



NAEE Primary Resource



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BATS IN THE CURRICULUM

Children are fascinated by bats. Their curiosity is aroused by these creatures which hang upside-down, fly with their hands, are seen only briefly at dusk, and can feed and fly in total darkness. This fascination can add a new dimension to familiar topics such as flight, homes and seasons; or bats may be studied as a topic in themselves. The study of bats is highly relevant in achieving several targets in the Primary Science National Curriculum at various levels, as well as Environmental Education through cross-curricular approaches. A few suggested lines of enquiry and investigations are shown in italics.

Compiled by Shirley Thompson

Biodiversity

Within the vast variety of living things, bats make up a large group with many variations in size, habits and diet. World-wide there are over 1,100 species, sizes ranging from a wingspan of nearly two metres to the size of a bumble-bee, though all our 17 British bat species are tiny and eat only insects. The pipistrelle, our smallest and commonest bat, would easily fit into a match-box. Bats are typical mammals, with furry bodies, giving birth to live babies. They suckle their young, groom them, show them places to feed, and fly with them as they learn to hunt.

Find out more about how bats care for their young.

Compare the care of a bat mother with that of a human.

Find out how other mammals care for their babies.

How do bats fly?

Although typical mammals, bats are also unique amongst mammals in their power of flight. A bat's wing has very similar bones to the hand and arm of a human, with skin stretched between the very long finger bones and the body to form the wing membrane, making them look much bigger than they really are. The muscles that power the wings are many times stronger than ours for their size.

Look at limbs, fins and other appendages of different animals. Why are they like that? How are they suited to their purpose?

Compare the skeleton of a bat wing with a human hand and arm and a bird wing.

Bat habitat

Different species of bat live in different places, but for a habitat to be suitable bats need three things:

- Lots of food, as flight is very energy-expensive.
- A range of places to roost or shelter, usually warm in summer but cool in winter
- Good links like hedges or rivers between feeding places and roosts.

Bats are nocturnal, feeding mainly at dusk and dawn. Their emergence in the evening is related to sunset, the time of greatest insect activity.

Make your classroom or corridor into a bat roost. It might

be a cave, a loft, or a forest.

Make model bats and hang them up.

Use maps and local knowledge to predict where bats are most likely to feed in summer. Note river valleys, lakes and woodland edges that might be suitable. Gardens, school grounds and parks will also be visited if the plants grown there attract enough insects.

Bats through the seasons

In warm spring weather the pregnant females, having mated the previous autumn, gather in maternity roosts. The mothers roost together, saving energy by keeping each other warm. The babies start to fly after a few weeks, learning to catch insects before being weaned. The colony then splits and moves to other sites, where the bats build up a fat reserve for winter by dropping their temperature for longer and longer periods

Our temperature is always about the same, unless we are unwell. A bat's temperature changes according to time, season, weather and how much food is available. Even in summer it may range from 15°C to 40°C. In times of food shortage bats will drop their temperatures, or become torpid during the day, even in summer. In winter when the weather is cold for long periods they will hibernate, going without food for weeks at a time. They occasionally wake to feed or move. During hibernation it may drop to 2°C so less energy is used.

What are the limits on a clinical thermometer? Why? What is your temperature? What happens if it rises by 2 or 3 degrees? What do you do when you are cold?

What do other mammals do in winter?

The Bat Conservation Trust (BCT)

BCT is the only national organisation solely devoted to the conservation of bats and their habitats. BCT and its network of local bat groups helps bats through practical conservation projects and research, encouraging everyone to appreciate and enjoy bats. They will tell you how to get in touch with your local bat group, to find out whether a batworker can visit the school. www.bats.org.uk



Noctule bat echolocating as it flies. Notice its hand-wing

© BCT/Hugh Clarke

Seeing with sound

Bats can see, but hunt their prey using their ears as well as their eyes. They send out shouts which bounce back as echoes from objects in their path, giving them a 'sound picture'. This system is called echolocation – locating things by their echoes.

Bounce a ball against different surfaces to represent returning echoes. Identify sounds blindfold - a partner taps different objects with a stick. Tap two sticks together. Repeat in different places to see how the sound varies.

Bats world-wide

Dinosaurs became extinct about 65 million years ago. The very oldest bat fossil that has been discovered is approximately 55 million years old but is very like bats still found today. Many different species of bat evolved, adapting to different climates, foods and habitats. Today nearly a quarter of all mammal species are bats.

Why do you think bats are such a successful group? How does flight help them?

Look at a world map and find out where bats live.

Read about the foods different species eat.

Find out how some bats in other countries help plants by pollinating them or spreading their seeds.

Environmental threats

Bats' need for lots of insect food, and for many different options for roosting, has made them vulnerable to the way man has changed the environment. Trees and hedges lost to building, development, and changing agriculture and the use of pesticides have all affected them directly or indirectly. Old caves and tunnels needed for hibernation

are often blocked up or used as rubbish dumps.

Now all British bats and their roosts are protected by law, so seek advice if changes are planned to places where they roost.

Make a black scrapbook of things that are bad for bats, like houses or roads built where there was woodland, or advertisements for insecticides. Compare past and present maps of your neighbourhood. How have things changed? How might those changes have affected bats? Talk to parents and grandparents about the wildlife they remember from childhood. What is different now? Improve your school grounds for bats by growing flowers attractive to insects throughout the year.

The Young Batworkers Club is the junior section of BCT. Teacher/Youth Group Leader Members of The Young Batworkers Club receive an informative Introductory resource pack and termly copies of The Young Batworker. If you would like a free copy of The Young Batworker please email youngbatworker@bats.org.uk remembering to include your postal address.

From a Year 1 teacher :

This term we have been researching information about bats as part of a literacy project. I was amazed by the children's excitement and motivation to discover as much about bats as they possibly could. They were so keen to continue writing about what they had discovered that they did not want to go outside at playtime. I shall definitely include this project in future teaching plans as it has proved so inspirational to the children (and myself!) and we have all learnt so much about these lovely creatures.