

# Lesson 11 - Water for wildlife - Minibeasts galore



## Before you start this session, please:

- Print Session Information sheets
- Print Activity sheets 11:1 and 11:2
- Make sure you have access to the internet so that you can watch video clips on YouTube.
- Or print Supporting Information sheet 11:1.
- Collect together the following items to help you complete the experiment and activities in this lesson.
  - Colouring pencils or pens
  - For Activity sheet 11:2 - A sturdy container (old plant pot or large plastic bottle), natural materials (sticks, twigs, straw, logs, bark, etc.) and string

# Water for wildlife - Minibeasts galore

## Let's get started

There are 10 million insects (minibeasts) in the world that are responsible for helping plants to reproduce and provide food for many creatures such as some birds, mice and bats.

Minibeasts are invertebrates - they are creatures without a backbone. Creatures like insects, spiders, beetles, snails, worms, etc. There are about 25,000 different types of mini beasts (invertebrates) living in the UK.

If there are millions of minibeasts around us, where do they live and how do you find them?

## Let's investigate:

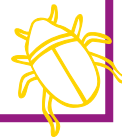
### Investigation 1

Let's begin to answer this by going on a virtual minibeast hunt at Rutland Water.

Go to the [Minibeast video](#) on the Education Playlist. Make sure you have Supporting Information sheet 11:2 and Activity sheet 11:1 handy to help you with your observations.

How many types of different minibeasts did you spot?

If you can't watch the video, don't worry, move on to Investigation 2.



### Investigation 2

See if you can spot any minibeasts, either in your garden or in a green space near your home.

Use the chart on Activity sheet 11:1 to record your minibeasts and their habitats.

Supporting Information sheet 11:1 will help you identify the creatures you find.

If you can, take some photographs of the minibeasts you see to use later at home for a drawing, painting, mosaic or collage.



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## Butterflies galore



Butterflies are highly sensitive indicators of the health of the environment.

They play an important role in the food chain, as well as being pollinators of plants and natural pest controllers.

Where there are lots of butterflies, there is a healthy environment and many other types of invertebrates (minibeasts).

Butterflies start life as something completely different. As they grow, they go through a process called **metamorphosis**. It sounds very scientific so let's break it down.

**Step 4** - Inside the pupa, the caterpillar transforms (changes) into a butterfly. This is the metamorphosis; changing from one thing into a completely different one!

**Step 3** - When the caterpillar has grown large enough, it forms into a pupa (chrysalis).

**Step 5** - The pupa splits open, a butterfly emerges to dry its wings and takes flight.

**Step 1** - The female butterfly lays eggs on leaves or stems of plants. The caterpillar begins to grow in the egg.

**Step 2** - The caterpillar breaks out of the egg and feeds on the surrounding leaves.

### Life cycle of a butterfly

Create a presentation to explain the life cycle of a butterfly to your grown-ups. You can do this in any way you like. You could create a dance showing the stages, a poem, a rap, a model, or a mobile. Be as creative as you can.

Challenge:  
Have a go  
at this:

### Make a Bug Hotel

- Building a Bug Hotel will help provide some of the minibeasts with a home by creating the nooks and crannies they like to live in. This is very important as insect numbers have been declining recently and the Bug Hotel could provide them with a safe environment to live in. You might need a grown-up to help you with this. Make sure you have Activity sheet 11:2 to help you.
- Once you have built your hotel, check in a couple of weeks and record which 'residents' have moved into your hotel. See if you can carry out some research to see how the minibeasts use water.

There are 57 types of butterfly species in the UK

2 of those migrate to the UK every year - the painted lady and the yellow cloud



# Water for wildlife - Minibeasts galore

## Minibeast Search

There are many different types of minibeasts. Some eat plants, some eat other minibeasts and some eat both.

The minibeasts can be classified into herbivore, carnivore or detritivore.

- **Herbivore** - Plant diet and characteristics useful for obtaining plant material.
- **Carnivore** - Eats meat as the main part of its diet.
- **Detritivore** - Feeds on dead and decomposing organic matter.

### Where should you look?

Well, different minibeasts live in different habitats - under logs and stones, in leaf piles, near ponds, in trees, bushes and grass or in the soil.

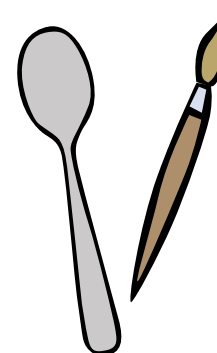
Decide where you will look. If you are going to move stones or logs, you need to take care and ask a grown-up to help you if they are heavy. Mind your toes!



### What do I need?

You don't need any special equipment to go on a bug hunt, but clear containers are useful for holding minibeasts whilst you study them.

A small spoon or paintbrush will help you to scoop up your finds.



### What to do?

Lift the stones or logs carefully and put them to one side to peek underneath. Who is living there?

Look carefully at plants and grass to see which minibeasts you can spot.

Check out cracks in tree bark to see who lives there.

Carefully explore leaf piles.

Peer into ponds, look around the edge, who is visiting today?



**Remember** - minibeasts are small and delicate. Most minibeasts tend to use their senses of smell, touch and taste to know the world around them. They will not hear or see you coming so be gentle with them.

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## Let's Hunt

On the table on the right record the minibeasts you find. We have done the first column as an example for you. (You may need to change the numbers in the first column).

### Where did you find them?

Record the habitat in the boxes on the top line of the sheet: e.g. under a rock, in long grass, on a tree, under some leaves, under a flower pot, etc.

### How many of each type?

Record the number of each type you found in the different habitats.

Minibeast	Under flower pot	Under a stone	Under leaves	Habitat?	Habitat?	Habitat?
 Woodlouse	3					
 Spider	1					

### What did you find?

- How many different types of minibeasts have you found?
- How many herbivores, carnivores or detritivores have you found?
- Where did you find the most carnivores?
- Did you find any frogs, toads, newts, dragonflies, damselflies or butterflies?



Now you have finished your minibeast hunt put all the creatures back safely.

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## Creating a minibeast hotel

### You will need:

Whatever you can find - preferably natural materials found locally. Here are some ideas:

- Strips of wood
- Straw
- Woodchips
- Old roofing tiles
- Bricks, preferably those with holes through them
- Old logs
- Bark
- Pinecones
- Hollow bamboo canes
- Dead hollow stems cut from shrubs and plants
- Wood
- Cardboard
- String

There are many ways to build minibeast hotels. Look at the materials you have collected and decide which you will make:

- A simple hotel using an old plant pot, container or even part of a plastic bottle.
- A complex structure made using the materials to form shelves and rooms.

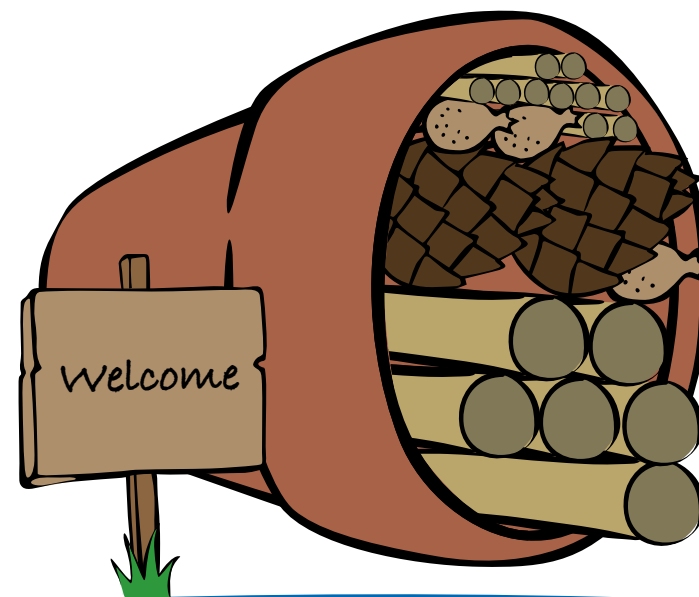
Choose a suitable site. An insect hotel is meant to cater to a variety of insects. Invertebrates (worms, slugs, spiders and insects) often prefer dark and damp environments, while bees and butterflies like sunshine. You want to place your hotel in an area that gets both sun and shade. If you have vegetable beds, keep it a good distance away from them!

### A simple hotel

Use an old plant pot, container or a cut-down bottle. Cut the top off the bottle. Check what materials you have and arrange by size and texture, snapping twigs to make them a little smaller.

Pack the sticks and materials together closely inside until the container, plant pot or bottle is full.

Attach the string to the outside of the container or bottle to hang it up or place in your chosen spot on the ground.



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## A complex hotel

### The basic structure

You will need a strong, stable framework. The size will depend on the materials you have to hand.

### Fill the gaps

The idea is to provide all sorts of different nooks and crannies, crevices, tunnels and cosy beds. Any larger holes made with stones and tiles, at the centre of your hotel will give a frost-free place for frogs and toads to spend the winter.

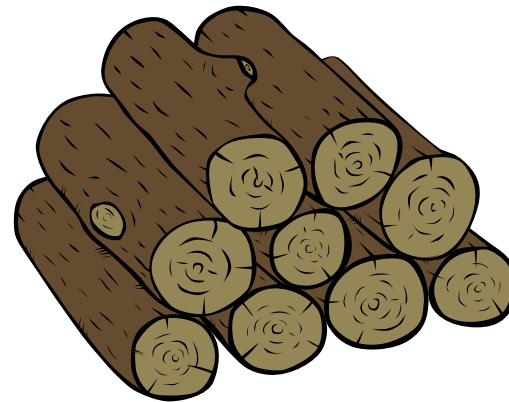
### Add a 'roof'

When you think you've gone high enough, making sure the stack remains stable, put a roof on to keep it relatively dry. Use old roof tiles or some old planks covered with roofing felt. You could even give it a 'green' or 'brown' roof by putting a bit of rubble or gritty soil on top. Only plants that love dry conditions cope up there, but some wildflower seeds could arrive on the breeze and take root.



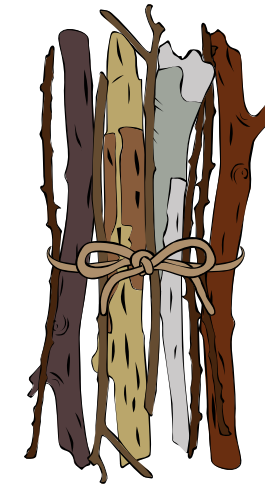
## Other alternatives

Decaying wood is very important for wildlife. To make a log pile or twig hotel, simply collect small logs, large sticks and pieces of rotting wood or twigs. Depending on the size of the wood you have gathered, you can make a log pile or a twig tower block. Find a sheltered, damp, shady area of your garden.



### Log pile lodge

A log pile will attract: centipedes, woodlice and beetles who like to burrow into decaying wood. Log piles may also attract birds, frogs and hedgehogs looking for a tasty snack!



### Twig tower block

A twig pile will attract: ladybirds and lacewings who will love to crawl into the crevices and hide among the leaves.



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## Identification Chart

### Herbivores



Slug



Snail



Caterpillar



Grasshopper



Shield Bug



Aphid

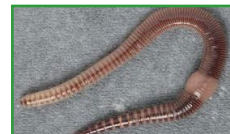


Cranefly



Hoverfly

### Detritivores



Earthworm



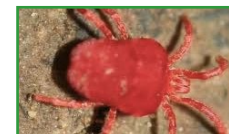
Millipede



Woodlouse



Earwig



Mite



Springtail

### Carnivores



Beetle



Centipede



Spider



Harvestman



Lacewing



Ladybird



Mosquito

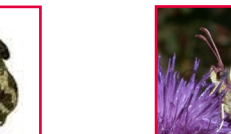
### You may also find



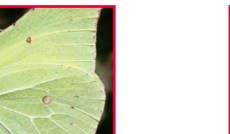
Newt



Toad



Butterfly



Frog



Dragonfly



Damselfly