

# Bee-ing Dioneers One school's journey into beekeeping



he Outdoor Learning programme, run by two specialist members of staff at Llanishen Fach Primary School in Cardiff, has been running for six years. Each year group from Reception to Year 6 has Outdoor Learning sessions each week, come rain or shine, in addition to curriculum-based lessons and maths-focused problem-solving activities which also take place outdoors. The school has kept its own chickens for many years and pupils enjoy learning about hen health and welfare, reproduction and cooking with eggs.

For the past three and a half years the school has also kept an apiary with three beehives and is an active member of the local Cardiff, Vale & Valleys Beekeepers Association (CVVBKA). This is certainly not a step every school can take, but Llanishen Fach was already leading a collaboration between local primary and secondary schools to improve their grounds for pollinating insects as part of the nationwide Polli:Nation project. The school had been in touch with the local beekeeping association to see if any members would like to site a hive in the grounds, but then a timely telephone call from Cardiff University offering a hive, equipment and training in exchange for the promise of honey for testing by

# WELSH RESOURCES CALL-OUT

Author Emma is looking to put together resources for schools, similar to the BBKA's Bees in the Curriculum pack. This is not currently available for Welsh Schools unless they join the BBKA.

Would bilingual bee curriculum resources be helpful for schools in Wales? If yes, please email Emma: schools@WBKA.com researchers in the School of Pharmacy allowed the school to establish its own apiary.

Beekeeping can involve a significant initial outlay on equipment and bees. A complete flat-pack hive can cost around £170 whereas a ready assembled hive complete with frames can cost over £400. Beekeeping suits vary in price from about £30 to £150 or more depending on quality although it is worth investing here, especially where children are involved, as cheaper suits may not offer the same protection or durability. Finally, it will be necessary to obtain a nucleus colony of bees with which to populate the hive which can cost around £200. Fortunately, for Llanishen Fach the sponsorship by Cardiff University kept the set-up costs to a minimum and the University has since provided further hives and suits. In addition, CVVBKA recently awarded a generous bursary to the school to cover the cost of new beekeeping suits for pupils.

In the absence of a sponsor, sources of funding may include grants. Applying can be time-consuming but is definitely worth doing as well as various projects which have prizes for achieving different levels such as the RHS Campaign for School Gardening. The local beekeeping association should be able to offer advice on setting up an apiary, beginners' courses, as well as the possibility of borrowing equipment, buying reasonably priced second-hand equipment or, if they have funds, even a bursary to cover set-up costs to promote beekeeping amongst young people, which is becoming a common focus.

#### Safety

Safety is bound to be a major consideration in deciding whether to establish a school apiary. Realistically, simply keeping bees on site can increase the chances of staff and pupils being stung and this may be sufficient cause for a school to give up if objections are raised by parents or governors. The British Beekeeping Association website offers a model risk assessment for schools thinking about keeping bees which can be adapted for a particular setting. Hives must be kept in a secure location, so this means a secure site in an area of the school which allows for supervised access only for pupils and visitors and where hives can be secured against damage by strong winds and animals.

During April, May and June there is a high risk of swarming, which whilst not necessarily dangerous can be alarming. This requires vigilance and pre-emptive management by the beekeeper in the form of at least weekly inspections to try and avoid colonies taking flight. Proper equipment needs to be available to deal with a swarm swiftly if one should occur and there need to be procedures in place for evacuating pupils and staff from the immediate vicinity and keeping them away until the swarm is dealt with; a process possibly taking several hours and into the following day whilst the bees left behind disperse.

#### In the curriculum

At Llanishen Fach pupils begin their apicultural experience from Reception age through regular visits to the apiary, observing bees at the hive entrance and through class talks about how a honey bee colony works, where pupils also have the opportunity to handle hive parts and

equipment. One of the first lessons for pupils undertaking practical beekeeping is how to put on the suit correctly and check each other to make sure zips are properly closed. The "bee buddies" also check each other for hitchhiking bees before suits are taken off. Rules for the apiary need to be established and proper supervision with a minimum of one adult to six pupils for older children and two adults for younger, or less experienced pupils.

Whilst the bees immediately became a key part of the Outdoor Learning programme, staff felt that the potential for using them as the main context for children's learning was immense. Traditional contexts (e.g. Romans, Victorians) had their place in delivering knowledge and provided children with a point of interest and connection between different subjects.

However, once an apiary has been established the possibilities for incorporating beekeeping into every subject of the curriculum are almost infinite, providing a basis for so much wider learning in a context that is recent. relevant and visible for the children.

The hexagonal honeycomb alone offers many possibilities for exploring shape, pattern and number and geometry in maths, concepts of design and construction especially when looking at the set up of the whole hive, as well as developing practical skills through simple tasks such as frame assembly. Beekeeping inspires many reasons for reading and writing including poetry and storytelling as well as diarising, report writing and record keeping. The lifecycle of the honey bee reinforces concepts such as chronology, change and continuity, cause and consequence.

Llanishen Fach is a Pioneer School, tasked with constructing and trialling the new Curriculum for Wales. This

transformational curriculum focuses on four purposes as its vision for all learners in Wales and aims to develop pupils who become:

- Ambitious, capable learners
- Enterprising, creative contributors
- Ethical, informed citizens
- Healthy, confident individuals

Much of the school's work over the last four years has been trialling ways in which the four purposes become the driver for the new curriculum. Staff felt that the learning opportunities provided by the apiary were limitless, that using them as a context for learning gave a strong platform on which the school could develop its pupils in ways that the previous curriculum had failed to do.

Although pupils were experiencing Outdoor Learning once a week, which gave children a breadth of learning inareas such as knowledge and understanding of the world, science, literacy and communication, it was clear that a much longer and in-depth focus was needed to truly capture the potential of using the bees as a main focus for children's learning. An action research project was set up to trial the impact of using the bees as a transition curriculum for pupils moving from Year 2 into Year 3. Recognising the difficulties that many children experience moving from the open-ended, highly staffed, structured play curriculum to a more formal classroom setting, six members of staff planned a two-week programme covering all areas of learning. Six mixed ability children would rotate through five different activities over a period of two weeks, with staff using existing school curricular skills ladders to ensure standards were maintained. All activities focused on the Literacy and Numeracy Frameworks which detailed the expected achievement of children at the end of Year 2 and 3. The project took place during the first two weeks of the new academic year for Year 3 pupils. Children who were perhaps slightly uptight about a move to the Juniors spent the week exploring, investigating, working as a team, collaborating and cooperating through activities such as microscopy and cookery as well as

# **BE POLLINATORS!**

Head over to Polli-nation for teaching resoures to support pollinators.

http://polli-nation.co.uk/activity/

Resources, available in Welsh and English, include site survey tools activities and funding tips.

For extra information about beekeeping visit:

Welsh Beekeeping Association http://www.wbka.com

British Beekeeping Association https://www.bbka.org.uk



practical beekeeping. They were stimulated throughout, tricked into learning through awe and wonder. The levels of engagement and enthusiasm were previously unseen at the start of a new year in a new building. The outdoors became their permanent classroom and little evidence of the usual summer holiday regression was apparent with standards driven by the pupils' sheer enjoyment and their love of learning.



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This was a lesson to all about the power of the outdoors, of learning about the here and now whilst safeguarding our future.

Moreover, in these new, uncertain and difficult times, this is a lesson that will drive the school's focus on wellbeing of its pupils as they trickle back through its doors again.

Honey production is a whole-school affair. The first extraction takes place in assemblies so that all pupils can be involved and the rest of the processing of honey is undertaken by various groups until it is in jars bearing labels designed by pupils. The school regularly enters honey, hive products and craft items made by pupils in the local association's Honey Show. There are now plans to sell the honey within the school community to cover the running costs of the apiary.

Samples of the honey have been DNA profiled by the National Botanic Garden of Wales giving pupils the opportunity to learn more about the foraging behaviour of the bees and how geographical differences affect colonies. The

predominant crop (in a sample provided at the beginning of the summer) was bramble, which is plentiful in the hedges that surround the school but, interestingly, the bees were also found to be venturing further afield, as evidenced, by the proportion of bluebell pollen present.

An after-school beekeeping club takes place twice a week and for up to six Year 6 pupils there is the opportunity to take the Junior Beekeeping Certificate which is a nationally recognised qualification. Four pupils have already successfully passed the Certificate and, since graduating to high school, have attended courses run by the Beekeeping Association to enhance their knowledge. Pupils are always eager to be chosen for beekeeping tasks, as this testimonial shows:

"Working with the bees was a very fun and educational experience... When I got to see the bees I had to wear a beekeeper suit, it's like wearing a onesie. The bee hive was full of wooden racks with honeycomb. To calm the bees down we use a smoker. I was very happy to be able to see the bees and I would love to see them again."

Noah, Year 6.

Beekeeping in school requires a commitment of time and learning within and outside normal school hours. including weekends and holidays. The British Beekeeping Association (BBKA) estimate that each hive requires 50 hours per year, which does not include initial training, which may be an additional 20 hours.

Fortunately, having a school apiary is not the only way for pupils to learn about beekeeping. Most beekeeping associations have members who are only too happy to visit schools to talk to pupils and show equipment and products from the hive

# **TIPS!**

Llanishen Fach's top tips for schools considering beekeeping:

1. Research the time, budget and training required before investing in a colony.

2. Join your local association for courses, friendly advice and support, and informative monthly meetings.

3. Two members of staff should take on responsibility for the hives to ensure there is cover for holidays, and absences, and for moral support!

4. Find a friendly local supplier of beekeeping equipment and plan ahead so that vital kit can be purchased in advance. There's nothing worse than trying to catch a swarm with no suitable box or running out of frames when hives become full.

5. Harvest the initial crop of honey before the end of the summer term and organise a table top sale at the school gates (check labelling regulations first).

6. Investigate grants and bursaries to cover the costs of running an apiary.

7. Enjoy keeping bees: bees know what they are doing and can usually put right any mistakes novice beekeepers make!



### AUTHOR Emma Davies

A qualified teacher and former solicitor, Emma Davies has worked at Llanishen Fach Primary School in Cardiff since 2011 and for the past six years has been half of the Outdoor Learning Team at the school. She sits on the committee of Cardiff Vale & Valleys Beekeepers Association and is the Schools' Co-ordinator for the Welsh Beekeeping Association. She is also a member of Outdoor Learning Wales Cardiff Network Group.

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