

From fairy tale forest to snail slime

Beth Barber

**“Miss, you have got
to see this. It’s . . .**

[dramatic pause to select exactly the
right word] **humungous.”**

Fighting my way through the crowd
of excitable 8 year olds crowding
around the eyepiece of one of our
microscopes, I look down to see a
rather startled black bean aphid
gazing back up at me, and it’s true
she does look humungous.





I am the education officer at a community garden based in the London Borough of Lambeth and such conversations happen on average at least twice a week since we were fortunate enough to benefit from the RMS subsidy scheme which has enabled our small charity to purchase two Motic MS_2 junior microscopes for use with visiting school groups and our Saturday Morning Nature Explorers club. The decision to purchase the microscopes was spurred by seeing the enthusiasm with which the children, most of whom are of primary school age, examined bugs and plant material using magnifying glasses and hand lenses. If they were enthralled by the sight of a woodlouse at 2 or 3 times normal size how amazed would they be to see it at 40 times normal size?

Whenever I get the microscopes out, I find that children all recognise their function even if they are a little hazy on the terminology. Binoculars,



magnifiers and telescopes are frequent responses to the question 'Does anyone know what this is?' but everyone knows the answer to the question 'And what does it do?' 'It makes things look bigger!' Very few of the students I work with have used a microscope before and the involuntary gasp as a child finally succeeds in getting a sample perfectly

focused is a thrilling sound. There is a huge difference between knowing that a microscope makes things look bigger and actually experiencing the world on a previously unimagined scale. I have used the microscopes with some adult groups too, and the sense of awe as something previously unimagined comes into focus doesn't seem to diminish with age. A recent delegate at a workshop I was running was fascinated to be able to see the beet leaf miner inside the spinach leaf and even more excited when he noticed the pile of frass too. Some boys don't ever grow up.



As an informal educator, I often say that my most important role is to transmit the skill of observation and the microscopes have enabled me to take this to a new level, quite literally. The child who looks closely at things and takes note of them, is also the child who questions and wants answers. In my experience this capacity to learn isn't necessarily linked to a strong academic performance in the classroom. Much of my work involves working with 'difficult to settle' children who are frequently disruptive in a formal education setting but often possessed of a lively and enquiring mindset which makes them natural (if occasionally unpredictable) scientists. One of the joys of working outside the classroom and at one stage removed from the strictures of the national curriculum is that my sessions can go off piste if the students discover something that they really want to examine. Generally I am supportive of whatever they want to take a closer look at, although I have been known to draw the line at bogeys, largely because I have to clean the slides at the end of the session!

Pond dipping, always a favourite activity, takes on a new dimension when combined with a cavity slide and a microscope as seemingly inert drops of water are revealed to contain a seething mass of life and debris. There are obvious problems in trying to

keep some of the tiny pond creatures under the lens as they swim past at full speed (and in trying to encourage younger children with limited motor control to suck up a tiny drop of water in the pipette to deposit in the slide rather than an entire lake which gives the creatures a greater chance to swim away) but when it works the results are impressive.

'It looks like a monster. It's really scary. I like it!' Savannah, aged 8, on viewing a Cyclops in a drop of pond water.

Dead insects are an altogether easier proposition and I have become the type of woman who carries a small plastic box in her handbag or pocket at all times specifically for the purpose of scooping up



deceased invertebrates. I have been taking a close look at bees with students from a local primary school and my Nature Explorers club, and dead bumblebees are amazing viewing. The specimen that was beginning to decay and covered in fungal hyphae was particularly impressive as was the children's matter of fact acceptance that decay inevitably followed death.

'It's just so hairy.' Kirk aged 9

'I can see the pollen on its legs. Look is that the pollen?' Kyrie, aged 10

'Look, I can see white things. They look like fleas or something.' Tierone, aged 9

'The wing is so beautiful.' Theresa, aged 40+

The observations are not confined to the subject under the lens and because the microscopic world appeals to both imaginative dreamers and hard-

headed scientists, it can provide fascinating insights into differing learning styles. One of my favourite sessions to date involved collecting a range of plant material from the garden to examine different types of plant hairs. The students were working in pairs and Student A was in her element, looking down the eyepiece, checking the list of botanical terms in her hand and scribbling furiously on her observation sheet. Meanwhile, student B was largely engaged in stroking her sample of *Stachys byzantina* as though it was a small kitten. However, when she did look down the eyepiece her imagination was captured immediately 'It's like Sleeping Beauty's forest, all tangled and overgrown.' It wasn't the observation I was expecting to hear but it was a pretty accurate description nonetheless.

Obviously there have been some pitfalls and the microscopes have provided me with a steep learning curve in some respects. For instance, my bright idea that the students might find it interesting



to remove one of their own hairs to compare to the plant hairs they were examining triggered an OCD type reaction in one child who started pulling large clumps of her hair out and could only be stopped when her dedicated teaching assistant restrained her physically. Needless to say, I haven't repeated that exercise. There was also the day a rather large hog louse was sucked up in a pipette and deposited in a cavity slide. Every member of that particular Year 4 class now knows what a mangled hog louse looks like when captured in its last moments of life. 'Miss, it's stopped moving. Have I killed it? ...'

However, the sheer inventiveness of our best experiment makes these minor traumas pale into insignificance. We had been snail racing and one inspired child suggested that we should examine the slime trail of the fastest and slowest contestants

under the microscope to see whether there was any discernible difference. Much fun was had attempting to encourage our molluscs to crawl over a microscope slide and I can state with some authority that snails are more effectively bribed with rocket leaves than spinach. I have to admit that we didn't reach any definite conclusions in terms of distinguishing between the slime of fast and slow snails, but the children were thinking like scientists, observing closely and having fun. Job done from my perspective, and I hope that the RMS thinks so too.

Beth Barber

Beth Barber is the Education Officer at Brockwell Park Community Greenhouses, a community garden space devoted to 'growing through learning, learning through growing.' She works with all ages from pre-school to adult on a range of botanical, horticultural and environmental topics. She can be contacted on education@brockwellgreenhouses.org.uk. The views expressed in this piece are the author's own and do not necessarily reflect those of the Community Greenhouses.

The RMS subsidy scheme helped BPCG to purchase two microscopes in February 2012.

