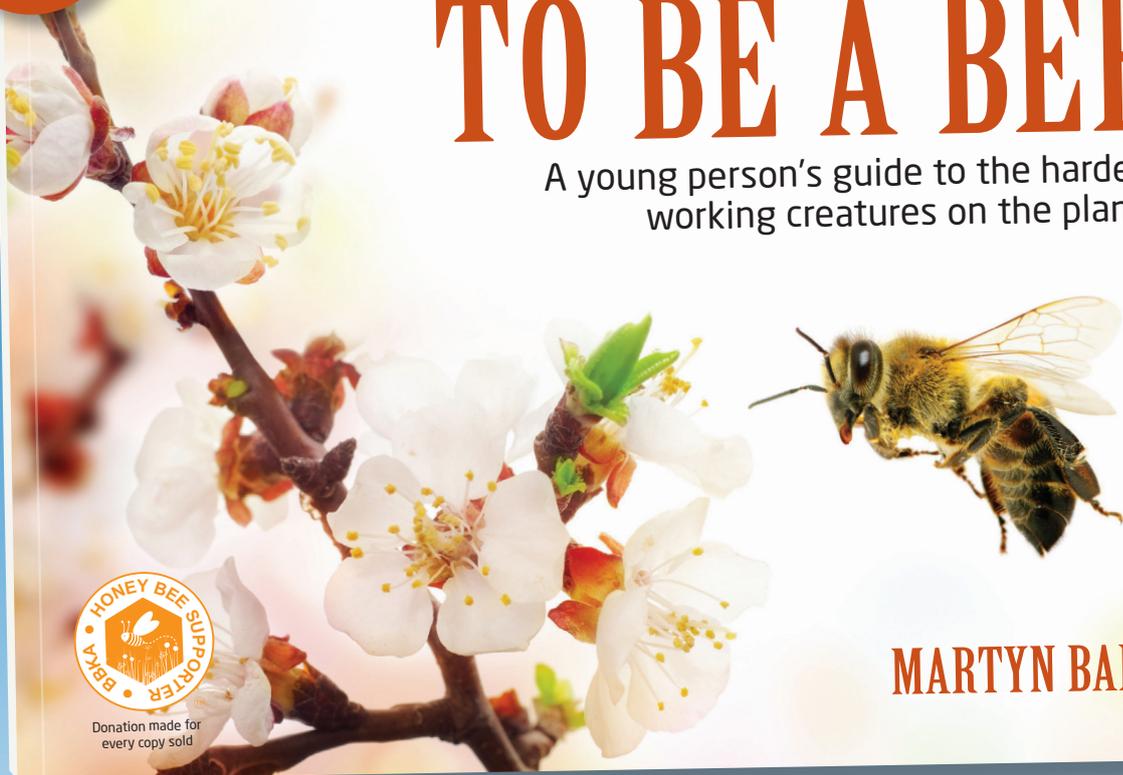


NEW

TO BE A BEE

A young person's guide to the hardest working creatures on the planet



Canterbury Teachers' Notes

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PUBLISHING

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INTRODUCTION TO THE BOOK

TO BE A BEE is a fascinating insight into the world of honeybees by best-selling children's author Martyn Barr. The 36-page softback book is lavishly illustrated with stunning close-up photographs of bees and written in a style designed to appeal to a younger readership.

Elements of **TO BE A BEE** support the national curriculum key stages 1, 2 and 3. The book looks at the different types of honeybee and their respective roles in the colony. It explores life in the hive and describes how bees communicate with each other and how they make honey from the nectar and pollen they collect. It looks at some of bees' lesser known skills, such as weather forecasting and bomb detection, and describes why bees are endangered, why they are so important to humans and what readers can do to help. At the end of the book is a series of recipes to enjoy the fruits of the bees' labours... from honey muffins to lip balm.

Thanks to generous sponsorship from the Whitefriars shopping centre in Canterbury, the publishers have been able to provide two free copies of the book to every primary and secondary school in the district. Additional copies of **TO BE A BEE** can be ordered online at www.OOTBShop.co.uk, where discounts of up to 20% are available for bulk education orders. A donation is made to the British Beekeepers Association's honeybee appeal for every copy sold.

REVIEWS OF TO BE A BEE

"Crammed with stunning images, and engagingly written, this is an alluring insight into the life of the humble honeybee. This really is the 'bee's knees' of bee books!"

Jane Moseley
General Secretary/Operations Director of the British Beekeepers Association

"Simply beautiful! Martyn Barr's homage to the honeybee is a visual delight for children - and adults - alike."

Dr Margaret Griffin
Education consultant and former secondary head teacher

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SO WHAT'S THE BUZZ WITH BEES?

A WORD FROM THE AUTHOR

Sometimes you hear them before you see them. You may even be scared of them. But the more you know about bees, the more you can appreciate these unique insects and how they provide us humans with much more than just honey!

TO BE A BEE is all about bees, and mostly about honeybees. It's full of fascinating facts and insights into their amazing world, where nobody sleeps, everyone has a job to do and all work hard for the benefit of the community - a perfect society in miniature! It's got some great pictures, too, which help you see what these magical creatures look like close up.

I hope you and your students get a buzz out of reading this book... I certainly got one out of writing it!

Martyn Barr
April 2012

CREDITS

These teachers' Notes are written and produced by Martyn Barr.

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BLOOMING MARVELLOUS!

Every year, more than 2,000 communities take part in the Royal Horticultural Society's Britain in Bloom competition. Using gardening as a tool, the campaign brings individuals together to form community action groups that make the places where they live cleaner and greener. For the first time in many years, Canterbury will be entering the competition in 2012.

The Canterbury City Partnership (CCP), of which Whitefriars is a founder member, is taking the lead in encouraging local organisations - including schools and colleges - to participate. The city has not entered any 'Bloom' competition for a number of years and its floral tradition, though strong in the past, has diminished markedly. CCP now wants to revive that tradition in a modern and sustainable way, so that Canterbury becomes renowned not just for its heritage but also for its floral displays and green spaces.

CCP is encouraging city centre organisations to decorate their premises with flowering displays and maintain them to a high standard throughout the summer. Whitefriars will be creating a garden display in Whitefriars Square with a pergola and planters sponsored by Jackson Fencing. This will become the centrepiece for a host of promotional and entertainment events taking place throughout the summer months. The shopping centre is also running two competitions in association with local schools and colleges to create themed displays for the planters, as well as designs for a series of banners that will be displayed in Whitefriars Square for the duration of the competition period (see page 6).

A HIVE OF ACTIVITY

As a prelude to the Canterbury in Bloom initiative, and supported by Whitefriars, the Canterbury Beekeepers Association has installed two beehives on the roof of the shopping centre. This has created an education facility for would-be beekeepers in the area and the new 'residents' will help pollinate the city centre's flowers.

An information panel about the bees has been installed in Whitefriars Passage... and the first batch of Whitefriars honey is expected in the summer. The shopping centre is also sponsoring the publication of **TO BE A BEE** and this guide, so that young people can learn more about these fascinating creatures and why they are so important to humans.

Whitefriars is an interesting location for beehives and one that presents its own unique set of challenges. Historical records indicate that monks used to keep bees on this site a thousand years ago when it was home to an austere religious community of Austin, or white friars.

A roof top site is more exposed than a ground level one, with higher temperatures and reduced shelter from wind. Whitefriars has installed a water supply and the height won't present a challenge to the bees, as they are used to foraging in high trees. As a city centre location, all the gardens of the city are in reach, as bees can easily travel a mile and a half, and there is a plentiful supply of pollen and nectar from trees, plants and flowers within range, including the Dane John Gardens. Each of the Whitefriars hives will be home to around 50,000 bees in the summer months and 10,000 in the winter.

Over the past few decades, there has been a steady decline in bee populations in the UK, largely due to mite infestations and the use of pesticides. However, beekeepers are now utilising a

range of controls which will help bees to thrive again in this country. This is leading to a revival of interest in bee keeping, and it is hoped that the new Whitefriars hives will increase local interest still further.

The installation of the beehives in Whitefriars is the latest in a series of initiatives designed to reduce the shopping centre's carbon footprint and champion green causes. Already 100% of the centre's waste is recycled and energy efficient lighting has been installed in non-public areas. Whitefriars is also supporting the Abbot's Mill project, an urban hub of environmental and social excellence in the heart of Canterbury, incorporating a renewable energy centre, museum, vegan café and an organic community garden.

DESIGN A BEE-FRIENDLY GARDEN

Canterbury district schools have been invited to participate in a garden design competition sponsored by Whitefriars as part of this year's Canterbury in Bloom initiative. The shopping centre is looking for six schools to plant up the raised beds attached to the pergola, which will be located in Whitefriars Square during the late spring and early summer.

The theme is 'A Diamond Jubilee dry garden that attracts bees'. You can enter as a school, year, individual class or individual pupils. Designs must fit the planters, which are 1760mm x 920mm. Whitefriars will pay for all materials (as part of the prize fund) and the six chosen designs will need to be planted up by the winners in Whitefriars Square at the beginning of May. Entries can be hand drawn or computer-generated. Plants to be used must be clearly indicated. All entries must be submitted on A3 paper.

Each participating school will receive a range of gardening equipment and the winning designs will receive their planters (which we will transport to your school) at the end of the event, £200 to cover expenses (this includes all plants which Whitefriars will order and take delivery of on behalf of your school) and something more permanent for your school garden. All participating pupils will also receive a Whitefriars goody bag.

Entries should be delivered to the Whitefriars Management Suite, 14 Gravel Walk, Canterbury CT1 2TF (above Boots) by the closing date of 18 April 2012. If you require further information, please call Julie Holness, Whitefriars Marketing Manager, on 01227 826760.

DESIGN A BANNER FOR CANTERBURY IN BLOOM

Whitefriars is also planning to display some floral banners around the shopping centre and is looking for help from local budding designers!

The best 10 designs will be printed and displayed around the centre during the Canterbury in Bloom campaign period and each winning designer will win £100 in Whitefriars vouchers. The designs will also be made into A1 posters which will be displayed in the multi-storey car park as well as posted on to the Whitefriars website and Facebook page.

Please refer to the banner template opposite for sizes and details of how to supply artwork. Entrants must be aged 16 and over.

Actual finished size 760mm x 2000mm.

Artwork (grey area) needs to be supplied at 190mm x 385mm, plus 5mm bleed all round. All fonts to be outlined. Images at 300dpi and CMYK. Please supply as pdf or hi-res jpg.

Email to: impactpr@me.com by 14 April 2012.

CANTERBURY
in bloom  m

GARDENING FOR BEES

Bees are entirely dependent on an abundance of the right kinds of flowers throughout the year to ensure adequate supplies of nectar and pollen. As wildflowers have become scarce in the countryside, gardens can provide a haven for bees and other wildlife if the right plants are grown.

Gardens cover more than one million hectares of Britain, far more than the combined area of all our nature reserves. However, at present, a lot of gardens are not especially friendly to wildlife. Many are covered with paving or decking, or populated with exotic or highly cultivated garden flowers that produce little or no pollen and nectar, or keep it hidden away from the bees.

Bees love traditional cottage garden flowers and native wildflowers. Many of these thrive and look superb in the garden. They are also easy to grow, generally being hardy and much more resistant to slugs and disease. Many wildflowers are already readily accepted as garden plants; foxgloves and bluebells are good examples. But there are many other lesser-known wildflowers. Viper's Bugloss, for example, produces tall, purple spikes that look stunning in a herbaceous border and positively drip nectar. Bee species differ in the length of their tongues, and as a result prefer different flowers, so it's important to grow a range of plants. It is also essential to provide flowers throughout the bee foraging season from March to mid-September.

The table below suggests a selection of plants that would provide pollen and nectar throughout the bee season.

Flowering time	Suggested plants	
March and April	Bluebell Rosemary Dead-nettle Lungwort	Bugle Pussy Willow Flowering Currant Winter Flowering Heather
May and June	Aquilegia Laburnam Geranium Campanula Ceanothus Chives Cotoneaster Honeysuckle Sage Catmint	Foxglove Comfrey Lupin Monkshood Bird's Foot Trefoil Thyme Everlasting Pea Everlasting Wallflower Viper's Bugloss Lesser Knapweed
July and August	Buddleia Cornflower Centaurea Delphinium Escallonia Hollyhock Heathers	Lavender Rock-rose Scabious Marjoram Sea Holly Sunflower Phacelia Tanacetifolia

Gardening and wildflower information supplied by the Bumblebee Conservation Trust: www.bumblebeeconservation.org

WILDFLOWERS

Many wildflowers have become scarce due to loss of hedgerows, hay meadows and chalk grassland, and because of widespread use of herbicides. However, they are usually easy to grow, generally being hardy and much more resistant to slugs and mildew than more exotic garden flowers.

If you make space in your school garden for wildflowers you will not only help conserve these species but also the creatures that they support, including bees.

Wildflower seeds can be obtained from online specialist suppliers. Most local nurseries also sell wildflower seeds and pot-grown wildflowers, but the selection may be limited.

Specialist online wildflower seed suppliers include:

- Herbiseed: www.herbiseed.com
- Naturescape: www.naturescape.co.uk
- Emorsgate: www.wildseed.co.uk
- Scotia Seeds: www.scotiaseeds.co.uk

It's easy to collect your own seeds from the wild. Make sure they are ripe when you collect them. They are usually dark brown or black and hard, and easily detach from the flower head. There is nothing wrong in collecting seeds from roadside verges, footpaths and field margins. Collecting seeds locally is not only the cheapest option, but it also ensures that the seeds you grow are well adapted to local conditions.

Seeds of most species will keep for a year or more if well dried, sealed in paper bags or envelopes and then stored in a cool, dry place. However, it is generally safer to sow hand-collected seeds immediately and leave the seed trays outside in the winter, as seeds of some species don't germinate until they have been frosted. Use peat-free commercial compost as this contains no seeds. If you use homemade compost or garden soil your wildflower seedlings will be hard to distinguish from the mass of other seedlings that will appear!

Once seedlings are established, pot them up and grow them on for six months before planting out.

PESTICIDES

It's best to avoid the use of pesticides in your school garden. Indeed, whole bee populations have become decimated by the widespread use of certain industrial pesticides. If you must use them, avoid spraying them near flowers. There are actually very few situations in which it is necessary to use insecticides in a garden. Left to nature, natural enemies such as ladybirds, hoverflies, ground beetles, lacewings and wasps will usually consume troublesome aphids or caterpillars before long.

KEEPING BEES

In order to keep bees you will need some specialist equipment which will not only protect you but help you handle the bees.

You will need a hive in which to house your bees, together with a variety of related equipment. The most popular types of hive in use in the UK are the National, Commercial, Langstroth and WBC. Whichever hive you choose, you will also need other components, including a floor, entrance block, varroa screen, brood boxes, supers, queen excluders, crown boards and a roof. You will also need various other accessories (some of which are specific to a hive type), such as brood and super frames, foundation wax sheets, mouse guards and feeders.

You will need to purchase a bee suit with veil, hygienic gloves to protect you and the bees, a hive tool to help you move frames and a smoker to help calm the bees.

We strongly recommend that you join a local bee association. Many offer training courses for beginners and are always happy to offer advice to new beekeepers. As a member of a local association you may be able to buy your bees locally from a fellow beekeeper. Later in the year, you may be lucky enough to acquire a swarm from a local collector.

Early in the season you will be able to buy a 5 or 6 frame nucleus of bees (5 or 6 frames of honey bees, with brood, food and the all important Queen). These are usually called 'nucs' by beekeepers. We recommend that you buy bees from a reputable bee breeder that have been bred locally or within the UK, rather than imported Queens.

The Canterbury Beekeepers Association supports and teaches beekeeping in East Kent. Meetings are held monthly with talks during the winter and apiary visits during the summer. There are beginners' courses for those who want to start or just like to learn more about this fascinating hobby. You can contact the club via its web site: www.canterburybeekeepers.org.uk.

BUILD A SOLITARY BEE HOME

It may not be possible or appropriate to install a beehive in your school. However, there are many species of solitary wild bees that would appreciate a nice snug home!

All you need is some string and some hollow bamboo canes with a diameter of around 1cm. Cut to 20cm lengths and tie a bundle together.

Hang or mount in the spring in a south-facing, bright spot about head height. You may need to slope the bundle very slightly to help keep rain out of the holes.

ONLINE RESOURCES

There are a huge number of honeybee-related resources on the internet. Here are a few that you may find useful:

- British Beekeepers Association: www.bbka.org.uk
- BBC Nature: www.bbc.co.uk/nature/life/European_honey_bee
- Benefits of Honey: www.benefits-of-honey.com
- San Diego Zoo: www.sandiegozoo.org
- Kidshealth from Nemours: www.kidshealth.org/kid
- Public Broadcasting Service: www.pbs.org
- Canadian Honey Council: www.honeycouncil.ca

MORE INFORMATION

One of the best sources of bee information in the UK is the British Beekeepers Association (BBKA). The BBKA is an educational charity set up in 1874 and is the UK's leading organisation representing beekeepers.

The BBKA's 'Bees in the Curriculum' is available on CD and is structured as a self-contained website for teachers and students to use. It does not require connection to the Internet for use and contains two main sections:

STAFF ROOM

This includes all of the material of the original version as printable pdf material, with some additional colour enhancement. Also included is a copy of the National Curriculum for KS1 and KS2, with links in the NC text to relevant material. There are also ideas for lesson topics based around bees and beekeeping. Some worksheets for 'Early Years' and a larger 'literacy project framework' have also been added.

CLASS ROOM

This is an entirely new section and intended for students to explore by themselves on a PC. It contains information and pictures related to beekeeping, puzzles, project ideas and a few short video clips, all intended to provide further information. This enables students to find things out for themselves, while at the same time enhancing ICT and research skills.

You can contact the BBKA at:

British Beekeepers Association
National Beekeeping Centre
Stoneleigh Park
Kenilworth
Warwickshire
CV8 2LG

Telephone: 02476 696679
Email: bbka@britishbeekeepers.com.

The BBKA's website includes a young person's section: www.bbka.org.uk.