Living things and their habitats

Animals without a backbone: Classifying invertebrates

Year 6
Age 10-11

The Association for Science Education

Animals without a backbone: Invertebrates

Key Learning

- **Animals** can be divided into two main groups: **vertebrates** (animals with backbones) and **invertebrates** (animals without backbones)**.**

- **Invertebrates** can be divided into many groups. These groups include **insects, slugs & snails (molluscs), spiders (arachnids)** and **worms.**

I can…

- Describe some characteristics of invertebrates found in gardens, parks and woodland.

- Use a tally chart to record data.

- Plot a bar graph.

Activity & Investigation (pages 3-6): 30 - 40 mins

- Use lined paper, squared paper, a ruler and a pencil.

- Alternatively, print page 5 and 6 as worksheets.

Taking it further… (page 6): 30 - 60 mins

- Making a branching key for garden invertebrates.

- You may like to consider entering the Great Bug Hunt competition.

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- Animals without a backbone are called **invertebrates**.

- Look carefully at these three invertebrates. Which one do you think is the odd one out?

- Think about their features or **characteristics** to help you.

millipede   earthworm   beetle

- You may have chosen body colour, number of legs or body shape to describe the odd one out.

- Some invertebrates have a hard **exoskeleton** to protect them. Watch this BBC clip to find out more.
https://www.bbc.co.uk/bitesize/clips/zmj8q6f

- Earthworms do not have an exoskeleton. They have flexible muscle for moving underground.
https://www.nhm.ac.uk/discover/earthworm-heroes.html

Think or talk about two reasons why earthworms are important in a garden.

There are a huge variety of invertebrates in gardens, parks and woodlands around the UK.

- If you have access to a garden, conduct a survey of invertebrates by looking under logs, stones, bushes or loose soil. You may also see some flying insects.

- Use the **identification key** on page 5 to help you.

- Make a **tally chart** of the invertebrates you find.

Invertebrate	Tally	Total

- *Ask an adult to help you plan and conduct the survey.*
- *Follow government guidelines on social distancing and staying safe.*
- *Take care with the animals you find. Avoid touching them, especially those which might bite or sting.*
- *Remember to leave the animals in their habitat.*

If you are unable to go outside, find out more about woodland invertebrates here:

https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/animals/other-invertebrates/

Conducting a survey of garden or woodland invertebrates.

- *Ask an adult to help you plan and conduct the survey. Follow government guidelines on social distancing and staying safe.*
- *Take care with the animals you find. Avoid touching them, especially those which might bite or sting. Leave the animals in their habitat.*

beetle

fly

snail

centipede

shield bug

ant

slug

millipede

bee

wasp

worm

woodlouse

ladybird

butterfly

caterpillar

spider

Invertebrate	Tally	Total

Make a bar chart to show the invertebrates you found in your survey.

Alternatively, use this data:

Invertebrates found in a garden on a warm day in April

Invertebrate	Tally	Total
snail	||	
worm	⊬⊬ |	
spider	|||	
woodlouse	⊬⊬ ⊬⊬ |	
wasp	)|||	
butterfly	|(|	
centipede	|	
ant	⊬⊬ ⊬⊬ ||	

I can plot a bar graph using survey data.
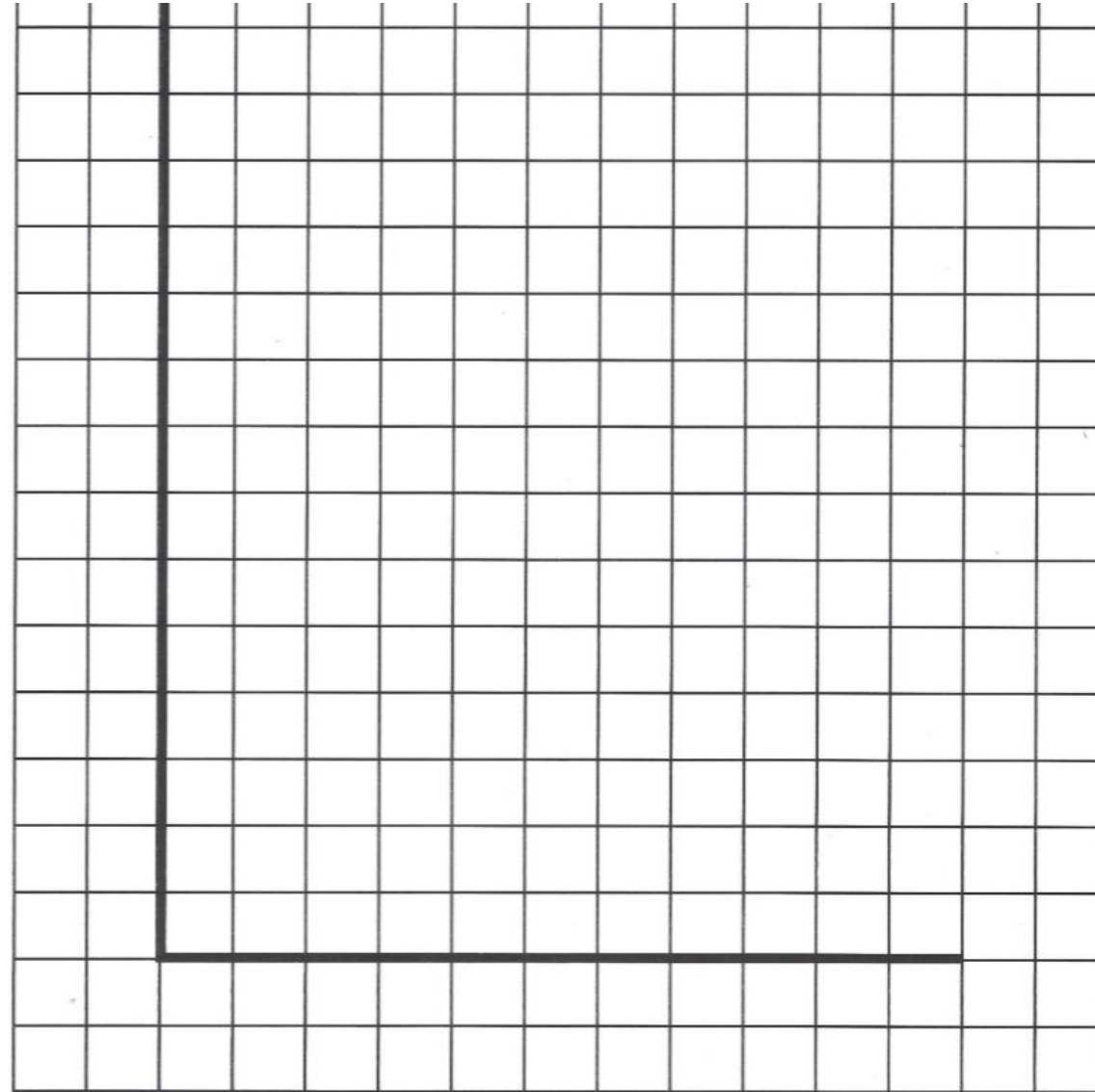
6

You may like make a branching key or share your findings with the Great Bug Hunt
(30-60 minutes)

You have already learnt how to make a branching key for vertebrates.

- Select four invertebrates from the identification key on page 5, or from your own survey.

For example: a sail, a slug, a wasp and a beetle.

- Look carefully their features:
    - How many legs to they have?
    - Do they have wings?
    - Do they have a exoskeleton?
    - Do they have a shell?
- Make a branching key to classify them.

*The **Great Bug Hunt** is run every year by the ASE in partnership with the Royal Entomological Society.*

For 2020, it is open for entries from home.

All details can be found here:

http://www.schoolscience.co.uk/bughunt

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Glossary of terms

Characteristic: Characteristics are features of living things which help scientists **classify** them.

Classification: Classification is the method scientists use to group living things.

Exoskeleton: An **exoskeleton** is a hard outer casing which supports and protects the body of some invertebrates.

Identification key: An **identification key** is a useful tool for identifying unknown living things.
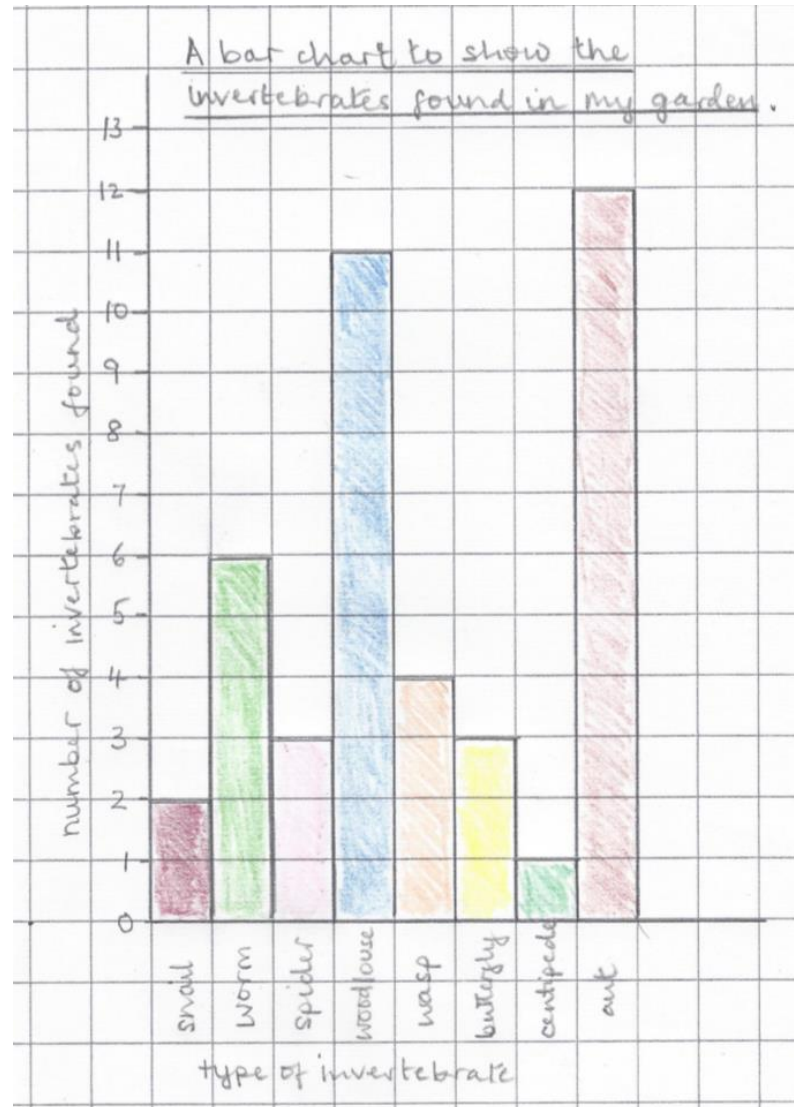
Invertebrate: An **invertebrate** is an animal without a backbone.

Survey: Scientific surveys are a common method used to collect data about living things.

Vertebrate: A **vertebrate** is an animal with a backbone.

Possible learning outcome for reviewing your work.

I can plot a bar graph using survey data.

Your graph may look different.

For example, if you found a large number of invertebrates your scale may be numbered in intervals of 2s, 5s or 10s.

Check your numbers are evenly spaced along the y-axis.

The y-axis also needs a label, such as "number of invertebrates found".

Each bar should be labelled with the name of the invertebrate, or a shortened code.
For example:
sna = snail.

The x-axis needs a label, such as "type of invertebrate"

The graph should have a title, such as "A bar chart to show the invertebrates found in my garden".