

Cedars Park Science



Mini-beasts and microhabitats

This activity is going to investigate mini-beasts found in a woodland habitat, and will provide an opportunity to study animals in a microhabitat at Cedars Park.

National Curriculum Links

Science Key Stage 1

- Identify that most living things live in habitats to which they are suited and describe how different habitats provide for the basic needs of different kinds of animals and plants, and how they depend on each other
- Identify and name a variety of plants and animals in their habitats, including microhabitats
- Identify and name a variety of common animals that are carnivores, herbivores and Omnivores

Science Key Stage 2

- Explore and use classification keys to help group, identify and name a variety of plants and animals in their habitats, including micro-habitats.
- Recognise that living things can be grouped in a variety of ways.
- Describe how living things are classified into broad groups according to common observable characteristics and based on similarities and differences, including micro-organisms, plants and animals.
- Give reasons for classifying plants and animals based on specific characteristics.

- Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs

Equipment

- Clipboards, pencils and paper
- Cedars Park Education Pack map
- Trays
- Paintbrushes
- Plastic teaspoons
- Magnifying pots
- Pooters
- Gardening gloves
- Worksheets (see below)
- Identification keys
 - http://www.naturedetectives.org.uk/NR/rdonlyres/0DC806AA-CCE7-463F-B167-4D9A9014570C/0/minibeast_spotter_sheet.pdf
 - http://www.naturedetectives.org.uk/NR/rdonlyres/892A2344-2970-472E-8976-D70F06568C2E/0/hunt_beetle.pdf
 - <http://www.opalexplorenature.org/Identification>
- Common mini-beast fact sheet (see below)

Timing

- 2 hours

Activity

Walk to the woodland area on the map. The Cedars Park Woodland is a great place to study animals in a woodland habitat as a lot of conservation work has been done to create habitat piles in the woodland where trees have been cut down.

Introduce the term **Habitat**. Discuss with the children what they consider to be a comfortable home and their own needs for a home.

Do all creatures have the same needs in terms of a home?

What about small creatures like mini-beasts?

Discuss all the different places in the woodland where they think mini-beasts might live; in trees, bushes and on the ground. Why do they think they live in these different places? There will be a wide range of reasons: shelter, breeding, hibernation, feeding.

Ask them to name some of the different types of food they eat. Mini-beasts have evolved to eat a very wide range of food and as a result play an enormously important role in habitats. They will eat leaves, other small creatures, nectar, rotting/dead plant material and much more!

Can they think of a mini-beast that eats other creatures? Remind them that this is a **carnivore**. Ask the same question for one that eats plants and animals **omnivore**, and one that eats only plants, **herbivore**. Finally ask them if they know the name of an animal that eats rotting plants/animals. This is a **detritivore**.

Activity 1

Split the children into groups of 4-5 children and if possible one adult per group.

Tell them that they are going to investigate animals living in a **microhabitat**. What is a microhabitat? Can they think of a microhabitat in the woodland? A log pile on the woodland floor is an example of a microhabitat.

They are going to investigate the animals that live in a microhabitat using the log pile as an example.

Hand-outs:

- Equipment for studying and capturing mini-beasts
- Pupil worksheet -Woodland floor mini-beast recording sheet
- Pupil worksheet - Woodland floor food chain sheet

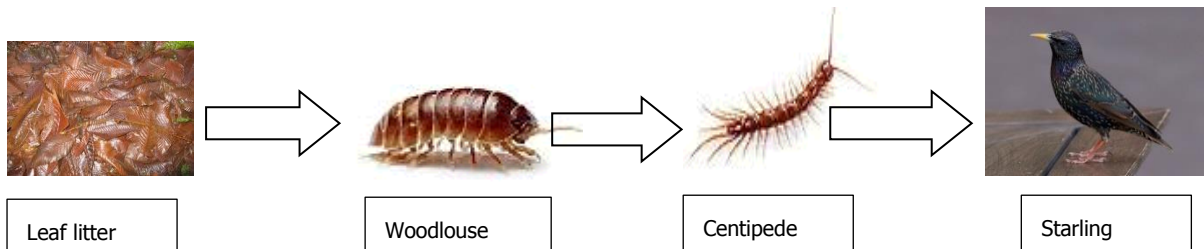
- Pupils worksheet – Woodland mini-beast Venn diagram.

What to do:

1. The children need to wear gardening gloves as this activity is hands on!
2. Find a damp leafy area under trees.
3. Gather a few handfuls of leaves and put them in the tray.
4. Gentle search in the leaves for mini-beasts such as: centipedes, woodlouse and beetles.
5. To search under decaying logs, make sure the log is carefully rolled to reveal the mini-beasts underneath.
6. Remember to return any mini-beasts back where they were found and replace any logs back in position.
7. Record what they have found on the Woodland Floor mini-beast recording sheet. The sheet asks them to do a tally of the number of different species they find, as well as deciding if they are a carnivore, herbivore or detritivore. They will also need to closely observe how these animals move.
8. When they have recorded how the mini-beasts move, get them to fill in the Venn diagram worksheet. This introduces the idea of grouping animals according to characteristics. In this case animal movements. Animals which are carnivores will move quickly as they need to catch their prey. Animals which are herbivores or detritivores do not need to hunt for food, as it is all around them. Some animals such as spiders may move stealthily to get close to their prey, but then fast when they move in for the attack.

Extension Activity/Follow Up

- In class use the recording sheet and get children to create a food web using examples from the food chains created on their worksheets.



- Write a profile for one of the creatures and their lifestyle.
- Design a home for one of the creatures ensuring that they meet all their needs.
- Put together a class tally of each individual species. This information can be put into a bar chart to find out which species are the most common, and those which only occur rarely. Ask them to think why some are more common than others? There are likely to be fewer carnivores than herbivores.
- They could create a bar chart for each species indicating if it is a carnivore, herbivore, omnivore or detritivore and get them to think about why the herbivores are more common than carnivores.








Background information









Have a look at the following websites for information on British mini-beasts.









- Buglife for all insects and minibeasts and their bug identifier.
<http://www.buglife.org.uk/bugs-and-habitats/bug-identifier>






Use the common mini-beast identification fact sheet which includes images and useful factsheet about their lifestyles.

Common Mini-beast fact sheet

Mini-beast	Picture	Information
Mites		<p>Very small and only some can be seen without a microscope or magnifying lens.</p>
Springtails		<p>Very small wingless insects and can be distinguished by their ability to jump when disturbed. They are found in leaf litter and decaying matter on which they feed.</p>
Woodlice		<p>Breathe through gills (like fish) so they require damp conditions. Woodlice have hard shells that are shed as they grow. They are nocturnal and feed on decaying plants.</p>
Earthworms		<p>The earthworm has a soft body and 5 hearts. They are able to reproduce lost body segments depending on the amount of damage. They feed on decaying leaves that they mix into the soil.</p>
Slugs and snails		<p>Produce mucus that helps with movement, deters predators and helps retain moisture. They eat leaves, mushrooms and decaying vegetables. They are found in moist areas so they do not dry out.</p>
Centipedes		<p>They have a hard body, which is segmented with 2 legs per segment. They have claws behind their head that possess poison glands that paralyse insects and spiders that they then eat.</p>
Millipedes		<p>A highly segmented body with hard shell and 4 legs per segment. They feed mainly on decaying plant tissue but will eat insect carcasses and droppings. They live in soil.</p>

Ground Beetles		They spend most of their time underground. They are carnivorous, hunting mainly at night.
Dung beetle		They eat dung. They are good fliers so they can reach different dung piles. Most dung beetles are nocturnal.
Rove beetles		Differ from other beetles as they have very small wing cases. They are carnivores eating flies and insect larvae. When disturbed they lift their tail.
Weevils		A weevil is a beetle; it has a long pointy nose or snout. They are usually small (less than 6 mm) and feed on plant matter.
Ladybird		They are beetles and can fly. The most common ladybird has seven spots. They eat aphids. They hibernate in cracks and crevices on winter emerging to lay eggs in April.
Shield or Stink bugs		Produce a foul smelling liquid as a deterrent.
Ants		Feed on fungi, seeds, sweets, scraps, other insects and sometimes other ants.
Spider		Spiders feed on insects and other small insects.

Earwigs		<p>Large and move about quickly. Some are predators others feed on decayed (rotting) vegetation.</p>
Caterpillars		<p>Is the larval form of butterflies and moths. Caterpillars feed on leaves. Many have defences to avoid predators such as large eyes towards their rear or hairy bristles which cause irritation, some have venom.</p>
Butterflies and moths		<p>The adult form of a caterpillar. Moths and Butterflies feed on nectar using a mouthpart called a proboscis. Some are migratory travelling to North Africa for the winter.</p>
Wasps		<p>Over 30 000 types of wasps. They eat pollen and nectar as well as aphids and flies and caterpillars. Wasps are fierce predators eating smaller insects and sometimes fruit.</p>
Bees		<p>They are important pollinators. Bees feed on pollen and nectar.</p>
Dragonflies and damsel flies		<p>The adults feed on small midges. The larvae live in ponds.</p>
Flies		<p>A fly has only 2 wings and a compound eye made of 1000s of small eyes. A fly's larvae is called a maggot. They have a long Hoover-like mouth called a proboscis. They send down liquid which dissolves rotting food (animal & plant) and suck it back up.</p>
Hover flies		<p>Feed on pollen and nectar. Their markings are very similar to wasps and bees. They are flies as they only have 2 wings.</p>

Grasshoppers and crickets		<p>They make a noise by rubbing their hind legs against their wings. Crickets are more usually nocturnal. They are omnivores and eat almost anything.</p>
Aphids Greenfly		<p>Part of the sap sucking insect group. They are a common garden pest.</p>
Leaf hopper		<p>One of the largest groups of plant feeding insects. There are more leafhoppers than mammals, birds reptiles and amphibians combined. They feed by sucking plants sap.</p>
larvae		<p>Many insects have larval forms, these look very different to their adult version. There are different types. A maggot type such as a fly's larva; grub type such as a beetle; a worm type and caterpillars.</p>
True Bug		<p>They can range in size from 1 mm to 10mm. Their mouths are designed for sucking plant sap.</p>

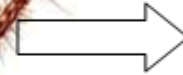
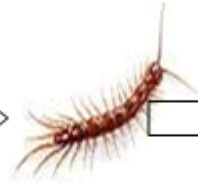
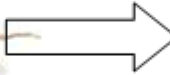
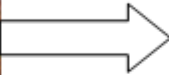
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School:

Date:



Woodland floor common mini-beast food chain



Draw your own food chain in the space below. (your food chain does not need to have 4 stages. It could have 3) Draw the arrows and their direction.



Name:

School:

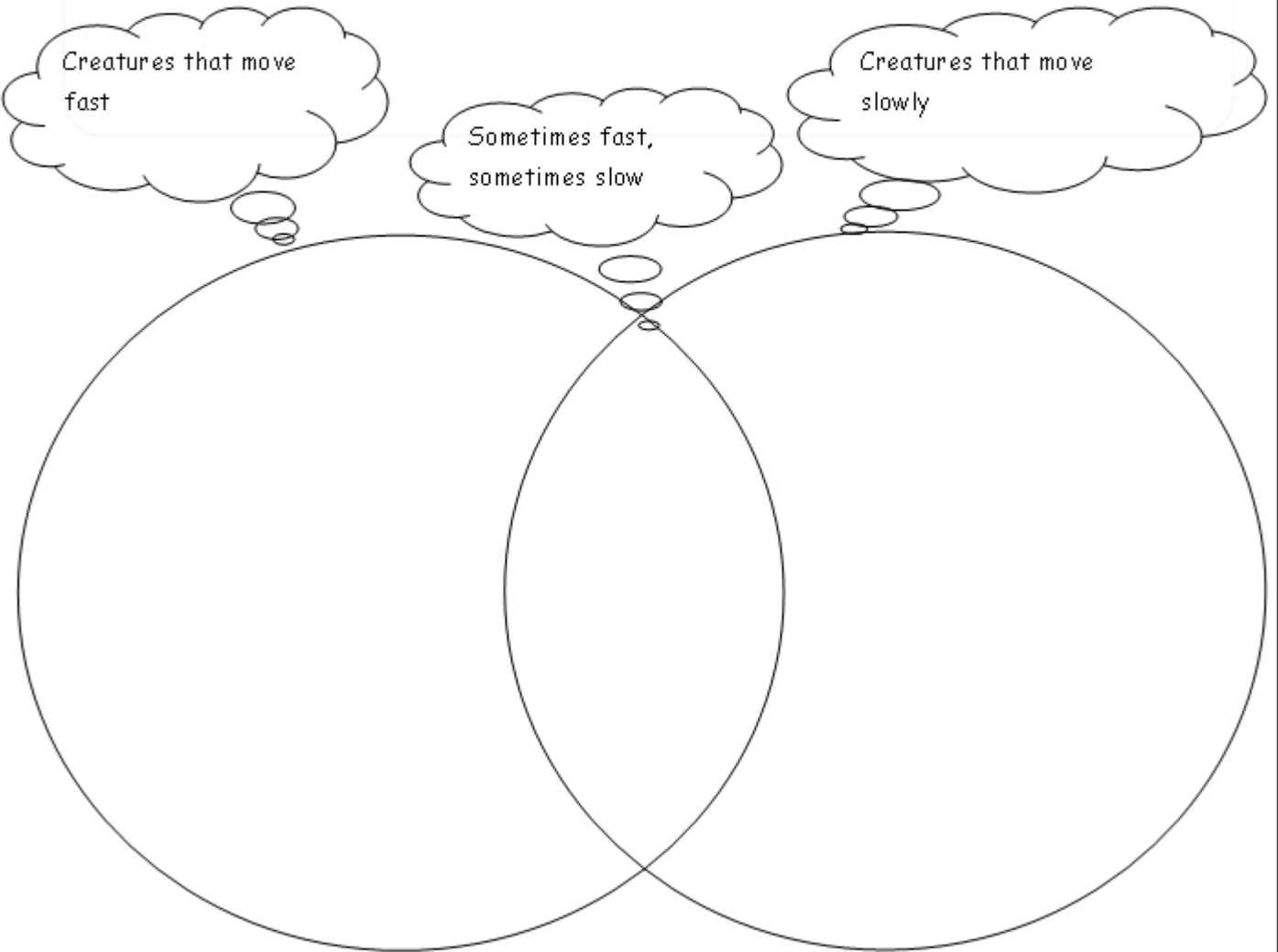
Date:

Draw pictures of your woodland floor mini-beasts in the Venn diagrams below. Decide which of your creatures are fast moving, which are slow moving, and those which are sometimes fast and sometimes slow. Can you give reasons for why some move fast and some move slowly and some others are both.

Creatures that move fast

Sometimes fast, sometimes slow

Creatures that move slowly










Name:

School:

Date:



Woodland floor common mini-beast recording sheet

Name	Picture	How many have you found. Do a Tally 	Look at the ID sheet. Is it a: carnivore, herbivore, or detritivore	How did it move? Fast, slow, or sometimes fast, sometimes slow
Mites				
Springtails				
Woodlouse				
Worms				
Slugs and Snails				
Centipede				








Name:

School:

Date:



Woodland floor common mini-beast recording sheet

Name	Picture	How many have you found. Do a Tally 	Look at the ID sheet. Is it a: carnivore, herbivore, or detritivore	How did it move? Fast, slow, or sometimes fast, sometimes slow
Millipede				
Ground Beetles				
Dung Beetle				
Rove Beetle				
Ant				
Earwig				






Name:

School:

Date:



Woodland floor common mini-beast recording sheet

Name	Picture	How many have you found. Do a Tally 	Look at the ID sheet. Is it a: carnivore, herbivore, or detritivore	How did it move? Fast, slow, or sometimes fast, sometimes slow
Larvae				
Spider				
Harvestman				
Weevil				
Other (draw a picture of anything else you find)				