Habitat Explorers

Searching for life in the Woodland

(KS2)

Self-guided activities at ZSL London Zoo

1. **Includes:** pre visit activities (including species and invertebrate pictures), onsite activities (including Invertebrate Classification Key, Invertebrate Spotting Sheet and Invertebrate ID Guide) and post visit activities (including Invertebrate BINGO)
2. **National Curriculum links:** Living things and their habitats, Evolution and Inheritance, Working Scientifically, Statistics and Ratio & Proportion (Mathematics), Writing and Reading (English)
3. **Intended learning outcomes:** Gain an understanding of the term and process of 'classification', Gain an understanding of key features that differentiate five groups of invertebrate, Use a classification key to correctly classify invertebrates, Gain an understanding that animals are adapted to suit their environment in different ways

A walk in woodland habitat (KS2 – Year 6)

Self-guided activity at ZSL London Zoo

Location: Woodland Walk (map ref C2 to F2)

National Curriculum links (2014):

Science - Year 6 programme of study

Living things and their habitats:

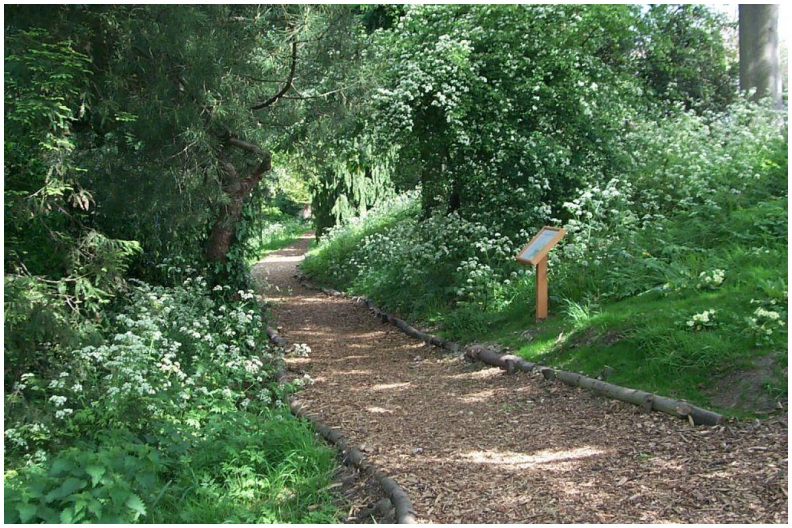
- Describe how living things are classified into broad groups according to common, observable characteristics and based on similarities and differences
- Give reasons for classifying animals based on specific characteristics

Evolution and Inheritance:

- Identify how animals are adapted to suit their environment in different ways

Working scientifically:

- Recording data
- Classification keys



ZSL London Zoo's Woodland Walk (Copyright ©ZSL)

Mathematics - Year 6 programme of study

Statistics:

- Interpret and construct pie charts

Ratio and proportion:

- Solve problems involving the calculation of percentages and use the percentages for comparison

English - Year 5 and 6 programme of study

Writing:

- Handwriting and presentation
- Using the perfect form of verbs
- Using expanded noun phrases
- Using correct grammatical features

Reading:

- Retrieve, record and present information in non-fiction

Intended learning outcomes:

Pupils will:

- Gain an understanding of the term and process of **'classification'**, using invertebrate species found within a woodland habitat at ZSL London Zoo
- Gain an understanding of key features that differentiate five groups of invertebrate (insect, arachnid, mollusc, annelid, myriapod)
- Use a **classification key** to correctly classify invertebrates found in a woodland habitat at ZSL London Zoo
- Gain an understanding that animals are adapted to suit their environment in different ways, by comparing species within microhabitats in a woodland habitat at ZSL London Zoo

Woodland Walk activity at ZSL London Zoo

1. Pre-visit activity at school:

Resources needed *(Print from ZSL Website)*

1. **Species pictures** for opening activity – including mammals, reptiles, fish, birds & invertebrates
2. **Invertebrate Pictures**
3. **Classification key**

Optional Opener: To review general theme of classification. Show pupils '**Species Pictures'** and ask them to group them with reasons why - discuss differences with the class. If needed, can prompt the identification of key features such as hair/fur, scales, feathers etc. Can the pupils name each group (mammal, reptile etc)?

Introducing Invertebrates:

- Introduce invertebrates, and explain their importance in our world
    - 80% of the world's known species are invertebrates
    - They form the basis of numerous food chains: e.g. 80% of plants rely on invertebrates for pollination; one pipistrelle bat will eat around 8,000 insects in one evening.
    - Some look very similar, some look very different. One thing they all have in common is that none of them have a spine/backbone
    - Ask them which of the 10 pictures from opener were invertebrates?
- Show pupils the four insects on the **'Invertebrate Pictures'** sheet showing different looking insects (butterfly, cockroach, ant, bee).
- In groups discuss what features that they all have the same (6 legs, 3 body parts, antennae).
- What do some have that others don't (wings, different colours)?
- Add the 4 remaining **'Invertebrate Pictures'** – are they insects or something else?
- Introduce **'Classification Key'**: Using the classification key, can the pupils work out what class of invertebrate each animal is (spider = arachnid, snail = mollusc, worm = annelid, centipede = myriapod).
- Can pupils name a type of invertebrate from each class that lives in the UK?

Optional Extension: Pupils pick one of the invertebrates. Research a species, looking at its habitat and microhabitat, whether it is a carnivore, herbivore or omnivore. Ask pupils to look into how it is adapted to its habitat/microhabitat. Make a poster highlighting their adaptations.

Key questions

- *Do all insects look the same? What are the key features that they all have?*
- *Why do we classify animals?*
- *What are the main features of arachnids, molluscs, annelids and myriapods?*
- *Can anybody give an example of one of each of these living in the UK?*

***Classification** = grouping living things into categories based on shared features.*

2. Woodland Walk activity at ZSL London Zoo:

Resources needed:

- **Classification Key** printed from ZSL website (x1 per pair/group)
- **Invertebrate Spotting Sheet** printed from ZSL website (x1 per pair/group)
- **Invertebrate ID Guide** printed from ZSL website (x1 per adult)
- **B.U.G.S. Invertebrate Spotting Sheet** printed from ZSL website (x1 per pair/group) – *if doing extension activity*
- Note books or paper to record pupil observations
- Pencils or pens
- Clipboards – one per pair if possible
- Cameras to take photographs of living things and micro-habitats on the Woodland Walk

Expectations of behaviour on Woodland Walk

- *Stay together and in your pair*
- *Stick to the path, but you can move a little bit either side of the path but be careful not to stand on any plants*
- *If you lift a rock or log to look under it then make sure put it back where you found it*
- *Walk slowly and take your time to record information and see what you can find*
- *Everyone waits when they have finished the walk to make sure everyone leaves together*

'What living things can we find on the Woodland Walk and where?'

1. Go through the behaviour expectations for group in the Woodland Walk.
2. Put students into pairs/small groups.
3. Each pair/group is given one **Invertebrate Spotting Sheet** and one **Classification Key**
4. Encourage pupils to walk along the Woodland Walk in their pairs/groups and explore different places they think invertebrates might live – e.g. in trees, on leaves, under fallen leaves, under logs/rocks.
5. When they find an animal they should record it in their **Invertebrate Spotting Sheet**. They can use the **Classification Key** to identify the *"Type of invertebrate"*. If they are not sure what animal it is, they can refer to the **Invertebrate ID Guide**, but encourage them to look at this after they have filled in the rest of the data.
6. If moving slowly enough to record their data, this walk should take 20-30 minutes. As the pair walks along the path to find and explore their particular micro-habitat, they tick off any living things they see, giving a running tally. If they find any extra living things that are not on the ID tick sheet, they can add their own notes on the reverse side of the sheet. The second pupil can write/draw each observation they make using their senses in a notebook or on paper. Where safe to do so, please encourage students to turn over small rocks, logs and leaves, but to make sure they put them back where they were.
7. At the end of the walk, adults can ask students to share what they have found before collecting the sheets to talk about back at school.

Optional Extension: Adaptation to Habitats. Students visit the B.U.G.S. exhibit (map ref. B6). Each group gets a **B.U.G.S. Invertebrate Spotting Sheet**. Can they find one species from each of the five invertebrate groups: insect, arachnid, myriapod, mollusc, annelid (*N.B. no live annelids on display – but pictures of species are on the information boards*). Name one adaptation for each (e.g. camouflage, wings, sting, building webs etc.).

Additional questions to ask in B.U.G.S:

Answers can be found on information in the invertebrate area of the room – turn left as walk in

- *Look at one of the food webs (e.g. South East Asia Food Web) – can the identify the invertebrate – how is it linked to all the other animals in the web? What would happen if we didn't have that invertebrate?*
- *How many species of spider are there?*
- *Why are millipedes important to habitats?*
- *Why do scorpions have a sting? Why don't millipedes have a sting?*
- *OPTIONAL EXTENSION: What is the difference between **"venomous"** (deliver the toxin into other organsims using a specialised body e.g. injected via specialised fangs or stingers) and **"poisonous"** (do not deliver the toxin directly, but instead their body contains a toxic substance)? Can compare the scorpions vs. the golden mantilla frog to show the difference.*
- *CONCLUSION: Why are invertebrates important? What would the world be like without them?*

3. Post-visit activity at school after ZSL London Zoo:

Resources needed:

- **Invertebrate BINGO** printed from ZSL website – x1 per team
- Completed Invertebrate Spotting Sheets
- A4 paper, rulers and colouring pencils to draw pie charts and/or bar graphs
- A1 paper to make posters

a) Invertebrate BINGO! (at school or during some free time at the Zoo)

- Ask pupils to share what species they saw - write all the names on the board - discuss what type of animal each was, where it was found etc.
- Split children into small teams (3-4 pupils).
- Hand out BINGO! worksheets (1x per team).
- Pupils to write down 9 of the animal species found from the board in any order they like.
- Teacher calls out in random a **Class of Invertebrate**, a **Microhabitat**, or some **Identifying Features** of a particular Class (e.g. *"an Arachnid"* or *"a species with 6 legs"* or *"A species found in a tree"*).
- Pupils use this to circle one species on their board.
- The first team to have all their animals circled is the winner.

b) Results and Discussion of Findings – Woodland Walk

- Ask the pupils to describe the different conditions and different living things in each habitat. Ask them to offer suggestions about why they are found in different micro-habitats. If needed, explain to the pupils that different living things live in particular environments depending on what suits them - some prefer shady conditions, some prefer exposure to sunlight, specific food preferences, damp or dry etc.

- ***NUMERACY extra:*** Ask pupils to work out what **percentage** of the animals they found belonged to each group, using this formula:

$$\frac{\text{Number of INVERT TYPE (e.g. insect species)}}{\text{Total number of species found}} \times 100$$

Which was the most **abundant**? Can they construct a **pie chart or bar graph** to show these percentages?

Could also do the same to highlight which Microhabitats had the most species in them using this formula:

$$\frac{\text{Number found in MICROHABITAT (e.g. under a log)}}{\text{Total number of species found}} \times 100$$

Which microhabitat had the highest **species diversity**? Can they construct a pie chart or bar graph to show these percentages?

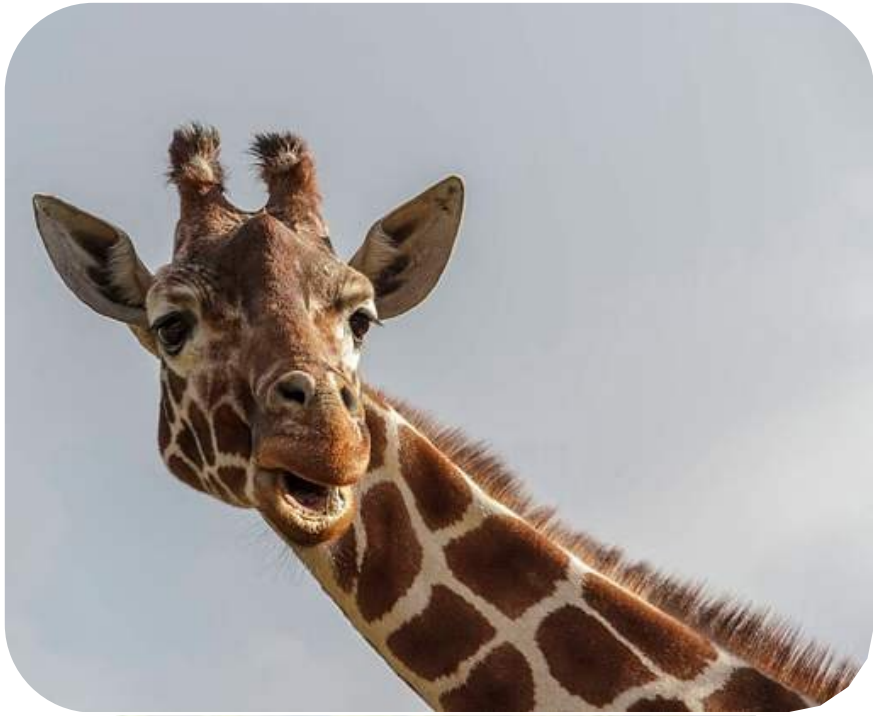
- ***LITERACY extra:***
    1. Working in their groups, pupils make a poster to describe what they found in the woodland habitat.
    2. Include drawings of the species they saw in the different microhabitats, pie charts/graphs to show their results.
    3. Write a **discussion** of their findings.
    4. If appropriate, encourage sentences to help such as
        - ✓ "When we explored the Woodland Walk, we found that the most common species was XXX."
        - ✓ "There were more XXX than any other type of invertebrate."
        - ✓ "XXX Microhabitat had the most species living in it."
    5. Challenge the pupils to use past, present and perfect tenses in their discussion.
    6. Challenge the pupils to use expanded noun phrases to describe the species, habitat and microhabitats: e.g. the big, slimy, pink worm lived under the dark, damp, muddy log.

c) Invertebrate Adaptations – *if completed optional extension in B.U.G.S.*

- Discuss with pupils the different invertebrates they found in B.U.G.S - what did they find, what habitats did they live in and what adaptations did they have? Why did they have them?
- Did any of the invertebrates look similar to ones found in the Woodland Walk? Why would they also need those adaptations in a Woodland habitat?

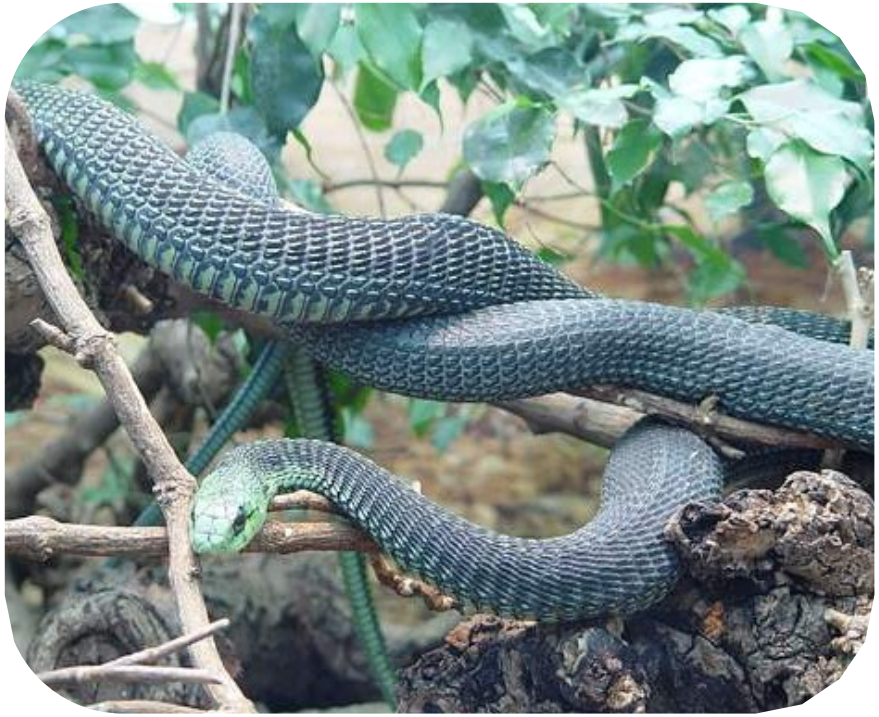
d) Comparison with your school playing field

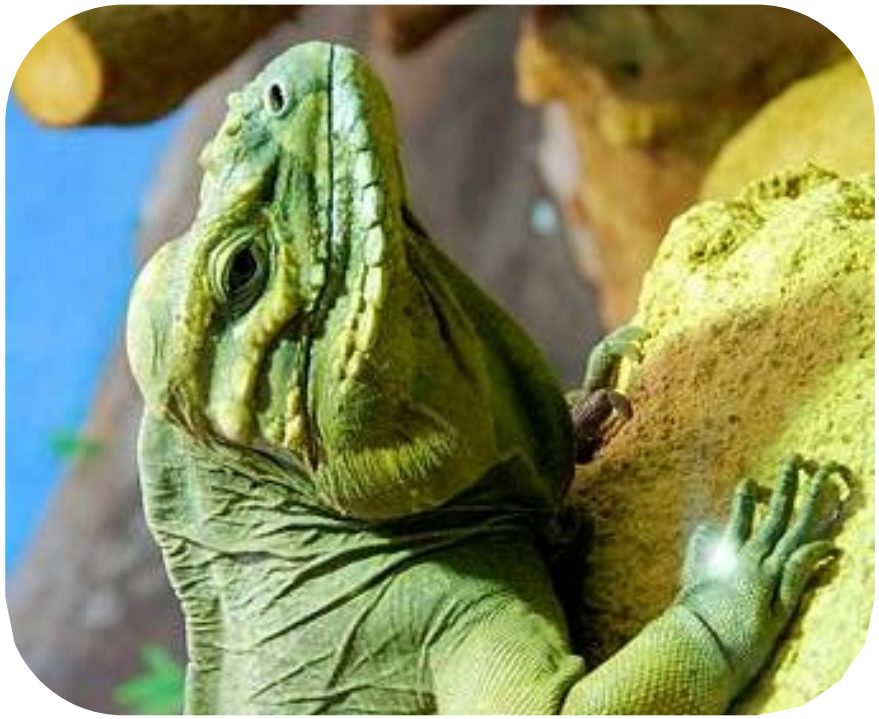
- Complete a habitat survey in their school (same as the **Woodland Walk activity at ZSL London Zoo**)
- Encourage pupils to think about how they could make this a fair comparison as a **scientific study** (length of time spent looking, size of area covered etc.)
- Are there more or less of each species in the school yard?
- To encourage more invertebrates in the school yard, pupils could make a Minibeast Mansion using bamboo cane, logs etc.

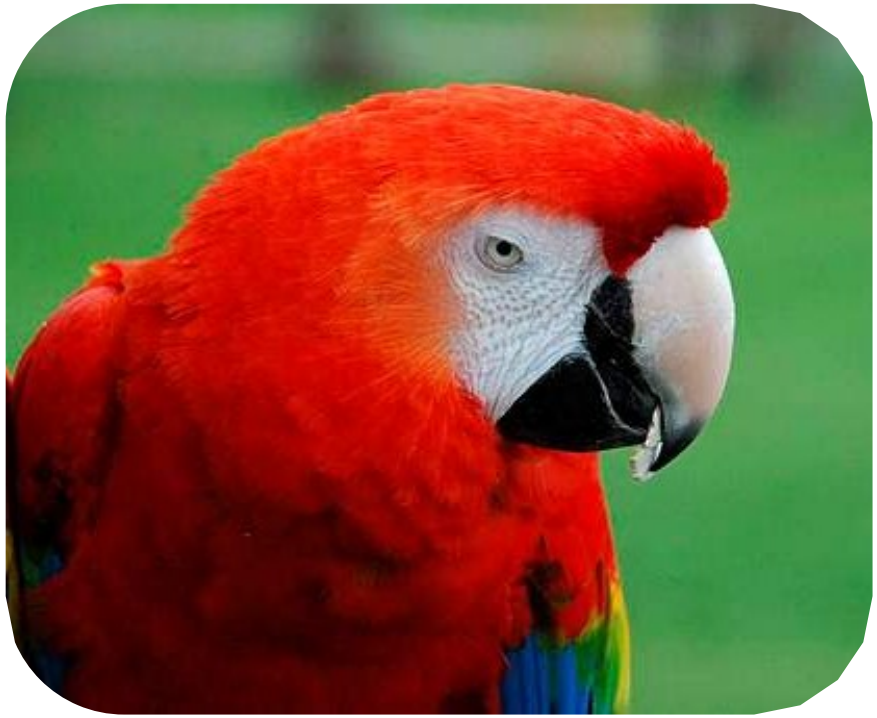


Pre-Visit Activity

Species Pictures

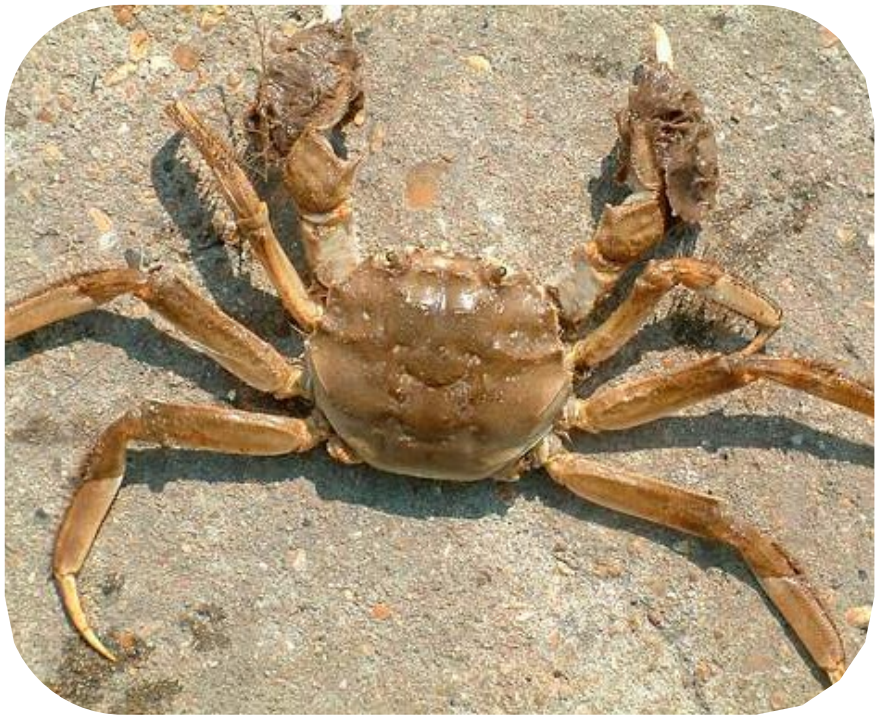


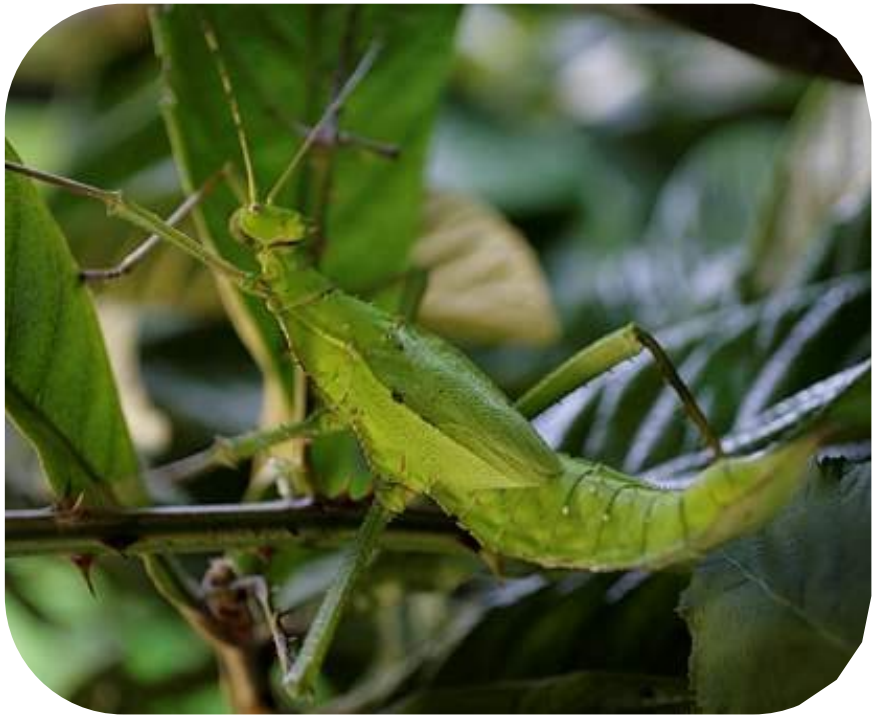




Pre-Visit Activity

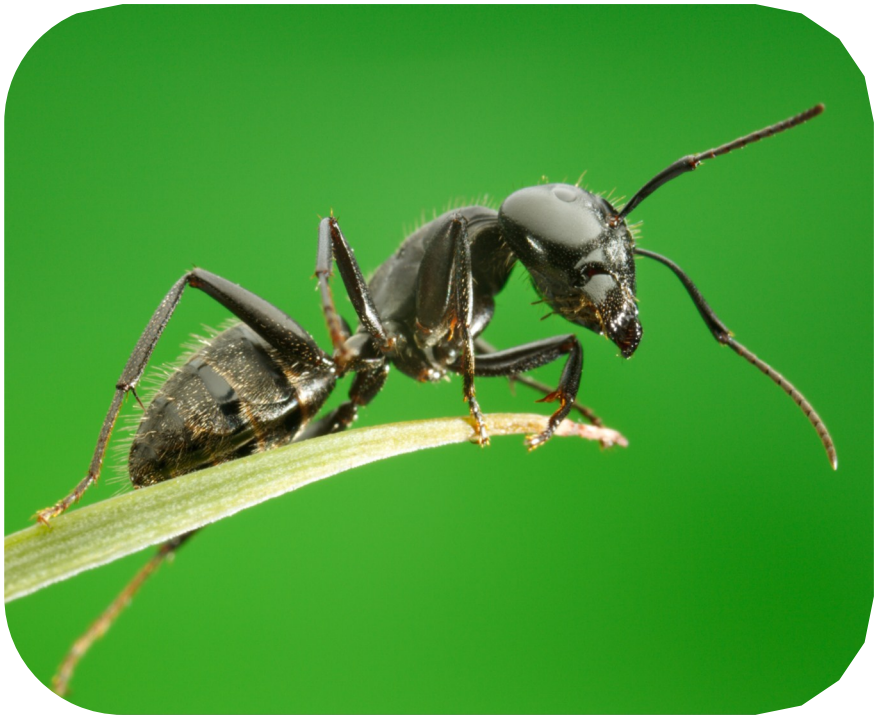
Species Pictures

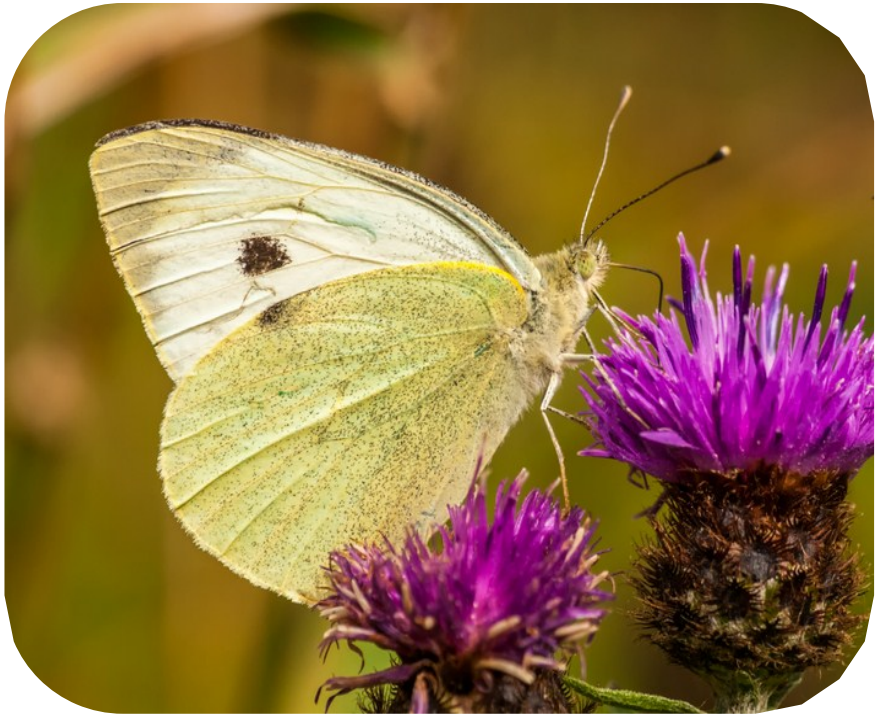


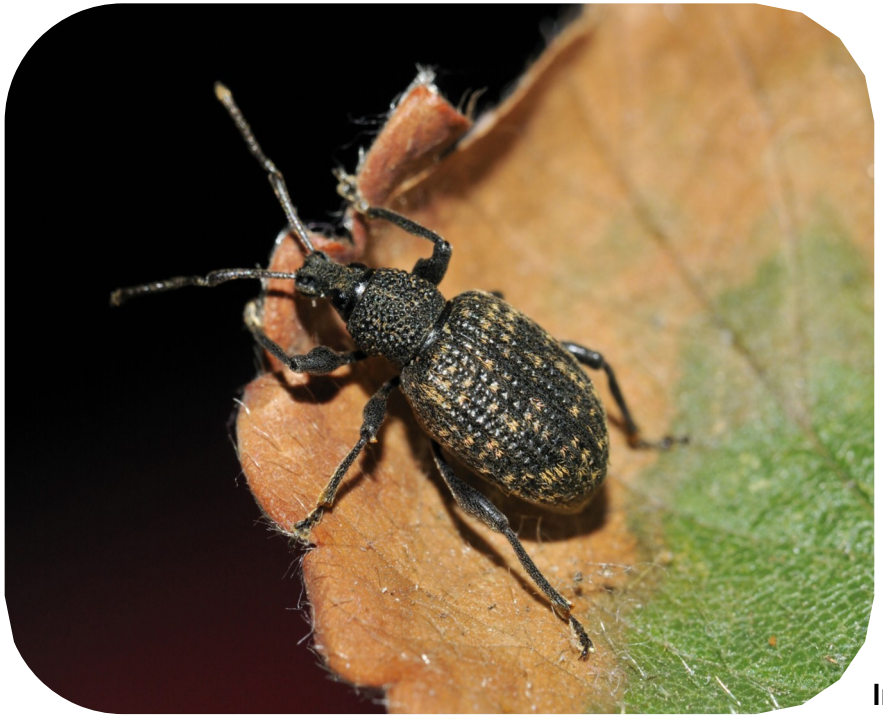


Pre-Visit Activity

Species Pictures

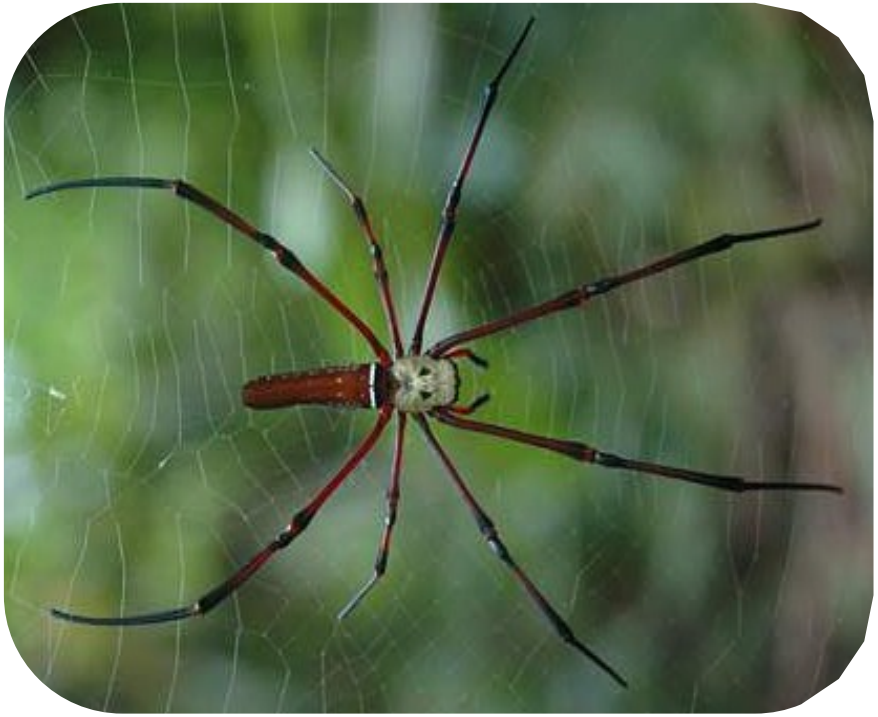






Pre-Visit Activity

Invertebrate Pictures



Pre-Visit Activity

Invertebrate Pictures

Woodland Invertebrates

Classification Key

Does it have legs?

YES → **Does it have 6 legs?**

YES → **INSECT**

6 legs, antennae, 3 body parts, some have wings.

NO → **Does it have 8 legs?**

YES → **ARACHNID**

8 leg,
no antennae
2 body parts
no wings.

NO → **Does it have more than 20 legs?**

YES → **MYRIAPOD**

Lots of legs, lots of body parts.

NO → **Talk to your teacher.**

What is it?

You might need to check your answers - or maybe it's another type of animal!

NO → **Is the body split into many parts?**
(you might see lines going across the body)

YES → **ANNELID**

No legs,
soft & segmented bodies.

NO → **MOLLUSC**

No legs, soft bod,
some have shells.

ZSL LONDON ZOO

Name:
Class:

Woodland Invertebrates
Spotting Sheet

What we saw (Species)	**Where we saw it** (Microhabitat)	**How many we saw** (Abundance)	**Type of invertebrate** (Classification)	**What it looked like** (Description/drawing)
Ladybird	On a bush	4	Insect	 Red body with black spots. 6 legs. Antennae. Wings

What we saw	Where we saw it	How many we saw	Type of invertebrate	What it looked like

ZSL LONDON ZOO

INSECTS

ZSL LONDON ZOO

Ladybird 	Beetle 	Earwig 	Wasp 
Fly 	Ant 	Butterfly *(clubbed antennae)* 	Moth *(feathery antennae)* 
Dragonfly *(wings open at rest)* 	Damselfly *(wings closed at rest)* 	Bee 	Grasshopper 

MOLLUSCS

ARACHNIDS

Snail 	Slug 	Spider 	Scorpion 

MYRIAPODS

ANNELIDS

Woodlouse 	Millipede 	Centipede 	Earthworm 

Name:
Class:

B.U.G.S. Invertebrates
Spotting Sheet

Type of invertebrate	Species	Countries it lives in	What it eats	Adaptation	What it looked like
Insect					
Arachnid					
Mollusc					
Myriapod					
Annelid					

Invertebrate BINGO!
