

# Brede High Woods

## Educational Resources

## Habitats

### Unit in brief

#### Session aims:

To explore the variety of wildlife found within the habitats of Brede High Woods and to understand the relationships and interactions within the ecosystems. The on-site activities are suitable for spring and summer visits.

#### Curriculum Links

##### Science Key Stage 2 –

Living things in their environment - variety in nature and classification, food chains, pyramids and webs, decomposers. Movement and adaptation in animals.

##### Science Key Stage 3 –

Practical scientific activities and fieldwork. Understanding competition between and variation, adaptation and classification of species. Sustainability and human and natural influences on the environment. Real-life scientists and careers in natural science. Experiencing science outside the school environment.

##### Maths Key Stage 2 –

Handling data – organising and presenting findings and representing and interpreting data using graphs – specifically pictograms.

##### English Key Stage 2 –

Creative writing techniques.

##### English Key Stage 3 –

Using imagination to convey themes, composing writing creatively to engage the reader. Structure and organise writing effectively. Present writing appropriately.

##### Geography Key Stage 2 –

Understand environmental change and sustainable development. Using fieldwork techniques. Asking geographical questions.

##### Geography Key Stage 3 –

Understanding environmental interaction and sustainable development. Appreciating people's attitudes. Geographical fieldwork techniques.

##### ICT Key Stage 2 –

Finding accurate information on the internet.

##### ICT Key Stage 3 –

Finding information, refining research methods and checking accuracy of information.

##### Art and Design Key Stage 2 –

Collect visual information for cross-curricular links, communicate observations, ideas and feelings. Combine visual and tactile elements for different purposes.

##### Art and Design Key Stage 3 –

Drawing to express information.

##### Physical Education Key Stage 2 –

Outdoors adventurous activities, working individually, as pairs and within teams to complete challenges.

##### Physical Education Key Stage 3 –

Outdoors adventurous activities.

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| Structure            | Activity title                          | QCA Curriculum links                                                                                                                                                        | Teacher notes                                                                       | Student worksheets                                                                                     |
|----------------------|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------|
| Introduction         | Unit in brief                           |                                                                                                                                                                             |    | None                                                                                                   |
| Pre-visit activities | Minibeast Scramble                      | <b>KS2:</b><br>Sc2, 1.a.c, 2.a.b.e, 4.b, 5.b.d.e                                                                                                                            |    | None                                                                                                   |
|                      | What is acid grassland?                 | <b>KS2:</b><br>Sc2, 1.c, 3.a.b.c, 4.a.b.c, 5.a.b.c<br>ICT1.a.b<br>Ge5.a.b<br>Art1.c<br><b>KS3:</b><br>Sc3.3.d, 3.4.c<br>ICT2.1.a.b.c.d<br>Art2.1.d                          |    | None                                                                                                   |
|                      | What is ancient and secondary woodland? | <b>KS2:</b><br>Sc2, 1.c, 3.a.b.c, 4.a.b.c, 5.a.b.c<br>En3, 1.a.b, 3, 4, 5, 6.a, 9.a.b<br>Ge5.a.b<br>Art2.c<br><b>KS3:</b><br>En1.2.b, 2.3.a.b.f<br>Sc3.3.d, 3.4<br>Art2.1.d |  | Personal tree<br> |

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| Structure          | Activity title                  | QCA Curriculum links                                                                                                                                          | Teacher notes                                                                        | Student worksheets                                                                                                                                                                                            |
|--------------------|---------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                    | What is heathland?              | <b>KS2:</b><br>Sc2.1.c, 3.a.b.c,<br>4.a.b.c, 5.a.b.c<br>ICT1.a.b<br>Ge5.a.b<br>Art1.c<br><b>KS3:</b><br>En2.3.a.b.g.h.k.p<br>Sc3.3.d, 3.4.c<br>ICT2.1.a.b.c.d |    | None                                                                                                                                                                                                          |
|                    | Why do we need to survey? (KS3) | <b>KS3:</b><br>Ge1.6.a, 1.7.b<br>Sc4.c.i                                                                                                                      |   | Do you want to be an 'ologist?<br>  |
| On-site activities | Minibeast Safari                | <b>KS2:</b><br>Sc2, 4.a.b.c,<br>5.a.b.c.d.e<br>Ge2.b, 5.a<br>PE11a<br><b>KS3:</b><br>Sc2.1.a.c, 2.2.a.b,<br>4.c.e<br>Ge2.2.a<br>PE3.e                         |  | ID                                                                                                                                                                                                            |

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| Structure | Activity title           | QCA Curriculum links                                                                                                                  | Teacher notes                                                                        | Student worksheets                                                                                       |
|-----------|--------------------------|---------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
|           | Plant Hunters            | <b>KS2:</b><br>Sc2, 4.a.b.c,<br>5.a.b.c.d.e<br>Ge2.b, 5.a<br>PE11a<br><b>KS3:</b><br>Sc2.1.a.c, 2.2.a.b,<br>4.c.e<br>Ge2.2.a<br>PE3.e |    | ID                                                                                                       |
|           | Food webs                | <b>KS2:</b><br>Sc2, 5.d.e<br><b>KS3:</b><br>Sc3.3.d, 3.4.c, 4.c.e                                                                     |   | None                                                                                                     |
|           | Minibeasts<br>Sculptures | <b>KS2:</b><br>Sc2, 2.e, 4.b<br>Art1.a, 2.a.c, 4.a<br><b>KS3:</b><br>Sc3.3.d                                                          |  | None                                                                                                     |
|           | Micro-Hike               | <b>KS2:</b><br>Sc5.a                                                                                                                  |  | None                                                                                                     |
|           | Memory Spell             | <b>KS2:</b><br>En3, 1.a.b, 4, 9.a.b                                                                                                   |  |                                                                                                          |
|           | Minibeast Design         | <b>KS2:</b><br>Sc2, 2.e, 4.b<br>Art2.c<br><b>KS3:</b><br>Sc3.3.d                                                                      |  | Minibeast Designer  |

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### Habitats

| Structure             | Activity title             | QCA Curriculum links                                                           | Teacher notes                                                                        | Student worksheets                         |
|-----------------------|----------------------------|--------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|--------------------------------------------|
|                       | My Strange Day             | <b>KS2:</b><br>En3, 1.a.b, 3, 4, 5,<br>6.a, 9.a.b                              |    | None                                       |
| Post-visit activities | Pictograms                 | <b>KS2:</b><br>Ma4, 2.b.c.f                                                    |    | None                                       |
|                       | Paper Food Chains          | <b>KS2:</b><br>Sc2, 1.a.c, 4.a.b.c<br>Art 1.a                                  |    | None                                       |
|                       | Ivy-Spidy                  | <b>KS2:</b><br>Sc2, 1.a.b.c, 2.e,<br>5.a.b.c.d.e.f<br><b>KS3:</b><br>Sc3.3.d.e |   | Board game,<br>question cards<br>and rules |
|                       | Recipe for a forest (KS2)  | <b>KS2:</b><br>Sc2, 1.b.c,<br>5.a.b.c.d.e.f<br>Ge 1.a, 5.b                     |  | None                                       |
|                       | Recipe for a habitat (KS3) | <b>KS3:</b><br>Sc3.3.d, 3.4.c<br>Ge 1.5.a, 1.6.a                               |  | None                                       |

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|   | On-site activity    |
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### MINIBEAST SCRAMBLE

TEACHER'S NOTES

*Adapted from Joseph Cornell's book Sharing Nature With Children.*

#### Session aims:

To encourage pupils to think about the different minibeasts living in the habitats within Brede High Woods and the characteristics of each species, prior to going on a minibeast safari.

Print off and cut out the minibeast list, and attach a name to each pupil's back using masking tape so that they do not know what they are. You may wish to only use the first two columns on the list, as these are more likely to be recognised by the pupils. You could repeat the activity on site or back at school after you have done a minibeast safari and then include the other species as well.

The aim of the game is for the pupils to ask each other questions to discover which minibeast they are. Encourage the pupils to ask yes/no answer questions about their appearance, where they live, what they eat. They must not ask the responder to describe their animal, but instead can ask questions such as "Do I have 6 legs?" "Do I eat rotting leaves?" "Do I live underground?" "Can I fly?"

SNAIL

Do I carry my home?  
can I jump from place to place?

BUTTERFLY

CRICKET

Do I have wings?

EARTHWORM

WOODLOUSE

WEEVIL

SPRINGTAIL

WASP

Do I live underground?

Do I have more than 6 legs?

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### MINIBEAST SCRAMBLE

INSECT LIST TO CUT OUT

|                    |                  |                   |
|--------------------|------------------|-------------------|
| <b>EARTHWORM</b>   | <b>SNAIL</b>     | <b>LACEWING</b>   |
| <b>BUTTERFLY</b>   | <b>SLUG</b>      | <b>CRANE FLY</b>  |
| <b>BEETLE</b>      | <b>CENTIPEDE</b> | <b>HARVESTMAN</b> |
| <b>LADYBIRD</b>    | <b>CRICKET</b>   | <b>DAMSELFLY</b>  |
| <b>SPIDER</b>      | <b>MOTH</b>      | <b>SHIELD BUG</b> |
| <b>CATERPILLAR</b> | <b>HONEY BEE</b> | <b>WEEVIL</b>     |
| <b>WOODLOUSE</b>   | <b>WASP</b>      | <b>HOVERFLY</b>   |
| <b>GRASSHOPPER</b> | <b>BUMBLEBEE</b> | <b>APHID</b>      |
| <b>ANT</b>         | <b>DRAGONFLY</b> | <b>FROGHOPPER</b> |
| <b>MILLIPEDE</b>   | <b>EARWIG</b>    | <b>SPRINGTAIL</b> |



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## WHAT IS ACID GRASSLAND?

TEACHER'S NOTES

### Session aims:

To introduce the grassland habitat and the plant and animal species which depend upon it for their survival. To discover how the grasslands that have remained unchanged for centuries are most important for wildlife. To learn about the threats facing this habitat.

Unimproved and acid grasslands are more than just grass! Best seen in the summer when they are alive with colourful flowers and butterflies and literally buzzing with the activity of bees, grasshoppers and other minibeasts, this variety of life is called biodiversity and depends on the grassland for its survival.

These grasslands are different from the more common fields of grass you see, quite simply because they have had less human changes made to them in the past. For example, many modern fields are fertilised each year, some are heavily grazed or mown, some have been ploughed up and re-seeded with new grass. This type of management improves the grass quality and quantity but to the detriment of the wildflowers and other grasses, which are important for wildlife. The traditional grasslands may well be grazed or cut for hay, but the main feature of the management, and one that is most important for their future survival, is that the nutrient level remains low. This ensures that the wildflower species can compete for space and light more easily against the grasses, resulting in a wider range of plants throughout the season and more food and habitat for wildlife. Grasslands like these are disappearing from our countryside as farming practices change and the development of roads and buildings occurs. The High Weald Area of Outstanding Natural Beauty, where Brede High Woods is located, is an important area for small grasslands surrounded by woodlands as these habitats have remained nearly unchanged for centuries, since the Medieval period when the fields were cleared from the woods.

More information about meadows can be found at [www.highweald.org](http://www.highweald.org) and there are a number of short videos, which you can view.

If you click on the Caring for the High Weald Guidance section you will find a series of wildflower grasslands videos. The introduction video will be most useful for Key Stage 2. In addition to this, Key Stage 3 classes may watch the understanding grassland types video.

If you click on the About the High Weald section you will find the field and heath story.

If you visit the Learning Zone section you will find a video of Edith the Medieval farmer, who'll tell you about the history of farming in the High Weald.

The grasslands at Brede High Woods may be small and surrounded by woodland, but they are very important for a number of wild animals and plants. The grassland provides a home and food for small mammals such as mice and voles, which in turn provide food for owls and birds of prey such as kestrels. The open space and light make it possible for a range of wildflowers to survive, which in turn provide nectar for bees and butterflies. The warm, drier open characteristics of the grassland attract different minibeast species to those found within the darker, damper woodland areas.

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## WHAT IS ACID GRASSLAND?

TEACHER'S NOTES

### Activity:

#### Key Stage 2

Create a display for the classroom titled Grassland Habitats in Brede High Wood to include pictures and drawings of the following species: grasshopper, green tiger beetle, emperor and ruddy darter dragonflies, holly blue, meadow brown, 6-spot burnet moth, 7-spot ladybird, ground beetle, red and black froghopper, heath bedstraw, marsh thistle, tormentil, cinquefoil, lesser spearwort, bramble, sorrel, heather ling, red clover, guelder rose, heath speedwell, gorse, dog violet, self heal, hard rush, rosebay willow herb, bugle and wood anemone. Students will need to research the subject in books or on the internet and every child could explore a different species.

#### Key Stage 3

Research on the internet and using books the threats that the species living in an unimproved grassland face, from farming changes, development and climate. Create a poster highlighting the challenges they face.



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## WHAT IS ANCIENT AND SECONDARY WOODLAND?

TEACHER'S NOTES

### Session aims:

To introduce the concept that there are different types of woodland. To discover the importance of ancient and semi-natural woodlands for wildlife. To learn about how people in Anglo Saxon times depended on the woodlands for their way of life. To instil an appreciation of woodlands and trees for both people and wildlife.

Ancient woods are areas that have been continuously wooded for at least 400 hundred years (since 1600, when maps were first available). They are irreplaceable, our richest habitats for wildlife and reservoirs for historical information. Even ancient woodland that has been replanted, perhaps with non-native conifers, may still have remnants of ancient woodland wildlife and historical features, and has potential to be restored. These replanted areas are referred to as Plantation on Ancient Woodland (PAWS) provided the land use has not been changed from woodland in the last 400 years.

If the land use was changed in the recent past (since 1600), for example the land was farmed, but is now woodland once more, we refer to it as secondary woodland.

All the woodlands that have re-generated naturally, or have been present as far back as we can look in records, are collectively known as semi-natural woodland. Many woods and shaws have remained for so long as the land they grow on is unsuitable for any human use such as farming or building. For example the steep sided streams and gills in the High Weald. Some semi-natural woodland may have been managed by rotational coppice. All of these woodlands with mostly native unplanted species are of considerable value in terms of nature conservation.

More information about woodlands can be found at [www.highweald.org](http://www.highweald.org) and there are a number of short videos, which you can view.

If you click on About the High Weald, The Woodland Story video is a good introduction and the Learning Zone My High Weald Character Edmund the Anglo Saxon Drover will tell how he and his family depended on these ancient woodlands to provide food for their pigs. This video is linked to the activity.

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### PERSONAL TREE

WORKSHEET

In the video Edmund the Anglo Saxon Drover talks about stopping his journey near the sacred place with the orange brown stream water and resting underneath the mighty oak tree, watching the clouds roll by above the branches of the tree.

Do you have a special personal tree in your garden or the woodlands or parks where you like to go? If you do not then think about an imaginary woodland den that you would like to go to as your secret place.

Think about your answers to these questions...

What is it like? Have you ever made a camp or den there? Do you go there with friends and family or do you like to keep it as a secret place? Have you ever secretly watched the wildlife without it knowing you were there, if so what did you see? Which plants grow there at different times of the year? What is your favourite season to spend time at your personal tree?

Now use the space below to write about your secret woodland place. Describe why you like it and how it makes you feel.

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On the other side of this page draw a picture of your special place.

*At home:* Interview your parents or grandparents to find if they had a special woodland den when they were children. Decide on some questions to ask them and write down their answers.



# Brede High Woods

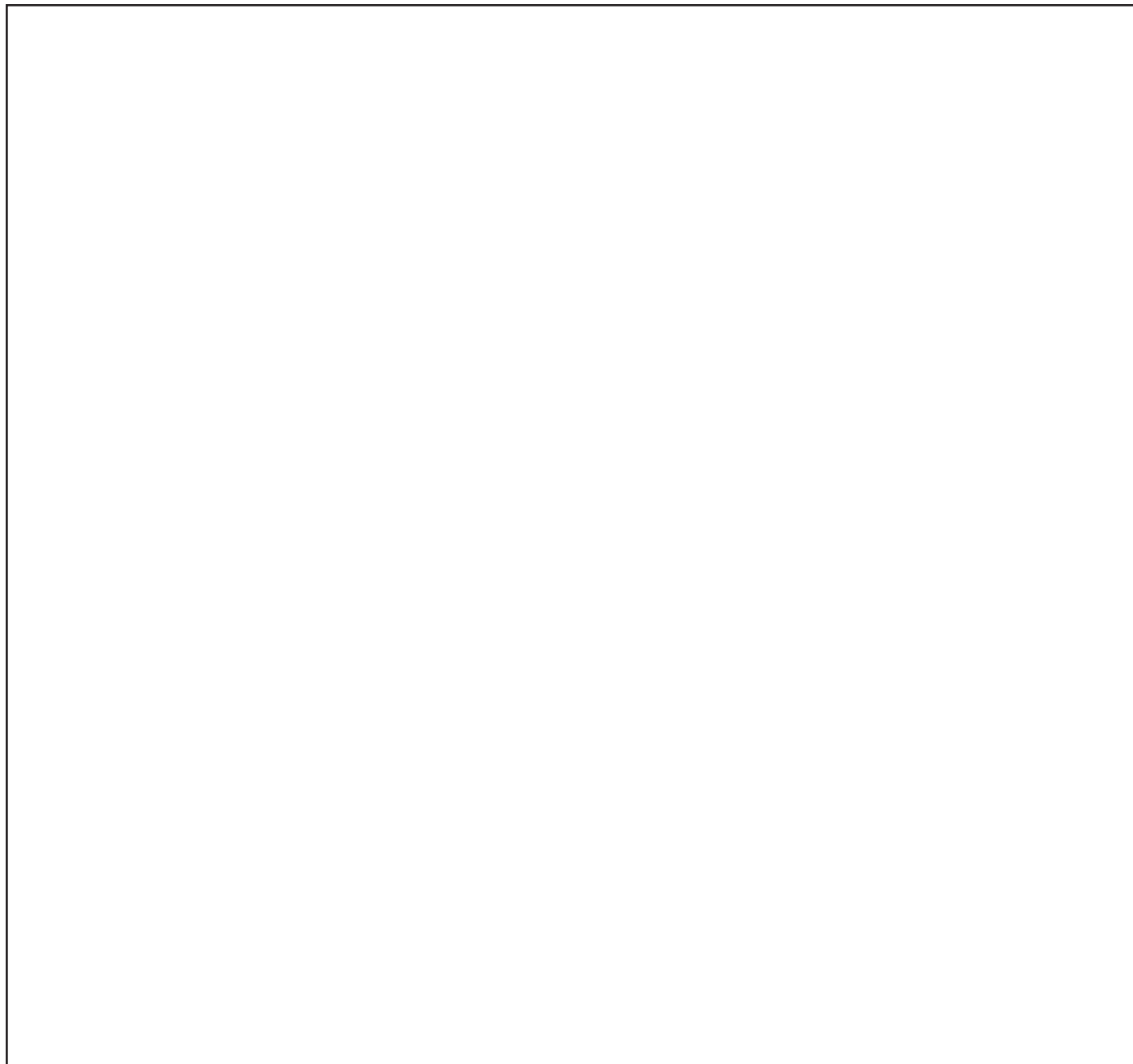
## Educational Resources

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### PERSONAL TREE

DRAW YOUR SPECIAL PLACE BELOW

WORKSHEET



# Brede High Woods

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|   | Post-visit activity |

## WHAT IS HEATHLAND?

TEACHER'S NOTES

### Session aims:

To introduce the concept that there are habitats which depends on management by people and animals to survive. To discover the importance of heathlands for wildlife. To learn about how people in medieval times depended on the heathlands for their way of life. To instil an appreciation of heathlands for both people and wildlife.

Heathland is low-growing woody shrub based vegetation. Heathlands were first created by clearing the woodlands and were then maintained by grazing on the poor, sandy soils that occur on the high, sandstone ridges of the High Weald.

The poor sandy soils are the stronghold for species that can thrive in these poor growing conditions where other more common species can't grow. Heathland, as the name suggests, is dominated by heather species, however the conditions are warmer and drier than moorlands. The habitat supports huge numbers of invertebrate species and other wildlife, including rare species such as the Dartford warbler and silver-studded blue butterfly. Heathlands across the UK are disappearing, as grazing and cutting stops and the natural succession of trees and woodland occurs. In the heart of the High Weald the largest expanse of lowland heath in the southeast, Ashdown Forest, can be found. All the small pockets of heathland like those at Brede High Woods need protection and where possible expanding to continue to provide habitat for the heathland specialist species that cannot live in other habitats.

The future management of the heathland at Brede High Woods will include the fencing off and grazing of the heath by cattle to prevent trees, such as silver birch, from colonising and changing the heathland back into woodland. In sandy areas, where the heather grows beneath the planted conifers, the trees will be cut down and the heather allowed to re-establish.

More information about heathland can be found at [www.highweald.org](http://www.highweald.org) and [www.ashdownforest.org](http://www.ashdownforest.org)

On the High Weald website, if you click on Caring for the High Weald, the Field and Heath Story follow the link at the bottom to find out more about Ashdown Forest. Here you will be able to watch an introductory video about Ashdown Forest and the National importance of Heathland.

If you click on the Learning Zone you can watch the My High Weald video for Hugh the Ashdown Forest Commoner in the Medieval Period.

### Activity:

#### Key Stage 2

Create a display for the classroom titled Heathland to include pictures and drawings of the following species: bare sand, ling and bell heather, heath dog violet, dwarf gorse, broom, birch sapling, heath bedstraw, purple moor grass, cattle-Sussex red, stonechat, common lizard, adder, grass snake, green tiger beetle, small heath, spider, 4-spot chaser dragonfly, bramble, peaty areas, sphagnum moss, yellow sedge, and common lousewort. Students will need to research the subject in books or on the internet and every child could explore a different species.

#### Key Stage 3

Write a newspaper article identifying the importance of protecting, managing and, where appropriate, increasing the UK's remaining heathland areas. Use the internet and books to help with your research.

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Pre-visit activity

On-site activity

Post-visit activity

## WHY DO WE NEED TO SURVEY?

KS3 TEACHER'S NOTES

### Session aims:

To introduce surveying and look at why we need to survey different things, focussing on wildlife and history. To look at the types of careers, which involve undertaking surveys in different branches of natural science.

First of all, go through with the class what a survey is, include all types from consumer questionnaires, road traffic counts to wildlife surveys. Using the information below and suggestions from the class, on the whiteboard, come up with some reasons as to why we need to survey wildlife.

### So we know what is living around us and sharing our planet.

This might be useful for us in making decisions about transport routes and sites for development. We may learn from nature's design and use it for our own technology. This is called biomimetrics and has been around for centuries: a modern example is Velcro. The idea for Velcro came from the dispersal of a plant's seeds when they attach to the coats of animals; these burrs have small hooks that can attach to loose material. Finding out about species will also help us discover new foods and medicines. We can also find out and monitor species that are negative or dangerous, for example invasive species that out-compete or destroy other species, ie the harlequin ladybird, or species that are poisonous or harmful to us, ie populations of mosquitoes.

### So we can understand and appreciate the needs of other species.

Their habitat requirements and specific food and shelter needs. It will also help us to discover the interactions between species and the environment, for example plants, soil and associated soil microbes.

### So we can be sure that we continue to have a range of biodiversity – variety of life on earth.

Some species depend on other species for their survival, for example, the cinnabar moth needs ragwort as its' caterpillars' food plant. Many of these special relationships between species are still unknown to us, as there are many species that remain undiscovered and these may prove to be useful and important to humans in the future.

### We can find out about the past.

Fossils, pollen records and other ways of recording the past tell us what previously inhabited our world, what they lived upon, and how their populations changed or even became extinct.

### We can make predictions using evidence and records.

Often information we discover about the past has some relevance to the future, for example, predicting climate or species population changes.

### So we can see easily if something changes.

If we have records we can see the changes, but without them we would have no concrete evidence to prove something.

A change may be positive or negative. Species that are surveyed can often tell us about changes in the environment, for example, butterflies are a good indicator of climate change.

The near extinction of peregrine falcons in the UK was connected to pesticide use in the 1970s, due to the accumulation of pesticides from weed seeds into doves, then into peregrines as it magnified up the food chain, resulting in weak egg shells and so high infant mortality.

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### DO YOU WANT TO BE AN 'OLOGIST?

KS3 TEACHER'S NOTES

There are many different scientists whose jobs involve carrying out such surveys. The worksheet "Do you want to be an 'ologist?" uses the internet to research answers to the questions about the 'ologists that the woodland trust and other environmental organisations rely upon for important information.

#### Answers:

1. Studies the causes of particular weather conditions.
2. Forecasting the weather long-term is useful to the farmer for planning planting and harvesting. Short-term forecasts are useful when planning events that are outdoors, especially from a safety point of view if it is windy in the woodland, as branches may fall on people.
3. Botanist – scientist studying plant life and development  
Entomologist – a scientist that purely studies insects – a branch of zoology.  
Ornithologist – a scientist that investigates the populations, movements and ecology of wild birds.  
Herpetologist – is a person who studies reptiles and amphibians, for example lizards, snakes, frogs and toads.
4. The iron furnace that was later converted into a gunpowder mill would be located where the reservoir is today.
5. Phenology is the study of plant and animal life cycles and how they are influenced by seasonal variations in climate.
6. In the UK spring is arriving earlier as our climate becomes warmer.
7. Butterflies are emerging earlier. Birds are migrating to the UK earlier and having young earlier. Trees' buds and leaves are bursting earlier.



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### DO YOU WANT TO BE AN 'OLOGIST?

WORKSHEET

All across the world there are thousands and thousands of people doing important scientific research, helping us discover more about our planets past and present and make predications about the future.

Using the internet to help you research, answer the questions below to find out more about the 'ologists that the woodland trust and other environmental organisations rely upon for important information.

#### 1. What does a meteorologist do?

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#### 2. How might a meteorologist's work be important to a farmer near Brede High Woods and the person arranging public events in the woods?

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Charles Darwin was a notable zoologist and naturalist. His fascination with the natural world led him away from his father's wishes for him to work in medicine or as an Anglican Parson. His experiences on the 5-year voyage to chart the coastline of South America on *HMS Beagle* made him famous in scientific circles.

His continuing work led him to write his theories on natural selection and publish 'On the Origins of Species' in 1859, which became the foundation of evolutionary biology. In his early studies and throughout his scientific career, Darwin worked closely with and often relied upon people with expert and specific knowledge on particular species. Botanists, entomologists, ornithologists and herpetologists to name a few. Experts in all these scientific fields are consulted for research and surveys at Brede High Woods today.

#### 3. What are these four types of scientists' specialists in?

##### Botanist

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##### Entomologist

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##### Ornithologist

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##### Herpetologist

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### DO YOU WANT TO BE AN 'OLOGIST?

WORKSHEET

Archaeologists have been employed by the Woodland Trust to locate and produce accurate maps of the remains of past industries that can still be found in the woods today. A group called the Wealden Iron Research Group carried some of the archaeological surveys out; they helped to map the evidence of the iron industry. The main evidence they found were the mine pits from which the iron itself was dug. Unfortunately some evidence is lost under the water of the reservoir.

**4. Using the internet find out what archaeological evidence of the iron industry in Brede is now hidden under the water?**

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**5. What is phenology?**

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**6. Using the website**

**[www.naturescalendar.org.uk](http://www.naturescalendar.org.uk) find out what has changed about spring since the 1970s.**

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**7. Write down three different species that have been recorded and how they are showing us this change in spring trends.**

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Go to The Natural History Museum's Website [nhm.ac.uk/kids-only/ologist](http://nhm.ac.uk/kids-only/ologist) to find out about some of the people that work there, how they became interested in the natural world, and what their jobs involve.

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On-site activity

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## MINIBEAST SAFARI

TEACHER'S NOTES

### Session aims:

To discover the variety of different invertebrate species living in the different habitats within Brede High Woods.

Using the map of Brede High Woods do the following activity in one or more of the habitats: woodland, heathland and grassland. You can then compare the differences between the animals you find in each one. This activity can be done alongside the plant hunter activities.

Split the class into small groups of five or six and allocate an adult to each group. Decide a time limit for hunting for minibeasts in each habitat.

Remind pupils to take care not to handle the minibeasts or to trap or squash them as they close the lid on the pot, suggest they allow the creatures to walk into the pots or use a small twig to gently guide them. Also make sure that the minibeasts are not in the pots for too long, or too many at the same time. Tell the pupils not to run with or shake the pots once they have something inside, and remind them to return the creatures back to a similar place to where they found them, and not in the path of their fellow classmates!

If you wish to record the numbers of invertebrates found for a future activity for example, pictograms, then encourage pupils to write down and tally what they find at each of the habitats.



What you will need:

- Small clear plastic pots for putting invertebrates in
- Magnifying glasses (optional)
- Sweep nets (optional)
- Minibeast Safari booklet
- Invertebrate identification guides

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

## PLANT HUNTERS

TEACHER'S NOTES

### Session aims:

To discover the variety of different plant species growing in the different habitats within Brede High Woods.

### Key stage 2

Split the class into small groups of five or six and allocate an adult to each group. Decide a time limit for looking for the plants in each habitat.

If you wish to record the numbers of different species found for a future activity, for example pictograms, then encourage the pupils to write down and tally what they find at each of the habitats.

### Key Stage 3

Split the class into small groups of five or six.

For the woodland survey, allocate a 5x5 metre block of woodland for each group to record the number of different species and compare the results from each group. Look at the trees and ground vegetation also.

For the grassland and heathland surveys, use the 25 metre string and grid quadrat for each group to measure the change in species from the edges towards the middle of the habitats. Follow the instructions on the heathland and grassland fieldwork sheets. Discuss this change, which is known as succession as one habitat merges into another. Discuss how the species compete for the same resources along the transect line.

Compare and discuss the differences between the habitats and the reasons behind this, for example, some trees have been planted and the heathland vegetation is dominant in that particular area because the underlying geology is more sandy than the location of the acid grassland.

### What you will need:

Plant Identification guides for woodland, grassland, and heathland.

These are available from the Field Studies Council [www.field-studies-council.org/publications/index.aspx](http://www.field-studies-council.org/publications/index.aspx)

You can use the posters from the pre-visit Heathland and Acid Grassland activities and the Tree Identification Sheet from the other Woodland activities.

### KEY STAGE 3 ONLY

String 25metres – one per group

Measuring tape (large)

Tape measures 1metre – one per group

Grid Quadrats – one per group

Heathland and/or Grassland Fieldwork Sheets

Using the map of Brede High Woods do the following activity in one or more of the habitats, woodland, heathland and grassland. You can then compare the differences between the types of plants you find in each one. This activity can be done alongside the minibeast safari activities.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

## FOOD WEBS

TEACHER'S NOTES

*Adapted from Joseph Cornell's book Sharing Nature With Children.*

### Session aims:

To introduce the concept of food chains and food webs and the flow of energy and interactions between species in the environment.

You will need a large ball of string and an open space. You can, if you wish, make some appropriate cards to pass around for the food web game. This is helpful if you are short of time, otherwise a reference list to hand is always useful. To save time you can split the group in two, however you will need more string.

### A bit about food chains

- Animals and plants are linked by food chains.
- Plants get their energy to survive from the sun, they make their own food, and they are sometimes called the producers.
- Animals get their energy to survive from eating plants and/or other animals.
- A food chain always starts with a producer; this can be a green plant or even a decaying plant.
- The feeding levels of a food chain are called trophic levels.
- Producers are the first trophic level.
- The second trophic level will be a plant eater, also called herbivore or primary consumer.
- The third trophic level will be a meat eater, also called carnivore or secondary consumer.
- Some food chains are longer than others; the fourth and fifth trophic levels are usually where you will find the top carnivores that cannot be eaten by anything else.
- Some animals eat plants and other animals; these are called omnivores.

Ask the class to stand in a circle. Encourage the pupils to think about what they have seen on their minibeast safari and plant hunter activities. Tell them they will all need to stand still and hold the string tightly without tugging it.

Ask the first pupil to name a producer, and hand one end of the string to them.

Ask a second pupil across the circle to name an herbivore to feed on the producer. Pass the string to him/her so it pulls tight between the pupils.

Ask a third pupil across the circle again to name a carnivore, pass the string to them.

Depending on the choices, continue this food chain with the next pupil, or start a fresh chain passing on the string each time. Try to spread out the chains around the circle.

As you continue the pupils may exclaim that you are making a spider's web. You are in fact creating a food web. Some pupils may query why each food chain is connected, ie a fox then leads onto an oak tree. Explain that although the flow of energy does not flow from the fox to the tree, the fox depends on the tree as part of the habitat it lives in, perhaps it's den is among the roots. Essentially the chains are linked together as they are all part of the same habitat.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

## MINIBEAST SCUPLTURES

TEACHER'S NOTES

### UNIT IN BRIEF

#### Session aims:

To look at the features and adaptations of minibeasts using an artistic approach.

Spilt the class up into groups of approx 3-5. Ask the group to think of a minibeast, which they would expect to see in the woodland. Remind them to think of those that fly and live on plants, not just those they see on the ground.

Using their chosen minibeast tell the children to find a space to use as a canvas to create a collage or sculpture of their minibeast, using entirely the natural materials which they can find lying on the woodland floor. Remind the class not to pick living plants, as the animals need these and also they may pick something that could scratch or sting them by accident.

Encourage them to create different textures using twigs, dead leaves, soil and stones. They can criss-cross materials and use twigs in different directions to create patterns. Remind them of the key features and adaptations that their minibeast has, and encourage them to ask themselves questions. Does it have antennae and pincers and a hard outer shell? How many legs or wings does it have? Are its wings veined or scaled, and can it fold them behind it?

Once all groups have created their collage or sculpture, take the class on a tour of the minibeast art exhibition. You can see if other groups can guess each other's minibeast and each group can explain the adaptations to the rest of the class.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

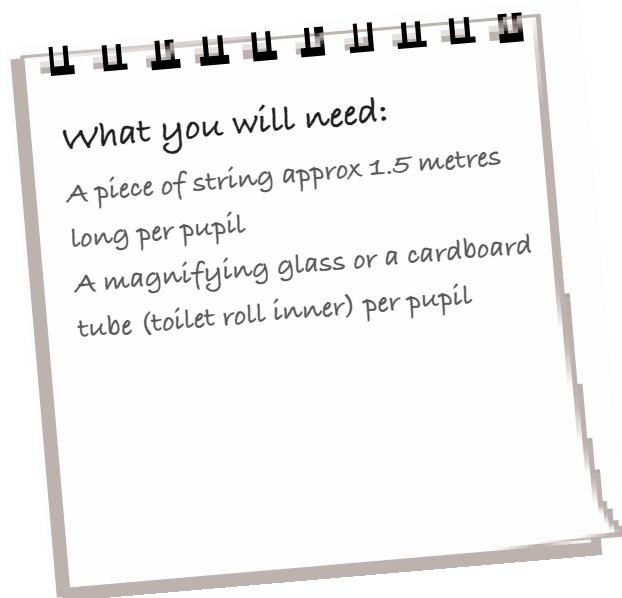
### MICRO-HIKE

TEACHER'S NOTES

*Adapted from Joseph Cornell's book Sharing Nature With Children.*

#### Session aims:

To encourage pupils to look closely at the world beneath their feet, and focus their attention on the characteristics of the plants and animals they encounter in an imaginative and thought-provoking way.



Having given out the equipment, tell each pupil to find somewhere interesting to lay their string along the ground, ensuring they are not too close to other pupils. Standing at one end of the string, ask them to close their eyes as they bend down to the ground level and imagine they are shrinking down to the size of an ant. As a minibeast using their magnifier or tube, they will crawl along their string trail and explore it a centimetre at a time. At the start, tell the pupils to keep their eyes at a level no more than one foot above the ground. You may wish to ask them questions to stimulate their imaginations. "What kind of world are you travelling through right now?" "What is that spider going to do, eat you or take you for a ride?"

You can do the micro-hike activity at different habitats across the woodland, and pupils can compare the plants and minibeasts they encounter in each.

A micro-hike is exactly as its name suggests, a miniature journey. However this journey takes place not on your feet, but on your belly, so a day where the ground is reasonably dry is preferable.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

## MEMORY SPELL

TEACHER'S NOTES

### Session aims:

To encourage pupils to focus on the woodland in a different way, helping them to remember their visit by using each of their senses to create their own memory spell.

You will need (optional): the memory spell sentences printed on paper as below; clipboards and pencils

Ask the pupils to spread out and sit down somewhere away from other people, but still within earshot and sight of you. Ask them to close their eyes. Talk through each of the senses below (you may include 'taste' if that has been appropriate to your visit). Keeping their eyes closed ask the pupils to think about and remember what they can hear and then smell. Then ask them to touch the ground, but without looking. How does it feel? Then finally ask them to open their eyes. Encourage them to not simply look down or straight ahead perhaps they should look up. Ask them to describe the first thing they see.

### Memory Spell

I hear...

I smell...

I feel...

I see...

Having done the activity verbally you can now proceed in two directions. Either ask the pupils to share their memory spell with one or two other pupils and remember it so they can write it down at school. Or provide them with some paper printed with the beginning lines of the spell as above and they can fill in the rest with their own spell.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

▶ Post-visit activity

## MINIBEAST DESIGN

TEACHER'S NOTES

*Adapted from 1998 BTCV Flying Slug Project*

### Session aims:

To remind pupils about the variety and differences there are between species and what they need to survive. Encourage them to design their own minibeast and include any adaptations that it may need to survive.



Using the Minibeast Designer's Worksheet the pupils will answer the questions to help them decide what their new minibeast will look like. They can use the modelling clay to help them decide what looks best on their creature. They can then add and remove features as they decide. When they are happy with their new minibeast, they can draw it on the back of the worksheet and give it a name.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

### MINIBEAST DESIGNER

WORKSHEET

#### Session aims:

Answer the questions to help you decide what your new minibeast will look like and how it is adapted to its habitat. Use the modelling clay to make your minibeast and to add or take away adaptations.

What habitat does it live in?

Does it have legs? \_\_\_\_\_ How many? \_\_\_\_\_

Does it have wings? \_\_\_\_\_ How many? \_\_\_\_\_

Does it have feelers? \_\_\_\_\_ How many? \_\_\_\_\_

Does it have eyes? \_\_\_\_\_ How many? \_\_\_\_\_

Does it have anything else to sense with?

What does it eat?

What sort of mouth does it have? How does it move around?

Does it have special feet?

Does it have anything to protect itself? (Like jaws, pincers, a sting or a shell)

How does it breathe?

How many segments or sections does its body have?

Does it have enemies?

Does it change as it grows up?

Is there anything else you would like to say about it?

When you are happy, give your minibeast a name and draw it and colour in its habitat.

Label the adaptations clearly and say why you have drawn them.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

▶ Post-visit activity

## MY STRANGE DAY

TEACHER'S NOTES

### Session aims:

To reflect upon the visit, activities and what they have learnt in an imaginative and unique way. Introducing the concept of why we should care for the environment and how our actions affect plants and animals.

Following their visit to Brede High Woods, the pupils can record their activities and experiences in the form of a written and illustrated diary. However, rather than a diary from their own point of view, ask the pupils to consider the visit from the perspective of one of the animals or plants that they saw on the visit. For example it could be from the view of a curious robin sitting in the trees watching and wondering what they are doing rummaging in the soil or running from tree to tree. Or it could be from the view of all the oak trees, spreading the word through their leaves in the breeze that there is a strange bunch of people wandering below. Encourage the children to consider what the plants and animals might think and feel. If they could talk to each other what would they say at the end of the day?

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

## PICTOGRAMS

TEACHER'S NOTES

### Session aims:

To reinforce the minibeast safari and plant hunter activities, interpreting the species information recorded on-site to create a visual graphical representation of the class findings to display in the classroom.

### What you will need:

Results from on-site minibeast or plant surveys  
Graph paper  
Rulers and pencils  
Plain paper  
Colouring pencils

A pictogram shows numerical information in the form of pictures. It must include a key to the pictures to explain how many each picture represents.

You will need to collate all the information relating to the numbers of species found whilst you were on site. This can be done as a class on the board or in advance of the lesson. Use a frequency table like the one opposite.

Ask each pupil to produce a bar chart to represent the results of their class survey.

Depending on the results decide on a suitable quantity for each picture to represent, e.g. each picture represents two minibeasts or plants. With the class, devise a list of the quantities of pictures needed for each species in the pictogram

and allocate to each pupil which species they are to illustrate, and whether this will be an entire creature or half etc.

Using all the illustrations, create a giant pictogram, including a key to the pictures to explain how many each picture represents.

Which was the most/least frequently seen species? (Question: Why minibeast results may be affected by weather and temperature?)

How many more (woodlice/oak trees) were seen than (centipedes/ash trees)?

| Minibeast                                       | Tally | Total |
|-------------------------------------------------|-------|-------|
| Beetles                                         |       |       |
| Maggot/larva                                    |       |       |
| Butterflies & moths                             |       |       |
| Caterpillar                                     |       |       |
| Dragonflies & damselflies                       |       |       |
| Bees, wasps & ants                              |       |       |
| Spiders                                         |       |       |
| Woodlice                                        |       |       |
| Slugs & snails                                  |       |       |
| Earthworms                                      |       |       |
| Centipedes & millipedes                         |       |       |
| Other flying insects                            |       |       |
| Other non-flying                                |       |       |
| insects(frog hoppers, sheild bugs, earwigs etc) |       |       |

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

## PAPER FOOD CHAINS

TEACHER'S NOTES

### Session aims:

To focus on the simple food chains you would find within the habitats at Brede High Woods, reinforcing the on-site food web activity and using art to create a fun and unique display for the classroom.

When all the pupils have finished illustrating their strips of paper, then gather everyone in a circle, make sure you have a gap for the start and ends of the chain! Now using the sticky tape, pupils can join their strips together in the right order for their food chain and join it onto another pupil's chains. The finished paper chain represents the food chains that are all found within the habitats at Brede High Wood.

### What you will need:

A4 paper in 3 different pale colours,  
cut into equal-sized strips  
sticky tape

In this activity the class will make paper chains to display in the classroom. The paper chains will be linked together to represent a series of small food chains. You can use different coloured paper for each of the trophic levels of a food chain: producer, herbivore, and carnivore. For the sake of this exercise, ask pupils to only choose species that are definite herbivores or carnivores, not omnivores or detritivores, as you need to make a long chain of simple food chains.

Each pupil can make one or more food chain of their choice, by decorating their strips of paper with pictures and labels for their species. Encourage them to think of the food chains they would find in the woodland, grassland and heathland. You may use books or the internet to help them to draw their chosen species.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

Post-visit activity

### IVY SPIDY

#### TEACHER'S NOTES

#### Session aims:

To teach in a fun and unusual way about the variety of wildlife found in Brede High Woods, reinforcing the on-site activities.

This educational board game will be familiar to the pupils as its layout is similar to that of the traditional snakes and ladders board game. The players move along the board climbing the ivy and sliding down the spiders' webs, following the direction of the bird footprints. However, there are also sunshine squares, which when landed on the player must attempt to answer a nature question or do a drawing challenge. The game is best played after the units on habitats and wildlife have been covered.

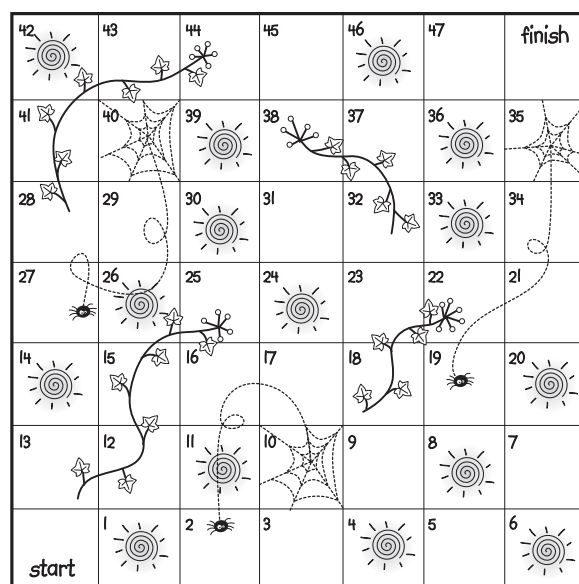
what you will need for each group:

To download and print off the board game, rules and fact cards

Cut out the question cards

Counters

Dice



# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

▶ Post-visit activity

## RECIPE FOR A WOODLAND

KS2 TEACHER'S NOTES

*Adapted from Joseph Cornell's book Sharing Nature With Children.*

### Session aims:

To share inspiration and aesthetic appreciations of the woodland habitat, reflecting on previous experiences of woodlands and helping to further understand the balance of nature.

Give each pupil an imaginary deed to a square mile of land. The land is a blank canvass with which they are free to create their own dream-woodland, with as many trees, animals, hills, streams, lakes etc as they wish. Let their imaginations run wild. Encourage their creativity by suggesting things like "to make your woodland beautiful and radiant you may wish to add, sunny glades, rain storms, waterfalls with perpetual rainbows".

Ask them to make a list of the ingredients of their woodland and then draw a picture of it.

End by discussing whether their woodland is able to maintain itself year after year. For example, ask them whether they have chosen representatives of the food cycle, plants, herbivores, carnivores and decomposers (mushrooms, ants and bacteria). Do not forget non-living factors such as soil and climate.

# Brede High Woods

## Educational Resources

Pre-visit activity

On-site activity

▶ Post-visit activity

## RECIPE FOR A HABITAT

KS3 TEACHER'S NOTES

### Session aims:

To share inspiration and aesthetic appreciations of the habitats reflecting on previous experiences on their visit to Brede High Woods, and other natural places, and helping to further understand the balance of nature.

Give each pupil an imaginary deed to a square mile of land. The land is a blank canvass with which they are free to create their own dream-natural world, with as many different habitats and associated plants and animals, not forgetting landscape features such as hills, streams, lakes etc as they wish. Let their imaginations run wild. Encourage their creativity by suggesting things like "to make your natural world truly amazing you may wish to add, marshes, rain storms, waterfalls, sand dunes and sea shores".

Ask them to make a list of the ingredients of their natural world and then draw a picture of it.

End by discussing whether their natural world is able to maintain itself year after year. For example, ask them whether they have chosen representatives of the food cycle, plants, herbivores, carnivores and decomposers (mushrooms, ants and bacteria). Did they remember to add the non-living abiotic factors such as soil and climate? Do they have a balance within their habitats? For example are the requirements for species survival adequately met, or may some species take over whilst others become extinct?

You may wish to consider whether the pupils have put too many different habitats in their square mile. Realistically, these different habitats that may often suit different species and habitats, can become fragmented and isolated if they are small, and species find it hard to move between different habitats. Also, if the habitats are small, then their survival is less likely as some species may overcrowd where as others species will become extinct, as genetic pools are small not enabling variation and the ability to adapt to changes easily.