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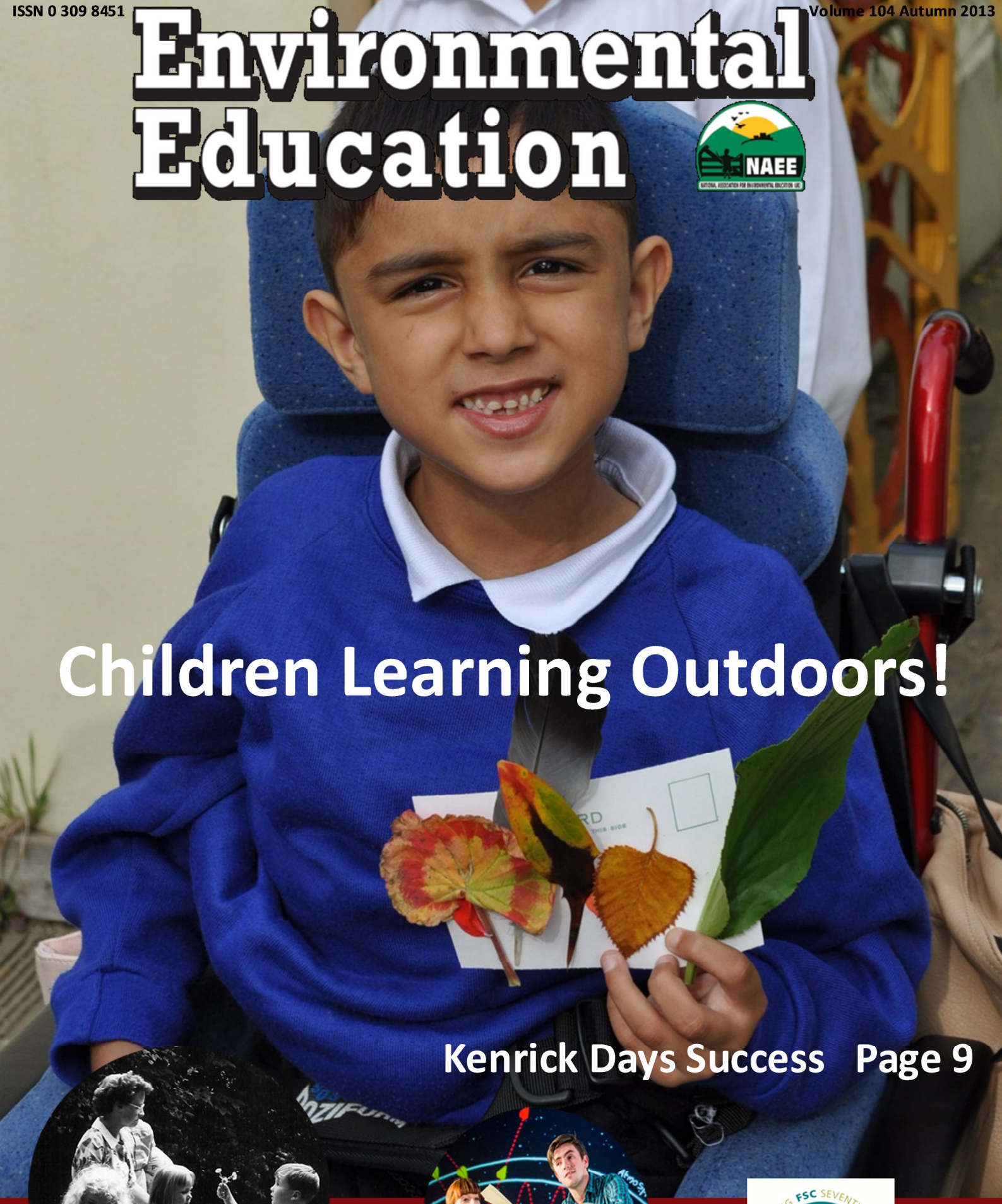
Environmental Education



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National Association for Environmental Education

The key network for all concerned about our relation with the natural and built environments; promoting sustainable education

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National Association for Environmental Education UK
Supporting education for sustainable development

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Environmental Education is the termly journal of the National Association for Environmental Education (UK) issued free to members.

Members are encouraged to submit articles, case studies and reviews. For details see the back page or contact *editor@naee.org.uk*

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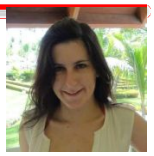
What it all means to me…



Zoe Midgley *new NAEE Executive Committee Member*

My interest in Environmental Education was only discovered fairly recently through study at college and university. However, my interest in the natural environment grew when I moved towns as a young girl. I spent the first five years of my life growing up in Tenbury Wells, a little market town in Worcestershire after which I moved to Halesowen, a town only a few miles south-west of Birmingham. Halesowen is considered an urban or suburban town however it borders on green-belt land so when I moved I was thrilled to have what some may call the best of both worlds. I spent many weekends wandering through the woods and climbing over Clent Hills with my family, loving the fresh air and enjoying the natural environment.

Being in the natural environment in a simple way like walking and exploring is something I don't feel children do enough of in today's society, predominantly due to the growth of technology. A quote that sums this up perfectly comes from the ecologist Tim Gill, who stated: *"children are disappearing from the outdoors at a rate that would make the top of any conservationist's list of endangered species if they were any other member of the animal kingdom"*. It is for this reason that getting children to play in their natural environment and understand its importance is something I feel strongly about.

The enthusiasm I have for getting children enjoying the outdoors and learning about the natural environment was increased when I spent one of my free afternoons in my last year of university going into a school and helping out with one of their Forest School sessions. This experience showed me how much children do love to get outdoors and build their own rope swings, dens, go on minibeast hunts and do other activities which get them interacting with and learning about nature. It was inspiring to watch them play like this and enjoy it, as for many it is not something they do at home due to busy parents being unable to supervise them, fear of safety or a lack of sufficient outdoor areas close to where they live. Not only do these outdoor learning experiences increase children's environmental awareness, it aids their intellectual, physical, social and emotional development both in and outside of school - studies have brought up concerns that these facets of development are suffering due to a lack of contact with nature.

My interest in the environment in an academic sense came when I dropped biology at college and picked up environmental studies instead; I found learning about the environment fascinating and this was something that I know I want to share when I qualify as a teacher. I developed this by writing my undergraduate dissertation on environmental education and found that there is not much of it in the curriculum, something that I feel should change. Not only do children benefit from learning in the environment, they benefit from learning about the environment too, as it helps to foster a passion for it as well as an understanding that it is important to preserve and conserve the nature on this planet for present and future generations. This is something that I hope to include in my teaching in order to make sure that children are equipped with the knowledge, and more importantly the enthusiasm, needed to continue protecting the environment.

Contact Zoe via *info@naee.org.uk*

From the Co-chairs

Anniversary celebrations and success mark this edition!

We say 'Happy Birthday' to the Kenrick Project – the project launched by NAEE just over a year ago, which is now drawing school children from their classrooms and into hands-on experiences with nature! Two examples – Slade Primary School's environmental education visit **(page 9)** and, the extension to this, St James School allotment success (**page 11**), show 'the seeds' of the project are bearing real – and we hope – long term fruit!

We recognize another milestone – the big '70 years' of the Field Studies Council, a group with similar goals that we are developing relations with. NAEE has just linked with the Real World Learning Network – and we investigate their *Lessons From Nature Project* (**page 13).** Wider still, we look at the Early Years **(page 23 and 25)** and Secondary Schools in Scotland (**page 20)**.

As the National Curriculum Review is still very much 'hot news', we asked for the views of both our NAEE President William Scott **(page 6)** and new Executive member Zoe Midgley **(page 4)**. They told us what environmental education means to each of them and what it would look like in an active classroom. Zoe has also undertaken research about how practising teachers perceive the concepts in their classrooms and how this affects their teaching.

We hope you are inspired by a packed journal!
As always, we value your input – get in touch via *info@naee.org.uk*

Nina Hatch

From the editor

Following *The Water Issue* special themed printed summer edition – we really appreciate all those who sent in positive comments we received for this – in this edition of *Environmental Education* we return to our usual, wide diet of examples of environmental and sustainability studies. Philip Sainty has decided to take a break – we thank him for producing such a quality publication. Moving from managing editor to editor, I aim to undertake the role to the best of my ability. In next year's editions, we aim to broaden still further and include more of the topics related to sustainable 'doorways' – the built environment, transport, food, energy as well as global issues. If you are involved with any of these areas, or wish to write generally for us, please see the back page or write to me!

editor@naee.org.uk

Whatever became of sustainability in the National Curriculum?

William Scott *NAEE President*

On 11 September, Michael Gove, the Secretary of State for Education, published the new National Curriculum Framework following what felt like endless public consultations. But what a tease Gove is. First he sets up an expert panel on the curriculum whose suggestion that one of the overarching aims of the curriculum should be *to promote understanding of sustainability in the stewardship of resources locally, nationally and globally* – only then to ignore this completely. Then he approves a draft national curriculum that seemed to cut down the focus on sustainability, environment, climate, or leave it to later key stages. Finally, he ignores his own advice to himself and produces a national curriculum proposal that is better than we feared, but not as good as we'd wanted. So, w*here* does that leave us?

Well, there is much in the primary curriculum that we'd see as good, basic environmental education underpinned by biological and geographical understanding, which encourages the extensive practical use of the local environment. For example, in science, this includes,

"Year 1 – Pupils should be taught to:

- *identify and name a variety of common wild and garden plants, including deciduous and evergreen trees*
- *identify and name a variety of common animals including fish, amphibians, reptiles, birds and mammals*
- *observe changes across the four seasons*

Year 2 – Pupils should be taught to:

- *identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other*
- *identify and name a variety of plants and animals in their habitats, including micro-habitats*

Year 4 – Pupils should be taught to:

- *explore and use classification keys to help group, identify and name a variety of living things in their local and wider environment*
- *recognise that environments can change and that this can sometimes pose dangers to living things*

Year 6 – Pupils should be taught to:

- *describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals and identify how animals and plants are adapted to suit their environment in different ways and that adaptation may lead to evolution."*

The non-statutory guidance goes much further in emphasizing how all this can be interpreted. For example, pupils should:

> *"…explore examples of human impact (both positive and negative) on environments such as the positive effects of nature reserves, ecologically planned parks, or garden ponds,*

and the negative effects of population and development, litter or deforestation."

All this science is complemented strongly by what is required in geography where …

> *"A high-quality geography education should inspire in pupils a curiosity and fascination about the world and its people that will remain with them for the rest of their lives. Teaching should equip pupils with knowledge about diverse places, people, resources and natural and human environments, together with a deep understanding of the Earth's key physical and human processes. As pupils progress, their growing knowledge about the world should help them to deepen their understanding of the interaction between physical and human processes, and of the formation and use of landscapes and environments. Geographical knowledge, understanding and skills provide the frameworks and approaches that explain how the Earth's features at different scales are shaped, interconnected and change over time."*

However, there is no mention in any of this of stewardship, climate change, sustainable development / sustainability, global warming (climate change) / greenhouse effect, or carbon (dioxide), though there is always scope for touching on any of these.

At secondary school, there is much more traditional subject emphasis within science, with biology losing much of its (primary) environmental emphasis, and physics and chemistry emerging strongly. These are all pretty disconnected, except that KS3 chemistry does say that pupils "*should be taught about: the production of carbon dioxide by human activity and the impact on climate*" which seems to open all sorts of doors.

In KS3 geography, we find: "*pupils should be taught to understand, through the use of detailed place-based exemplars at a variety of scales, the key processes in:*

- *physical geography relating to: geological timescales and plate tectonics; rocks, weathering and soils; weather and climate, including the change in climate from the Ice Age to the present; and glaciation, hydrology and coasts*
- *human geography relating to: population and urbanisation; international development; economic activity in the primary, secondary, tertiary and quaternary sectors; and the use of natural resources*

… and to understand how human and physical processes interact to influence, and change landscapes, environments and the climate; and how human activity relies on effective functioning of natural systems."

This suggests that a link might be made to (and with) KS3 science. I wonder how much that will happen. Again, this presents considerable opportunity, although there is still no mention of stewardship, sustainable development / sustainability, or global warming (climate change) / greenhouse effect.

This is how Jules Hayward summed up his reactions in a Summer blog:

> *"The environment still seems to suffer a net loss in this new curriculum and that's just not good enough. Why take the risk with the next generation? I'd argue that he needs*

> *to ensure that environmental stewardship be covered at just the age that the awe and wonder at nature kicks in, and that's in Key Stage 1, not secondary school."*

It's hard to disagree, and it is all a far cry from the vision of the Blair government which said this in 2004:

> *"Sustainable development will not just be a subject in the classroom: it will be in its bricks and mortar and the way the school uses and even generates its own power. Our students won't just be told about sustainable development, they will see and work within it: a living, learning place in which to explore what a sustainable lifestyle means."*

In one narrow sense, none of this matters very much. If a good school is convinced that a focus on sustainability (or anything else for that matter) is socially important, good for young people's learning, helpful in relation to their wider development (etc.), then it will pursue it either with vigour or more moderately, according to conviction and circumstance. Ironically, of course, it's doing this that help makes a school "good" in the first place. For these schools, who've probably read the DfE's own report on what a focus on sustainability contributes to learning, it won't matter what a national curriculum says, or doesn't say, what exam boards or standardised tests say is important, or what Ofsted says it wants to see, if a school thinks something is important, it will find a way of doing it. In this sense, we shall continue to see innovation and development in schools that take the environment and sustainability seriously. The more convinced of these will push the boundaries of what's possible and desirable, and it will be important to track these developments as they will offer a beacon to the benighted.

So, does this mean that it doesn't matter what the National Curriculum says? Of course not. In the wider sense, it matters very much. Deciding what to teach always implies choosing – but who is to choose, and how, and what is to guide choice, are universal and perennial questions. Curriculum is really concerned with how we think about the social purposes of education, and always, as Denis Lawton pointed out a long time ago, involves selecting from culture; hence it's political, contested and labile. In this sense, curriculum is a conceptual frame that guides (and restricts) school and teacher choice. To put this bluntly: if a national curriculum mentions climate change, then schools are more likely to teach about it than if it doesn't – unless they are those "convinced" schools mentioned above which will be doing it anyway. But for the others, what a national curriculum says matters as it provides permission for the uncertain, and an awakening for the unaware.

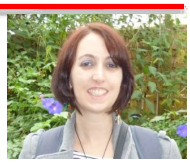
As it would seem that the uncertain and unaware are in the majority, this is a lost opportunity. What a good job NAEE is around to help as it is needed more than ever before, not just to help schools, but government as well so that it can get back in touch with the real world.

Contact *W.A.H.Scott@bath.ac.uk*

Further Reading *http://juleshoward.blogspot.co.uk/2013/07/goves-new-curriculum-more-goat-than.html*

https://www.gov.uk/government/organisations/department-for-education/series/national-curriculum

Kenrick Update



Juliette Green *NAEE Executive Member*

A very enthusiastic Year 4 class from Slade Primary School in Erdington visited the Birmingham Botanical Gardens on Wednesday 24th September, paid for by a Hugh Kenrick Days bursary. Here is their teacher's report:

The children's visit began with an informative class-based session where the children learned about the geography of the Caribbean in relation to the UK (linked to our class topic). They learned new scientific terms such as 'biodiversity', which the children have written definitions of for our classroom. We then went on a discovery trail around the tropical greenhouses and picked out plants found specifically in the Caribbean. The children were able to identify them and discuss and write interesting facts about each one.

"I didn't know bananas could be purple, red and green!" – Zach, 8.

This linked in perfectly with our topic, and upon our return to school we linked the information we'd collected on the trip with our continuing study of the Caribbean. The children were even able to share their knowledge with the Year 3 class, which gave them a sense of ownership that they had discovered the information for themselves.

During the afternoon session, the children were invited to go on a minibeast hunt in the woodlands. This slotted in perfectly with our science topic, 'Habitats'. The children had talked in class about what makes a good habitat, but nothing compared with the enthusiasm and excitement they showed when running through the woodland screaming "I found a centipede!!" and "Miss, Miss come and look at this spider, it's huge!". They were able to apply what they had learned back at school in science lessons, where they added the minibeasts they found to keys and food chains.

The final part of the day was spent taking part in a nature trail where the children learned about a variety of local plant life and created postcards using natural objects they had found. These postcards are now on display in the school and we have invited other classes and parents to come and look at the children's wonderful artwork.

The trip has altered many of the children's perceptions regarding the environment and their relation to it:

"I had to put the woodlice back in their home where I found them so I didn't hurt them." – Mackenzie, aged 8.

"It feels like I'm in a different country!" – Emira (after we'd walked around the tropical greenhouses).

"I tried to find the minibeasts around school today Miss, I knew what they looked like and where they were because of what Juliette showed us." – Haseeb, aged 9.

The knowledge the children gained has fed into other areas. Our school theme for the term is 'Collaboration and Communication' and the class learned how important this was when working together to explore the local environment, and they were proud to tell each other what they'd discovered. It was wonderful to see. On behalf of myself and the school, I'd like to extend our thanks for providing an informative, fun and eye-opening experience for the children of Slade.

Hannah Neill
Year 4 teacher, Slade Primary School

Earlier in the Autumn Term, pupils from Year 1 and Year 2 of St James Catholic Primary School in Rednal visited Mount Pleasant Farm, where they learned about food and farming. This linked in perfectly with their new allotment space, which had benefitted from a gift of tools and seeds donated by friends of Mrs Anne Kenrick at her 90th birthday celebration (see page 11 and EE103).

In November, Year 5 pupils from Hawkesley Primary School will be visiting the Birmingham Botanical Gardens to study rainforest ecosystems and UK habitats. They will be looking in particular at habitat loss and the impact on declining numbers of animals both in the rainforest and here in the UK, and what we can do to help conserve habitats and species (including making bird feeders from plastic bottles!).

Thanks to the vision and benevolence of Anne Kenrick – a Vice-President of NAEE – and her late husband Hugh, who had a great passion for birds and wildlife, Birmingham schools can apply for a bursary to pay for them to visit an outdoor environmental education centre.

More Information Hugh Kenrick Days are administered by NAEE. To apply for a bursary, or for more information, please contact *info@naee.org.uk*

St. James' Catholic Primary School Allotment Project Summer 2013

Lindsey Hall *Key Stage 1 Phase Leader*

St. James' Catholic Primary School in Rednal, Birmingham has a tiny area of land just outside the Year 2 classroom, which for years has mainly been neglected. Some attempts had been made to grow vegetables and other plants on this small patch of land, but the hard clay soil, made it extremely difficult to manage.

This year we decided, with some determination, to combat this problem and set up an allotment space for our Year 1 and Year 2 children. The main aims of the project were to increase children's knowledge and understanding of where fruit and vegetables come from, to observe the growth process and to begin to understand the roles of the different parts of a plant. Other integral aims were to boost children's self-esteem, encourage team work and communication skills, develop a respect for the environment and a responsibility for the plants in their care.

Mrs Darby, one of our invaluable Key Stage 1 Teaching Assistants, led the project with six Key Stage 1 children. With the help of one of our grandparents, Keith Rowbottom, the once neglected space has been transformed into an amazing working allotment.

The area outside our Year 2 classroom - Keith, one of our granddads, spent a considerable amount of time weeding and smartening the land. After this he began erecting trellising.

After several attempts at digging the soil, we decided that planters would be far easier to grow the vegetables in. Keith spent several days making boxes and trellising. He also slabbed and edged the area to enable the children to have easy access.

When the initial hard work was completed the children began planting the seeds. These included: rocket, lettuce, strawberries, turnips, carrots, potatoes, tomatoes, sweet peas and broad beans.

The children have looked after the garden by watering and weeding and many more children have been involved as the project has developed. They have kept a journal of the growing process, regularly measuring the plants growth and creating labelled drawings. The children have carried out computer research about the different types of vegetables and how we can link these to a healthy lifestyle.

More and more children have become involved in the project. Some of our gifted and talented artists in Year 2 used their painting skills to decorate our planters.

Our first vegetables – lettuces and radishes – were harvested at the beginning of July and the turnips followed some time later. All our produce has ended up in the school salad bar to be enjoyed by everyone.

A proud moment for us all. Our first harvest of lettuces and radishes.

Although still very much in its infancy, both staff and children have been inspired. Our Head Teacher, Mrs. Backen, has been so impressed that she would like the allotment area to be expanded in order for more children to become involved. Plans are already in place for the area outside our Year 1 classroom to be developed.

We would like to express our sincere thanks to the kind donation of Mrs Anne Kenrick's birthday gifts. The several packets of seeds and the many tools provided certainly helped to kick start our wonderful new project.

Lessons from Nature

Richard Dawson *Field Studies Council, UK;* **Kamen Chipev** *TIME Foundation, Bulgaria;*
Steve Bunce *Field Studies Council, UK*

The way *Lessons from Nature* (LfN) works is simple, we want young people to be inspired and excited about their future, the possibilities it holds and the role they will play in it. We believe the future can and should be bright for all young people. This does not mean the future will be the same as today; change is the only constant. Communities will need to learn how to redesign themselves to combat some serious environmental and social issues; and business will need to learn how to develop economics in a natural resource constrained world. LfN provides the tools for a hopeful future.

LfN asks what sort of future young people would like to live in and how this preferred future can be made reality. It challenges traditional assumptions about how things are made, economies managed and lives lived. The project is not about individuals feeling guilty or doing less harm and delaying a point of crisis; instead it is about re-thinking the future. It attempts to present a more hopeful and realistic way for young people to achieve the sort of future they want. After all it will be their future.

LfN presents opportunities to learn through first-hand experience, helping to inspire discovery and foster real understanding in relation to insights from nature that can be applied to the modern world. In undertaking the LfN activities, young people will develop a wide range of competencies for the jobs of the future. These include creativity, critical thinking, evaluation and reflection, sharing and entrepreneurship.

To do this we follow four steps: inspiring the learner, helping them discover how nature works, understanding how nature's principles can be applied to human systems, and finally applying these new insights to their own lives.

LfN starts with young people. It does not tell young people what they can or cannot do, rather it asks what are your dreams, how can we get you there? LfN connects with individuals' and communities' real needs, desires and dreams. LfN does this through reconnecting with the natural world, however not in a way that is separate from people's real world concerns of jobs, housing and health care.....day trips to the woods are great but seldom is it asked what relevance the woods have to our daily lives in anything other than a superficial way.

LfN asks what the woods/nature can teach us about health care, running economies on limited resources, providing homes that self cool and heat. Because nature does all these things far better, far more effectively and far more beautifully than humans do.

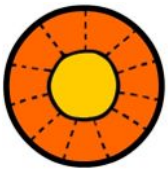
What are the LfN principles?

We have identified six principles from nature to mentor and measure how we redesign human systems. They are not the only natural principles, however, they do provide a foundation to understand the circular thinking needed.

The first three principles form the foundation. These three work synergistically. The second three principles add increased benefits so long as the first three are implemented.

Waste equals Food: In nature everything is cycled so what looks like waste is actually food for the next cycle. For example, dead tree leaves decompose to become food for insects. This insight can be applied to turn current linear human production systems into closed loop systems in which waste is eliminated.

Multiple Benefits: In nature organisms have multiple benefits; they do not simply have one purpose. The goal of a tree is to reproduce to provide the next generation and in doing so it also provides food for insects, shelter for animals, nutrients for the soil from their decomposing leaves, turns carbon dioxide into oxygen, and helps to regulate temperature and rainfall.



Run on Solar Income: Nature runs on renewable energy, it does not use more energy than it can produce itself. Nature does not create energy sources that pollute the atmosphere, and designs its processes to work efficiently.

Diversity gives Strength: Nature relies on a large variety of species, systems and organisms that allow it to withstand external shocks. Diversification effectively reduces risk.

Nature Optimises: Nature accepts limits but is not restrained by them. Nature finds creative solutions to provide multiple services without damaging its own services. Nature lives off its interest, not its capital.

Nature is Adaptive, Dynamic and Responsive: Nature never stays the same, it is constantly changing and adapting, responding to feedback. What worked in the past might not work in the future.

Framing the Message

LfN is about supporting young people to critically think about their future. The content and the process of the modules is a means to achieve this. It is recognised that most teachers and

learners will have to work within the limits of educational systems but, in so far as possible, we hope LfN will:

- be about young people and their desires, not a top down curriculum designed by adults to meet their needs, or what they think young people need.
- be young person centred, not teacher, school or adult centred.
- be about finding better ways to view the future of young people, rather than predicting the future.
- focus on process rather than answers.
- prepare young people for their future. The 'doing' is a reflective process rather than something practical.
- transcend current views/thinking rather than being progressive.

Lessons from Nature in Practise

LfN is not a theory, some of the world's biggest companies and some countries are starting to put these principles into practise. They are realising that in a resources constrained world we cannot continue with an industrial model of take – make – dump.

The LfN modules contain lots of examples, a simple illustration is coffee. Now, as I write this I am drinking my favourite cup of coffee. Think for a few minutes and we'll see that my cup of coffee has very few benefits. Sure, it is a nice drink for me but what about all the waste produced in processing the coffee? In fact only 0.2% of the coffee tree reaches my cup. Scandalously inefficient I hear you say. Surely we can do better, yes we can.

The 99.8% that is traditionally seen as waste can be used. The coffee pulp can be used as a low grade fertilizer or used as a substrate to grow mushrooms. It can be fed to animals which themselves produce very high grade fertilizer. You can even add the coffee plant cuttings into a bio-digester to produce bio-gas. So, what looks like a single use product can be a multiple benefit for the farmer. The next time coffee prices fall, the farmer has several sources of alternative income and can provide all his/her cooking gas for free. A great economic and ecological model.

Figure 6: LfN and the Story of Coffee

The LfN Modules

The project is aimed at learners aged 12-16. The learning supports a range of subjects including:

- science
- geography
- design technology
- business studies

The modules aim to inspire young people and provide learning that will equip them with the skills, knowledge and understanding for jobs in the future. They promote learning that contrasts significantly with traditional ESD 'do less harm' approaches (a world with fewer toxins and less useless waste still has problems, and reducing economic activity is unlikely to bring prosperity).

Discovery learning, activity based learning and Learning Outside the Classroom are utilised to stimulate a desire for understanding.

A total of 18 learning modules have been developed; three each adapted to education systems in the UK, Bulgaria, Latvia, Romania, Spain and the Netherlands. Each module includes activities that deliver the learning model: inspire – discover – understand – apply.

In theory, learners can progress through the modules without the need for teacher support. The principal benefit of this is that learners are not dependent upon the prior knowledge of teachers. There is no need for teachers to fear that they don't have enough knowledge of some of the areas of learning that may be unfamiliar to them.

Having said that, good teachers can make a significant difference to the progress that pupils can make in their progression through learning through the LfN activities. Good teachers will be able to:

- Ensure that the learning locations are safe and appropriate (school grounds, parks, woodlands and other places).
- Ensure that the resource materials (clearly identified in the modules) are made ready in advance of the learning.
- Guide learners to modules that might best fit their needs.
- Support less able learners.
- Encourage wider and deeper critical and creative thinking in more able learners.
- Apply insights from nature to planning of their own futures and in the planning for the school.
- Share insights from nature and promote the programme to others.
- Adapt modules to specific needs.
- Develop new modules to add to those already on the website.
- Share good practice.

The most essential role of class teachers in the project is to facilitate learning.

Assessment

Assessment is part of the LfN learning process, not an additional activity that appears at the end of the modules. Assessment is integrated into the modules because it is important that learners assess and reflect on their own learning as a critical part of the LfN process.

LfN is not about traditional school knowledge, and as such traditional assessment approaches are not always valid. LfN is a learning process in which students are aware of and reflecting on the meaning of their learning (What have I done? What does it mean for me? etc). Reflection fits into Kolb's learning cycle on which the modules are based and it supports and adds value to the activities in each module.

At the end of each section there is a reflection task. Learners are asked to add notes to the reflection sheet including how the learning could impact their future.

In addition to reflecting on their own learning and how it has progressed through taking part in the modules, learners will also assess competency and whether the modules have challenged and influenced their view of their future.

Assessing competencies – learning wall

In a rapidly changing world learners must be able to research, debate, evaluate and judge for themselves the relative merits of contesting positions. A learning wall has been developed to cover the following competencies:

- Critical thinking
- Evaluation and reflection
- Creativity
- Discovery
- Sharing

To be able to see progress throughout the learning journey learners should identify where they are on the learning wall before beginning the activities. Learners should chart their progress on the learning wall at the end of each section. The learning wall is a form of ipsative assessment where a learner is assessed against their own previous standards. It can measure how well a particular task has been undertaken. This type of assessment can enhance motivation to learn.

Find Out More
Lessons from Nature is an ongoing programme. Change is the only constant and we have only just begun. We would like to hear from you.

Contact *richard@field-studies-council.org* | **More Information** *www.lessonsfromnature.org*

70 years young!

Cathy Preston *Charitable Development Officer*

On 10th December 1943, the inaugural meeting of the Council for the Promotion of Field Studies (now the Field Studies Council, FSC) was held at the Natural History Museum in London.

In April 2013, almost 70 years later, a group of young naturalists visited the Museum for a 'behind the scenes' tour as part of the FSC's Young Darwin Scholarship programme. As the Young Darwin Scholars were taking an enthusiastic interest in the collections that they were being shown and as they listened intently to talks from staff one could almost feel the gentle nod of approval from the 35 individuals who met on that December day in 1943.

While many field centres and even some charities have struggled, FSC has stayed true to the core values set out in 1943. Like any successful species it has adapted in order to survive and expand in changing economic, educational and environmental conditions. The 70th Anniversary gives us a chance to reflect on our history but also to look forward – a time to celebrate.

In 1943, Francis Butler, one of FSC's founders, setting out his vision for the Council for the Protection of Field Studies, wrote "*Children are keen on studying living plants and animals in their natural environment and it is coming to be realised among educationalists that this aspect of the subject needs to be encouraged".* FSC's network of 17 field centres throughout the UK is testament to our ability to adapt and follow Francis Butler's vision. Each year over 140,000 people of all ages, from primary school children through to retired adults, experience FSC on courses for schools, universities and individuals at our centres. We also seek new partnerships and develop creative ways of working to widen our opportunities to inspire environmental understanding through first-hand experience. Recent developments include our Olympic fieldwork and delivering education in three of London's Royal Parks, and our new education provision in Belfast's Titanic Quarter.

In addition to providing inspirational outdoor experiences, FSC is also a vocal champion and advocate for outdoor education and fieldwork. Our current area of activities includes submitting evidence and taking part in consultations relating to curriculum and education changes. To help provide evidence to support our campaigning and lobbying we are trying to quantify the number of people who support the values and work of FSC.

Contact *cathy@field-studies-council.org* | **More information** *www.field-studies-council.org/support*

Sun-viewing Project in April and May 2013

The Infinite Astronomical Society of Pakistan | *Edited By* **Alona Sheridan**

Introduction
The Infinite Astronomical Society of Pakistan is a sister organisation of the Nature Club of Pakistan and works to motivate young people to explore knowledge through studying astronomy. This year we offered three very successful programmes.

The Earth is round ….
In this programme students were given the task to prove that the Earth is round. Students proved this theory through hands-on experiments. This programme received good feedback from other astronomical societies in the USA and the UK.

Relationship between altitude, Sun and energy on Earth
In this programme, students established a relationship between the altitude of the Sun and energy received in terms of the temperature on Earth.

Sessions took place on 22nd May at Beaconhouse School, Peshawar Road, Rawalpindi. 97 students from this institution took part.

Observe and describe the Sun
This programme was designed to introduce the Sun as the most important star in our Solar System and involved 195 students from the Beaconhouse schools in Lahore and Rawalpindi, with boys and girls participating on equal terms. The session began with a welcome address from the representative of the Infinite Astronomical Society. Then, using multi-media, the students took a tour of our Solar System where they observed and viewed the movements of planets rotating on their orbits and axes. Information was given regarding each planet's mass, volume, temperature and distance from Earth. The students enjoyed these visuals. After the multimedia session, students viewed the sun with special sun-viewing glasses.

They were delighted to see sun spots as it was the first time they had been able to see these. The students who took part expressed a wish to continue further activities to develop their astronomical knowledge and signed up for more sessions. Full reports of these projects can be obtained by contacting the office of the Infinite Astronomical Society of Pakistan.

With thanks to the Beaconhouse Schools in Lahore and Rawalpindi from The Infinite Astronomical Society of Pakistan. **Contact** *natureclubpakistan@ymail.com*

We've only just begun….

Dr Beth Christie *Research and Teaching Fellow*, **Dr Simon Beames** *Lecturer* and **Dr Robbie Nicol** *Senior Lecturer*

Background

Secondary schools are unique; they are governed by timetables, divided by disciplines and a typical school day is segmented into short periods of time. At first glance, these characteristics do not appear to lend themselves to educational journeys outside of the classroom. However, outdoor learning does not have to involve full day trips to remote places, it need not be costly and it does not require specialist staff or equipment. *Outdoor Journeys* is one example of an effective pedagogical approach to outdoor learning that is meaningful, low-cost and which can be delivered in school grounds or in the wider community.

In 2011 we received a 24-month grant from the Esmee Fairbairn Foundation to investigate the quality and availability of outdoor learning in schools in Scotland and consider ways to help and support teachers to develop their practice. We approached this in two ways: first an audit year to assess the frequency and nature of outdoor learning provision; and second a developmental phase to consider the practical issues involved in developing outdoor learning -- specifically the *Outdoor Journeys* programme – in the secondary sector. This enquiry was timely as no such data had been gathered since Higgins, Nicol and Ross's study in 2006[1], and little was known about how the policy document *Curriculum for Excellence through Outdoor Learning* and associated Education Scotland support had influenced outdoor learning provision.

[1] *Higgins, P.,Nicol, R. and Ross, H. (2006) Teachers' approaches and attitudes to engaging with the natural heritage through the curriculum. Perth: Scottish Natural Heritage.*

Furthermore, there is limited research and development work on outdoor learning within secondary schools.

Frequency and nature of outdoor learning provision
In the first year we examined the frequency and nature of outdoor learning provision in Scottish schools, with specific attention paid to teachers' approaches to learning outdoors, and consideration given to further support and practical training teachers needed to develop their practice. Questionnaires were administered to primary and secondary schools across four local authority areas: Angus, Edinburgh, Highland (sub-region: Inverness, Nairn, Badenoch and Strathspey) and West Dunbartonshire.

The results[2] indicated that secondary schools were keen to develop outdoor learning provision, but they needed support to do so. Also, there was an increased use of school grounds as a context for learning within the primary school sector. In general, there appeared to be a development in terms of secondary teachers' understanding and acceptance of outdoor learning as a legitimate pedagogy. Notwithstanding these issues of acceptance and legitimacy, there remain issues around the practical implementation of teaching and learning outdoors in Scotland.

To address this we took an existing outdoor learning programme – *Outdoor Journeys* – which was developed for use in primary schools and trialled it within secondary schools…

What it is *Outdoor Journeys* is a school-based teaching approach that enables pupils to learn about the people and place in which they live. It encourages pupils to generate and answer questions about the socio-cultural and ecological 'story' of their local landscape. By allowing pupils to plan and undertake local journeys in their community they are able to learn across the curriculum in a manner that is active, holistic and contextualised. This integrated approach encourages regular, low-cost, meaningful, cross-curricular outdoor learning within the constraints of conventional secondary schooling. No expert staff, specialist equipment or transport is required which addresses some of the concerns and barriers raised during the research conducted in year one of this project.

What we did Our inquiry involved working with various high school classes within S1-S3 (12-15 year olds) in three secondary schools in one Local Authority area in Scotland – Perth and Kinross. Specifically, we worked with the geography department in Breadlabane Community High School and the maths departments in Perth Academy and the Community School of Auchterarder. Data collection included participant observation, short questionnaires, and interviews with approximately 150 students and 10 teachers. In most cases, pupils reported enjoying the opportunity to guide their own learning and to develop dispositions for good thinking.

[2] *Christie, B.,Beames, S., Higgins, P., Nicol, R. & Ross, H. (in review) Outdoor Learning Provision in Scottish Schools Scottish Educational Review.*

What we found out The data fell into two categories. First, practical issues arose which were related to the development and implementation of the *Outdoor Journeys* programme. For instance, teachers requested further support to develop outdoor learning and concrete examples of successful approaches within a range of subject areas. This was addressed in the short-term by three outputs, which included a guidance booklet, continuing professional development (CPD) sessions for teachers, and the development of the *Outdoor Journeys* website to include a variety of subject-specific case studies. Second, theoretical and conceptual issues arose which related to understanding what was happening for the individual pupils involved in the programme. Three key themes emerged – culture, context and relationships – and represented the various aspects of school, family and community life, the relationships that exist between and within these contexts, and which exert an influence upon pupils' experiences. These related themes provide interesting areas for future research, as they demand a much closer examination of this complex interplay between the three themes.

Development of critical thinking In terms of key findings in relation to the immediate effect of the *Outdoor Journeys* programme, the teachers noted two things: first, they identified that it offered opportunities for students to develop critical thinking skills at both a subject specific and more generic level; and second, they acknowledged that such skills are often overlooked within the first three years of secondary school, and then rather suddenly expected at higher levels. Both the pupils and the teachers identified that the *Outdoor Journeys* provided an opportunity to deeply engage with a topic. For example, the pupils enjoyed being able to create a question to investigate and the opportunity that process affords for self-directed learning and increased engagement. The teachers, on the other hand, were impressed that pupils appeared to develop their questioning and thinking skills as they investigated, critiqued and presented the knowledge gained to their peers. The teachers felt that these critical thinking skills were not exercised regularly during the first few years of secondary school and they identified *Outdoor Journeys*, and outdoor learning more generally, as a way of developing these important life skills.

Contact ***beth.christie@ed.ac.uk*** **/ More Information** ***www.outdoorjourneys.org.uk***

Learning for sustainability and the reality of frontline practice

Juliet Robertson Educational Consultant

If you ask teachers why they entered the profession, many will respond that they want to make a difference to children's lives. Our work with children and young people affects their future. What is taught, where and how, influences their perceptions of the world and the society in which we live. Therefore we are in a position to support and provide a way of learning and teaching which can set the scene for ways of living more lightly on this planet, now and in the future.

The General Teaching Council for Scotland (GTCS) is the professional body which regulates the teaching profession north of the border. In August the revised Professional Standards came into effect. Every practitioner, school and education leader now has to demonstrate learning for sustainability in their practice, actively embracing and promoting principles and practices of sustainability in all aspects of their work.

Learning for Sustainability is more than a fancy title for sustainable development education. Global citizenship and outdoor learning are considered core components of the approach. Sustainable development education cannot happen unless children "think global and act local" by learning in, through and about the world outside the classroom.

When it comes to thinking more deeply about practice, teachers appreciate straightforward, doable suggestions as a route into reflecting on practice. Scottish teachers can gain professional recognition for both sustainable development and outdoor learning through small scale action research projects and demonstrating leadership in these areas.

According to Chawla and Cushing (2007), spending frequent amounts of time outside, especially in nature, may be an important pre-requisite to children's and young people's understanding and ability to take positive pro-environmental actions in to adulthood. So schools can look at positive ways of making this happen.

David Sobel (2008) has also provided an argument for the need for children to have free play experiences in nature. He suggests that talking to trees, climbing them and hiding in them precedes saving trees and an understanding of why trees matter. Enabling children to have daily time for free play outdoors all year round is one way schools can support this. Naturalising the school grounds will make a difference here too. Simple low cost measures such as allowing

some of the grass to grow long and creating log piles are ways of making grounds more nature-friendly.

Adults can act as role models for children. Teachers can express their curiosity, awe and wonder about the natural world. They may be the only "environmental" mentors in a child's life, which Chawla (2006) suggests makes a positive difference. They can use a sustainable thinking framework as a decision-making process, where the impact of any proposed action is considered in terms of the future, the effect on the land and other species, the needs of people and our rights and responsibilities.

In Scotland, I believe the need for environmental education remains. It may be more of an underpinning approach than a specific set of subjects. As Nicol et al. (2007) point out, "*Simply 'being outdoors' is not sufficient for young people to express an ethic of care for nature or develop an understanding of natural processes. These things seem to be learned when they are an explicit aim of experiential activities and when they are mediated in appropriate ways*" (key finding 14).

Finally, in little and large ways we can undertake acts of stewardship and care. This might be as simple as always picking up litter when working outside. Indeed approaches such as asking children to "find something interesting" as a starting activity within a lesson often yield a good collection of finds. Embedding maintenance and stewardship tasks into the life of a class and the learning that ensues helps everyone understand our collective responsibilities towards looking after places as well as people.

Chawla, L. (2006). *Learning to love the natural world enough to protect it* in Barn, 2, 57–58. norsk senter for barnefor- skning. Barn is a quarterly published by the Norwegian Centre for Child research at the Norwegian University of Science and Technology, Trondheim, Norway.

Chawla, L. and Cushing, F. D. (2007). *Education for strategic environmental behavior, Environmental Education Research*, 13(4), 437–452.

Nicol, R., Higgins, P., Ross, H. and Mannion, G. (2007). *Outdoor Education in Scotland: a Summary of Recent Research*. (Key Finding 14) Inverness: Scottish Natural Heritage

Sobel, D. (2008). *Childhood and Nature: Design Principles for Education* (p. 20). Portland: Stenhouse Publishers.

Juliet Robertson's new book **Dirty Teaching – An Introduction to Learning Outdoors**, to be published on 30th January 2014, will be reviewed in the next edition.

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Reflections on starting environmental education whilst valuing history

Kathryn Solly *Former Headteacher and now Specialist Early Years Consultant*

Having trained as a teacher in Environmental Education I then worked across all phases of education. I spent two years working abroad in Papua New Guinea on Voluntary Service Overseas and a month in Albania supporting a kindergarten. However, it was as the Headteacher of Chelsea Open Air Nursery School and Children's Centre (COA) for nearly 17 years that my passion, knowledge and skills were able to flourish and cascade as to real environmental education at the grass roots.

Chelsea Open Air is a small maintained nursery school with 60 pupils and an attached children's centre. It is very diverse and inclusive, being in a very cosmopolitan part of central London. The centre was started in the 1920s by an American benefactress, Natalie Davies, who brought in the expertise of Dr. Susan Isaacs who was working at the Institute for Child Development (now the Institute of Education). Isaacs constructed a child-centred curriculum where play was the *"work of children"* which is still in use today. Adults support children co-constructing their own learning whilst the adults try to gain an insight into children's learning via sustained shared thinking, listening, taking part, showing respect, collaborating, conversation, and ensuring safety and security. The children are allowed to take risks and learn through challenges, discovery and trial and error. Hence a great deal happens outdoors in all weathers.

The other crucial element of Isaacs's work which is still valued today is the importance of holistic observation, allowing practitioners to observe children's real interests, interpret behaviours and understand children's needs more accurately. Isaacs vividly observed children behaving naturally, displaying positive and negative behaviours, strengths and weaknesses as well as social behaviours such as co-operation, friendship, aggression and guilt. She showed us how their emotional life shapes their intellectual development in a variety of environments.

The rich and varied environment indoors and out
Isaacs was influential in creating a learning environment indoors and out, which encouraged self-initiated play and activity as central to child development. She stressed the connectedness they feel to their local community and to the world around them. At COA, our children demonstrate great confidence in independence, creativity, exploration, inventiveness and curiosity as recognised by Ofsted in three glowing outstanding inspection reports over the last 10 years.

Children at COA are given great freedom of choice e.g. taking their shoes off outside in warmer weather, stimulating activities such as gardening, woodwork, pulleys, the use of the fire bowl for bonfires and visits by a mobile farm, rich learning opportunities all year round. The children's environmental learning includes:

- Being aware that water has to be conserved and using the water butts and watering cans to nurture the precious seedlings they grow.
- When clearing plants as they die down they compost them and help to dig this compost back in later in the year.
- They make bird cakes using junk containers.
- They cook and use the vegetables and herbs they harvest.
- They observe the numerous minibeasts which frequent the wildflower meadow that they established.
- Individual interests can lead to new learning such as finding conkers and then discovering many nuts and seeds; finding a bone leading to an interest in the many skeletons in the Natural History Museum.

The learning journey – starting with the child
Isaacs stressed that *"Children's most urgent need is freedom to grow and think".* She supported their unique interests and extended their learning in creative ways. This still goes on today! For example, she wrote about a group watching snail trails and how she drew a spiral on the blackboard after they noticed the shape of the shell. She then drew the spiral on the floor for them to walk on. This re-occurred last autumn on a frosty morning when COA children noticed snail trails all over the garden.

Through her studies, Isaacs came to see that although children need freedom to develop, they also need structure and some restraints, otherwise rivalry and aggression inhibit learning. She saw the role of the nursery school as critical in providing play.

The community and world outside the school
The world outside the school or, as we came to call it at COA – the 'third classroom', was another rich learning environment for Isaacs who took the children on what she termed *"excursions",* which

were an expanding range of visits *"taken at all seasons of the year."* These included sailing boats, paddling, shopping, picnics, watching building workers and the railway, going to the post office, the bank and fire station, as well as to churches, cathedrals and museums. It is fascinating to see how many of these activities which we call *"expeditions"* are still carried out today!

The COA rationale for the children's environmental education is based on several beliefs:

- Children must develop a sense of respect and caring for the natural environment and the world/community around them during their first few years of life or they risk never developing such attitudes.
- Children's positive interactions with the natural environment are an important part of healthy child development. Children who are close to nature tend to relate to it as a source of wonder, joy and awe. Nature-related experiences tend to foster a child's emerging sense of wonder – referred to by Plato as the source of knowledge and by Cobb (1977) as our source of imagination.

The Importance of Adventure, Risk and Challenge

Isaacs records many exciting resources and activities children explored. These included Bunsen burners, digging up a dead pet rabbit and others, which are too hazardous by today's standards. However, what she advocated was giving children reasonable control and responsibility for their learning. This concept was reintroduced by Carol Dweck *(2000)* as the concept of *"mastery"* by using an *"I can do it"* approach as an essential key to learning.

This can be supported by giving children *"Can u?"* challenges, for example whether to save water in the paddling pool after use for flowers rather than wasting it, or sharing out bean seeds so everyone in the group has the same number. Another challenge is being an explorer with a jacket equipped with magnifier, notepad, pencil collection pot etc. For another child a challenge may be going out (suitably equipped) in rain or for another who always travels in a car or buggy, going on a bus for the first time.

There is enormous value in using many recycled loose parts and natural materials such as pebbles, shells, cones, sticks, wooden blocks, crates, piping, gutters, tyres, cable drums, clothes horses and a variety of fabric covers and mats. They encourage open-ended highly engaging interactions which lead to active learning, practical problem solving and exciting creative pursuits whilst transforming children's learning options. Children do not realise they are learning and develop greater persistence and resilience. Natural spaces and materials stimulate children's limitless imaginations and serve as a central core for inventiveness with endless opportunities. Time with nature also helps children notice patterns in places such as petals, leaves, bark and seeds as well as the passing of the seasons. Pattern is an early mathematical skill too.

My preferred view is that giving all our children genuine environmental experience of adventure, risk and real challenge is to the benefit of society. This means that schools and settings should carry out their own risk benefit assessments based upon their values, training, understanding and commitments. Too often the media-enhanced negatives of such exciting experiences as water, fire, snow, animals, plants, earth and external visits are inhibitory to good pedagogy and practice.

Risk and challenge in the early years are not new concepts. As long ago as 1914 Margaret McMillan stated *"Children want space at all ages, but from the ages of 1-7, space, that is ample space, is almost as much wanted as food and air. To move, to run, to find things out by new movement, to feel one's life in every limb, that is the life of early childhood."* She went on to describe her ideal outside play area which includes features which would probably lead to grazed knees as: *"A little children's garden must offer every kind of inducement to muscular play and action. It must be planned with an eye to real safety whilst encouraging children to play bravely and adventurously. Rough stones, narrow curved paths, jumping off places and a grassy stretch to lie on."* This quotation was formative in re-designing the garden at COA which included the following zones and more:

- Environmental zone with pond, bird table, compost maker, vegetable garden and wild garden.
- Physical zone with steps, poles, rope ladders, slide and lots of under/over opportunities, for climbing, balancing, swinging etc.
- Sand and water zones with sand pit and an area which could be filled to create a paddling pool.
- Mud kitchen.
- Imaginative zone with an amphitheatre, water fountain, mini caves and digging area.

It is not only about outside but also the indoor provision within the Enabling Environments of the Early Years Foundation Stage so that young children learn to use real objects and tools for real purpose. Thus they develop genuine skills and competencies, helping to reduce the hazards as Montessori (1909) showed in her use of real china during mealtimes, and knives to cut up fruit, use of needles for sewing and carpentry tools. Environmental education for the early years focuses primarily on young children exploring and enjoying the world of nature under the guidance and with the companionship of caring adults

More Information www.chelseaopenairnursery.co.uk | www.communityplaythings.co.uk | www.cosydirect.com | www.earlyexcellence.com

What 'environmental education' means to teachers….

Zoe Midgley *new NAEE Executive Committee*

For my undergraduate dissertation, I conducted a research study exploring teachers' perspectives on the concept of 'environmental education' (EE) and its inclusion in the primary curriculum. Prior to the research itself, I wrote a literature review to acknowledge existing literature that addresses issues surrounding environmental education and education for sustainable development and reviews existing research on the possible barriers there are to further inclusion of EE within the curriculum.

From the review of the literature, it was clear that the research into this area is predominantly focused on policy and curriculum analysis and theorising how best to deliver EE within the curriculum. There was not much research on primary teachers' perspectives on EE and its inclusion in teaching. As teachers usually hold the responsibility for the delivery of education, it should follow that teachers have some input into curriculum change and development. The lack of involvement could be problematic as researchers such as Leithwood in Ben-Peretz (1980) and Cotton (2006) conclude that in order for curriculum changes to be successfully implemented, the teacher needs to believe the changes are desirable and necessary. One way to do this is to increase involvement; researcher and practitioner need to collaborate on the development with equal input. It is this gap in research and development that this research hopes to address.

For the research, semi-structured interviews were used in order to explore individual teachers' views on EE in the primary curriculum from a number of different angles, looking particularly at understanding of what it is, their views on its importance and any barriers they experience to delivering it in their classroom but with scope to discuss it more broadly in relation to other opinions and experiences they may have had. Four interviews with teachers were conducted as well as an interview with an expert currently working in the field of environmental education. The purpose of the interview with the expert was to provide an up to date viewpoint on the situation.

The study found that environmental education in the primary curriculum is problematic from the perspectives of teachers for a number of reasons. The study did highlight that the teachers believed it to be important, however, there was some uncertainty over what environmental education is and how it can be implemented. This was expected to some extent as the literature did propose that they were complex concepts. The uncertainty and range of definitions that were given may also reflect the lack of policy guidance within the area and particularly within teacher training and school policies. Furthermore, the teachers highlighted that the current pressure of meeting the statutory curriculum demands as well as meeting a number of specific targets means there is very little time to spend on other non-statutory subjects.

When asked, they also believed that the curriculum review will have little effect as there will still be numerous expectations and targets to meet.

The controversial nature of elements of EE, such as climate change, were also suggested as a barrier to more substantial inclusion. A teacher suggested that it makes it more complicated to teach because both sides of the controversy need to be considered equally. Another teacher suggested that some environmental problems are difficult for young children to grasp as they are often quite abstract and complex concepts and that children may find some environmental problems scary. This was discussed in research by Price (2009: 313) who suggested that instead there should be a focus on alternatives like working directly with the environment which is a more rewarding and beneficial way to learn about the natural world than intimidating them with 'stories of toxic substances in the air or water, running out of landfill room, and global warming'.

The problems of uncertainty, time and the nature of EE are all problems that do have a solution. The uncertainty can be resolved by including environmental education in teacher training and the anxiety about the controversial nature of environmental problems can also be eased by teacher training if teachers are taught how to handle controversial issues correctly. Concerns about time can be addressed by clarifying that EE can be taught as a cross-curricular theme, it need not be a subject in its own right and guidance on how this can be done can be found in a number of books. It is important to acknowledge that this was indeed a small-scale study in which the sample was limited in terms of size and gender of the interviewees. This means that a definitive conclusion cannot be made, however the findings do support previous studies which highlight similar barriers and it is hoped that this research offers an insight into the importance of teachers' perspectives in the development of Environmental Education in the curriculum.

References:

- Ben-Peretz, M. (1980) Teachers' Role in Curriculum Development: An Alternative Approach. **Canadian Journal of Education**. 5 (2) pp. 52-62.
- Cotton, D. R. E. (2006) Implementing curriculum guidance on environmental education: the importance of teachers' beliefs. **Journal of Curriculum Studies**. 38 (1) pp. 67-83.
- Price, E. A., Vining, J. and Saunders, C. D. (2009) Intrinsic and Extrinsic Rewards in a Nonformal Environmental Education Program. **Zoo Biology**. 28 (5) pp. 361-376.

Books that give guidance about incorporating EE into the curriculum:

- Bodzin, A., Shiner Klein, B. and Weaver, S. (eds.) (2010) **The Inclusion of Environmental Education in Science Teacher Education**. London: Springer.
- Goodall, S. (ed.) (1994) **Developing environmental education in the curriculum**. London: David Fulton.
- Greig, S., Pike, G. and Selby, D. (1989) **Greenprints for changing schools**. London: Kogan Page.
- Palmer, J. and Neal, P. (1994) **The Handbook of Environmental Education.** London: Routledge.

Reviews

Climate change takes centre stage

Sarah Simmons *Assistant editor*

The Polka Theatre's new educational performance, The Planet and Stuff, aims to inform young people about the problems of climate change and what they can do to help solve it. The performance provides fun, interactive and engaging activities which support key areas of both the KS2 and KS3 science and geography curricula.

The colourful and eye-catching production, fronted by Felix O'Brien as Joe and Sarah-Jane Scott as Becci, enthusiastically led the audience to tackle the question: "How do we solve climate change?". Through bottom wiggles, arm waving, and throwing paper aeroplanes, the audience explored the issues of increased levels of carbon dioxide, where it is coming from, and were introduced to ways in which they can help in their everyday lives at home and school.

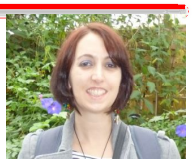
Uniquely the key facts about climate change weren't researched by adults, but by the Polka Young Voices Panel, a group of 8 – 13 year olds who come together regularly throughout the year. Prior to the performance, the panel interviewed key players in the climate change debate including: university professors, climate change campaigners and MPs who relayed their thoughts on what children in the audience could do to help solve climate change.

When leaving the auditorium after the performance all the children appeared to be empowered by the performance, chatting amongst themselves about the messages presented and how they plan to solve climate change. The Planet and Stuff is a thoroughly enjoyable educational performance and definitely well worth a visit to support teaching in both Geography and Science lessons.

More information *http://www.polkatheatre.com/*

We are interested to receive new books about nature, environment issues, sustainability, also buildings, food and transport. Please contact info@naee.org with new titles or if you like to become a reviewer.

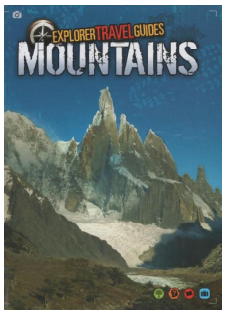
Children's books about… mountains



Juliette Green *NAEE Executive Member*

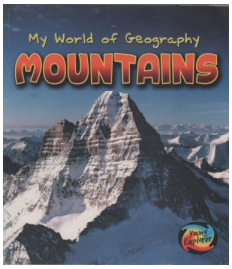
To celebrate the 60th anniversary of the first ascent of Mount Everest, this edition focuses on children's books about mountains.

Mountains (Explorer Travel Guides)



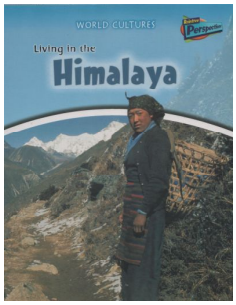
Chris Oxlade; Raintree (an imprint of Capstone Global Library Ltd.), 2014, 48 pages; ISBN 978 1 406 26012 0
www.raintreepublishers.co.uk
"Would you like to explore the world's extraordinary mountain ranges? Then you've come to the right place!"
The book begins by giving background information about mountains (e.g. how they are formed, different types of mountains and the mountain climate). It then focuses on various aspects of mountains, such as animal and plant life, people who live in mountainous regions, mountain survival and conservation, all interspersed with amazing facts and handy tips for your "mountain adventures". I particularly liked the interviews with real people (a volcanologist from Lancaster University and a mountaineering instructor), which really brought the subject to life; and the frequent reference to environmental issues, such as the impacts of tourism, deforestation and dam building on mountain environments. A really varied and engaging book that links geography, science, history and environmental education.

My World of Geography: Mountains (Young Explorer)

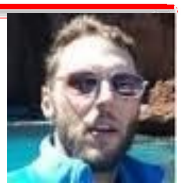


Angela Royston; Heinemann Library (Harcourt Education Ltd.), 2004, 32 pages; ISBN 0 431 11795 0
Aimed at lower Key Stage 2 pupils, this book uses age-appropriate content and vocabulary to explain what mountains are, how they are formed, their uses and how they can be enjoyed and protected. Photographs, captions, maps and labelled diagrams support the information contained in the text on each page and there is a handy glossary at the back. A good 'starter' book to introduce children to various aspects of mountains.

World Cultures – Living in the Himalaya (Raintree Perspectives) Louise & Richard Spilsbury;



Raintree (part of Pearson Education Ltd.), 2009; ISBN 978 1 4062 0837 5
www.raintreepublishers.co.uk
This book focuses on the human aspects of life in the mountains by looking at Sherpa people of Nepal. Each double page covers a different aspect of life in the Himalayan mountains, including food, family life, clothing, education, religious beliefs, games, storytelling and music. There's a multiple-choice quiz at the end that tests the reader's knowledge of what they have read, to see if they could survive in the Himalaya *("if you score less than five, put your suitcase back in the cupboard!").*



Webwatch

Henricus Peters *Editor*

We look at some general websites and look to 2014.

General Environmental Education sites

http://www.wildlifegardener.co.uk/
Click on the section 'Kids and wildlife' for some good material. The site aims to help parents encourage their children to get active and involved in the environment. There are educational tips – so the ideas can be applied to schools too.

http://www.ukwildlifeparks.co.uk/
This site helps you to find out some of the best places to visit with children. It covers the most popular safari parks and zoos around the United Kingdom, including photos and videos.

Top green news

http://kids.nationalgeographic.com/kids/
National Geographical Kids has good simple factsheets about animals and plants.

http://www.firstnews.co.uk/
First News includes environmental news items, written for a younger audience. It has a new section just for teachers.

www.enn.com
Environmental News Network has up to date green news items from around the world, with very important ethical discussions on their blogs about decisions countries make.

As we prepare for *UN Year of Crystallography* – we feature some useful geo-education sites:

http://www.iycr2014.org/ This is a very technical website. A slightly more user–friendly example is http://www.sciencekidsathome.com/science_topics/what_are_crystals.html.

http://geoscenic.bgs.ac.uk/asset-bank/action/viewHome
British Geological survey archives. This site allows you to search for photos of a range of geological examples. Aimed at upper primary and secondary.

http://geoscenic.bgs.ac.uk/asset-bank/action/viewHome
Has case studies, virtual field trips, maps, photo gallery. An easy search engine for age levels and topics such as earthquakes, volcanoes, oil spills and national parks.

Its sister website is – http://www.geointeractive.co.uk/ is 'the one–stop website' for all the links and resources that you need for teaching geography. It includes Google earth, videos, maps etc. The website is divided into two sections and you can access one or both of these. For Key Stage 3 and above.

http://www.geograph.org.uk/ The aim is to photograph every 1 km grid square in the UK – the photos are free!

http://naee.org.uk/
NAEE's website has updated news items, downloadable resources and a growing list of groups we partner with. Remember to find and follow us on
twitter https://twitter.com/NAEE_UK ,
facebook https://www.facebook.com/NAEEUK,
LinkedIn http://www.linkedin.com/groups/NAEEUK

Please send your top websites to *editor@naee.org.uk*

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*Or visit our Website: **www.naee.org.uk/get-involved***

How Do I Write for *Environmental Education?*

We welcome articles, reviews and other items from members, supporters and readers. We are especially interested in case studies of environmental studies, including outdoor education, in primary or secondary schools.

These may occasionally be reprinted either on their own or with other articles in NAEE publications.

Please ensure you have permission to use any photographs and send them as separate jpeg files.

Please contact *editor@naee.org.uk* with your submission.

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