enemy action**
## Why have an allotment?

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Discuss the different statements. Colour statements about the past in one colour, the present in another, and use a third for statements that are always true.</td>
<td>Understanding of continuity and change. Identifying problems which continue today. Recognising clues in the language used. Speaking and listening skills.</td>
<td>Ensure that all pupils understand the task</td>
</tr>
<tr>
<td>Cut out the different statements</td>
<td>Practice in manual dexterity</td>
<td>Supervision only</td>
</tr>
<tr>
<td>On the large sheet of paper, arrange the statements so that the ONE you believe is most important is at the top, then two that are also important, then three, then two that are less important and the least important is at the bottom, forming a diamond. When you are agreed, glue them down.</td>
<td>Discussion and sharing ideas; ranking and awareness of a hierarchy of importance</td>
<td>Make sure they understand the 'diamond' shape</td>
</tr>
<tr>
<td>Present your diamond to other groups, and see how they agree and disagree. Discuss which colours are nearest to the top.</td>
<td>Speaking and listening; discussion; awareness that people can disagree. Concluding and evaluating.</td>
<td>Assist in presentation and discussion. Encourage discussion of which colours predominate near the top. Elicit whether reasons for having an allotment are very different now from the 1940s.</td>
</tr>
</tbody>
</table>
Planning your allotment

Suggested duration two-three lessons

When planning your allotment you need to consider who will do the following jobs:
• Write the specific risk assessment for your school and pupils
• Be in charge of choosing the final design (see these websites for useful information)
  http://www.rhs.org.uk/advice/profiles0304/allotment.asp
  http://www.teachernet.gov.uk/growingschools/support
• Clear the land and prepare it for digging
• Maintain the allotment throughout the year, including school holidays
• Manage the budget, purchase equipment, etc

You will need:
• Space
• Somewhere to dig is not essential, many plants will grow well in pots

Your design needs to consider:
• Distance from classrooms
• Hand-washing facilities/toilets
• Access to water/water collection
• Storage of tools
• Security eg fencing of the site
• Paths/access to growing area
• Seating
• Weather protection from the sun and rain
• What crops you want to grow bearing in mind crop rotation needs, and the conditions they need eg shaded areas

How much is it likely to cost?
The biggest expense in creating an allotment is likely to be the tools. You will also need time to prepare the allotment – asking parents or friends to help is a great way to get them involved with the school, you may also find an appeal for tools fruitful. Additionally you will need seeds, compost and, if you do not have space at school, you will need to hire an allotment costing in the region of £25 for a year.
Planning your allotment

All pupils will: Describe a place the allotment should go eg with water and soil. Measure the allotment space and design their own allotment.

Most pupils will: Calculate the bed size based on arm reach and draw in magnetic North.

A few pupils will: Calculate the scale of the allotment to their plan, plot bedding locations accurately and note sunny and shaded spots.

You will need: • A measuring tape or wheel  
• A compass  
• Scissors  
• Graph or squared paper

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<tr>
<td>What is an allotment, where should it go?</td>
<td>Speaking and listening skills</td>
<td>Lead discussion eg can we dig on the football pitch?</td>
</tr>
<tr>
<td>In groups measure the space for your allotment and distance from buildings, fences, etc</td>
<td>Co-operation, working in groups. Reading the measuring tape accurately.</td>
<td>Have decided on location. Check pupils measurements.</td>
</tr>
<tr>
<td>Use a compass to find North and note areas of shade on rough paper</td>
<td>Understand that the sun moves and is not static. Manual dexterity.</td>
<td>Teach that the sun rises in the East, sets in the West. Check pupils have sunshine cards in the correct order.</td>
</tr>
<tr>
<td>In groups measure the length of each persons’ arm from their wrist to their armpit</td>
<td>Working together, appreciating each other</td>
<td>Explain link between arm length and reach. Average class reach to calculate the bed size.</td>
</tr>
<tr>
<td>Draw scale on paper</td>
<td>Realise what a scale is for</td>
<td>Calculate scale of allotment. 1:50 may be suitable. Why is a scale important?</td>
</tr>
<tr>
<td>Draw your allotment design</td>
<td>Creativity and consolidation</td>
<td></td>
</tr>
</tbody>
</table>
Put the drawings of the sun’s movement across the sky in to the correct order. Colour in the shaded area in each picture.
Keeping a record

Keeping a record of what you have done and who has been involved will help maintain enthusiasm for your allotment.

Ways to keep a record

- Pupil diaries
- Photographs and wall displays
- School internet
- Digital storytelling [http://cwr.iwm.org.uk/server/show/nav.00f009](http://cwr.iwm.org.uk/server/show/nav.00f009) - the web link will give you more information on how to use digital storytelling.

You could extend this activity by creating a work plan at the start and chart progress against it.

Digital storytelling

You will need:

- Microsoft Windows XP
- A digital camera or movie camera
- Tie clip or free standing microphone

Don’t have Windows XP?

There are other packages that do the same job such as Pinical, but Movie Maker is free with all Windows XP computers.

Why make digital stories?

1. Planning story boards on paper uses speaking and listening skills as well as learning to re-draft (cunningly called editing so you don’t realise how much work you are doing!)
2. Exciting use of software to manipulate the images and engage pupils
3. Work is easily adapted as time progresses, so you can’t go wrong!
4. It is relatively easy to produce a high quality finished product that can be shown in assemblies or to parents
5. Can be done alone or in groups
Equipped for the job

Suggested duration one lesson

An allotment can provide a rich outdoor environment in which to teach the National Curriculum, but much of the early work will have to be done by adults

You will need:

• Strimmer to cut back any large brambles or weeds
• Garden fork or rotavator to dig over the soil
• Spade and hoe
• Hand trowel
• Gardening gloves
• Waste bags
• Wheelbarrow

Preparation

• [http://www.kgallotments.fsnet.co.uk/hintsandtips.html](http://www.kgallotments.fsnet.co.uk/hintsandtips.html) (helpful site)
• Your growing area needs to be cleared of brambles or tall weeds. Cut them back or use a strimmer and then dig them out.
• Smaller plants or weeds need to be dug out. Remember to remove them from the root or they will grow back!
• The whole site needs digging or rotavating. You could add manure or another organic matter at this point to enrich the soil.
• Fencing or wire to keep out unattended people and animals
• After planting, lay cardboard, grass clippings or mulch between the rows. This will block out light to prevent weed growth between crop rows and provide somewhere for pupils to stand or sit, without compacting soil, when tending crops.

1940s Equipment

The introduction of new motorised equipment has enabled farmers and small scale growers to increase their effectiveness as well as cutting time and toil on the land. Many of the modern gardening tools farmers use today, such as tractors, were available during the Second World War but there were not enough of them to go around farms and they were too large for small holdings and allotments. This meant that much of the work was done by hand.
Equipped for the job

All pupils will: Describe and name some tools.

Most pupils will: Be able to identify tools used in the past, those used today and that many have changed by becoming mechanical.

A few pupils will: Analyse the impact of new tools, how it has made life easier and saved time.

Ready to Dig
Below are pictures of tools used on an allotment. You have to identify:
1. Which tools would be used today
2. Which ones would have been used during the Second World War
3. Which ones would have been used in the past, but are still used today

Draw a Venn diagram onto an A3 piece of paper then cut and stick the pictures in the right places. Underneath the diagram write the tool’s name and what job it was designed to do.
Working out how much things cost in the past is difficult. This is partly because money was different during the Second World War but also because inflation has meant that wages and prices are different nowadays.

What was the money like during the Second World War?

Before decimalisation in 1971, £1 was 240 pence (shortened to ‘d’). There were 12 pennies in a shilling, so 20 shillings (‘s’) made up £1.

What has happened to the value of money since the Second World War?

Changes in prices, wages and inflation mean that knowing the price of things in the past is not very useful. It is always better to compare what the money would buy then and now. The best place to look to compare prices then and now is [http://eh.net/hmit/](http://eh.net/hmit/)

You can simply multiply any wartime amount by 140 to get a very approximate modern value.

<table>
<thead>
<tr>
<th>OLD</th>
<th>NEW</th>
</tr>
</thead>
<tbody>
<tr>
<td>£1 = 240d</td>
<td>£1 = 100p</td>
</tr>
<tr>
<td>1 shilling = 12d</td>
<td>5 pence</td>
</tr>
<tr>
<td>2 shillings = 24d</td>
<td>10 pence</td>
</tr>
</tbody>
</table>

- Average weekly earnings for a woman in 1938: £1 12 6d
- Local telephone call: 1d per minute
- Man’s bicycle: £5 17s 9d
- Cinema tickets (not central London): From 9d to 2s 6d
- 1 pair boy’s pyjamas: 5s 11d
Money then, money now

Time goes up cost comes down (suggested duration one lesson)

This lesson can be completed in a computer room with access to the internet or with a mail order catalogue to get prices of goods.

**All pupils will:** Realise that prices and money have changed with time.

**Most pupils will:** Make conversions from old to new money to work out costs in today’s prices.

**A few pupils will:** Analyse factors affecting costs eg shortage of materials, having to replace lost or damaged tools frequently.

<table>
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<tr>
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<tbody>
<tr>
<td>Put 3 columns on a piece of paper. Equipment, cost today, cost in 1940. Fill in equipment and cost today.</td>
<td>Realise that prices change in the long and short term. Accurately using a search engine or an index to a catalogue. Extension: realise absolute cost doesn’t necessarily rise.</td>
<td>Put headings on board for class to copy. Provide catalogues or computer room. Divide today’s prices by 140 for a rough idea of 1940s prices.</td>
</tr>
<tr>
<td>Attempt old money sums on the following page</td>
<td>See the complexity of old money sums</td>
<td>Explain changes in money (decimalisation). Do one of the sums together.</td>
</tr>
<tr>
<td>What costs will you have the following year? What affects costs eg breaking tools, rust.</td>
<td>Appreciate that care for objects and the allotment environment will save you money</td>
<td>Explain capital costs versus running costs</td>
</tr>
</tbody>
</table>
Money then, money now

It was much more difficult to do money sums with the old money. **Try these sums.**
The first one is done as an example: **£1 9s 5d + £2 3s 8d**

<table>
<thead>
<tr>
<th>£</th>
<th>s</th>
<th>d</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>9</td>
<td>5</td>
</tr>
<tr>
<td>2</td>
<td>3</td>
<td>8</td>
</tr>
</tbody>
</table>

3 13 1

**Colour code the statements into capital costs and running costs.**
Capital costs are those incurred when setting up the allotment for the first time and running costs are those paid every year.

- **Rent** £25 per year for the land
- **Wood for a compost bin**
- **Gloves and wellies**
- **Seeds**
- **Manure**
- **Nutting to put over crops**
- **Heavy tools such as spade**
- **Other costs**

Now, try these:
(remember that you are in base 12 and base 20 for some of this!)

- a) £10 0s 0d minus £2 12s 9d
- b) Divide £15 7s 6d by 3
- c) Multiply 4s 8d by 7
Risky business

Risk assessment (suggested duration one lesson)

Here are some of the key points to consider, but you will, of course, have to follow your school’s or local authority’s risk assessment procedures.

<table>
<thead>
<tr>
<th>Activity</th>
<th>Hazard</th>
<th>Controls</th>
<th>Remaining risk</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clearing the site</td>
<td>Cuts; an over-grown site may have concealed dangers such as broken glass or tin cans</td>
<td>First Aid box needed on site. All cuts, grazes to be covered.</td>
<td>Low/medium</td>
</tr>
<tr>
<td></td>
<td>Stings from nettles</td>
<td>Use of gardening gloves, wellies</td>
<td>Low medium</td>
</tr>
<tr>
<td></td>
<td>Use of electrical strimmer or rotivator</td>
<td>Adult use only</td>
<td>Low</td>
</tr>
<tr>
<td>Attending to plants</td>
<td>Weather conditions</td>
<td>Gazebo, sun hat and cream. Wet weather coat and shoes.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Cuts, grazes from trips and falls</td>
<td>Grit boards and paths</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Anaphylactic shock from animal sting, bite</td>
<td>Pupil medical forms and emergency contact details available</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Use of tools</td>
<td>No tools above waist height. Purchase child sized versions.</td>
<td>Low</td>
</tr>
<tr>
<td>Water Use</td>
<td>Hose pipe</td>
<td>Ensure hose is long enough to remain on the ground during use</td>
<td>Low/medium</td>
</tr>
<tr>
<td></td>
<td>Water butt</td>
<td>Lockable lid. Not used without supervision.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Water tap</td>
<td>Non-return valve fitted. Clear sign for drinking/not drinking water.</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Carrying</td>
<td>Small watering cans to avoid overloading</td>
<td>Low</td>
</tr>
<tr>
<td>Compost</td>
<td>Compostable materials</td>
<td>No plastics, batteries or chemicals to be added</td>
<td>Low</td>
</tr>
<tr>
<td></td>
<td>Vermin</td>
<td>Look out for evidence eg droppings, bite marks</td>
<td>Low/medium</td>
</tr>
<tr>
<td>Chemicals</td>
<td>Pesticides, insecticides, plant food, etc</td>
<td>Store in a locked shed or cupboard. Adult use only.</td>
<td>Low</td>
</tr>
</tbody>
</table>
**Risky business**

**All pupils will:** Learn what a risk is and be able to describe some risks.

**Most pupils will:** Understand that risk is a normal part of our lives and explain that we can minimise the effects.

**A few pupils will:** Analyse that risk is enjoyed by many people and that some people’s fear of risk is greater than others eg bungy jumping.

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<tr>
<td>List 5 risky things to do e.g flying a plane</td>
<td>Think about risk in everyday life</td>
<td>Define risk, give pupils perspective eg ‘How many of you came to school by car?’ travelling by plane is much safer than car</td>
</tr>
<tr>
<td>Think of risks on an allotment</td>
<td>Understanding your environment and how to manage it. Taking ownership of the allotment and others safety.</td>
<td>‘Snowball’ risks, what might happen if that accident were to happen and how it could be avoided. Devise rules for the allotment.</td>
</tr>
<tr>
<td>Design a Health and Safety poster</td>
<td>Consolidate ideas to remember them</td>
<td></td>
</tr>
</tbody>
</table>
Risky business
Included is a facsimile 1940s guide to growing crops all year round. You will not have to clear the site at the beginning of the season if you grow all year round, but this may not be possible over the holidays. Two or three crops that can be harvested in June/July are a good starting point.

**What to grow**
- Potatoes can be grown on an allotment anywhere or in patio planters. Large woven polyethylene bags that contain about 40 litres of compost will produce a crop from 3-5 seed potatoes.
- Tomatoes can be grown in hanging baskets or grow bags; they need a sheltered, warm location and canes or trellis to grow up
- Curly-leaf Kale will withstand pigeons and many pests, so are good for first time growers
- Lettuce varieties such as Gem, have little wastage from eating and will grow well in guttering, pots or the ground

**So you’ve planted your crops!**
When seeds begin to grow you have to be able to identify them. Design a way to label your plants so you know what they are.

**Consideration points:** Your label must
- Have the name of the crop somewhere on it
- Not be blown away by the wind
- Not be destroyed by rain
- Be visible so you can see it easily

**Ideas**
You may want to decorate a stone, ice lolly stick or use air-drying clay to make your marker
What does that grow into?

All pupils will: Grow some seeds and name some things plants need to live.

Most pupils will: Explain where much of Britain’s food comes from and understand that choice was limited during the Second World War.

A few pupils will: Analyse the current problems of global warming with food miles and carbon emissions.

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<tr>
<td>Make a list of their top 3 favourite fruit and vegetables then mark where they are from on the map. Then mark others.</td>
<td>Understand that 75% of Britain’s food is imported.</td>
<td>Give out list of where food is from or better still have a selection of fruit and veg with the labels on</td>
</tr>
<tr>
<td>Calculate how many miles away 3 types of food come from</td>
<td>Atlas skills, measuring accurately and considering what food grows where</td>
<td>Help pupils to think about why food is grown in other countries eg sun, space</td>
</tr>
<tr>
<td>In groups sort seeds into families then try to match the family to the type of food</td>
<td>Classification and observation. See that food classified the same eg beans will all have similar seeds.</td>
<td>Mix up a variety of seeds in envelopes, beans, root vegetables and lettuces. Have vegetables available to guess at what they grow into.</td>
</tr>
<tr>
<td>Answer ‘what do living things need to grow’ eg light, food, water</td>
<td>Consolidate known information. Test hypotheses.</td>
<td>Check answer and hand out plastic cups for planting</td>
</tr>
<tr>
<td>Using plastic cups, with compost or blotting paper plant cress seeds. Place in different variables and measure results on daily graph.</td>
<td>Test hypotheses and record findings on graph paper or using an Excel spreadsheet</td>
<td>Use graph paper or Excel spreadsheet model how to record daily growth of plant with/without light or water</td>
</tr>
</tbody>
</table>
What does that grow into?
Feeding plants during the Second World War was more difficult because chemical feeds were less readily available. Most allotments had compost heaps. Making compost costs very little and is easy to do!

**What makes compost**
- Tea leaves, grass clippings and vegetable matter are known as activators, because they break down quickly, they are full of nutrients but smelly so need mixing with other materials
- Tree bark and straw will compost, but may take up to a year to break down, so chop it up small before adding it to your compost bin
- Paper can compost, but it needs to be shredded and soaked with water to speed the process up
- Pet waste can be added, but it is advised only if the animal is a herbivore
- Fertile soil contains plenty of moisture, oxygen, organic matter, micro-organisms and insects; to speed up de-composition you can buy tiger or branding worms

**What can’t compost**
- Plastics and processed materials
- Virulent weeds, such as bind weed and Japanese knot weed
- Cooked food waste

**How to construct a compost heap**
- It is best for the soil if the compost bin is not sealed at the bottom, so excess water fertilises the soil beneath. By placing layers of wood at the bottom to allow air circulation you could use anything, such as an old bath or tractor tyres.
- Roughly dig the soil where you intend the heap to go, hammer in four corner posts and secure wood panels to the posts; do not dig the wood panels into the ground
- You will need a cover for your compost bin, such as a ground sheet

**Maintenance**
- Add water regularly to ensure the compost is moist
- Mix occasionally to help break down the matter and add oxygen
- Move compost heap to a new location if the ground becomes too wet
Why make compost?

**All pupils will:** Be able to name things that rot and those that don’t.

**Most pupils will:** Describe healthy/unhealthy soil. Understand that soil is alive so needs food, oxygen and water to be healthy.

**A few pupils will:** Explain problems with waste such as overcrowded landfill sites, subsidence where some older matter breaks down quicker than others causing piles to become unstable and Leachates – liquid released from decomposition that picks up pollutants from batteries, etc and then seeps into the ground.

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<tr>
<td>Brainstorm ‘what is soil’</td>
<td>Think about the world around us and consolidate knowledge</td>
<td>Spider diagram ideas. Introduce soil being alive.</td>
</tr>
<tr>
<td>In groups peel and eat a variety of fruit eg orange, kiwi, apple and one packet of crisps</td>
<td>Global awareness of why recycling is important</td>
<td>Introduce landfill sites, where waste goes and problems – add to spider diagram</td>
</tr>
<tr>
<td>Collect class organic matter in one large plant pot and all crisp wrappers in another. Add soil, water, mix well using hand trowel and wait two weeks.</td>
<td>Pupils to make hypotheses regarding what will happen to waste once it is buried in mini landfill site eg the crisp wrappers’ writing will come off</td>
<td>Provide sentence stems for hypotheses eg Pot A contains… Pot B contains… In two weeks I think that the crisp wrappers in Pot A would have… [whereas/on the other hand/alternatively] the organic matter would have…</td>
</tr>
</tbody>
</table>

Answer the key question ‘why make compost?’
Insects are vital for pollinating plants; without them we would have no apples, cherries or cucumbers. Insects are essential to the food chain. Plants need insects to reproduce and survive, animals and birds depend on the seeds from crops and insects living on them for their food.

All pupils will: Name some different insects and know that there are thousands of different varieties.

Most pupils will: Be able to describe different insects as pollinators, predators, parasites or pests.

A few pupils will: Analyse the importance of insects and describe how the food chain relies on insects.

<table>
<thead>
<tr>
<th>Pupil Activity</th>
<th>Learning outcome</th>
<th>Teacher input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Name as many insects as you can</td>
<td>Consider what an insect is eg is a butterfly an insect?</td>
<td>Explain that there are over 800,000 insect species, more than all the other animal groups combined!</td>
</tr>
<tr>
<td>Discuss if insects are good or bad</td>
<td>Begin to think about what insects do eg bees pollinate</td>
<td>Introduce the 4 P’s: Pollinators, predators, parasites and pests</td>
</tr>
<tr>
<td>From your insect list classify three</td>
<td>Knowledge, classification and identification</td>
<td>Give examples</td>
</tr>
<tr>
<td>Cut out the insect cards and stick them in a</td>
<td>Observation, recording and identifying similarities within their roles eg has</td>
<td>Model table</td>
</tr>
<tr>
<td>classifications table</td>
<td>wings</td>
<td></td>
</tr>
<tr>
<td>Plant out broad bean and when it is in flower.</td>
<td>Consider what may effect insects eg temperature, weather, area on plant</td>
<td>Supply spring broad beans. Plant in March and produce diary or record sheet.</td>
</tr>
<tr>
<td>Record observations.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

http://www.nationalinsectweek.co.uk/growingschoolsprogramme.htm

This site will give you many more ideas on how to attract insects and more detail about growing your broad beans.
Insect definition – **Pollinator**: Collect and or eat pollen, by visiting different flowers they fertilise them allowing the species to continue. **Predator**: Hunts and eats other insects. **Parasite**: Lives off another, parasitic wasps lay their eggs inside black fly. **Pest**: Damage plants by feeding off them.

**Cut out the insects and stick them on to your table under the headings:**
**Pollinator, Predator, Parasite or Pest**

- **Ladybirds** hunt and feed on other insects like black fly.
- **Pea and Bean Weevils** eat notches out of leaves.
- **Codling moth** eats apples.
- **Bumble Bee** gathers nectar and pollen to feed itself and larva. This cross pollinates plants allowing species to continue.
- **Hover Fly** feeds off the honey dew black fly produce, but do not eat black fly.
- **Hover Fly Larva** hunts and eats black fly.
- **Ground Beetles** hunt and feed off slugs.
- **Parasitic Wasp** kills black fly by laying its eggs inside them.
- **Honey Bee** gathers nectar and pollen to feed itself and larva. This cross pollinates plants allowing species to continue.
- **Black Fly** drinks plant sap weakening the plant and spreads plant diseases.
- **Black Ant** fights other insects to protect black fly. Eats black fly honey dew.
- **Pollen Beetle** eats pollen and cross pollinates some plants.

*Images courtesy of www.royensoc.co.uk*
We can’t do without it, and nor can our plants! How can you make sure you have enough water for your allotment?

Here are some thoughts about water and your allotment:

- People use much more water today than they did in the Second World War: we wash ourselves, our hair and our clothes much more often than they did. Why do you think this is? (clue: modern inventions in houses)
- The water cycle: water evaporates from the earth’s surface, and from the sea, rivers and lakes. Then it returns as rain. Draw a diagram or a picture to show the cycle.
- Water supply: is there a tap nearby? Could you have a water butt to collect rainwater from a shed roof? Add a water butt to your allotment plan.
- To make sure the water does not evaporate as fast as you pour it on, only water in the evenings.
- Mulching also prevents evaporation: cover your earth with leaf mould, or shredded bark (it will reduce the weeds too).
- Watering cans are fine, but may take too much time. You could make small holes in your hose and lay it between the rows...
- Bank up the earth so that water does not get away, but soaks in where the plants need it.
- Why not make a poster to encourage people to water carefully?

Further information

- www.environment-agency.gov.uk/fun Games about water use
- www.waterinschools.com Thames Water schools’ website
- www.bbc.co.uk/schools Animated water cycle
- www.wateraid.org About worldwide issues surrounding water use
Wartime diet and rationing

The nutritional content of the nation’s diet improved during the Second World War. For example by 1943 consumption of sugar and syrups had fallen by 30% and consumption of milk and vegetables was up by 30%.

Rationing played its part in this with sugar and fats on the ration. The government also controlled the prices of bread and other non-rationed foods. A good diet became more affordable than it had been pre-war.

**How rationing worked**

Each person was issued with a ration book. Children under 6 got half the adult ration, children aged 6-16 had ‘blue’ ration books, with no tea allowance.

1,300 local Ministry of Food offices distributed the ration books, licensed food dealers and enforced regulations. Retailers registered with specific wholesalers, and consumers registered with specific retailers for every basic commodity except tea, clothes and soap, which could be purchased at any shop.

Regulations were always being added and it became illegal to sell cakes with icing or to feed bread to wild birds as the war progressed.

From 1 December 1941 additional points coupons were issued: 16 points for four weeks. Consumers chose what to ‘spend’ these on:
- Tinned meat, tinned fish, tinned vegetables
- Dried fruit, pulses, pasta etc

Points could not be carried forward but could be used in any week in the period. Retailers were told how many points to charge for items.
What was rationed?
Rationed amounts varied from year to year and even from month to month as the impact of the Nazi U-boat attacks was felt and the turning of the seasons saw changes in the supply of foods. Bread, vegetables and fruit were not rationed during the war, although bread was added to the ration in 1946. In 1943, the rations for one week were:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bacon and ham</td>
<td>125g</td>
</tr>
<tr>
<td>Sugar</td>
<td>250g</td>
</tr>
<tr>
<td>Tea (adults only)</td>
<td>60g</td>
</tr>
<tr>
<td>Preserves</td>
<td>500g</td>
</tr>
<tr>
<td>Meat</td>
<td>1s 2d*</td>
</tr>
<tr>
<td>Cheese</td>
<td>90g</td>
</tr>
<tr>
<td>Butter, margarine</td>
<td>60, 125g</td>
</tr>
<tr>
<td>Cooking fats</td>
<td>180g</td>
</tr>
</tbody>
</table>

* Children and seniors only:

<table>
<thead>
<tr>
<th>Item</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Eggs</td>
<td>One</td>
</tr>
<tr>
<td>Milk</td>
<td>2 pints</td>
</tr>
<tr>
<td>Sweets</td>
<td>125g</td>
</tr>
</tbody>
</table>

*meat was by value, not by weight. 1s 2d approximately £2.80

When did rationing end?

<table>
<thead>
<tr>
<th>Year</th>
<th>Item</th>
</tr>
</thead>
<tbody>
<tr>
<td>1948</td>
<td>Bread, jam</td>
</tr>
<tr>
<td>1949</td>
<td>Clothes</td>
</tr>
<tr>
<td>1950</td>
<td>Petrol and ‘points’ rationing</td>
</tr>
<tr>
<td>1952</td>
<td>Tea</td>
</tr>
<tr>
<td>1953</td>
<td>Sweets, eggs, cream, sugar</td>
</tr>
<tr>
<td>1954</td>
<td>Butter, margarine and cooking fats, meat</td>
</tr>
</tbody>
</table>
Rationing and unobtainable ingredients prompted changes to traditional recipes. Some of these changes resulted in lower sugar and fat versions of foods such as cakes and creative uses of vegetables in plentiful supply such as potatoes and carrots.

**All pupils will:** Name some differences between food we eat today and that of the Second World War.

**Most pupils will:** Identify why there are differences in the types of food we eat and the amount of fat and sugar that we eat today compared with during the war. Realise eating a sensible amount of fat and sugar is important.

**A few pupils will:** Notice that rationing made people eat less fat and sugar in their diet; realise that foods can be substituted for others, some of which are healthier.

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### Victory vegetables

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<table>
<thead>
<tr>
<th>Pupil Activity</th>
<th>Learning outcome</th>
<th>Teacher input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Using coloured pencils mark where the recipes are similar or different. Ingredients? Amounts?</td>
<td>Begin to think about what the differences are between the Second World War and modern recipes</td>
<td>Give out copies of recipes below. Model activity, set colours for difference and similar.</td>
</tr>
<tr>
<td>Discuss what the differences are and why</td>
<td>Realise the differences in the recipe are a result of foods being rationed or scarce and that some items eg carrots are substitutions</td>
<td>Lead discussion</td>
</tr>
<tr>
<td>Weigh out a week’s adult ration. (See Diet and Rationing sheet for amounts.) Identify any foods that are different from what they eat today eg lard, tea leaves.</td>
<td>Weights and measuring. Identify some of the differences between food we eat today and during the war.</td>
<td>Ensure hygienic treatment of food</td>
</tr>
</tbody>
</table>
Calculate the % of a week’s ration of fat used in a wartime cake. Discuss how often they eat cake and pudding and how healthy that is. Discuss what you could not have if you used your ration to make a cake.

Consider which recipes need fat. Identify that many foods contain fats. Think about why the rationed diet could be healthier than today’s.

Lead discussion. Provide information about daily recommended amounts of sugar and fat (see the poster for more information).

**Extension activity:** Bake both cakes and have a taste test.

**Wartime carrot cake**
Serves 8
225g self raising flour
115g margarine
115g sugar
50g dried fruit
85g grated raw carrot
1 1/2 tablespoons malt vinegar
6 1/2 tablespoons milk

Rub the flour and margarine together till they resemble breadcrumbs. Mix in the sugar, dried fruit and carrot. Mix the vinegar and milk together and add to the mix. Turn in to a greased and floured 18cm tin. Bake in a 180C/350F/Gas 4 oven for 1 hour 10 minutes.

**Modern carrot cake**
Serves 8
225g margarine
225g brown sugar
4 eggs
125g chopped walnuts and 50g ground almonds
350g raw grated carrot
175g self raising flour
5ml (1 level tsp) baking powder

Cream the margarine and sugar together until light and fluffy. Slowly add the eggs beating well with each addition. Add the carrots, raisins and walnuts. Sift the flour and baking powder and add the ground almonds. Add to the cake mixture. Turn in to a greased and lined 20cm cake tin. Bake in a 180C/350F/Gas 4 oven for about 1 1/4 hours. It is done when a skewer comes out clean when inserted into the cake.
Food for thought

Today there is great emphasis on peeling or scrubbing vegetables to remove unwanted chemicals such as pesticides, but during the Second World War the Ministry of Food produced propaganda posters and numeric rhymes to try to persuade people to eat every part of their vegetables including the skins.

Lord Woolton’s poem

Those who have the will to win
Eat potatoes in their skin
Knowing that the sight of peelings
Really hurts Lord Woolton’s feelings

Activity

The aim of this experiment is to find out whether home grown food is better for you. http://www-saps.plantsci.cam.ac.uk/osmoweb/vitc.htm

• Form a hypotheses eg ‘Potatoes will have more vitamin C in them straight after harvesting’
• Buy a small bag of potatoes and dig some potatoes out of your allotment or patio pot. You will need equal amounts of each.
• Use a pestle and mortar or blender to grind up the potatoes. Try a ratio of perhaps 1g potato to 5cm³ of distilled water (remember to keep the new and bought potatoes separate)
• Filter the pulp to get a clear solution then transfer 2cm³ of the home grown solution into one test tube and the same amount of shop brought into a second test tube
• Using a pipette carefully add drops of DCPIP to the potato until it is unable to remain clear. Remember to count the number of drops.
• Repeat with the other test tube and then decide which contained the home grown and which the new potatoes

The principle of this method is a titration with dichlorophenolindophenol (or phenol-endo-2:6-dichlorophenol, also known as DCPIP). Ascorbic acid (vitamin C) reacts with DCPIP, changing the colour from blue to colourless.

The vitamin C content of new potatoes is about 30mg per 100mg, quite high. This level drops with storage so would be about 8mg per 100mg after 9 months. You may not get any measurement from older potatoes at all! A formula can be found on the website above explaining how to calculate the amount of vitamin C present.
Carbon Footprint
During the 1940s 75% of food was transported by ship. Nazi U-boats searched the oceans, in groups called wolf packs, looking for merchant ships to torpedo. The main problem during this time was importing enough food to feed the British Isles. After the Second World War more goods were transported by plane and lorry. Today we know that fuels such as petrol and diesel release carbon dioxide (CO₂) into the atmosphere which increases global warming.

All pupils will: Be able to rank transport according to what is best and worst for the environment.
Most pupils will: Calculate the CO₂ emissions from an average packed lunch and explain the need to decrease them.
A few pupils will: Consider reasonable ways to decrease CO₂ emissions.

Pupil Activity
Write down as many forms of transport as you can think of. Colour code for public and private.
Use an atlas and table to work out how many food miles the packed lunch has travelled

Learning outcome
Think about what transport is and what ‘public’ and ‘private’ mean eg anyone can travel on them, holds lots of people, etc
Global understanding of where we and other countries are

Teacher input
Note transport on board.
Define public and private.
Colour code public and private on board.
Some understanding of the carbon cycle is necessary, the website below can help.
Give out tables.

http://www.metoffice.gov.uk/research/hadleycentre/models/carbon_cycle/intro_global.html (easy to understand carbon cycle)
Food worries

Typical packed lunch

**Bread:** wheat brought by container ship from Iowa, USA, milled near London, trucked to bakeries to be made into bread, which is trucked to shops around the country

**Cheese:** brought by ship from Ireland, packaged and trucked to shops around the country

**Tomato:** from the farmers’ market three miles away

**Walkers crisps:** from their factory in South Wales, trucked to shops around the country

**Chocolate bar:** cocoa, grown in Nigeria, flown to Cadbury’s factory in Birmingham, trucked to shops around the country

**Orange juice:** oranges from Spain flown to Robinsons juice factory in Berkshire for processing, trucked to shops around the country

**Braeburn apple:** flown from South Africa, packaged and then trucked to shops around the country

**Banana:** brought by ship from the West Indies, packaged and then trucked to shops around the country

Now, see how much packaging we all take for granted! You will need a volunteer with a packed lunch.

<table>
<thead>
<tr>
<th>Pupil Activity</th>
<th>Learning outcome</th>
<th>Teacher input</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weigh the whole packed lunch</td>
<td>Accurate measurement and recording</td>
<td>Provide typical packed lunch as above if you do not want to use one belonging to a pupil</td>
</tr>
<tr>
<td>Unwrap all the food (eat if allowed). Put all the wrappings together and weigh them.</td>
<td>See how much packaging there is around modern food</td>
<td>Ensure hygienic treatment of food and waste</td>
</tr>
<tr>
<td>Discuss with the group what the packaging is made of and what it is for. Make a list of all the materials.</td>
<td>Realise that long distances and modern attitudes require more packaging than local food</td>
<td>Organise the discussion and recording</td>
</tr>
</tbody>
</table>
Food worries

Extension/home activity

On your next visit to a supermarket:

Using a table like this one, make a list of all the countries you can find that our food comes from. Colour items that you think would have been in the shops during the Second World War. When you get home or into school find those countries and measure the journeys. See how much better it is to grow our own food!

<table>
<thead>
<tr>
<th>Fresh produce</th>
<th>Dried goods</th>
<th>Tinned / frozen goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food</td>
<td>Where from</td>
<td>Food</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Where from</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Food</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Where from</td>
</tr>
</tbody>
</table>
From 1941, under Brendan Bracken the Minister of Information, many posters were produced providing information to the public about how to live during the Second World War. They focused on information about food, clothing, the blackout, gas masks and not revealing secret information.

Activity
• Ask pupils if they know what propaganda means. Identify differences between war propaganda where the government was trying to get people to do something, versus modern advertising where companies are trying to get you to do something, usually spend money!
• Examine the four images shown on the poster contained in this pack and fill in the table using each poster in turn
• Ask pupils to identify what is not shown in the posters eg soldiers or Germans. Why was propaganda not aimed at men – where were they?
• Plan carefully and then design your own Second World War poster about food
• You can look on our website for more posters www.iwmcollections.org.uk
<table>
<thead>
<tr>
<th>What does it say</th>
<th>What does it show</th>
<th>What does it mean</th>
<th>Who were the audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dig for Victory</td>
<td>Man using a spade to dig</td>
<td>That people should grow their own food so they have enough to eat, because the Nazis were sinking British ships</td>
<td>Men not serving in the Armed Forces, because it shows a man’s foot and trousers in the poster</td>
</tr>
</tbody>
</table>
Concern that young people have become distanced from nature has increased in recent years, with many not making the connection between the food they see in supermarkets and the land that produces it. This combined with a lack of understanding or interest in food and what makes a healthy diet, means pupils struggle to understand the interdependence between urban and rural environments and the countryside, wildlife and people it sustains.

Growing Schools is a government funded programme tasked to address this issue. Its principal aim is to encourage, support and inspire all schools (nursery, primary, secondary and special) to harness the full potential of the living world as a cross-curricular teaching and learning resource, both within and beyond the school grounds. The programme focuses particularly on food, farming and environmental issues and on ensuring pupils are given first-hand experience in the outdoor classroom.

The Growing Schools Garden
If you are a teacher looking for further inspiration and training why not visit the Growing Schools Garden. The garden aims to encourage schools to harness the full potential of their own school grounds as a learning resource.

The garden demonstrates how barren playgrounds can be transformed into exciting and welcoming green spaces. The design incorporated the ideas from 21 schools around the country as well as features they had made and plants the pupils had grown from seed.

Early Years, Primary, Secondary and Special Schools were all represented in the garden; some large, some small; some rural, some urban; some from prosperous areas, others from areas of acute deprivation. Common to them all was a real enthusiasm and commitment to outdoor learning and enormous creativity in the use of their own outdoor spaces at school.

It was a huge hit with the public, and received massive media attention. The Royal Horticultural Society judges, declared it an inspiration to young people, and awarded it...
Growing Schools Programme

a prestigious silver-gilt medal. It provided an excellent example, for teachers, pupils, governors, parents and the general public alike, of what schools can achieve, regardless of location, budget or resources.

To visit the garden or find out about training courses, please contact:
Growing Schools Garden Co-ordinator, Environmental Curriculum Centre, 77 Bexley Road, Eltham, London SE9 2PE Tel: 020 8294 5864. Fax: 020 8294 5864 or email growingschoolsgarden@widehorizons.org.uk

The Growing Schools programme will be launching a new garden at this year’s Hampton Court Flower Show in July 2007. The garden will be designed by Chris Beardshaw, TV & Radio garden designer. The key themes will be food growing, health & wellbeing and culture/heritage. After the show the garden will be moved to a permanent site at the Birmingham Botanical Gardens.

For more information on the gardens mentioned above and for a wealth of resources and places to visit go to the Growing Schools website www.teachernet.gov.uk/growingschools