Minibeasts

Science: Life processes and living things 4a, b, 5a, b, c
Aims: To introduce the wealth of wildlife supported by trees. To use a simple key to identify invertebrates collected from trees. To use a range of scientific methods to catch invertebrates.

Equipment

white sheet

pooters - a device for sucking small creatures into a tube

collecting jars/white trays

magnifying glass

trowels

potato

knife

spoon or paintbrush

identification sheets

recording table

Safe use of pooters

Pooters have two tubes. The tube with a mesh or cap on the end is for sucking. The other tube is for the minibeast to travel through. Care needs to be taken to suck the correct tube! If you have pooters in the school, label the sucking tube green and the minibeast tube red as a warning.

For the safe capture of minibeasts never blow into a pooter or suck too hard. Do not collect too many minibeasts and create overcrowding, don't collect big beetles or anything that can get stuck in the tube. Leave slimy slugs and snails out of the pooters.

Methods

Tree beating and investigating bark are two methods to investigate the minibeasts which live in two different parts of trees - the leaves and the bark. The potato trap is a third method which can be used to discover what lives in the shade of a tree. We suggest that the recording sheets are filled-in as tally charts. This will give suitable results to turn into graphs in the classroom and could promote discussion on adaptation to different environments within one tree.

Often children do not realise how delicate minibeasts can be. Discourage children from using their fingers to pick up minibeasts. Instead use a spoon or a paintbrush. It is important to release minibeasts at the site of capture within an hour. When minibeasts are captured in pooters/jars they must be kept out of direct sunlight. The jars must be kept dry, as a few droplets of water or condensation can kill.

The best time of year to catch minibeasts is May until September. Winter will produce poor results. You can use the key to identify some of the things you catch and it may be fun for the children to have a go at designing their own key.

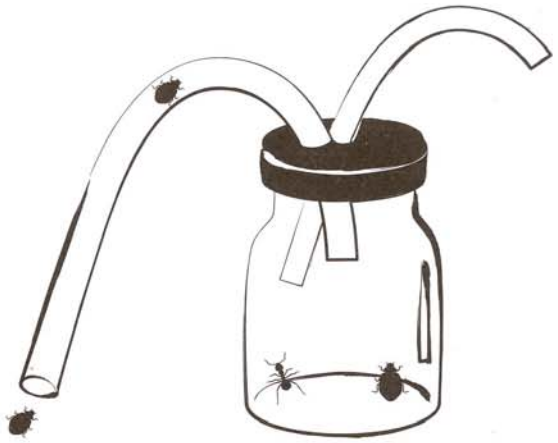
Doorstep Detectives

Minibeasts

With their thousands of leaves, tall trunks and long roots, trees are able to support many animals. Invertebrates, or minibeasts are one group of animals you may find in trees. Here are some different ways of catching them.

a. Beat a tree !

1. Choose a tree with low branches.
2. Place a white sheet underneath the branches.
3. Give a branch three short, sharp shakes.
4. Collect and identify as many of the animals that fall out as you can.
   You may need to use a pooter for this as many of these animals will be very small.



b. Investigating Bark

Take your magnifying glass and explore the cracks and crevices of the tree carefully.
You may not see the animals so look for evidence of animals such as slug trails and spider webs.

c. Setting Traps

1. The easiest trap to set is a potato trap.
   Cut a potato in half.
2. Scoop out the insides of each half.
3. Put the two halves together and place it halfway into the soil using your trowel.
   Place a stick or stone between the halves to make an entrance.
4. Leave your traps overnight before finding out what you have caught.

Minibeasts Key

Science: Life processes and living things 4a.
Aims: To introduce the range of invertebrates. To practice the use of keys.

The key can be used to identify a small range of terrestrial invertebrates. All invertebrates on the tally chart worksheet have been incorporated. The key has intentionally not included pictures of the minibeasts to encourage the methodical use of the key by the children.

The key is not comprehensive and many common invertebrates are not included, e.g., ant. If possible use an identification guide such as M.Chinery's "Insects of Britain and Northern Europe" or identification/invertebrate books from the school library.

If you find a minibeast that is not included on the key, children could be encouraged to name the minibeast using colour, shape and eating habit descriptions e.g., green-eyed leaf-muncher.

Minibeast Key

Body segments (number 6 & 9) can be further studied with children learning and naming the parts of a typical insect, an ant for example. Include labels for head, thorax, abdomen, wing (forewing and hind wing), antenna, legs.

Hidden wings (number 10). Beetles have a hard set of wings covering ordinary wings underneath. Watch a ladybird lift its hard wings and then fly away.

Doorstep Detectives

Minibeasts Key

1	Does your minibeast have legs?	YES? Go to 4	NO? Go to 2
2	Does your minibeast have a shell?	YES? **Snail**	NO? Go to 3
3	Is you minibeasts body clearly divided into rings or segments?	YES? **Worm**	NO? **Slug**
4	Does your minibeast have more than four pairs of legs?	YES? Go to 5	NO? Go to 7
5	Does your minibeast have more than seven pairs of legs?	YES? Go to 6	NO? **Woodlouse**
6	Does your minibeast have one or two pairs of legs on each body segment?	ONE? **Centipede**	TWO? **Millipede**
7	Does your minibeast have three or four pairs of legs?	THREE? Go to 8	FOUR? **Spider**
8	Does your minibeast have wings?	YES? Go to 10	NO? Go to 9
9	Does your minibeast have more than three body segments?	YES? **Caterpillar**	NO? **Aphid**
10	Does your minibeast have one or two pairs of wings?(Look closely, they may be a second pair of wings hidden)	ONE? **Fly**	TWO? Go to 11
11	Are the wings hidden?	YES? Go to 12	NO? Go to 13
12	Does the minibeast have spots on its back?	YES? **Ladybird**	NO? **Beetle**
13	Are the wings transparent?	YES? Go to 14	NO? Go to 15
14	Can you see three body segments?	YES? **Wasp**	NO? **Bee**
15	Does your minibeast have antennae with a ball at the end?	YES? **Butterfly**	NO? **Moth**

Doorstep Detectives

Minibeasts Recording Table

Name	Tree Beating	Investigating Bark	Potato Trap
Aphid			
Bee			
Beetle			
Butterfly			
Caterpillar			
Centipede			
Fly			
Ladybird			
Moth			
Slug			
Snail			
Spider			
Wasp			
Woodlouse			
Other			
Other			

Investigate a Minibeast

Science: Life processes and living things 1a. Art; 1a, 5a
Aims: To look closely at a living thing. To record observations of nature through a detailed diagram.

Encourage the group to look closely at their chosen minibeasts through a magnifying glass. The diagrams could be labelled with head, thorax, abdomen, wings, legs, segments, antennae etc.

How and what does your minibeast eat?

Does it eat rotting wood like a woodlouse?

Does it suck sugar from flowers through a proboscis? (butterfly)

Does it trap live prey in a web (spider) and inject them with digestive juices until they are soft enough to suck up?

Where does it live?

Does it carry its home on its back (snail)?

Does it live under the bark (woodlouse)?

Does it live high up in the leaves (aphid)?

How does it move around?

On one big foot like a slug or snail?

Does it have lots of legs (centipede)?

Does it have wings like a bee, wasp, butterfly or moth?

Does it use legs and wings like ladybirds and other beetles?

Does your minibeast have any other interesting features?

Camouflage?

Bright colours?

A segmented body?

Antennae?

Eyes?

Looking at minibeasts can produce some interesting art work. Look at illustrations in "Hungry Caterpillar" by Eric Carle.

Doorstep Detectives

Investigate a Minibeast

Choose one of the minibeasts you have caught to investigate in detail.

1 **Draw a detailed diagram of your minibeast in the space below.**

Use books and any other resources you have available to investigate your minibeast further.

2 **How and what does your minibeast eat?**

3 **Where does it live?**

4 **How does it move around?**

5 **Does your minibeast have any other interesting features?**

Tree Testing Theories

Science: Scientific Enquiry: 2a, d, e, h, i, j, k
Aim: To design an experiment to test a theory.

Are some trees more popular/tasty for minibeasts than others? You could choose two different trees to investigate e.g. oak and sycamore depending on what is available locally.

Prediction

Pupils should be encouraged to make a well thought through and reasonable estimate with an explanation for their prediction.

Method

Use one or all of the methods used previously i.e. Beat a tree, Investigating Bark or Potato traps or alternatively other methods could be made up.

Fair testing

Use the same technique for collecting the minibeasts.

Use trees of roughly the same age.

Sample for the same length of time.

Use the same equipment.

Carry out test in the same weather conditions, time of day.

Results

Design a recording table

They will find differences between trees that relate to the palatability of the leaves. Holly leaves are very thick and waxy. Some trees have been in this country since the retreat of the ice sheets. These are called native trees (e.g. oak) and are likely to support a greater number of animals and have had longer to evolve. Trees such as sycamore and horse chestnut have been introduced and therefore do not support as many species of insect.

Pupils should be encouraged to present results graphically and to draw conclusions relating to their prediction.

Testing other theories

1. A log in the shade is a better home for minibeasts than one in the sun.
2. A potato trap baited with jam will catch more minibeasts than one which has no jam.
3. More minibeasts are found living in the canopy of a mature tree than are found in the long grass.

Remember

Use the information in 'Tree File' to help with your investigation.

Tree Testing Theories

Are some trees more popular/tasty for minibeasts than others? Design an experiment to find out whether this is true. You need to make a prediction and plan a fair comparison between two trees. Answer the following questions to help you plan.

Prediction

I predict that there will be more/less/the same number of different minibeasts living on

the _____ tree

as the _____ tree.

Method

How will you test your prediction?

Fair testing

List all the things you will do to make your test fair.

Results

Design a table to record your results.