

# Nocturnal senses

Animals that come out at night are called nocturnal. Most of these tend to have poor eyesight, as like us, their eyes don't work as well in the dark. They therefore rely on their other senses to help them move around, find food and each other. Animals like owls have specialised hearing to hunt at night. Bats use echolocation; to fly around. While mice, moles and voles have long whiskers so they can feel their way through their dark tunnels

Many nocturnal animals use their sense of smell to communicate by scent marking. Animals that use smell as a means of communication have a Jacobson's organ located in the roofs of their mouths (the vomeronasal organ). You might see an animal pull its lips back and breathe in smells from the same species. This is their way of communicating through smelling pheromones (scents).

**Feel free to research more into animal senses and the science. Below is a few facts and activities linked to different nocturnal animals and their senses. Could you be a good nocturnal animal?**

**This activity has been inspired by similar resources by RSPB, Butterfly Conservation and Wildlife Trust.**



## JOHN MUIR DISCOVER AWARD Summer Holiday Family Challenge



# Can you hear like an owl?

Below is an array of facts and activities about owls and their ability to hear. Some activities will suit older children, while some might be simple enough for little ones. When completing these activities do so in a private garden/yard.



## Owl facts:

- Owls actually have great vision, due to their large eyes which let a lot more light in when hunting at night and in the day. The two large eyes normally occupy 70% of an owl's face. But the eyes are held in place, so they can not roll them. Hence the well known fact that an owl can rotate their neck, about 270 degrees in fact!
- Owls are also well known for relying on their hearing to hunt and locate prey. Their ears are actually hidden within the feathers around their face. So the Long-eared Owl's "ears" are not actually ears, but feathered tufts.
- An owl also has round disc shaped face, which acts like a "radar dish" to help guide sounds into the ears.
- Their ears are not positioned symmetrically, like ours are on either side of our face. Instead an owl's left ear is positioned lower than the right ear. They are also slightly out of line vertically on each side. This tiny difference means when sound hits one ear compared to the other, an owl can pinpoint the exact source of that sound a lot better than our ears could.
- Owls rely so much on their hearing ability for hunting, that they might not fly in heavy rain. This is because rain makes too much noise to find mice within the grass.

## How to listen like an owl activity:

You will need to tilt your head slightly, to make your ears not level. Then place your hands in a C shape around the back of each ear (keep your fingers together). Can you hear better? Try turning your head, but not 270 degrees!

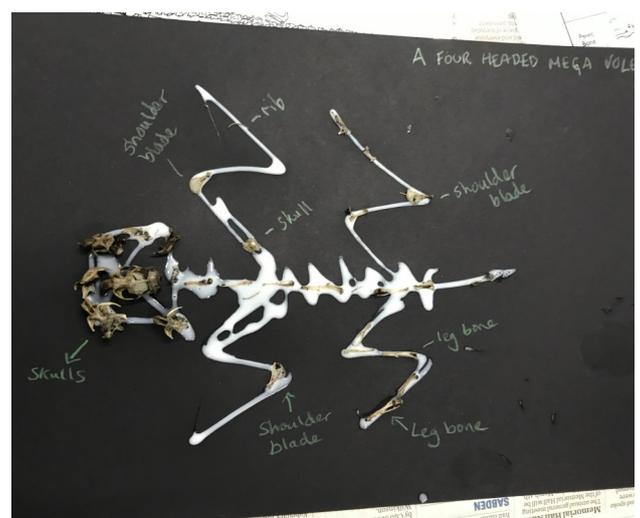
## Owl pellet dissection activity:

Owls are great at catching prey with their amazing hearing, but what do they actually catch to eat? Depending on the species of owl, they will hunt for small insects, voles, mice and shrews. They then regurgitate the fur, bones and other indigestible parts in the form of a pellet. This pellet leaves the owl by their mouth and is normally just dropped on the floor.

If you wanted to carry out owl pellet dissection, there are some useful guides here:

- [http://ww2.rspb.org.uk/Images/Owlpellets\\_tcm9-133500.pdf](http://ww2.rspb.org.uk/Images/Owlpellets_tcm9-133500.pdf)
- <https://www.barnowltrust.org.uk/barn-owl-facts/barn-owl-pellet-analysis/>
- <https://www.owl-help.org.uk/pellet-detectives>

**Pellets can be bought online, but if you do find one on the ground, please wear gloves, wash hands and read the above resource health and safety instructions first.**



# Are you attracted to light like moths?

*Below is an array of facts and activities about moths and their ability to fly at night. Some activities will suit older children, while some might be simple enough for little ones. When completing these activities do so in a private garden, yard or wild space. Make sure you have landowner permission if you are putting anything out at night.*

## Moth facts:

- On a summer evening, below the street lamps, you have probably looked up and seen insects all gathered around the light. Some of these insects might be the nocturnal moths. This is because moths have evolved to travel by moon light which helps them fly straight and guide them. The scientific term for this is Transverse Orientation.
- Modern day lights and lamps have now provided lots of artificial mini moons. Moths are tuned into faint light, so are attracted to these new lights.....like a moth to a flame!
- There are 2,500 species of moth in Britain, but not all moths are nocturnal. There are more day flying moths than butterflies in the UK.
- Moths are really important as they help pollinate many garden plants. They are also eaten by lots of baby birds and bats,. They also have some of the best camouflage as adults, and intimidating looking caterpillars, which makes them very cool.



## Moth trapping

**Easy, torchlight safari:** Hold a torchlight into some flower beds on a warm summer evening, see what comes to your light. Search plants with a torch for an hour or two after it starts getting dark.

**Simple equipment, the big white sheet:** Hang a white sheet up with a bright torch shining on it. Some moths might settle on it, or just fly by the light.

**The traditional moth trap:** You can purchase moths traps, which is a basic box with a special lamp inside, with spaces for the maths to hide in, they love egg boxes!

**Identify a moth:** If you want to identify moths head to: <https://butterfly-conservation.org/moths/identify-a-moth>

## Night scented plants:

Moths have a great sense of smell and love buddleja, heather, red valerian and ivy. You could smell your garden plants in the day and then again at night to see if you have got any night scented plants. You can make your garden and yard more moth friendly by following the steps on this website: <https://butterfly-conservation.org/how-you-can-help/get-involved/gardening/gardening-for-moths>

**For more kid friendly moth facts and activities head to:** [https://butterfly-conservation.org/sites/default/files/all-about-moths\\_young-people-leaflet.pdf](https://butterfly-conservation.org/sites/default/files/all-about-moths_young-people-leaflet.pdf)



# Have you got a great sense of smell like foxes and badgers?

Below is an array of facts and activities about foxes and badgers. As we don't tend to see these secretive creatures, it might be fun to think about how they get around in the dark. All these activities can be adapted to suit age of children and outdoor space.

## Fox and Badger facts:

- Foxes and badgers are active at dusk and in the night, searching for food as a family. They tend to sleep in underground dens in the day time,
- They are both shy animals, especially in rural areas. You are more likely to see a fox in an urban area these days.
- Both animals have similar diets of earthworms, beetles, fruit and some small mammals.
- Foxes have large forward facing ears to help listen for prey.
- Both have accurate sense of smell. They use their large wet noses (like a dogs) to follow scent trails of prey, predators or their family.

## Make a scent trail

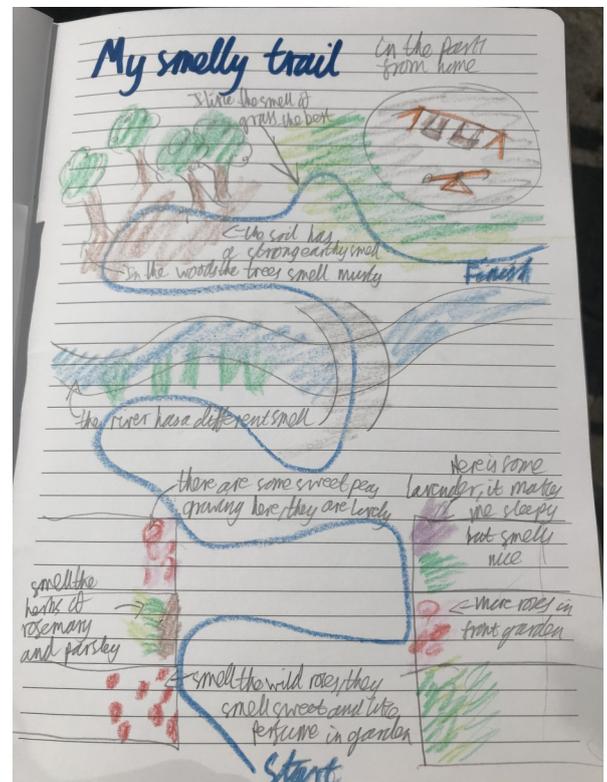
While out in a wild space or from your home, go for a walk and smell different things as you walk around — for e.g. flowers, the ground and other natural features. Draw a simple map of these smelly areas. Then pretend you are a badger or fox and plan a scent trail for them to follow. You could add notes or thoughts to your map about favourite smells, what things smelt like and what the smells remind you of. You could do your walk in the day or at dusk, but be careful of traffic and stay on public access land.

## Guess the smell and smelly cocktails:

Badgers and Foxes can smell the difference between prey, family members and each other. Is your nose better than a fox and badger?

- Make a smelly cocktail by collecting lots of natural things from the ground and putting them in a cup. Add some water and use a stick to stir. Can you pick out all the smells?
- Smell some living flowers and then do it again with a blind fold on or eyes closed. Can you tell the difference between them? Roses, lavender, sweet peas and freshly cut grass have wonderful smells.

**Remember to stick to public footpaths, wash hands and never pick anything that is living.**



# Are you a Hedgehog hero with sensory powers?

Below is an array of facts and activities about the declining hedgehog. As we don't tend to see this secretive mammal much, it is fun to discover how they use their special sensory powers at night. All these activities can be adapted to suit age of children and outdoor space.

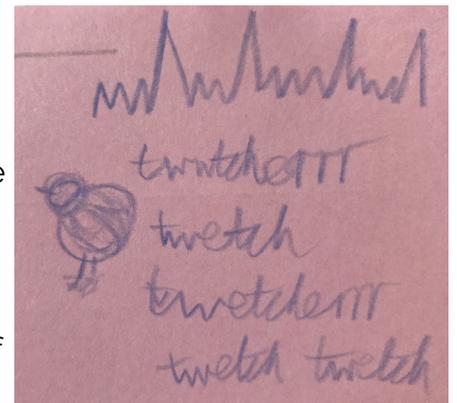
## Hedgehog facts:

- Hedgehogs have poor eye sight, but can see alright when it is fully dark. Therefore they rely more on their good sense of hearing, smell and taste to find food.
- They have a long extended snout beyond their mouth, which is great for sniffing out food. They mainly eat insects and berries, but love dog and cat food, plus mealworms.
- If a hedgehog smells or tastes something really strong, it will attempt to cover itself in foamy saliva. This is like when a cat cleans itself, it's called self-anointing.
- They have a great sense of hearing, and will roll up in a ball if they are scared.



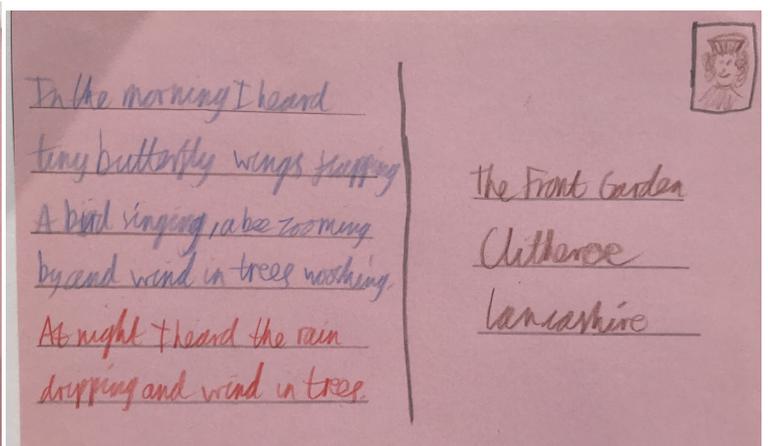
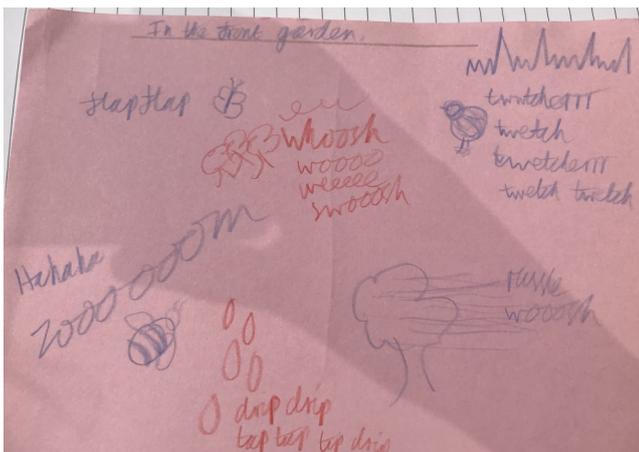
## Make a listening postcard

You could pretend you are a hedgehog hero with sensory powers (and the ability to write). What would your hero hedgehog put in their listening postcard?



While outside, find a quiet spot and with a pen and pencil, make a listening postcard. Sit quietly for 5 minutes and draw or write the sounds you can hear. For example note down the noises, the sound waves or what you think made that noise. You could then repeat this activity in the evening or at dusk and discover if you hear similar or new sounds. Use a different colour pencil so you can see your differences or similarities.

On the other side write your postcard or story about what you heard. Don't forget your address and stamp.



### That's tasty:

Hedgehogs have a great sense of taste. Are your taste buds as good as a hedgehogs? If you have got some herbs growing, or dried herbs collect an array of different ones.

- Taste a tiny amount of each herb and try to guess what they are or make a note of what it tastes like.
- Mix up the order of the herbs. Then with a blind fold or eyes closed, taste them again. Do the herbs taste different with your eyes closed? Did you get them right?
- Maybe you could plant more herbs for your cooking and for wildlife outside. Many herbs attract wildlife from birds to bees, hoverflies and butterflies. Take a look here for inspiration <https://www.gardenersworld.com/plants/top-10-herbs-for-wildlife/>

**Remember to wash grown herbs first, wash hands and never eat anything if you are unsure about what it is.**

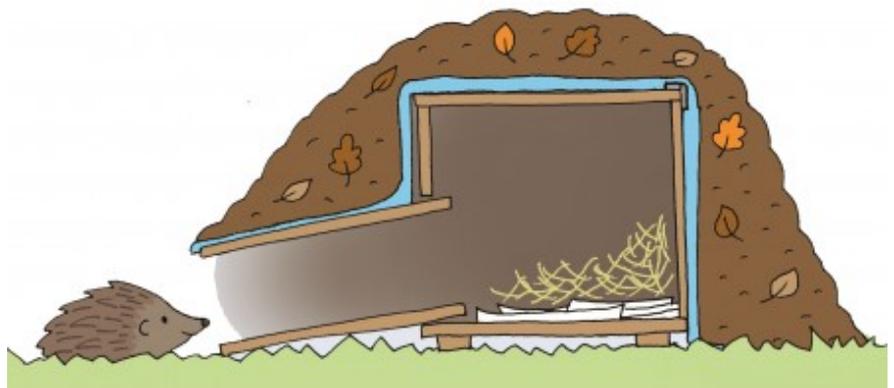


### Hedgehog hero houses:

As we have mentioned, there are not many hedgehogs left in the UK—potentially less than 1 million, and we have lost 30% since 2002. Therefore we need to be hedgehog heroes and create more hedgehog friendly gardens and wild space.

**If you have got a large private garden you could do the following.**

Why not create a pile of sticks, leaves, grass for a hedgehog to build their hibernation home in. Or you could build your own hedgehog house: <https://www.wildlifetrusts.org/actions/how-build-hedgehog-home>



Or just leave a patch of your garden wild, make a compost heap or log pile. Make sure there is a way a hedgehog could gain access into your garden, either a gap in your hedge or fence will do.

