

Figure 1
Handling,
measuring and
studying skulls to
determine to whom
they belonged



Discovering the science hidden behind real objects

Ruth Desforges, from the Discovery and Learning Team at the Zoological Society of London, describes how objects can be used to promote an enquiring mind

At the Zoological Society of London (ZSL) we have a huge collection of unique and curious objects from the natural world that have been loaned to us by HM Revenue and Customs after being seized at the UK border. Among the turtle shells and snakeskins, the strangest of these is perhaps the free-standing rhino-foot ash tray. *'Why on earth would someone make that into an ash tray?'* is one of the questions



we often find ourselves asking. But this single object can open up a whole host of other questions for the students that visit us for our education sessions. It can be used to introduce students to the issues of the illegal wildlife trade or as an introduction to classification, exploring the differences between even- and odd-toed ungulates. Or, in comparative anatomy, it provides an example of an animal that walks on the tips of its toe bones, in contrast to

humans, walking on the soles of our feet, and can be used to explore ideas of adaptation, exemplifying the rhino's thick, defensive skin.

Discovering teeth and feeding

A single object can open a window onto a world of investigation. At ZSL we strive to encourage engagement through authenticity by presenting students with real objects to stimulate scientific enquiry. For example, during our 'Discover teeth and feeding' sessions, we present students with a range of skulls of different species and lead them through an investigation to determine which animals the skulls belonged to and what sort of food they would have eaten. Students

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discuss the different types of human teeth and their functions and compare these to animal teeth. Then, with the aid of these real skulls, they discover how the type of teeth an animal has can be a clue to what it eats, comparing carnivore and herbivore teeth before handling, measuring and studying the skulls further to determine to whom they belonged.

The real skulls we use enable us to bring this topic to life, opening the door to enquiry-based learning. The most common question we are asked in this session is 'Are they real?', quickly followed by many other lines of questioning. By asking open starter questions around the objects we allow the investigation to be led by the students as we encourage them to seek out their own answers. This often leads to further questioning, all stimulated by the real specimen in front of them. This problem-based experiential approach means that students are engaged with the topic and are inspired to take responsibility for their own learning.

Using objects on our doorstep

Nearly every object has a story to tell, even the everyday, and can be used as a starting point to promote scientific enquiry. In our 'Classifying minibeasts' session, students use costumes and images as an introduction to the fascinating world of invertebrates and how to classify them. We then use our collections of live, exotic invertebrates to bring the session alive, asking the students to observe what they see, compare it to what they know and use identification keys to classify each group or species.

You may not have access to Madagascan hissing cockroaches in your classroom but native invertebrates from your garden or local park will inspire the same routes of questioning. Activities involving local wildlife and plants also have the benefit of demonstrating that the natural world surrounds us, whether (like some of our scientists at ZSL) you are in an exotic location on fieldwork or standing in a school playground in the

middle of London. What your students learn about exploring and observing nature closer to home can instil in them important scientific skills that can be used anywhere.

Objects can act as a unique avenue to spark scientific enquiry, and are an accessible starting point for primary students. Introduction to ideas of scientific questioning at a young age is crucial to encouraging independent learning.

For further information on ZSL's school's programme go to: www.zsl.org/education



Figure 2 A single object can open up a whole host of questions

Figure 3 Discovering how the type of teeth an animal has can be a clue to what it eats

