



Explore the world of bat conservation through the national curriculum

Teachers' notes

6. WHAT DO BATS NEED? THREATS and CHALLENGES

Relevant areas of learning and experience:

Science and Technology, Language, Literacy and Communication, Humanities – Geography

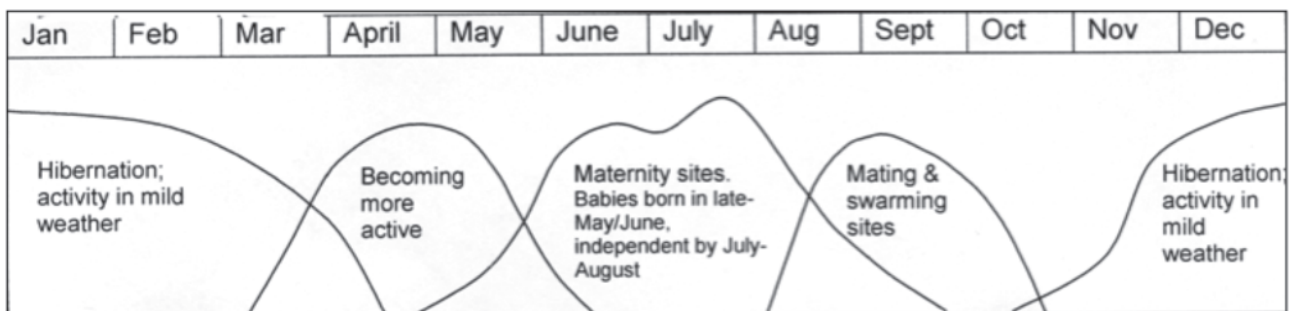
Bats need three key elements in order to survive: Food, shelter and safe links between them.

1. Bats need a ready supply of food in order to fulfil their high energy requirements – What?

For bats in the UK, their only source of food is invertebrates – mainly insects. Because invertebrates are cold blooded, their presence is affected by weather conditions and especially the ambient temperature and wind speed. Invertebrates such as moths or midges have a life cycle which means that the adult availability changes through the year and so the diet of bats will also change throughout the year.

1. Referring to *British bats*, choose two different species of bat and note their preferred food and where they feed. Look up the life cycle of at least two of the preferred insect foods of each of them.

When?



Look at this diagram of a bat's year, bearing in mind it is very generalised as there are variations according to species and local environmental conditions.

Referring to *Bats through the year*, at which times are bats most vulnerable?

2. Where and when are your chosen bats most likely to find their preferred prey? How does this relate to the yearly cycle shown here?

Why?

Compare the level of vulnerability between juvenile bats and adults, and adult males and females, and discuss the reason for any variation.

Consult published studies in which core-sustenance zones for different species of bat have been identified using radio tracking. These are critical areas for mother bats and their young to get enough food for the population to survive. The size of the zone depends on many factors including the bat's capacity to fly long distances in a single night.

2. Bats need a range of roost options

Bats don't make nests but simply occupy spaces such as roofs, tree holes, or cracks and crevices in a variety of structures from our homes, barns and outbuildings, caves, trees, bridges and so on. For bats, places of rest are called roosts; these can be places simply to sleep or just to take shelter.

Refer to *Bats through the year* and *British Bats*.

- Why do bats need to use different roost sites at different times of the year? How does this vary a) between species and b) between sexes and ages in the same species?

What different conditions will they need for:

- maternity roosts where females give birth to babies
- hibernation sites where bats hibernate over winter
- mating roosts
- intermediate roosts which are used as bats move between their summer roosts and winter hibernation sites
- night-feeding roosts which are used principally during the night

- Where might 'your' bats choose to roost at these different times. (See *Bats through the year*, *British bats* and explore further links).

3. Bats need good links between roosts and foraging sites

They will follow established flight paths, using hedges, tree lines, rivers etc to help them navigate around the countryside.

Threats and challenges

Through the centuries, whilst bats have evolved with humans and have learnt to use the structures we build, as places for them to live, so we have taken away many of their places for roosting, and adversely affected their capacity to feed and move around the landscape. These changes occurred gradually but eventually the speed and scale of changes have become so great that populations of bats, and other wildlife, have dramatically declined.

Teachers' notes **6. WHAT DO BATS NEED?/THREATS and CHALLENGES**

- Make a table of ways in which bats are threatened by the loss of three basic requirements. One example is completed for you. How many more can you think of?

<i>Loss of food and foraging sites</i>	<i>How are roosts lost?</i>	<i>Flight routes severed or obstructed</i>
loss of grazing pasture	reroofing	removal of hedgerows

Discuss:

We still need to produce food, to build houses and roads, as well as tackle important issues such as climate change. Whilst these are threats for bat conservation, they are also challenges to society, not to balance one against the other, but to find ways to achieve both needs. (see *Why people need bats*, and *Conservation Strategies*).

- Discuss what we as a society need in order to thrive and prosper, and compare that with bats.
- Make a habitat map of a one kilometre square area that you know. It could include your school.
- Referring to the British Bats factsheet, look at local maps and the surrounding area to forecast where different species might feed and roost.
- Find historic Ordnance Survey maps and repeat this exercise. What has changed and over what period of time?
- How have these changes impacted on our wildlife?
- What services do these habitats have for us and how can we value them?
- What major changes in the landscape have taken place in recent years?
- Check with your local council to see what plans they have in their Development Plan to see where future changes are likely to take place. How can wildlife be safeguarded?
- What would happen if all the hedges were to be taken out or woodland was cut down to make way for a new road? What if we created new nature reserves or planted trees?