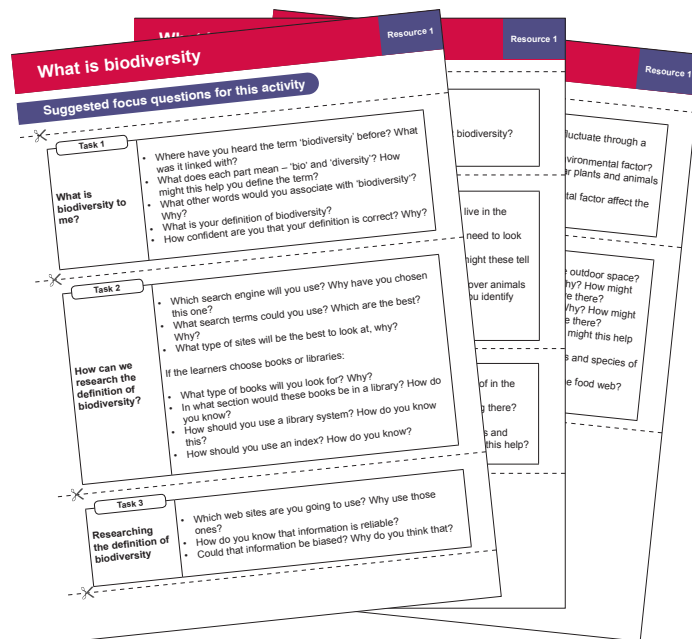


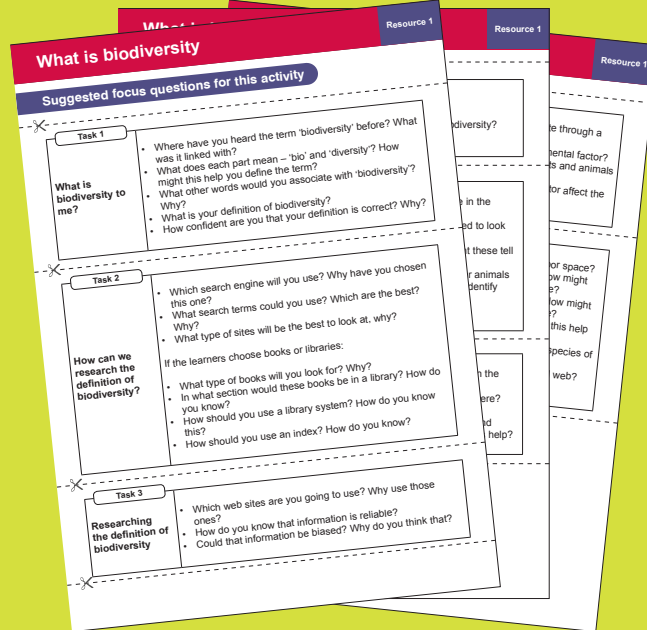
# What is biodiversity?



Bridgend Outdoor Schools  
Ysgolion Awyr agored  
Pen-y-Bont ar Ogwr

# What is biodiversity

Learners are invited to mind map their thoughts as to what 'biodiversity' means. They then apply their ideas to an actual outdoor space and suggest how biodiversity in this space could be improved. Within the activity, they build food chains into food webs and look at how environmental factors affect food webs. They could then go on to build pyramids of numbers for their food web.



## Opportunities to develop

LNF

### Literacy

**Oracy across the curriculum:** Developing and presenting information and ideas.

**Reading across the curriculum:** Locating, selecting and using information, Responding to what has been read.

**Writing across the curriculum:** Organising ideas and information, Writing accurately.

### Numeracy

**Developing numerical reasoning:** Identify processes and connections, Represent and communicate, Review.

**Using number skills:** Use number facts and relationships, Fractions, decimals, percentages and ratio, Calculate using mental and written methods, Estimate and check.

Curriculum

### KS3 Science

**Skills** – C1,2; EP 3, 6, 7; ED3, 4, 5; ER2, 4.

**Range** – IO4, 5

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## Resources

### Resources included with this activity

- 1 Suggested questions in sets, relating to each section of the source square, which can be given to each pair as they start each section. Conversely, these questions can be used by the teacher.

### Resources that need to be made available

- 1 Computers, internet.
- 2 Learners will also need a means of identifying plants and animals. The most commonly used keys and guides are those produced by the Field Studies Council at <http://field-studies-council.org/> although you may have your own keys/books in school.

## Risk assessment

Prior to carrying out outdoor activities, please read [Assessing risk in outdoor spaces](#) (hyperlinked). You will need to follow your own school's health and safety guidelines and subsequently make your own risk assessments that directly relate to the outdoor space that you are going to use.

## How to run the activity

### Preparation

Learners will need some prior knowledge of using identification books/leaflets and keys.

### Doing the activity

Invite learners to think about biodiversity and what it might mean. This should lead to a variety of ideas that could be researched before visiting the local outdoor space. Learners could work in pairs or small groups in the field and throughout the rest of the activity.

### Task 1: What is biodiversity to me?

Ask learners to mind map their ideas as to what biodiversity means to them. You could ask them to break up the word and give meanings for each part. Towards the end of say 10 minutes, learners could write a 'golden sentence' to define biodiversity. As they work, you could pose questions such as:

- Where have you heard the term 'biodiversity' before? What was it linked with?
- What does each part mean – 'bio' and 'diversity'? How might this help you define the term?
- What other words would you associate with 'biodiversity'? Why?
- What is your definition of biodiversity?
- How confident are you that your definition is correct? Why?

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## Task 2: How can we research the definition of biodiversity?

Most learners at this point will come up with generic answers as to how they will research the definition; responses such as 'on the internet' or 'in books' or 'go to the library' are very low level. To try and move learners away from such responses ask them questions such as those below:

- Which search engine will you use? Why have you chosen this one?
- What search terms could you use? Which are the best? Why?
- What type of sites will be the best to look at, why?

If the learners choose books or libraries, ask questions such as:

- What type of books will you look for? Why?
- In what section would these books be in a library? How do you know?
- How should you use a library system? How do you know this?
- How should you use an index? How do you know?

## Task 3: Researching the definition of biodiversity

Learners will need to decide how they are going to present their definition, as images, a poster or text. Give a limited time for research and suggest the maximum 'size' of their definition. This will help them to develop good précis skills. You might wish to ask questions of the learners as they are researching, such as:

- Which web sites are you going to use? Why use those ones?
- How do you know that information is reliable?
- Could that information be biased? Why do you think that?

## Task 4: Comparing my thoughts with my research

Ask learners to compare their original definition with their researched definition. As they do this ask them to articulate their thoughts:

- How are the two definitions the same?
- How are the two definitions different?
- What else would you like to find out about biodiversity? Why?

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## Task 5: Planning to visit the outdoor space

Explain to learners that they are going to visit a local outdoor space and note the range of organisms that live there. Before the visit, learners will need to be practised in using either identification books or keys in order to identify organisms in the outdoor space. In order to plan their exploratory enquiry you could ask:

- How will you know what animals and plants live in the space?
- How could you identify plants? What do you need to look at?
- What signs of life could you look for? What might these tell you?
- How could you use your other senses to discover animals that you can't see in the space? How could you identify these animals?
- How could you record your results?

Once learners have planned for their visit, and armed with their books, keys and apps, they should visit the space and collect their findings. They may need to continue their identification of some organisms back at school, especially if they recorded bird song in the outdoor space.

## Task 6: Collating the findings

Ask groups of learners to pool their findings and to discuss:

- What animals and plants did you find evidence of in the outdoor space?
- How did you know that each organism was living there?
- How confident are you of your findings? Why?
- What else could you do to discover other animals and plants that live in the outdoor space? How might this help?

Once there is a class list ask learners to consider the food chains that might exist in the outdoor space and to draw a few to show their thoughts. These food chains could then be collated to develop a food web for the outdoor space, using images to produce a class display.

## Task 7: How might the environment affect the food web?

Ask learners to think about environmental factors such as light intensity, water availability and temperature and how these might fluctuate in the outdoor space. You could ask each group or pair to write a short paragraph describing how one of these factors might change throughout the year. Each group could then go on to try and explain how these fluctuations would impact upon the food web for the outdoor space. Learners could present their ideas to the rest of the class in say a short presentation of two minutes. Again this is useful to develop their précis skills. In order to structure their thoughts, you could ask questions such as:

- How might your environmental factor fluctuate through a year?
- When might there be too little of the environmental factor? What affect could this have on particular plants and animals in the food web? How do you know?
- How might a scarcity of the environmental factor affect the whole food web? Why?

You could then go onto developing fictitious data for the food web in terms of the number of each organism so that learners can build their own scaled pyramids of numbers for individual food chains in the food web.

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## Task 8: How could we increase biodiversity in the outdoor space?

Ask learners to reflect on their understanding of biodiversity and apply this to their outdoor space. Thinking about their food web, ask them to consider how they could improve biodiversity in their outdoor space. You could ask:

- How could you improve biodiversity in the outdoor space?
- What new plants would you introduce? Why? How might these affect the plants and animals that live there?
- What new animals might you introduce? Why? How might these affect the plants and animals that live there?
- What structures could you introduce? How might this help the animals/plants that live there?
- How would your plans improve the numbers and species of organisms in the outdoor space?
- What impact could your changes have on the food web? How do you know?

In an ideal world, learners would be able to carry out their ideas in the outdoor space. If this is not possible, they could research on the internet as to how biodiversity has been increased in other local outdoor spaces, such as primary school grounds. Learners could develop their ideas into a poster presentation for classroom display and/or assessment purposes.

## Assessment against the LNF

Many aspects and elements could be demonstrated by learners as they carry out this activity. The main focus areas of the activity within the LNF are shown as shaded boxes in the tables below.

Literacy		
Strand	Element	Aspect
Oracy across the curriculum	Developing and presenting information and ideas	Speaking
		Listening
		Collaboration and discussion
Reading across the curriculum	Locating, selecting and using information	Reading strategies
	Responding to what has been read	Comprehension
		Response and analysis
Writing across the curriculum	Organising ideas and information	Meaning, purposes, readers
		Structure and organisation
	Writing accurately	Language
		Grammar; Punctuation; Spelling; Handwriting

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Numeracy	
Strand	Element
Developing numerical reasoning	Identify processes and connections
	Represent and communicate
	Review
Using number skills	Use number facts and relationships
	Fractions, decimals, percentages and ratio
	Calculate using mental and written methods
	Estimate and check
	Manage money
Using measuring skills	Length, weight/mass, capacity
	Time
	Temperature
	Area and volume; Angle and position
Using data skills	Collect and record data; Present and analyse data; Interpret results