

Centre for STEM Education

“Are there bears in Epping Forest, Miss?” Dispelling misconceptions and inspiring future scientists with outdoor learning

Article by Yanika Hennig - Learning Officer at RSPB, Rye Meads Nature Reserve

Ask any teacher what the benefits of outdoor learning are and they will probably say something like: fresh air; being able to explore; hands-on interactive learning; great for mental health and wellbeing. All of these are true and by themselves are reasons alone to get your class outdoors. But what about going on a school trip to learn outdoors? I've worked in outdoor education for Science and Geography for 6 years now and have come to realise that going on a trip can be really transformative for students and their world view. The science primary curriculum wants children at KS1 to 'explore the world around them'. At lower KS2 they are to 'broaden their scientific view of the world around them and at upper KS2 to 'develop a deeper understanding of a range of scientific ideas'. Secondary Science builds on this with its focus on the interconnectedness of science and 'developing lines of enquiry based on observations of the real world'.

Coming on a trip to a nature reserve is the perfect way to do this and discover some of the surprising misconceptions children have. As a Learning Officer at RSPB Rye Meads reserve in Hertfordshire I meet many young people and one of the questions I ask them is, "What do you think a nature reserve is?" Many have no idea or have a vague notion of animals in cages. When I explain that the birds and animals are free to come and go, they are amazed and often ask, "Why do they come back?"



This leads onto discussions of habitats and what animals need (food, shelter and a place to breed) but this doesn't convince everyone. One year we had the amazing privilege of having kestrels nesting in our car park, who produced 6 chicks. I pointed the young birds of prey out to a class and one child in particular was fascinated.

"What do you feed them?" he asked. I explained how they find their own food. He wouldn't believe me – what could there possibly be that they could eat? He couldn't see any small mammals scuttling around. I explained about the birds' amazing adaptations – pointing out their sharp talons and big eyes and how they can see much better and further away than we can. But he'd seen birds of prey at other places and they definitely fed them, he'd seen it himself. I explained the difference between captive and wild birds and how wild birds have everything they need to catch live prey. He went off for a bit seemingly satisfied and then came back with his killer question: "But what about in winter? There can't be anything for them to eat in the winter!"



Children within the same class will have vastly different life experiences and taking them on a trip to a place where they can see science in action can be hugely inspiring for them. Speaking from my own experience, many children have never been in a bird hide, or have no idea what a wetland is, so coming to Rye Meads means opening their eyes to new places and experiences.

It can take the abstract concepts of habitats, food chains, classification and bring them to life. Students (and adults) will discover new species they have never heard of. They will learn about scientific processes by seeing them – the tree in bud; a newt part-way to transforming to an adult; realising that the familiar slug that we all know is actually only one type and there are many; learning there's no such thing as a seagull (there are herring gulls, black-headed gulls, etc but no generic 'sea gull'). Older students will have the opportunity to investigate concepts such as biodiversity and adaptation by collecting data on real, living animals and plant eco-systems.

It's not just primary children who have basic misconceptions of our natural world either. I'll never forget an A-level biology session I taught while working in Epping Forest. We started on our walk into the woodland and a student came up to me and said: "Miss, are there bears in the forest?". "Yes of course there are," I replied, " and there's an alligator that lives in our pond." I turned around expecting to see him laughing, but instead he looked confused and kind of concerned. I immediately felt terrible, I assumed he'd been pulling my leg (he was studying A-level biology after all) but he was deadly serious. I then explained that actually thousands of years ago there would have been bears and wolves roaming our wood, but with shrinking habitat and hunting pressures they disappeared so now we don't have any big predators any more in our forests.

So, taking children on a science trip outdoors is more than just 'getting fresh air' or 'identifying animals'. It can open their eyes, inspire them and maybe make them question some of their firm held beliefs.

Our thanks to Yanika Henning, Learning Officer at the RSPB, Rye Meads Nature Reserve.

If you would be willing to share some of the work you have been doing to support science, computing or wider STEM subjects, please get in touch with us at stem@herts.ac.uk