

Environmental Education

Vol 113 Autumn 2016

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National Association for Environmental Education (UK)

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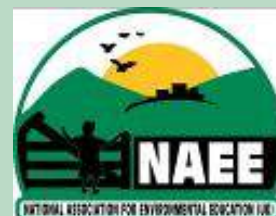
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Write for Environmental Education: We welcome articles, book reviews and website suggestions from NAEF members, supporters and readers. We are especially interested in case studies, including environmental education, outdoor classrooms, forest schools etc. — in primary or secondary schools and colleges. Articles may occasionally be reprinted either on their own or with other articles in NAEF publications or on the website. Photos should be as high resolution as possible and sent as separate jpeg files. You must have the permission of the picture taker.

For more information, please contact editor@naee.org.uk.

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Cover photo: Mesa Verde National Park, Colorado, is a world heritage site for its outstanding examples of natural and built environments in harmony — an aim of National Parks everywhere.

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From the Chair

Nina Hatch

Since the last edition of our Journal, we have passed another milestone in the history of the Association. We have long been a charity registered by the UK's Charity Commissioners; this has now been converted into a new style **CIO** (Charitable Incorporated Organisation). This makes no difference to the core values of the Association and our commitment to supporting teachers and advancing environmental education for children and young people. Our membership is still open to anyone interested in furthering our purposes. That can be an individual teacher, a school, other organisation – frankly anyone with a like-minded commitment.

Being a CIO limits the responsibilities of the Executive Committee as we have Trustees elected to govern us. The election of Trustees took place at a meeting at Birmingham Botanical Gardens on 22nd October (see photo on next page), where we also set up our policies and strategies for the new CIO. For those of you reading this from a school background, this probably sounds familiar to the role of your school's governing body! It leaves the day-to-week management of running NAEF and what you see on our website to our Executive Committee, who are always looking for extra support and ideas, and to Heatha Gregory our National Coordinator. I have to thank Professor Bill Scott for steering us through the complexities of the on-line paperwork. It all sounds rather technical but means that NAEF has a sound footing for disseminating curriculum-focussed resources.



From the Editor

Henricus Peters

Happy Birthday to all our national parks! They help us to learn more about nature and ourselves.

National Parks are our windows on nature's wonders, key selections of habitat-protecting grounds and people-nature connection places. Therefore they are, by extension, the doorways to education outside the classroom. We at *Environmental Education* journal are therefore thrilled to celebrate these special places on our cover and make no apology for the focus on the United States — where it all began — enabled by a few friendly National Park Ranger friends. That most of our Executive Committee writers have sought out our UK parks, shows how the national park concept has endured from its conception by explorer John Muir — see book review page 33 — to 'everyman' every teacher — see pages 21-23. Of particular interest is the fact that Muir, founder of the US National Parks concept, was actually Scottish!

A huge challenge, of course, is the precarious balancing act of defining national parks: habitat-protecting places versus people-places. Fracking is now a real threat in UK parks; but many problems arise in the US parks including the sheer volume of human visitors bringing some park centres almost to a standstill... so can we can no longer 'see' where the wild things are!

Enjoy this special parks issue. Then go and find your local UK National Park.

Let us know what you think about the journal, any topic therein or NAEF : info@naee.org.uk



President's Column

Professor William Scott

Like many people, I looked forward to the end of the Plymouth University *Natural Connections Demonstration Project*, and its final report. This was partly because so much hope and expectation has been invested in it, but also because I had been so disappointed by what the project team had been saying along the way, and I was hoping they had saved the good bits to the end. Sadly, I don't think they did.

The funders of the initiative, *Natural England*, in welcoming the end of the project, wrote this:


"This report presents the key findings from the Natural Connections Demonstration Project, which identified that the fundamental challenges to learning outside the classroom in the natural environment (LINE) in schools were local and revolved around a lack of teacher confidence in teaching outside and fragmentation of LINE service provision. These underpinned the more traditionally cited challenges of curriculum pressures, concern about risks and cost."

The report concluded that it had all been a great success, and that the system that the Natural Connections project established to explore how to make learning outside the classroom more effective, was itself *"effective"*, which must have been a considerable relief to all concerned. It went on to say that strong evidence had been found that what it termed *"a distributed model of independent brokerage"* can *"unlock latent demand and support schools to overcome local barriers to LINE, to adopt and embed low-cost LINE practice across the curriculum, and to deliver a range of positive outcomes for teachers and pupils."*

The report said that the Natural Connections project was able to identify both qualitative insights and quantitative data on a range of positive outcomes for schools, providing *"motivational evidence for schools and useful information for policy*

makers, external funders and service providers in both the public and private sectors". In addition, it said, its analysis of the relative effectiveness of the delivery model has helped *"to clarify the essential elements of outdoor learning development"*, and that these insights might now inform strategies to amplify support for LINE delivery in schools at both a strategic and a local level.

It went on to say that the *"selection of hub leaders with the appropriate skill set is critical to this distributed model"*, and that such people need considerable experience in education at a regional and local level, and in coordinating support and networking opportunities for schools in order to share and develop outdoor learning practice. Further, and as might be expected, sufficient management capacity and skills at both central and hub level are essential to support the model.

Every commentator I have come across seems to think all this is all quite wonderful. However, personally, I wonder where it leaves us — apart from wishing that the report might have been written in clearer English. Whilst it's always good to re-learn what we already knew — that problems were compounded by a lack of teacher confidence, multiple providers, curriculum pressures, concern about risks and cost — it is far from obvious that any of this will make any difference on the ground once generous project funding is taken away. 

More information

<http://publications.naturalengland.org.uk/publication/6636651036540928>



The Trustees of the new CIO (left to right): David Fellows, Sue Fenoughty, Gabrielle Back, Nina Hatch & Prof. Bill Scott

Montgomery Primary School visit Martineau Gardens

Hooda Samad *Reception teacher, Montgomery Primary Academy, Birmingham*



NAEE's Hugh Kenrick Days offer schools in the West Midlands the opportunity to apply for financial support to give their pupils a chance to visit an outdoor environmental education centre. We believe that first-hand educational experiences in their local environment help young people to understand the importance of the biosphere to all life on the planet. These experiences can be the springboard for excellent further curriculum-focused activities back at school.

Editor's note: Montgomery Primary School visited Martineau Gardens on 13th, 14th and 15th April 2016, funded by the Hugh Kenrick Days bursary.

As a 'Talk 4 Writing' school, we always focus our literacy around a story; this half term, Reception children are reading *The Bad-Tempered Ladybird* by Eric Carle. To immerse the children into the story, we planned a trip to Martineau Gardens which gave them hands-on experience by going on a minibeast hunt around the woods and pond dipping to find some insects that live in water.



The children set off on a tour of the gardens with the very knowledgeable Caroline

After spending an amazing day at Martineau Gardens and learning about minibeasts, fruit and vegetables and how they grow, the children came back to school eager to start their learning.

We enjoyed looking at the pictures of our trip and learning about non-fiction writing by learning how to write lists, captions and to use time connectives to write a recount of the trip.



Minibeast hunting in the woodland habitat with Juliette


The children also used the experience that they had at the Gardens when taking part in a range of different creative activities based on *The Bad-Tempered Ladybird* — for example painting, clay modelling, junk modelling — to create minibeasts.

Our experience at Martineau Gardens encouraged children to look at books in the library that taught them all about bugs. Reading books about insects also became a starting point for rich conversations between children describing minibeasts and their habitats.

As a school we understand the importance of children's voices in their learning, so after the trip we asked the children what they had enjoyed about the trip and what they wanted to learn more about. After listening to their ideas, the teachers planned activities based on the children's interests and fascination which helped them feel respected that their views and opinions are important.



The children carefully collected the minibeasts and put them in pots to observe them

As we had learnt about plants at the Gardens, the children decided they wanted to plant some herbs and create their own sensory garden. This will allow them to take ownership of their garden and learn to be responsible as they will be the ones who plant the seeds and nurture them. The skills acquired will then help them to look after their local environment just like they look after their school environment. 



*Acting out the life cycle of a butterfly
(egg → caterpillar → chrysalis → butterfly)*

More information

naee.org.uk/apply-for-a-school-bursary

Bristol | GEEP launch



Building a Global Network to Strengthen Environmental Education

Melissa Hopkins Taggart *North American Association of Environmental Education*

This past May, UK NAEE partnered with the North American Association of Environmental Education (NAAEE), the United States Environmental Protection Agency (US EPA) and the Environmental Protection Administration of Taiwan (EPA Taiwan) to launch the Global Environmental Education Partnership (GEEP) in Bristol, UK. The event was hosted by NAEE's President Bill Scott, and attracted nearly 50 environmental education practitioners to the At-Bristol Science Centre, all eager to hear how the GEEP could help support their work.

In Bristol, we discussed the many opportunities offered through the GEEP and learned about the exciting environmental education work happening throughout the UK. The GEEP aims to highlight excellence in environmental education and help strengthen our collective work in this field — whether it is showcasing new thinking in climate change education programming, how to strengthen EE policy at the national level or foster strategic partnerships. This global partnership is led by US EPA, EPA Taiwan, NAAEE, and an exemplary group of advisors (see thegeep.org/steering-committee).

Environmental education leaders from around the world are helping to shape the GEEP. They recognize that although there is an abundance of innovative EE happening around the world, there is no easy, centralized way to know what is happening and to easily share success and learn from each other. By showcasing and sharing tools, resources and effective practices, and by building a vibrant learning network, the GEEP aims to better support environmental education leaders, to elevate the impact of education in addressing environmental and social issues.



An international contingent: members of the GEEP advisory group

The GEEP focuses on three specific areas:

- Build capacity to advance global policy and practice in environmental education
- Foster strategic partnerships to create a 'network of networks' resulting in a stronger global environmental education community
- Promote Innovation through a Global Think Tank focused on EE

In the months following our UK launch event, the GEEP team has been working to connect the GEEP


website to NAAEE's online learning platform, eePRO, to create the GEEP eePRO website:

naaee.org/eepro/geep



This website will serve as a central hub for environmental education initiatives happening around the world and provide opportunities to network with other leaders, a free resource available to anyone interested. Once you register, you will be able to post resources and comments.

We are also working to develop a series of global GEEP case studies, which will be accessible to anyone who is part of the GEEP.

Please sign up for the GEEP eePRO site. And let us know if you have any ideas for case studies that we can share. The GEEP is only as strong as the network it attracts; the more people who join and share, the more we can build a global network of ideas in our field. 

More information

Visit the website or email info@thegeep.org.



Being a green teenager

Zach Haynes *Wildlife blogger*

Living around the Yorkshire Moors and Dales makes me a very lucky person. I think it's one of the most beautiful places on Earth, which is why I spend so much time there!

There are so many opportunities to learn about everything to do with nature and the environment; the reason I started up a blog back when I was 10. All I did was go out into the wild and see what I could find, and it didn't take long. I would look for pretty much anything that caught my eye: birds, insects, plants, reptiles and so on, and I would find out as much information on them as I could, either from books, the web or directly from experts. I've learned so much in the two years that I've been doing my blog.



Zach with Chris Packham at Birdfair

I've also got so much out of it in terms of a wider education. For example, I didn't know anything about bird ringing when I started, but after I started going to my local nature reserve and talking about it, I met the owners of the reserve, who asked if I wanted to do ringing with them. From

that point on I got so many amazing close-up experiences with birds, and met some really nice people. I am also involved in moth trapping at the reserve, and could easily recognise at least 30 species of moth now. Something I certainly couldn't have done a couple of years ago!



Zach with a Lime Hawk Moth

I get to go to competitions and events such as Birdfair, which have many knowledgeable people there who have talks that have taught me so much about physics, chemistry, biology and so much more, like the effects that the decline of bees is having on nature, the effects of grouse shooting on the environment and so on. I am aware that the majority of children these days aren't that interested in nature and the protection of the environment, which is worrying, both because school doesn't have much about nature in lessons and because the future of the environment is in our hands....

Things like these have lead me to campaign for things such as keeping the EU wildlife laws when Britain leaves Europe and being more careful with how we use plastic, particularly considering its effect on marine life. I would never have been aware of these things if I hadn't have got involved with nature, which is why I am so relieved that I did.



Zach giving Radio Leicester an interview with Jono Leadley from the Wildlife Trusts at Birdfair

One of the reasons I started up my blog was to not only teach myself, but to share that knowledge with others and help people care about the environment more. And I think I've done a good job of it! I get people saying that they've learned something new on every post and it feels amazing to know that I've helped people open their minds more to the importance of conservation.

There are always news articles and scientific experiments that say technology is bad for you, this may be true, unless you use technology for good, like I do, and balance it with going out into the wild and have a great time outdoors. It really is the best of all worlds! 🌿

More information

www.yearofnature.blogspot.com

Yorkshire | City & Countryside

Environmental education across a huge county

Kat Wooley *Education Officer & Trainee Forest School Practitioner, Potteric Carr Nature Reserve, Yorkshire Wildlife Trust*

The county of Yorkshire is big: approximately 11,903 square kilometres (thanks Wikipedia) and has a population of just over 5 million. Yorkshire also has a wide and varied landscape, which is rather exciting for staff at Yorkshire Wildlife Trust to work in. However, many folk from Yorkshire, especially children, do not get to experience the vibrant and varied landscape this county has to offer because Yorkshire is so large. Our long term aim is to provide a Yorkshire rich in wildlife for everyone.

The Yorkshire Wildlife Trust (YWT) has four main gateway sites: Stiffly Community Farm in Huddersfield; Potteric Carr Nature Reserve, Doncaster; Spurn National Nature Reserve near Hull; and the Living Seas Centre in Flamborough. There are also active sites where events are run: Appleton Mill Farm near Malton and Pearson Park Wildlife

Garden in Hull. Events are also run on the other 90+ nature reserves that YWT manage. All of these sites are receiving visitors who have interests in wildlife but also people who haven't had much interaction at all with the natural environment, through arranged visits.

Marine and coastal environments

The Living Seas Centre and Spurn National Nature Reserve base their activities on the marine and coastal environment. Regular events such as 'Seashore Safari' and beach cleans engage the public with the coast and coastal issues. Spurn Point runs regular 'Spurn Safaris' which include a ride on the Unimog (a large off-road vehicle which looks like a tank). These sites both take regular visits from schools from KS1 pupils through to A-level and university students.

‘Waves of Waste’ at the Living Seas Centre

Sadly, litter is now a common sight on our beaches, with Waves of Waste washing up each day. Take a walk along the shore, for each item of litter we find we will ask the following questions: What is it? Where did it come from? How does it affect marine wildlife? Success criteria include:

- gathering and recording data to help in answering questions
- reporting and presenting findings
- comparing and grouping a variety of everyday materials by their simple properties
- recognising environments can be changed by humans and this can pose dangers to living things

Urban wildlife

Potteric Carr Nature Reserve is a draw for visitors looking for tranquillity in the midst of urban Doncaster. Boxed in by motorways and developments, it is a special wetland landscape home to some rare species like Bittern and Marsh Harrier.

The students that come to Potteric Carr come to learn about habitats and living things. There are woodlands, meadows, ponds, and reed beds for us to explore and learn about the adaptations of the creatures that live there. To aid this study of the habitats, pupils are given a creature passport to record their findings in each habitat. A 2-sided folded up piece of paper in the form of a passport.



Stirley Farm Nature Tots
(Credit: Annie Russell)

Some pupils write letters to us after their field trip, one of the recent letters said: *“It was the best adventure I have ever been on”* (Charlotte from Tickhill Estfeld Primary School). Isla from the same class said: *“The funniest part was when you tried to catch a butterfly”*. Well, I do try!

Farming and wildlife

Stirley Community Farm is our gateway site in West Yorkshire with the aim to demonstrate that farming and wildlife can exist hand-in-hand, whilst sustaining itself as a viable farming business. The site has only been developed in the past six years and has a lovely barn conversion which is a great example architecturally of a passive house. Its aims are to improve the understanding of local people of why nature matters for a healthier and happier lifestyle through local food growing and production.

“I love wildlife and I like nature. I want nature to be safe.” — Family visitor to Stirley Farm.

Footfall to the farm has increased year on year through family visitors, volunteers, schools and community groups; the majority of the visitors are families for events. School groups can visit the farm, plant and harvest food from the allotment then cook it in the Cr8 Barn. This links in well with the Food for Life campaign, linking children to where food comes from.

Educational events

YWT run a programme of monthly events like Nature Tots (for under 4s), Home Education Connection (for home educated families) and U3A Connection for U3A groups. These different monthly events and volunteering opportunities help us to achieve getting people up the ladder of participation. Events are run all across Yorkshire Wildlife Trust sites by our Reserves Officers and Field Officers to our Regional Directors. Everyone offers their expertise to share with the public.

Two YWT gateway site have also started running Forest School, which has proved to be a real draw for the public. It’s really great to see people of all ages so engaged with the outdoors.



Minibeasting!
(Credit: Kat Wolley)

I asked a group of Year 5s who attended Forest School to make a mud map, the response from one of the students was: “*Can I touch the mud?*” From then on, at any opportunity, they were in the mud. Delightful to see!

We are delighted as an organisation that we have so many visitors to our gorgeous reserves, and to see how much the visitors get from going out with our Education Officers. It is so important to show people of all ages what Yorkshire has to offer in terms of wildlife, when from what I hear from school children is that they know more about exotic wildlife than what is on their doorstep. 🌿

More information

www.ywt.org.uk/reserves

Derbyshire | Eco-Schools

The Long Eaton School annual Eco Day

Lynn Reeve *Eco-School Coordinator, Long Eaton School*

The weather didn't manage to dampen the spirits of staff and students visiting the Long Eaton School's annual Eco Day. Over 360 primary school students arrived in force ready to experience the day's events.

The school played host to numerous exhibitors including a mini farm, bugs 'n' bones and a falconry group. If this wasn't enough, students were treated to gourmet delights such as salt and vinegar crickets, Mexican mealworms and chocolate ant drops. Smoothie bikes provided everyone with a fruity drink as they perused the stalls in the exhibition hall.

Workshops were held in the morning by FACE, the Canal and River Trust, Erewash Borough Council and Junky Monkey (an ethical visual arts business specialising in natural and recycled materials).


Students from the secondary school spent the afternoon experiencing a plethora of activities.



Time to snack on some roasted mealworms!

Lynn Reeve, the Eco-School Coordinator, stated:

"Every year we try and think of new, engaging activities for the students. Some of the highlights this year have been the Pestaurant and the mini farm. We love hosting this event and are so pleased that not only do we have local primary schools visiting but also schools from other areas".

The Long Eaton School has twice been awarded the title of Eco Ambassador School and has been an Eco School since 1999. 

More information

www.longeaton.derbyshire.sch.uk



Primary school students were fascinated by the owls

Wales | Research

Project Wild Thing & children's relationships with nature

Dr Ria Dunkley *Sustainable Places Research Institute, Cardiff University*

I grew up in a village in mid-Wales and spent a considerable amount of time in the town, but that town was Aberystwyth and Aberystwyth looks out at the sea. My house was separated from that sea by a 120-metre Iron Age hill fort. My grandfather was a farmhand and many a weekend was spent in the rural hamlet where my grandparents lived, hanging around cowsheds, and jumping in hay bales or into the nearby river. The natural world was a crucial play space when I was a child. I always wanted to be outside. I once even walked the 25 miles from my home in Aberystwyth to my grandparents' home in Llanfair Clydogau, such was my love of being and especially walking in the outdoors. So naturally, like David Bond, creator of *Project Wild Thing*, I wish all future children to have the same experiences as I did. I want them to experience the joys of outdoor play, to jump in rivers, to visit farms and run through forests.

Now, I am a social researcher at the Sustainable Places Research Institute at Cardiff University, working in the field of environmental education.

Yet, my first introduction to environmental education and outdoor learning was through a job at the Eden Project in Cornwall. When I went to work at the Eden Project, I met schoolteachers from inner city schools in the Midlands, who told me that there were children in their schools who had never seen the countryside until they visited Cornwall. As I went deeper into environmental education research, I realised that many children had not grown up enjoying the natural world in the way that I had and that environmental charities were directing their efforts to 'connect' young people to nature, particularly in urban areas, through public engagement efforts. Driven by the powerful ideas concerning impoverished relations between human beings and the natural world, put forward by notable authors, including Richard Louv (2008), many organisations and environmental education practitioners have set about finding means to overcoming what Louv described in his book, *Last Child in the Woods*, as 'nature deficit disorder'; a condition that poses significant risk to human physical and mental health.

Initially, I was as alarmed by the news of Nature Deficit Disorder, as many environmental charities and educators often appeared to be, for this new and threatening condition would surely not only compromise our own health but would inevitably have implications for how humans approached tackling environmental issues like climate change and biodiversity loss. If people did not know and love the natural world, how would they want to fight for it? And these all, indeed, remain vital questions, which many environmental educators and environmental charities seek to address.

Yet as time has gone on, I have started to look deeper into suggested remedies for our supposed disconnection to nature, which led me to the work of Bruno Latour (1993) who, in his book, *We Have Never Been Modern* revealed to me for the first time something that seemed to make complete intuitive sense. We have not become disconnected from a natural world – how could we have become disconnected? We have always been and will always remain in an interdependent state – completely dependent upon and part of the natural world that we observe around us. For Latour, as indeed for many others, we have not become disconnected from an external, natural world – rather the connections between us humans and a perceived external ‘nature’ have become less visible. For example, in a world where although over half the global population lives in urban centres, we perhaps do not realise that our lives within cities are indeed wholly dependent upon a hinterland beyond that city.


So what, then, is the remedy? Well, if we are not increasingly disconnected from the natural world, then the solutions to environmental and indeed, social crises, perhaps cannot start with re-connecting with the natural world, as the film *Project Wild Thing* promotes. Rather, what we could do, as environmental educators and environmental charities, is make connections between us humans and the objects of nature visible. Indeed, Latour suggests that in order to tackle ecological and social crises, relationships between humans

and nature need to be exposed starting from the “refrigerator to the Antarctic by way of chemistry, law, the State, the economy, and satellites”.

In thinking through what this might mean for engaging children and young people with environmental education and sustainability, the most effective environmental education that I witness does not take young people out into ‘the natural world’, or ‘the countryside’, in the hope that they will develop an affinity with it, but reveals to young people how the natural world is inside their refrigerators, in their I-pods and I-pads, their make-up bags and t-shirts, bicycles and skateboards. The opportunities to make such connections visible within the four walls of our homes as well as within the city limits. For instance, in their book *Edgelands*, Roberts and Symmons-Farley (2012) speak of how the natural world reveals itself in the canals and woodland strips, the wastelands and ruins of cities, all of which offer fruitful places where we might recognise our connections to other species.

It is true that I grew up closer to the natural world than many people have the chance to and that such experiences perhaps help nurture both a love of life and a love of place. Yet, it is important not to romanticise the rural upbringings of the past, as *Project Wild Thing* is sometimes guilty of. Even as a child who got the chance to interact with nature a great deal, I still grew up in a technological age, with a Comodore-64 and then a Sega Master System and, living in Wales, there were the inevitable times when the rain would stop all outdoor play!

Parental desire for children to spend more time outdoors ‘in nature’, as the creator of *Project Wild Thing* expresses, is perhaps nothing new. Yet getting children outdoors is perhaps not the panacea to social and environmental ills that it is, within the film, imagined to be. If we take a leaf out of Latour’s book and consider what thinking about exposing the links between nature and humans means in terms of developing an ‘eco-pedagogy’ (Kahn 2010), we begin to see that it

might be necessary to meet children and young people where they are. This might involve witnessing how they already interact with nature, in ways that adults perhaps do not see. This may be in the 'edgelands' of canal towpaths and parks, dens and wastelands. In these accessible spaces, as well as within homes and classrooms, we might find interesting ways of approaching environmental learning with children and young people. 

References:

Farley, P. and Symmons Roberts, M. (2012) *Edgelands: Journeys into England's True Wilderness*. London: Random House.

Kahn, R. (2010). *Critical Pedagogy, Ecoliteracy, & Planetary Crisis: The Ecopedagogy Movement*. New York, NY: Peter Lang.

Latour, B. (1993). *We Have Never Been Modern*. (C. Porter, Trans.). Cambridge, MA: Harvard University Press.

Louv, R. (2008). *Last Child in the Woods: Saving our Children from Nature-deficit Disorder*. Chapel Hill: Algonquin Books.

The Sustainable Places Research Institute at Cardiff University is a meeting place for sustainability science, focussed on exploring innovative solutions for a more sustainable future.

The Research Institute is making new connections in sustainability research. It is about finding pragmatic, policy-led locally-based solutions for individual cities, regions and nations.

Their vision is to provide a new basis for sustainability science. It will push the boundaries of traditional sustainability research and find solutions to the challenges of diminishing resources and climate change.

More information

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www.cardiff.ac.uk/sustainable-places

This is what the broadcaster and naturalist Steve Backshall has to say about getting children outside to experience nature:

"Research shows that kids today spend 51% less time outside than they did just two decades ago when I was a kid. Increasingly even when kids are outside these days, they're still inoculated from the environment; permanently wearing headphones, or glued to the TV sets in the seat backs of their parents' SUVs. Yet at the same time that this disassociation with nature is taking place, more and more research is out there that's suggesting we need nature to be healthy, physically and mentally. As someone who spends their life outside, I can state with absolute certainty: it makes you feel good, and it makes you happy!"

The first trick with bringing people to the wild world, is that they need to learn without feeling like they're studying. They need to feel, experience, touch, smell... hold frogs, beetles, millipedes in their hands, have mud squelch between their toes, scent otter spraint in their nostrils. This experimentation was what turned me on to the outdoors as a kid, and ALL notable naturalists I know are the same.

Schools and other organisations have such fear of litigation that this is often impossible, but for parents, the decisions are down to you. You can choose to allow your kids to run free in the woods or round the rock-pools, in the knowledge that they may get cuts, scrapes, scratches and even break a bone or two. Surely the danger of a life disconnected from nature is far greater?"

More information

www.yours.co.uk/2016/03/steve-backshall-todays-children-arent-spending-enough-time-outdoors

<https://familytraveller.com/news/steve-backshall-encourages-kids-to-get-outside/>

Learning and teaching outside the classroom: the impact on students' learning

Lisa Bell *Head of Curriculum for Early Childhood & Health, Brockenhurst College*

Brockenhurst College maintains an excellent academic reputation and is committed to providing the highest quality education for all, offering a range of courses, attracting around 3000 sixth-form students from across the region, together with a mix of international students from around the world. Students on the Early Childhood course are aged 16 -19 years old and study aspects of outdoor learning within their study programme, such as Forest and Beach Schools, and the benefits of the outdoors for young children, with a focus on play and the curriculum. This learning is linked closely to their placement experience such as pre-schools, day nurseries, reception and key stage 1 classes in schools.

Having achieved a Post-Graduate qualification in the Outdoor Classroom through the University of Winchester, I became aware that my own practice had very little focus on outdoor learning.

Our students learn some elements of different types of play as part of their study programme but there is little emphasis on the importance of learning outside the classroom, not just for themselves as learners but also in promoting this learning with the children at their placements through activity planning and the use of resources for the study programme requirements.

After the introduction of the revised Foundation Stage (September 2008 and revised again in 2012), there is more opportunity for outdoor learning, including Forest and Beach Schools:

"Being outdoors offers opportunities for doing things in different ways and on different scales than when indoors." (EYFS, 2008)

A Review of Research on Outdoor Learning (Rickinson et al., 2004) highlighted that *"there is a*

growing concern that opportunities for outdoor learning by students in England had decreased".

The research identifies that the requirements of school and university curricula and timetables are a constraint on outdoor learning with outdoor spaces used mainly for sport. I see this in my own college yet my own happy childhood memories of learning outdoors show me that it is such an important part of learning and development.



The author, Beaulieu River, circa 1978

Experiential learning

Engaging the students in experiential learning is an educational approach that has grown in popularity over the past twenty years, with students able to participate in an activity, reflect on the activity, use analytical skills to gain insight from the experience and incorporate this new understanding into their lives. In other words, it contributes to the transfer of learning and to taking this learning forward, hopefully with greater motivation.

To introduce the outdoor learning environment to the students, we created a display within one of the classrooms. I wanted them to appreciate what was in their learning environment, to generate genuine interest and discussion amongst the group

as they arrived for their lesson, without intervention from me. The impact of creating a display to facilitate thinking and discussion generated excitement from students; they wanted to create a display, to go outside and collect items!



An example of a table display

Building on their reaction, I carried out a lesson to encourage and promote reflection about what outdoor learning meant to them when they were young children and as future early years practitioners. The lesson also provided them with the opportunity to use the College grounds. We removed the barriers that the traditional classroom can create between young people and first-hand, real-life experiences.

Increased motivation

The students within this particular group demonstrated motivation and began to reflect more about their learning and understanding of the outdoor learning environment in subsequent lessons. Students on the Early Years course can find it challenging and often want to drop out but motivation and success are common ingredients of outdoor learning.

“Young people, in general, enjoy the outdoors, their level of interest is high and they are more receptive to knowledge.” (Cooper 1994)

Motivation also affects self esteem, confidence and attitudes to others and to the environment. The students were genuinely interested in the lessons and outdoor learning, paying more attention, putting more effort into their work and making greater contributions during class activities.

It is now so important that I continue to foster and maximise their interest as much as possible. Providing the students with first-hand experiences and evidence-based learning will hopefully equip them with skills for gathering evidence and will promote greater use of critical thinking skills, which they do find challenging at times.

It is important for me as a practitioner that the students learn from these outdoor experiences and that the process of meaningful learning continues. 🌱



An example of a tree display

References

- Cooper G (1994) *The Role of Outdoor Education in Education for the 21st Century*. JAEOL, Vol. 11, No. 2.
- DCFS, Early Years Foundation Stage (2008) *Principles into Practice Card 3.3 Enabling Environments: The Learning Environment*
- Rickinson M et al (2004) *A Review of Research on Outdoor Learning*, Field Studies Council
- Statutory Framework for the Early Years Foundation Stage May 2008

More information

www.englishoutdoorcouncil.org/research.in.outdoor.learning.html

Curriculum for Excellence through outdoor learning (Scotland): <http://ow.ly/qWQo304657s>
www.lotc.org.uk/why/motivation-and-behaviour

Wise in the wilderness?

Henricus Peters *Editor*

Nature's greatest classrooms about nature; the great outdoors – learning happens here, but has its challenges.

Introduction

Labelled as 'America's best idea' for providing protection of its most splendid landforms, the National Parks Service of the United States – 100 years old in August 2016 – are certainly a key doorway for people to experience the 'great outdoors', and by consequence, learning in one of the 'greatest set of outdoor classrooms'.

The Organic Act of 1916 created the National Park Service to:

'Conserve the scenery and the natural and historic objects and wildlife therein, and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.'

Many current National Parks had been previously protected as National Monuments by the President under the Antiquities Act before being upgraded by Congress. Seven National Parks (six in Alaska) are paired with a National Preserve. While administered together, they are considered as separate units.

It is the combined emphasis of 'enjoyment' and 'future generations' that makes the national parks concept all the more meaningful to members of NAEF – and why we put them on the front cover with no apology.

Criteria for the selection of National Parks include: natural beauty, unique geological features, unusual ecosystems and recreational opportunities (though these criteria are not always considered together). National Monuments, on the other hand, are frequently chosen for their historical or archaeological significance. Again, many if not all of these concepts – nature, geology, ecosystems and

recreation with a 'leave no trace' ethic – have very strong environmental education values attached to them.

The National Parks: of, for or 'versus' the people?

Whilst researching this topic, I came across the age-old challenge or 'balancing act' that is very real within a national park; that of conservation of the environment – the idea of pure wilderness perhaps, versus recreation: the needs of the people. Looking at the UK scenario, according to the UK National Parks, the aims and purposes of National Parks are laid out by the 1949 National Parks and Access to the Countryside Act which set out what our National Parks would be like.

As always, there is a catch: managing a national park is challenging. It needs the right balance between conservation and recreation. National park authorities need to conserve wildlife and habitats, but also encourage people to enjoy and learn from the countryside. This can cause conflicts. To help national park authorities make decisions between conservation and recreation, the National Parks Policy Review Committee, chaired by Lord Sandford, in 1974 came up with the 'Sandford Principle'. The Principle states:

"Where irreconcilable conflicts exist between conservation and public enjoyment, then conservation interest should take priority."

This was updated in the 1995 Environment Act:

"If it appears that there is a conflict between those purposes, [the National Park Authority] shall attach greater weight to the purpose of conserving and enhancing the natural beauty, wildlife and cultural heritage of the area."

In other words: if there is a conflict between protecting the environment and people enjoying the environment, that can't be resolved by management, then protecting the environment is more important.

So, whilst groups such as NAEF and national parks services themselves would strongly advocate and argue the high need for people—especially children—to positively experience national parks, in order to reconnect with the natural world, learn about and appreciate the same, if this very interaction causes a negative impact then the national park needs, rather than our human needs, take precedence. There are too many cases in many parts of the world—the United States, England, New Zealand—where human activities have already or are potentially pushing the ‘national park boundaries’, both literally and conservation-goal wise.


Educational opportunities

The good news is that there are numerous examples of national parks networks—in the United States and elsewhere—leading the way with models of how to encourage people—including young people from cities with little or no contact with their natural environment—to re-engage with what they have to offer.

The US NPS has a website for teachers which gives details of field visits and distance learning; and has resources to download. Some individual parks also offer classroom visits from Rangers.

Schools and other educational groups can also apply for a fee waiver when visiting some parks.

The NPS offers free entry to every 4th grader and their family through the *Every Kid In the Park*

scheme. The National Parks Foundation runs its *Kids in the Parks* programme in 35 parks. The Junior Rangers also have a centenary booklet to download. 

Mesa Verde National Park Education Packet

Edible and Medicinal Plants

Broadleaf Yucca

Ancestral Pueblo people used yucca, one of the most versatile plants at Mesa Verde, in many ways. The fleshy fruit can be eaten raw, boiled, or dried. The roots can be used to make a soap or shampoo. Boiled, they can be used medicinally to reduce swelling. The sharp spines at the end of each leaf were used as paintbrushes and needles. Most significantly, the Ancestral Pueblo people used the strong leaf fibers for making cordage (rope), sandals, clothing, blankets, sleeping mats, and baskets.



Utah Juniper

The Ancestral Pueblo people used nearly every part of this tree. The berries of this tree provide flavoring. The wood was often split and used for cradle boards, lumber, plates, firewood, and battens for looms. They used the bark for sandal packing and as absorbent diaper material.



Pinyon Pine

Every three to seven years this pine tree produces an oily, edible nut that can be eaten raw, roasted, or ground into flour. The Ancestral Pueblo people used pinyon logs as construction material. The sticky pitch was used to waterproof baskets, mend pottery, and can be applied as an ointment on open wounds.



Skunkbush Sumac



The berries from the skunkbush sumac can be used to flavor a drink similar to lemonade. The peeled roots are edible. The stems can be used to soothe a cough, and a tea made from the bark can treat ulcers and cuts. The stems were also used in the foundation of coiled baskets.

Gambel Oak

The Ancestral Pueblo people collected the small acorns of the Gambel oak and ate them raw, roasted, or ground them into flour. The thin branches provided handles for stone axes, and the roots were shaped into excellent digging sticks.



Prickly Pear Cactus



This cactus is an excellent food source. Once the spines are removed, the pads can be eaten either raw or baked. The purple fruits are a sweet and juicy treat that today is made into jellies, wines, and sauces.

Mesa Verde Education Packet 3

A sample education sheet from a National Park
(www.nps.gov/meve/learn/education/index.htm)

More information

www.nps.gov/index.htm

www.nps.gov/teachers/index.htm

www.nationalparks.org/explore-parks

www.nationalparks.org/our-work/programs/npf-kids

www.nps.gov/kids/pdf/Centennial-JrRangerBooklet.pdf

World | USA | The learning power of parks



Environmental Education in the Everglades

Allyson Gantt *Everglades and Dry Tortugas National Parks*

Imagine a programme that gives South Florida's elementary students the opportunity to study native fish in the clear waters of an Everglades' cypress dome, a programme that taught them how to collect scientific data, how to manage South Florida's water, and how to canoe and camp. The Everglades National Park curriculum-based environmental

education programme does all of this and more.

Each year, these programmes offer nearly 14,000 students the chance to apply skills they learn in school to real world activities in our National Parks, taking education beyond the classroom.

As educators, we realise that these programmes

go further as they inspire kids—and their teachers and parents—to begin a life-long relationship with the natural and historical heritage that is protected by their National Parks.



Students exploring the peeling bark of the tropical Gumbo Limbo tree

"My favorite part of the day was when we went through The Gumbo Limbo Trail all alone. Even though it was dark and scary, we got there safe, and alive." Amy, 5th Grade

We can only serve about 14,000 students. In a typical year, we are fully booked in about two days and put more than 100 classes on the waiting list. As demand for programmes far outpaces supply, we believe this is a tangible measure of our success. Since 1971, more than 350,000 students, teachers, and parents from five Florida counties have enjoyed the Park's EE programmes. The Park is the longest-standing provider of environmental education to Miami-Dade County schools.

Our EE programme at Everglades National Park is the oldest in the National Park Service and has become a model for EE programmes nationwide. For more than 40 years we have produced resources for hands-on education in science, civics, and history to the children of South Florida. Students are enabled to sharpen their growing skills in science, math, civics, writing and art on real world tasks and problems.

"The Everglades is a wonderland of science!"
Shawnie Bates, 5th grade

They learn about science in school and learn to collect scientific data in the parks. They learn about government and natural resources in school, and learn about demands on South Florida's water as they visit sloughs and estuaries.

"The Everglades means a lot to me because everything we learn in science we can see in real action." Zecharia, 5th grade

The activities students undertake in the parks not only help make the world more relevant, but may also help to spark an interest and passion to help kids succeed in school. Since students at the Miccosukee Indian School began participating in the Everglades EE programme, their science scores on national aptitude tests have increased.

In addition, we teach students how to camp, canoe, and find their way in the outdoors. For many students, their visit to Everglades National Park is the first time they have been in a wild place. By making activities like the night sky or an alligator hole accessible to them, we aim to kindle a life-long passion for national parks and the outdoors.



Students feeling the sharp edges of the sawgrass

"I had a great time seeing the sawgrass it was really calming." Shelby, 5th Grade

"The students enjoyed the Everglades experience and were able to make a connection with real life conservation of water from their visit. Many of the parent chaperones were highly impressed with the quality of program provided."
Teacher, EWF Stirrup Elementary

Teacher training

Each teacher participating in the programme attends an accredited continuing education workshop where they receive a park activity guide full of lesson plans that have been prepared by some of the most accomplished teachers in the region. These lesson plans help enhance their school-based curriculum with activities relevant to South Florida's natural history and culture.

"The Everglades camping trip was a great experience for my students. The program enabled the students to have a real world experience of nature and how animals interact in their natural environment. Students were excited to see the wildlife and learn how everything in the Everglades depends on each other for their own survival. This field trip is one of the best educational programs, because the students are having fun while learning a lot of interesting facts and life lessons at the time."

Wendol Philord, Charles R. Hadley Elementary

Learning places

The park spans 1.5 million acres—more than 2400 square miles—and is larger than either Rhode Island or Delaware. We serve students on both coasts of Florida by locating learning places close to where they live. Day students from Miami-Dade and Monroe Counties can explore hardwood hammocks and alligator holes at Royal Palm and Long



Students observing and identifying fish

Pine Key. Day students from the southwest coast of Florida or Miami-Dade and Broward Counties can explore sawgrass prairies and sloughs at Shark Valley. Overnight campers can choose to camp and canoe in the pinelands at Hidden Lake Camp or explore the cypress domes and history at Loop Road Camp.

"I loved how you lined us up in a circle to hear the wonders of nature. It was beautiful."

Jesse, 5th grade

"It is amazing how different habitats are and how many animals have very clever adaptations."

Olena, 5th grade



More information

www.nps.gov/ever/learn/education/index.htm

World | USA | The learning power of parks



Experiencing the great American outdoor classrooms

Henricus Peters *Editor*

Comprising some of nature's most spectacular locales – names like Yosemite, Yellowstone to the Grand Canyon, the Everglades of Florida to the Gates of the Arctic in Alaska — the National Parks have been coined 'America's best idea'.

We celebrate these amazing natural wonders by highlighting US National Parks as experienced personally by the Editor and other members of the NAAEE Executive, followed by further details about the US National Park Service's centenary.

Mesa Verde National Park, Colorado

As I climbed up into the cliff dwelling, I knew I was entering another world — a world of peoples who would have been 'in tune' with their environment, otherwise they would not have survived. The educational value of my visit — and that of families, scouts, school groups — would be immense. The questions raised were many in number: Why did they build these dwellings here, in the dry cliff? How? Where did they get food..water? So on and so forth. Wow, what a place!

Mesa Verde (Spanish for 'green table') offers a spectacular look into the lives of the Pueblo people who made it their home for over 700 years, from A.D. 600 to A.D. 1300. Today, Mesa Verde National Park protects over 4,000 known archeological sites, including 600 cliff dwellings. These sites are some of the most notable and best preserved in the United States, and have therefore made their way onto the World Heritage List. **Henricus Peters**



Students on a tour of Balcony House, Mesa Verde National Park, Colorado (Copyright NPS)

Grand Canyon National Park, Arizona

The Grand Canyon — another National Park on my 'bucket list' to see — is really a hole in the ground.... a HUGE hole! A scar on the landscape, made by the Colorado River cutting down and down and down into the red rock to reveal millions of years of geological history and create unique micro-climates.

While my wife, also a teacher, ventured into the depths of the canyon — where the temperature changes and gets hotter at every downward spiraling corner — I chose to study the geology and

Thereafter, I ventured across the rim for specular views! Curiously, at least to me, the Canyon is not at all evident until you are actually very close indeed to it.... and then suddenly it plunges down into its own ravine. The world-renowned Grand Canyon, on the World Heritage list for its sheer size and the interplay of so many natural and cultural elements, is challenged by the Chinese Canyon which is allegedly deeper.

Henricus Peters



***The inconceivable vastness of the Grand Canyon
(Photo credit: Juliette Green, NAEF)***

Brief encounter with a creationist

Arches National Park, Utah was about 104 degrees (F) and after about two hours or so we eventually sought refuge in the Information Centre where the air con was going full blast. For no real reason, I asked the young Park Ranger behind the desk if they ever got Creationists in the park. "Oh, yes," she said, "they come for flood studies." I said it must be difficult for them in the face of so much scientific evidence. Before she could respond, however, an older colleague burst in from the back office and said in a loud voice: "I'm a Creationist! I think evolution is only a theory."

"Well so do I," I thought, "... a theory that'll do as an explanation until a better one comes along." However, before I'd the chance to say this, she returned to the back room, loudly closing the door. So there was no discussion where I made the rationalist case with conviction and to effect, explaining how my idea of theory differed from hers. Although I have replayed this encounter in my mind many times over the years, I have never ever come out on top. **Bill Scott**



*The very popular (but incredibly beautiful)
Yosemite National Park
(Photo credit: Juliette Green, NAEF)*

On visiting a National Park on a public holiday

Yosemite,
Well, quite a shock;
Rather 'Blackpool',
Though better rock!

Anon.




The legacy of US National Parks

The 'Yale School of Forestry and Environmental Studies' website covers a wide range of important international environmental topics and has some great pictures. The above image accompanies the article *Science in the Wild: the legacy of the U.S. National Park System*. It shows Saint Mary Lake in Glacier National Park, Montana.

National Park Service centenary celebrations

The US National Park Service (NPS) turned 100 on 25th August 2016. The centennial kicks off a second century of stewardship of America's National Parks and engaging communities through recreation, conservation and historic preservation programmes.

Establishing National Parks in both the USA and here in the UK have been hugely important ways of setting aside large tracts of culturally and environmentally significant land. 



*Studying giant trees in Sequoia National Park
(Photo credit: Juliette Green, NAEF)*

More information

www.nps.gov/subjects/centennial/index.htm

Mesa Verde National Park: www.nps.gov/meve;

UNESCO listing: whc.unesco.org/en/list/27

Grand Canyon National Park: www.nps.gov/grca;

UNESCO listing: whc.unesco.org/en/list/75

Yosemite National Park: www.nps.gov/yose;

UNESCO listing: whc.unesco.org/en/list/308

Arches National Park: www.nps.gov/arch

Sequoia and Kings Canyon National Parks:

www.nps.gov/seki

The Guardian has a summary of some of the best of its readers' images and stories of US National Parks: naef.org.uk/100-years-national-parks-usa

School of Ants goes Aussie

Dr Kirsti Abbott *University of New England, Armidale, New South Wales*

Matt McKenzie *Thalgarrah Environmental Education Centre*

John McQueen *Cascade Environmental Education Centre*



School of Ants is a citizen science project that operates in three countries: USA, Italy and Australia. All three projects run independently of one another — Australia and Italy having been catalysed by the original US project — but with a common theme of understanding the diversity and distribution of dominant ground foraging ants in urban spaces.

School of Ants Australia has been live for two years, and in addition to investigating the diversity and distribution of ants, we want to see if citizens are able to collect quantitative data on what ants like to eat at various times of year in different locations. The protocol is simple: in both a 'green' habitat and a 'paved' habitat, place five index cards about 3m apart. On the cards, place one small piece of frankfurter (available at local delis or supermarkets), one cotton wool ball soaked in ~30% sugar solution, and one quarter of an Arnott's Scotch Finger biscuit. Wait one hour, then come back to the card and count the number of ants on each food source. The method is cheap, materials readily available across Australia, and the simplicity of it encourages participants to get intimate with ants like never before!

A serendipitous partnership emerged in the early days of *School of Ants Australia* - with educators in the network of Environmental Education Centres (EECs) in New South Wales, Australia. There are 25 such centres around the state that include education centres in zoos. Their brief is to provide programmes grounded in environmental and sustainability content to visiting school classes; the programmes offered vary depending on the unique features of the centre's location. All the programmes are linked to the NSW school syllabus and pre- and post-visit support materials are

provided to teachers so that ultimately these centres can support the integration of environmental education, provide professional learning opportunities to teachers, implement more sustainable practices in schools and produce environmental leaders in the future.

School of Ants was lucky enough to be invited to the Zoo and Environmental Education Centre Annual Conference in 2014 to launch the project, and start a conversation with the passionate principals that lead the programme in NSW. Numerous EECs undertook collections for *School of Ants* after its launch, but Thalgarrah EEC and Cascade EEC are located near the headquarters of *School of Ants*, and took part in the synchronous citizen science project during 2015.

2015 was the year of nation-wide travel and synchronous science! Dr Kirsti Abbott took *School of Ants* on tour. For citizens in far flung places of the Australian outback to be able to experience the joy of ant observation and scientific collection, Kirsti travelled 32,000 km with her family in tow around much of Australia! She visited one school each month across New South Wales, Queensland, Northern Territory, Western Australia and South Australia to collect ants on the same day as 25 other registered individuals or school groups. The aim was to see if School of Ants could get synchronous data collection happening around the country, and indeed we managed to attract over 50 registrations in the project. On any given month there were 12 collections recorded.

The Zoo and Environmental Education Centres were a perfect model to run monthly collections, as they shared the experience with a new class of students each month.

Here's Matt McKenzie's take on it:

"Thalgarrah was very excited to be involved with the School of Ants project. The project was a springboard for us in developing a new program 'Scientist for a Day' in which students learn about the work of scientists and the ways of working scientifically. The School of Ants collection process was an excellent case in point of the need for accurate measuring and observing, controlling variables, collating and presenting data, and setting up more than one test.

Thalgarrah teachers also run an online science course in Term 3 for gifted and talented students throughout the New England area. A School of Ants collection was one of the tasks set and students (and their families) were very excited to be involved with a real science project and sending their samples back to the university.

Being involved with Kirsti, UNE and the School of Ants project has really enhanced the programs delivered by Thalgarrah EEC to our visiting students."

John McQueen from Cascade EEC also conducted School of Ants days:

"Cascade EEC is a residential centre located in the rainforest on the mid-north coast of NSW. The Centre agreed to be a part of School of Ants as it directly complemented the objectives of various camps we run.

The ant collections formed a component of the 'Bugs in the Rainforest' activities that were an integral part of each student camp. In addition to School of Ants collections, students conducted a series of activities to examine terrestrial, aquatic macro-invertebrate and plant biodiversity within a rainforest setting around our Centre.

The School of Ants activities perfectly dovetailed into, and enhanced, our existing program. Students were excited about the prospect of being involved in a real world science investigation with the possibility of contributing to

research about ants and the environments they inhabit. It's this real research aspect that adds significant motivation for students."

Matt, John and Kirsti agree that involvement with citizen science projects helps students move away from the notion that science is just a body of knowledge. They believe that it is important for students to understand that science is a way of systematically working out new knowledge; anything that actively includes young people in this process, collecting and interpreting data, is superior to a traditional science education of writing down facts.

That school students can contribute real data to a real investigation being conducted by real scientists is the next step up! Too often students fail to see the relevance of what they are learning in school. With citizen science projects the work is relevant, it is real and that creates a whole lot more excitement, energy and engagement in students.

School of Ants will continue establishing its colony of citizen scientists in Australia. Stay tuned for results of our 'Around Australia Synchronous Science' project. 🐜🌍



Visitors to the School of Ants website can contribute to international ant research by learning how to create an 'Ant Picnic'

More information

www.schoolofants.net.au

Educating to raise awareness about water scarcity

Jelena Milenković *Operations Manager, Thirst, Shanghai*

Thirst is an international non-profit organization focused on teaching the youth of China about the issue of water scarcity. Thirst aims to educate China's next generation of consumers to be smarter in their water usage in a world where consumers are largely unaware of the vast amounts of water that go into producing most of the things they use every day. Thirst members have been going out to schools around Beijing, Shanghai, and Chongqing, and 18 other provinces in China to teach their curriculum on water conservation, providing free and non-commercial environmental education to students ranging in age from 8 to 18. Our presentations have been teaching students how they can make a big difference by making small changes to their own lifestyles. As an example, switching from coffee to tea when you need a pick-me-up can save **105 litres** of water — that's about the same amount of water used for a **5-minute** shower. Surprisingly, the amount of water that goes into producing coffee and other products often accounts for a larger proportion of water usage globally than one might guess.



Thirst water dragon at No.15 High School, Beijing

Thirst focuses strongly on the important issue of **virtual water** as a part of one's everyday **water footprint**. These two concepts are vital to fully understand the effect our consumption has on the supply of water around the world. Your water footprint is the amount of water you use every

day, not only around the house but also through what you consume/eat: the 'virtual water'. For example, food also requires water in its production. Before a steak reaches your plate, all of the steps of production add up to around 4500 litres of water, including the water needed during transportation after production. In fact, virtual water constitutes approximately 98% of the average person's water footprint. Today's consumers are largely unaware of this significant figure, which could spell danger for our future. This lack of awareness is primarily what Thirst aims to change.



Thirst at Tongxin Primary School, Beijing

'We Water Experience' is the programme Thirst uses to educate the students about these issues. The presentation can be taught in both Chinese and English, usually taking about 45 minutes.

It begins with a short video, which gives a brief overview of the presentation that introduces its most important facets. Then, there is a short 10-question quiz that is both anonymous and not graded for the students, to gauge how much they currently know about water. The presentation itself begins by noting the importance of water in sustaining life on earth and just how much of it is on our planet. This introduces the idea that salt water is not potable, cannot be used in industry, and cannot be used in the production of agriculture — leaving us with less than 1% of water on

the earth being accessible fresh water. When taking the growing population into consideration, the amount of people that don't have access to clean water will increase from 1 in 3 people to 2 in 3 people by 2025. This introduces the importance and urgency of water scarcity.



Using a home-made biosand filter

Secondly, it reviews the water cycle in order to highlight the notion that water is a renewable resource, thus encouraging more sustainable usage of water so that pollution will not inhibit the cycle from replenishing these resources. It explains how water pollution not only affects the rising temperature, but can also cause natural disasters in different parts of the world. This also brings together the idea that what happens in one country's oceans or atmosphere has a large influence on the conditions in another. Furthermore, the curriculum focuses on China specifically. It highlights the large divide in water distribution and the attempts at ameliorating this issue, for example the South-North diversion project. This helps the students realise that not only is this problem affecting other countries, but also their own.

Finally, it teaches students ways to reduce their water footprint in their homes. For example, it shares with them how much water is used while in the shower, how much water leaks from a leaky tap, to what extent water gets polluted by a battery that isn't disposed of properly etc. we then introduce the concept of virtual water. Many students are surprised to learn about the vast amounts of water required to produce a pair of jeans or the aforementioned steak dinner, particularly because they do not physically see the water that is being consumed. The teaching programme

underscores the importance of water in every step of production including packaging, transportation and so on. This aims to teach students that almost all their water footprint comes from the production of food and clothes rather than domestic uses and teaches them to be more conscious consumers.


The 'We Water Experience' ends by advocating that students use this information to make small changes to their daily habits that can yield big change. We call attention to the fact that change is possible on a larger scale, especially when more people know what they can do to make a difference. Furthermore, Thirst prompts them to tell their friends and family members about the new ways they learned to save water.

All the students come away from their time with Thirst holding a greater, broader understanding of how they can make a change through their actions.



Pupils' sketches, Hujialou Primary School, Beijing

Not only is Thirst Involved with the school community, but in Shanghai's broader environmental community as well. Thirst has also organized a number of innovation competitions for students to showcase their ideas on new ways to save water or raise awareness of water

scarcity. On a larger scale, Thirst has organized the 'Silk Road Innovation Competition' this year for the third year running, an event aiming to facilitate young minds to produce entrepreneurial new ideas regarding water conservation. Gathering success in 2014 and 2015, this year the Innovation Competition has reached 150 schools across China, amounting to 150,000 students in total. 

More information

www.thirstforwater.org

Life afloat: educating kids by boat

Lynda Rolph *Head of Community, Traidhos Three-Generation Barge Program*

The Traidhos Three-Generation Barge Program has worked in Thailand in the field of EE for 20 years.

Today, we are all undeniably citizens of a global world. From the clothes we wear and the food we eat, to the technology we communicate through, we are dependent upon global resources, a global workforce, global transportation systems and a global economy. We contribute — sometimes unknowingly — to global problems including climate change, loss of biodiversity, deforestation and the pollution of the air and of the seas. Despite all of this, our attempts at solutions and policies to address the problems often remain parochial.

Our individual thinking and our education should lead students to explore systems, to identify stakeholders and their viewpoints, to consider relationships across time and across geographical borders, and to synthesise information from economic, natural, social, cultural and personal well-being perspectives. The way forward seems as complex as the problems we face. How can we make these things accessible to children in primary schools?

Education for Sustainable Development

The UN Decade of ESD challenged us to think more holistically about how we presented the idea of sustainability to students. I was working with students from international schools, students who could talk knowledgeably about the street food of Asia and the art of Europe or of how they had lived through floods, earthquakes and political coups; the global reach of the world today and how interconnected each part has become.

To more fully embrace ESD, we needed a tool which helped students to think systemically, recognizing the joined-up nature of today's society and empowering them to see where changes could be made to promote more sustainable living.



The barge on the Chao Phraya River , Bangkok

The AtKisson Compass of Sustainability was incorporated into our investigations and discussions. I saw first-hand how motivated and excited students became when using systems thinking. Working with young people through the Traidhos Three-Generation Barge Program, an experiential watershed program, I became aware of the new role we took as facilitators.

Systems thinking allows the elements of good environmental education, namely development of awareness, attitudes, knowledge, skills and participation, to be set in a big-picture context.

The Compass of Sustainability develops around the idea that just as a regular compass shows direction, the compass of sustainability points the direction to suggest where to make a system more sustainable. The North, East, South and West of a conventional compass are replaced with the lenses of Nature, Economy, Society and Well-being.

During the investigation, students are grouped into one of these four compass lenses, allowing them to focus and collect information from different perspectives. Prior to visiting the study community, students brainstorm questions to ask, consider things to observe and discuss ideas that they want to know more about, according to their compass point perspective.

Students in our programme spend typically sixty to ninety minutes exploring the community,

interviewing local people, observing life and what is happening in the community. On returning from their visit, they prepare short presentations about what they have seen from their compass point perspective. Students make connections across the compass points and start to see how things they observed have either a positive or negative influence on another groups' observations. To make this process more concrete, they connect to each of the other groups' compass points using strips of coloured vinyl. Students as young as 10 years old soon recognize that changing one thing in the community will impact on other things. Without realizing it, they are verbalizing the essence of systems thinking, recognizing feedback loops and suggesting leverage points where implementing innovations could change the system.



The Compass in action, Chantaburi fishing village

Recently I worked with a Year 6 class at a fishing community at the Gulf of Thailand, a new environment for children used to traffic and high-rises in Bangkok where seafood was presented in restaurants rather than entwined in nets or wriggling in a bucket.

EE games were used to introduce some of the issues affecting fish and fishermen: students playing a version of 'Common's Dilemma' and an adaptation of 'Fish-hooks and Ladders'. Having explored the ideas these games raised, students were introduced to the Compass of Sustainability and worked in four compass lens groups to brainstorm what they wanted to find out in the real community. Student questions included wanting to know times of day fish were caught, who did the fishing, whether the catch was always the same, and if the fishermen were happy in their jobs.


The brainstorming exercise enabled the children to interact more confidently with the fisherfolk, asking questions while watching them at work or observing the environment.

Later, as students shared their findings, the depth of their understanding of connections between the four lenses became apparent. The Nature group reported that fewer fish were being caught close to the village than when these fisherman were young. The Economy group responded that more money would be spent on boat fuel and make fish more expensive. The Well-being group saw a connection that if fish were more expensive, people would eat less fish and some fishermen might be out of a job.

Finally, the children imagined outcomes of changing the system. Some saw the lack of fish and the reduction in fish size as key and suggested stopping fishing when fish had young. So that the fishermen still had income for their families, boat rides for tourists was suggested.



Compass debrief back on the barge

Using the Compass to explore sustainability gives students a simple tool which they understand quickly AND empowers them to identify systems, to think critically and creatively about a wide range of issues. I have now worked with students across three continents using the Compass in many settings. It allows students to identify different stakeholders and different perspectives, seeing connections between parts of the whole. It has helped pupils to develop as global citizens, equipping them with skills to understand increasingly complex societies. 

More information

barge.threegeneration.org

www.compasseducation.org

New perspectives on environmental education in Africa: a view from near the Pyramids

Phil Murphy *School of Earth and Environment, University of Leeds*

Kholoud Mahamed Ali, *Institute of African Research and Studies, Cairo University*

On 25th to 27th May 2016 the Institute of African Research and Studies at Cairo University hosted a conference entitled 'Africa: New Perspectives'. This was envisioned as a platform for initiating a new vision in cooperation with African countries and improving relationships through new perspectives, by discussing the current situation and challenges. The conference had five themes: natural resources, education, community culture and health, conflict/peace building and economics, all of which were focussed on Africa.

The Institute was established in the 1960s by President Gamal Abd El Nasar and was intended to be the first African think-tank in the Arab world. It has six departments: natural resources, geography, history, anthropology, politics and economics, and African languages. Cairo University is Egypt's premier public university with its main campus in Giza, across the Nile from Cairo. It was founded on 21 December 1908 and was established on its current main campus in Giza in October 1929. It is the second oldest institution of higher education in Egypt. In QS ranking 2014, Cairo University was ranked the 2nd in Egypt and was rated the 7th across Africa. The campus is an imposing mixture of historic and modern architecture and hosts about a quarter of a million students in 45 faculties and institutes including natural, applied and social sciences and humanities.

Arriving by taxi to Cairo University campus in Giza, you enter an oasis of calm from the frenzied activity of the city. Like university campuses the world over, lots of building work is happening and parking is, as ever, a problem. Cats are everywhere, which contrasts with outside the campus walls where dogs are everywhere! One notable feature to a western visitor is the high level of security with airport-style

bag searches and X-ray machines at the campus entrances.

Among the opening addresses at the conference was one given by His Excellency the Ambassador and Head of the Diplomatic Mission for the Republic of the Congo. A theme repeated through the opening addresses and the conference was that the 21st century should be the African century, but will this prove to be the case? Despite its size, population and resources, Africa still only contributes 1% of global GDP. The education theme had contributions from Chad, Nigeria, Cameroon, North and South Sudan, the USA, as well as a number from the host nation. The strand included accounts of both top-down and bottom-up approaches in environmental education across the continent. The enthusiasm and commitment of the contributors was incredible. Some speakers had travelled to Cairo by bus from both North and South Sudan, taking several days.

While many speakers discussed barriers to education of both a practical and social nature, environmental education in Africa appears to be in very exciting times and great strides are being made in making quality and appropriate education available to more and more of the population. There are many challenges to be faced by educators in Africa, for example in Cameroon alone 54 languages are spoken and this does not take account of dialects. While great shows are made of educational technology in the west, African educational technologists are looking at how materials can be reused and upcycled to bring educators into contact with remote learners. The North Sudanese delegation read from scripts – no fancy PowerPoint presentations, just passionate delivery by passionate educators.


The final session of the education theme looked at continent-wide strategies in education, science and technology. The conclusion being: if Africa is to take its true place on the world stage then it needs to move to an innovation and knowledge based economy which will be on the back of the hard work and commitment of educators, including environmental educators, at all levels across the continent.

The conference organisers had arranged an Africa pavilion on campus where countries from across the continent provided cultural exhibitions for both conference attendees and students. This proved to be a very popular attraction for the many students awaiting the start of their exams.



The Africa pavilion: this proved a very popular attraction across the campus

For those of us outside Africa, what can we do to support the work on the ground by dedicated educationalists? One obvious thing to do is we need to realign what we teach to reflect African realities today. Too often only negative stories are heard and no positive news makes it into our newspapers or to our television screens. Another issue is much of our Africa-facing primary teaching is focussed on ancient history. I wonder how many young people think the majority of Egyptians today live in pyramids rather than the urban reality of the megacity of Cairo? We need to move away from the deficit model and an ancient history focus to provide positive visions of African realities today. We also need to communicate how big, complex and varied Africa is – I suspect many young people in the UK think of Africa as a single country rather than the second largest and second most populous continent on our planet with an area of 30 million km². One very positive theme touched on by many speakers was the strength of family and social structures across Africa, which may be something lost or being lost in other parts of the world, and the incredible resourcefulness of the population.

As Africa takes its rightful place in the world, we as educational professionals elsewhere need to ensure our children understand the realities of life in Africa today – not Africa 4000 years ago. 

Book reviews

365 Nature: Projects to Connect you with Nature Every Day *Anna Carlile*



Anna Carlile's book accomplishes an impressive merging of style and substance; at first glance stunning and evocative photography draws the reader in yet suggests that this is nothing more than a walk in the woods in coffee-table reading

form. However, on full immersion into the (admittedly slightly hard-on-the-eye) text and projects Carlile has brought together, one begins to really get excited about the possibility for bringing nature into our lives which she champions; the 'wild fun' she talks about consists of finding ways to connect with the natural world every day, even if, as she does, we live in the city.

The book, as many of its kind tend to be, is sectioned according to the passage of the seasons. Scattered with inspirational literary quotes: *"Adopt the pace of nature, her secret is patience"* (Emerson); *"Walking...is how the body measures*

itself against the earth" (Solnit), it is a reminder of how we interact with nature through language to give new meaning and intimacy to our relationship with our environment. A combination of these quotations brought together would make an interesting stimulus for a discussion on the ways we talk about nature in literature, and perhaps could provide the jumping off point for students to explore writing creatively about nature themselves.

History of how people have created folklore inspired by nature is also woven through the projects Carlile showcases; she explores 'weatherlore' in a stunning four page spread on learning to read the clouds, and traditional meanings associated with different flowers are included in her instructions on making a 'tussie mussie'.

Many simple art projects – making wall hangings, painted stones and sticks, and dream catchers – are presented with comprehensive instructions and provide easy ways of combining a class art activity with a trip outside the classroom, or vice versa.

In summary, this is fundamentally a stunning book which will re-inspire a love for nature and a desire to share its joys.

Philippa Riste

365 Nature: Projects to Connect you with Nature Every Day. Anna Carlile. Hardie Grant Publishing. Hardback, pp240. ISBN 13-9781741174649. Available from Amazon, £25.00

Secrets of the Vegetable Garden

Carron Brown & Giordano Poloni



Secrets of the Vegetable Garden is a picture book with a difference! Children hold the book up to light or shine a torch behind the page to reveal the hidden activity going on in the garden: seeds appear magically under soil in a pot; roots and worms, normally hidden to us,

become apparent under the ground; readers are able to see the peas developing inside the pod as the plant grows. Full of fun and wonder, this book is also educational. Basic principles of growth, pollination, and even pest control are introduced in an interactive way – there is even an illustrated glossary at the end of the book!

This book would be a wonderful resource for use in Reception when introducing for the first time the science of plant development – either as a tool to deepen understanding in schools fortunate enough to have a vegetable garden, or as a way of (in some measure) substituting the experience of exploring being outside.

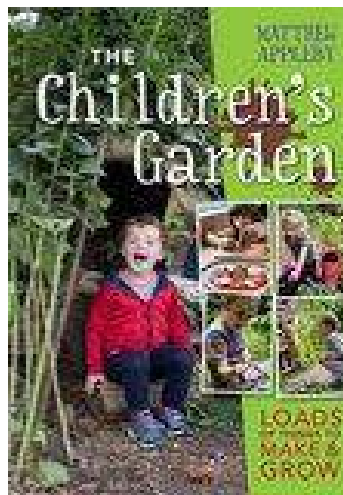
Beautiful and engaging for young readers, this is a wonderful addition to any child's book collection or to a school classroom.

Philippa Riste

Secrets of the Vegetable Garden: a Shine-a-Light Book. Carron Brown & Giordano Poloni. Ivy Kids 2016. Hardback, pp36. ISBN:978-1-78240-323-4. Available from Frances Lincoln Ltd, £10.99

The Children's Garden

Matthew Appleby



The Children's Garden is a useful resource for any teacher keen to maximise the potential of a school garden for the purposes of enjoyment and creativity. The handbook is organised into sections based on the seasons.

In Spring, one of the most fun and creative ideas is the construction of a 'wall of sound and water'; an old wooden pallet is revitalised with the addition of old hosepipe, pots and pans, and watering cans attached in the various positions on axes so that small hands are able to turn the objects and make water flow from the top to the bottom of the 'wall' – a simple idea, but one which encompasses both learning about recycling, and also the science of how gravity affects the flow of water.

In the Summer chapter, the educational benefits of keeping chickens are discussed – perhaps chickens could be a fun addition to a school garden, teaching both responsibility for animals around us and in our care, and more about the origins of food. In Autumn, classic season activities such as blackberry picking and accompanying recipes, and treasure hunting in the woods, are covered; while in the section on Winter, Appleby suggests, growing plants from leftover vegetables can be fun and instructive, and he details different ways of constructing bird feeders for children.

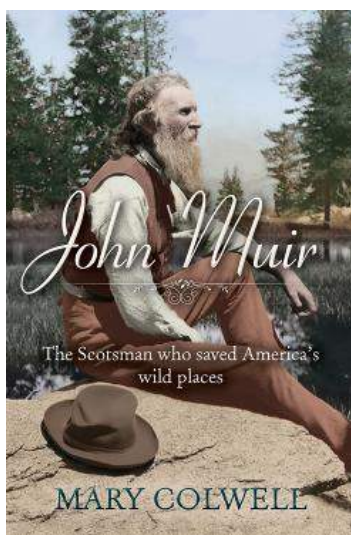
Overall, this book has plenty of content for a teacher or parent new to the idea of outdoor play and learning with children. It is perhaps thin on depth and detail in places (often an idea is presented for an activity or end product without any instructions or recipe), and the pages are a little overcrowded – often the many photographs do not directly correspond with the text around them. If you already have books on gardening and playing outdoors with children, this is may not add anything new to your knowledge base, but as a place to start it's not bad at all!

Philippa Riste

***The Children's Garden.* Matthew Appleby. Frances Lincoln Ltd. Hardback, pp144. ISBN: 978-0-7112-3633-2. £14.99**

John Muir: the Scotsman who saved America's wild places

Mary Colwell



John Muir is regarded as the 'father of America's national parks' and is a towering figure in the history of that country's involvement with ecology, wilderness and all things natural. Born into a harsh disciplinarian home in Dunbar, Scotland (not the US as often thought), as a young

boy he would often escape the grit of urban reality to revel in the wildlife of the area. When his father suddenly uprooted the family and moved to the United States, the oppression he associated with his childhood continued – but at the same time he had the opportunity to connect in a very important and life-changing way with the natural world of America. Despite the difficulty of his formative years, Muir grew up to be a man of great joy – he was an inventor and then an explorer, he found his haven in the mountains of Sierra Nevada. Following an accident that left him temporarily blind, an expedition across a huge swathe of wild lands provided the opportunity to witness first hand the real wild lands, and germinated the seed of the idea of protecting the same – an idea that would become today's national parks!

He was a fascinating character: on the one hand a recluse, who sought solitude in nature; and on the other a passionate activist, determined to save the places he loved. A strong believer in both God and the essential goodness of humanity, he was the founder and first president of the Sierra Club, as well as being the inspiration of the John Muir Trust, and writer of more than a dozen volumes on natural history. This wonderful memoir pays tribute to a giant of ecology and is essential reading for lovers of natural history and its history.

Henricus Peters

***John Muir: the Scotsman who saved America's wild places.* Mary Colwell. Lion Hudson Ltd. Paperback, pp288. ISBN: 978-0-7459-5666-4. £9.99**

Love books?

NAEE members are invited to become part of the team who review books, especially latest releases.

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

Compiled by Henricus Peters *Editor*

In this Webwatch, we focus on the learning opportunities available in the UK's National Parks.



www.nationalparks.gov.uk

Brecon Beacons, Wales

Mountains and moorland, standing stones and castles, waterfalls and a unique Global Geopark.

www.breconbeacons.org

Broads National Park

Britain's largest protected wetland was formed by the flooding of old peat diggings and is now home to some of Britain's rarest wildlife.

www.broads-authority.gov.uk/learning

The Cairngorms, Scotland

Britain's largest National Park contains its highest mountain range and its biggest native forests; clean rivers and lochs; moorland and farmland; and is a stronghold for Britain's wildlife.

cairngorms.co.uk/caring-future/education-learning/projects-for-schools

Dartmoor National Park

Heather-covered moorland, rocky granite tors, stone circles and medieval villages, iconic Dartmoor ponies; allows wild camping.

www.dartmoor.gov.uk/learningabout/lab-teachers

Exmoor National Park

Moorland, woodland, valleys and farmland, high cliffs that plunge into the Bristol Channel.

www.exmoor-nationalpark.gov.uk/learning

The Lake District

High fells, deep glacial lakes and thriving rural communities, the Lake District has inspired writers and visitors. Also home to England's highest mountain (Scafell Pike).

www.lakedistrict.gov.uk/learning

Loch Lomond and the Trossachs, Scotland

With 22 large lochs, 21 Munros and about 50 rivers and streams.

www.lochlomond-trossachs.org/park-authority/how-we-can-help/outdoor-learning

The New Forest

A historic royal hunting forest, where ancient woodlands and open heathland have commoning rights for grazing ponies, cattle and pigs.

www.newforestnpa.gov.uk/info/20091/for_teachers

Northumberland National Park

England's rolling hills, gentle mountains, Hadrian's Wall and internationally recognised dark skies.

www.northumberlandnationalpark.org.uk

The North York Moors

Wide open moors, big skies, swathes of purple heather, and a beautiful coastline with traditional fishing villages, cliffs and beaches.

www.northyorkmoors.org.uk/about-us/school-and-group-visits

The Peak District

Britain's first National Park, between the cities of Manchester and Sheffield, with dramatic heather moorland hills and rock edges in the north, limestone dales and rivers in the south.

www.peakdistrict.gov.uk/learning-about/education

Pembrokeshire Coast, Wales

Britain's only fully coastal National Park with 418 km of cliffs, beaches, harbours and coves.

www.pembrokeshirecoast.org.uk

Snowdonia National Park, Wales

Dominated by the Snowdon mountain range, with picturesque villages, steep river gorges, waterfalls and a coastline of sandy beaches.

www.eryri-npa.gov.uk/addysg-education/teachers

South Downs National Park

Discover the world-famous white cliffs at Seven Sisters, rolling green and gold hills, ancient woodland and lowland heaths.

www.southdowns.gov.uk/discover/learning-zone

The Yorkshire Dales

Rolling green valleys scattered with traditional field barns and drystone walls.

www.yorkshiredales.org.uk/visit-the-dales/things-to-see-and-do/workshops-and-experiences

New National Parks UK book

National Parks UK have teamed up with Mission Explore to produce this pocket-sized book filled with challenges and adventures for children to try out and keep a record of when they are in one of the UK's 15 National Parks.

ow.ly/ryHm304ZOIM

UK Government to allow fracking in National Parks

National Parks where fracking is to be allowed include North York Moors, the Peak District and the South Downs.

Greenpeace: *"...even without going into the long list of threats that fracking poses, there's a reason these areas deserve better protections. Often they're home to endangered wildlife or fragile ecosystems. When we visit these places we don't expect noise from compressors, the sight of dozens of heavy-goods vehicles thundering by, or 24/7 flood-lighting and industrial noise — all of which the fracking industry is likely to bring."*

The announcement in December last year came just days after the historic climate deal that was agreed at the UN in Paris; celebrated internationally as a sign we are coming to the end of the fossil fuel era.

ow.ly/Yy4M304ZOEY

Sustainable Development



At the United Nations Sustainable Development Summit on 25 September 2015, world leaders adopted the 2030 Agenda for Sustainable Development, which includes a set of 17 Sustainable Development Goals (SDGs) to 'transform our world' — aiming to end poverty, fight inequality and injustice, and tackle climate change by 2030.

The goals that apply to the work of NAEF are Goal 4: 'quality education for all'; Goal 6: 'Clean water and sanitation'; Goal 7: 'affordable and clean energy'; Goal 11: Sustainable Communities and Cities'; Goal 12: 'Responsible Consumption'; and Goal 13: 'Climate action'. However, these arguably are very global and would still need to 'crunched' for how the likes of NAEF might undertake to promote and undertake specific action.

ow.ly/gtfu304ZP2H

Resources: *Year of Living Sustainably 2016*; and *The Lazy Person's Guide to Saving the World*.

Things you can do from your sofa (honestly!), at home and outside the home

www.un.org/sustainabledevelopment/yols/

www.un.org/sustainabledevelopment/takeaction

Autumn activities booklet

FACE (Farming & Countryside Education) has produced the second in its series of seasonal activity e-booklets. It features ideas to use in school or on the farm ranging from literacy challenges, colour hunts, autumn recipes and learning how apple juice is made.

www.face-online.org.uk/face-news/autumn-activities

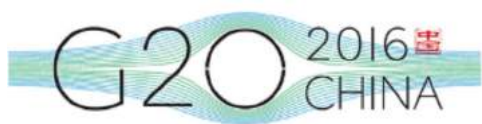
Small changes to large ones with impact

A film of Naomi Klein's book *This Changes Everything* has been released in the UK. The accompanying free education pack contains a series of short clips taken from the film which highlight the complexities of trying to balance society, economy and environment. The videos show how people from all walks of life and countries are trying to effect change. There are questions designed to encourage critical thinking and challenge assumptions. Recommended for upper primary and secondary students.

naee.org.uk/perhaps-changes-everything

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Climate change



G20 in China ... blue skies in Shanghai

Living in Shanghai, in September I noticed the sky was a lovely 'G20 blue'... meaning that the conference in Hangzhou, had prompted the Chinese authorities to clean up the air!

Paris Climate Agreement

Good news: China and United States have ratified the Paris Climate Agreement.

ow.ly/DIst3050YL5

The UK Prime Minister stated during her maiden speech to the UN in September that the UK was determined to “*play our part in the international effort against climate change*” and that the UK will “*start its domestic procedures to enable ratification of the Paris agreement and complete these before the end of the year.*”

ow.ly/46sR3050Zk6

Interclimate Network

Interclimate Network mobilises the energy and creativity of young people, inspiring them to become active citizens and leaders in sustainable, low carbon, economic development. ICN have developed resources in Kenya and the UK to support young people to think critically about the issues, develop ideas and take action.

www.interclimate.org/resources

TEESNet — Teacher Education for Equity and Sustainability Network

In September, TEESNet held their annual conference: *Measuring what's valuable or valuing what's measurable? Monitoring and evaluation in Education for Sustainable Development and Global Citizenship.*

ow.ly/JK6c305104f

IUCN World Conservation Congress

The Congress was held in Honolulu, Hawaii, 1-10 September 2016, setting the global conservation agenda for the next four years and defining a roadmap for the implementation of the historic agreements adopted in 2015.

www.iucnworldconservationcongress.org

New movement: #NatureForAll

#NatureForAll is a global movement to inspire a new generation of thinkers and doers across all sectors of society to connect with nature and take action to support its conservation. At its core is a very simple idea: the more people experience, connect with, and share their love of nature, the more support there will be for its conservation.

www.natureforall.global

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NAEE on social media

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NAEE Facebook: www.facebook.com/NAEEUK

Join NAEE

NAEE is run by its members and volunteers who care passionately about environmental education and education for sustainable development.

The Association supports teachers and serves members' needs through journal publishing, the use of social media, curriculum resources, and by keeping the website up to date. So why not join us?

naee.org.uk/join-naee