

What's so special about the **SPECIES** of Brighton & Hove?



This teaching resource is designed to support both primary and secondary science and geography teachers teach about the important species in Brighton & Hove. It is hoped that this will also make pupils aware of the unique location they live in and give a better understanding of what makes their city so special.

Key concepts

- We live in a great city, full of people and full of wildlife.
- Some of the UK's rarest or most endangered species live in our city
- We will use 3 key species in the city (elm tree, bats and seahorses) to explore the concepts of adaptation, lifecycles, foodchains and the impact of human behaviour on these species

It is hoped that this presentation will be useful to teachers in KS1, KS2 and KS3. In particular, the presentation will cover;

KS1

- different kinds of plants and animals in the local environment **(Sc2 5a)**

KS2

- how living things and the environment need our protection **(Sc2 5a)**
- different plants and animals found in different habitats **(Sc2 5b)**
- how they are suited to their environment **(Sc2, 5c)**
- how foodchains show feeding relationships in a habitat **(Sc2 5d)**

KS3

- living things are interdependent , interacting with each other and their environment **(3.3d)**
- human activity and natural processes can lead to changes in the environment **(3.3c)**

Teaching notes will provide the background knowledge teachers need to present the material. The heading in bold next to the slide number indicates the main theme or teaching point for the slide.

Many of the slides contain multiple pictures. This is indicated by a star on the left of the slide when using the slide sorter and a star next to the slide number on the teachers' notes. Most images will require the teacher to click to change to the next image. [Text in blue is notes for the teacher explaining how the slide works etc.](#)

You are strongly advised to look at the presentation before showing to students. It is envisaged that teachers may edit both the presentation and the information to suit the level of their students.

Although this presentation mentions briefly some of the habitats found in the city, more detailed information may be found in the presentation 'What's so special about the HABITATS of Brighton & Hove?' This is also available to download from the BHee website.

Slide 1 - 4 are included to set the scene for the rest of the presentation.

Slide 1 - What's so special about the species of Brighton & Hove?

Ensure class understands the meaning of species.

In simplified terms, a species is a type of organism.

In more advanced terms, a species is a group of organisms that can reproduce to create fertile offspring.

Slide 2 - Where is Brighton & Hove?

Slide shows map of the world, zooming in closer and closer until there is a clear view of the city

What can they recognise?

Can they locate their school?

Slide 3 – There are lots of exciting, special and unique things about B&H

What do they think makes B&H a special place?

Slides show various landmarks/features that people typically associate with B&H – they finish on a slide of the city with the downs behind. Point out that the city is also a special place because it is sandwiched between the downs and the sea- it's got great countryside around it.

Slide 4 – We share our city with wildlife

Over ¼ million people live in B&H.

However, it's also full of wildlife.

Can they see any wildlife in the picture? There is a gull in the sky.

There is plenty of other wildlife within the city, in parks, gardens, school grounds and even living on the streets.

What wildlife do they see within the city?

Biodiversity Action Plan (BAP) species

We have lots of species that are important to the city either

- because they are rare in the rest of the country or
- because we've got a strong population (lots of them) here.

These include some you might see everyday on your walk to school e.g. elm tree and others that you might never know were there or important e.g. red star-thistle

These species are called BAP species – they have been identified in the local Biodiversity Action Plan which is a document, written by ecologists, to identify and protect important species in the city.

Slide 5-11 – What are the rare or important (BAP) species in our city?

How many pictures can they name?

[Click on picture to move onto next image](#)

- Adder (rare in B&H but found in some areas of local downland)
- Herring gull (often found living near rocky coastlines, the herring gull has adapted to living alongside people, feeding off their rubbish)
- Swift (summer migrants from southern Africa, spending their entire life in the air – only coming down to breed)
- House martin (another summer migrant from tropical Africa, building mud nests on the sides of buildings). Swallows, swifts and house martins are all threatened by reduced availability of nesting sites and reduction in insect prey caused by habitat loss and intensification of farming.
- Peregrine falcon (these birds were originally nested in cliffs, however they now also build their nests on tall buildings in the city, using the pigeons as prey)
- Starling (large numbers of starlings roost in the autumn and winter on the West Pier)
- Dormouse (the dormouse, which hibernates for half the year, can be found near the rugby club and also in Stanmer Park)

Slide 11 - 12 - What are the rare or important (BAP) species in our city (continued)?

[Children may be able to give the general name for the following animals but may be unaware of the specific type of eg butterfly. By clicking on the image, the species name will appear, raising awareness that there are many different species of each type of animal.](#)

- Bee – This isn't any old bee – it's a brown-banded carder bee. It likes long, flower-rich grassland and is rare throughout the UK. Over the last 100 years there have been 98 species of bee found in B&H
- Butterfly – this butterfly is a dingy skipper. It is a small, well camouflaged butterfly found on downland

- Hornet robberfly – this is the largest fly found in the UK and also in Brighton – it is however endangered by as it feeds off beetle larva found in horse dung. Over-use of worming tablets in horses kills of the larva, and consequently the robberfly too.

Slide 13 - What are the rare or important (BAP) species in our city (continued)?

Again, these pictures are more specific, but this time they are rare **plants** we have in the city. Click on picture to add the species name, and then again to move to next image

Can the students guess where they might see each plant?

- Hoary stock (found along coastal cliffs, from the Marina to Rottingdean)
- Red star-thistle (found in grassland, particularly when disturbed by farm machinery or heavy grazing)

The following slides show more local BAP species. They will be used to illustrate the concepts of adaption, lifecycles, food chains and human impact.

Slide 14 – The elm is an important and endangered (BAP) species in our city

Picture is of elm trees. This is a rare tree in the UK because of a fungal disease spread by a beetle called Dutch Elm Disease. The picture shows various elm trees – a healthy one next to several that have been affected by the disease.

Brighton & Hove is particularly good at managing the disease (by careful monitoring, cutting away diseased branches, preventing spreading from tree to tree and replacing any dead trees). The city now holds the National Elm Collection. 1 in 3 street trees in the city are elms. In many other cities in the country there are hardly any elms left.

The elm is also the habitat for the white-letter hairstreak butterfly which depends on the elm. Brighton & Hove is one of the few places where white-letter hairstreak butterflies can be seen regularly. Without careful management of Dutch Elm Disease, we might not see these majestic trees or these small but important butterflies.

Slide 15 – The life-cycle of the white-letter hairstreak butterfly

Teaching points:

- lifecycles
- interdependence of species
- living things and the environment need protection

The butterfly lays its eggs on the twigs of an elm.

The caterpillar eats elm blossom, flowers and young leaves.

It attaches itself on an elm leaf or twig to pupate.

The butterfly emerges a few weeks later and feeds at the top of an elm tree on the honeydew produced by aphids.

[BHee offers a 1 hour pupil workshop on elms and the white-letter hairstreak. For details contact Katie](#)

Slide 16-19 – Bats

Teaching points:

- [how bats are adapted to their environment](#)
- [foodchains \(look at feeding relationships of 2 different types of bats\)](#)
- [how they need our protection](#)

There are 18 species of bat in the UK. They are the only flying mammal.

Here in Brighton & Hove we have 4 species – serotine, noctule, common pipistrelle, brown long eared bat. These slides will compare the serotine and pipistrelle bat.

Adaptation – bats traditionally live in crevices in trees in woodlands. However as woodland has become more scarce, bats now roost in both old and modern houses. Pipistrelle bats will roost behind hanging tiles or fascia boards. Serotine bats (being larger) will roost in roof spaces. Some species of bats don't like bright lights – both the serotine and pipistrelle bats don't mind light, and will feed from the flying insects that are attracted to street lights.

Bats have adapted to our climate by hibernating in the winter when there is insufficient prey around. They will mate in the autumn, but delay having their babies until the late spring when there is enough food around to feed the adult and juvenile bats.

Foodchains

Slide 16 shows a pipistrelle bat. They are the smallest type of UK bat. As they are small, they eat small prey – such as gnats and midges – see inset in slide. A common pipistrelle can eat up to 3000 insects a night.

Slide 17 shows a serotine bat. Serotines are bigger bats – they need bigger prey, so eat mainly beetles and moths (see inset of serotine bat eating a beetle)

Slide 18 shows dung beetles, feeding on a pile of dung. Serotines will eat these beetles.

Slide 19 shows a pile of dung found in farming fields. When farmers give worming tablets to their cows and horses, it not only kills the worms, but also other insects that might feed off the dung. If the dung beetles are killed in this

way, there is less prey for the bats. This is one way that humans are affecting the food chains of the bats.

Bats are usually the top predator in a food chain, however may be eaten by cats or birds of prey e.g. owls.

Protection – bats are one of the most endangered groups of species in the country – there has been a 90% reduction in their numbers in the last 100 years. This is largely due to habitat loss and intensification of farming. Both the bat and its roost are now protected by law. We can help by putting up bat boxes, accepting that bats live in our buildings and by planting flowers that encourage more insects and invertebrates for the bats to eat. The flowers along the roadside on Lewes Road provide a good nectar source for night flying insects. Bats are frequently seen feeding in this area at night.

Slide 20 - Seahorse

Teaching points:

- [lifecycle](#)
- [adaptation](#)
- [threat and how they need our protection](#)

Two species of seahorse can be found in the waters off Brighton & Hove – the long snouted seahorse and the short snouted seahorse. A small colony can be found at Brighton Marina.

Lifecycle - Seahorses are unusually as it is the male that 'gives birth'. The female releases her eggs into the sea where they are fertilised by the male's sperm. The male incubates the eggs in his sack-like pouch and gives 'birth' to live young.

Adaptation - they can live in shallow water estuaries, and in both rocky and weedy areas. In winter they move to deeper waters to escape the rough weather. They come back to their old breeding territories the next year.

Slide 21 shows a seahorse in an eel grass bed. They wrap their tail around the eel grass to protect themselves from marine currents and rough weather.

Threats

Slide 22 – this shows an anchor chain being dragged along the seabed as fishermen are trawling for scallops. This ruins the eel grass bed, destroying the seahorse habitat.

Seahorses are also threatened by pollution, water-sports and fishing.

Slide 23 – Summary

We have seen pictures of many of the rare or threatened wildlife in the city. Of course there are also many other types of wildlife in the city that are not threatened. We have also seen the effects of fishing, farming and disease on wildlife.

What can we do as individuals or schools to help the wildlife in the city?

- Encourage more wildlife into your garden and school grounds by creating habitats and planting wildlife friendly species. For more details on wildlife gardening see the WildCall pages at www.sussexwildlifetrust.org.uk
- Record any interesting species you find in your school grounds, parks or garden on the citywildlife website (www.citywildlife.org.uk). By knowing what wildlife we have in the city, we are able to do more to protect what we have and encourage new species in.
- Tell other people about what you have learnt about the species of Brighton & Hove.

Further information

For full information on the local biodiversity action plan species and habitats, you can download the Local Biodiversity Action Plan from www.citywildlife.org.uk