



# Peak District Food Chains

**Living things and their habitats**

**KS2 : Teachers Information and worksheet**

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# Introduction

## Learning objective

To understand there are many different food chains within a habitat and the effects of environmental change

## Curriculum link

Science:

- Animals, including humans
- Living things and their habitats
- Working Scientifically (Activity 2)

**Wider links:**

*Cultural capital – National Parks and the wider countryside of the UK is a valued cultural asset that millions can enjoy and get benefits from.*

*UN Sustainable Development Goals: 15 Life on land: Protect Biodiversity and Natural Habitats*

## Overview

This lesson will provide the opportunity for children to explore the different animals and food chains found in the Peak District as well as touching on how environments can change, linking this to changes in the food chain.

There are many different animals and therefore many different food chains within the Peak District, meaning the animals are all linked together. If something affects the numbers of one animal, the numbers of animals that are its predators and prey will also be affected. During this lesson, students will be able to understand that an animal can be part of more than one food chain. In addition they will explore the use of pesticides and how this can affect animals living there.

In the notes you will find questions in bold with an answer in italics. These are suggested questions/discussion points based on the slide to help develop the students' understanding of the topic. In some cases the question will also be written on the slide itself.

# Presentation Slides

## Slide 2

### Special Quality 2: Important Wildlife and Habitats

Each of the National Parks in the UK has been designated for its unique special qualities. The Peak District National Park has seven special qualities. For more information, see our website here [Ambassador School Resources : Peak District National Park](#).



## Slide 3-4

Glossary covering key words however we would recommend having already covered these before going through the PowerPoint. The exception to this is 'pesticide' which is explained in the slide.

### Glossary

- Habitat** – the environment/area where an animal or plant makes it's home
- Food Chain** – A chain showing how plants and animals get their energy
- Producer** – Plants which make their own energy from the sun
- Consumers** – Animals which get their energy by eating other things
- Predator** - An animal (or plant) that eats another animal
- Prey** – An animal a predator eats
- Pesticide** - Chemical used to kill pests (insects or weeds).

### Special Quality 2: Important Wildlife and Habitats

The Peak District is made of a mosaic of different habitats. These include different types of moorland, wetland areas, bogs, rivers, and woodlands. Each of these areas hold different wildlife which means there are A LOT of plants and animals.

**Have a think of this in the context of your school grounds, which are much smaller than the Peak District. How many different habitats or microhabitats are there? What plants/animals do you find there? E.g. stone walls – spiders; field – grass, daisies, blackbird; cracks in paving – tiny plants; hedges – sparrows; trees – ladybirds; etc**

Images L to R – Mountain hare, curlew, lapwing, common lizard

### Special Quality 2: Important Wildlife and Habitats

One of the reasons the Peak District is a National Park is the important wildlife and habitats that you find there.

We are going to look at some of the special wildlife you could spot in the Peak District National Park!



## Slides 5-6

### Can you name any of the animals/plants pictured?

Top Left-Right: Leaf Litter, Dunlin, Bilberry, Fox, Green Hairstreak Butterfly

Bottom Left-Right: Ring Ouzel, Merlin, Bilberry Bumblebee, Water vole, Earthworm

Do any of them remind you of animals you do know? The Ring Ouzel is very similar to a Blackbird. Bumblebees and butterflies in the garden?

This slide is a chance to review any previous learning before exploring food chains. Below are some suggestions of groups of animals you might be aiming for the class to say.

Note: if the class need help, the answers appear in an animation when you click on this slide.

- Mammals, Birds, Insects
- Predators and prey? (some are both)  
Predators – Dunlin, Merlin, Fox, Ring Ouzel  
Prey – Worm, Dunlin, Bee, Water Vole, Butterfly, Ring Ouzel
- Herbivores, carnivores or omnivores?  
Herbivores – Worm, Water Vole, Bee, Butterfly  
Omnivores – Ring Ouzel, Fox (eats small animals, berries etc.)  
Carnivores – Dunlin, Merlin

### Peak District Wildlife

Within the Peak District there are lots of different plants and animals which means there are LOTS of different food chains!



Can you name any of the animals/plants shown above?



### Peak District Wildlife

What different types/groups of animals can you spot?



Clue: Mammals/Predators/Insects/Prey/Herbivores/Birds/Omnivores/Carnivores. Some animals can be more than one.



## Slide 7-14

This slide shows the food chain we will discuss over the next few slides so it's important the group understand the different components.

Explain the difference between:

**Producers and Consumers**

**Predator and Prey**

You might want to highlight that food chains actually start with the sun as this is the energy source for the primary producer (in this case the bilberry).

### Food Chains

Here is just ONE food chain that happens in the Peak District



Can you name the Producer and Consumers in this Food Chain?  
Can you name the Predators and Prey in this Food Chain?



## Slide 7-14

We haven't specified positive or negative changes in numbers so possible answers could include: Hunting, lack of or extra food, habitat is or isn't protected, trees cut down or planted, etc.

If you have used our 'Peat in the Peak' presentation you will have heard about factors causing moorland degradation and could refer back to those now as they all result in habitat loss (acid rain, farmland, peat in compost, peat as fuel, wildfires).

Human disturbance is generally accidental, when visitors to the Peak District go on walks through merlin habitat. Merlins nest on the ground amongst the heather so are easily scared from their nests. Dog walking is a major cause of disturbance to merlins and other ground nesting birds, especially letting a dog off the lead, but many visitors do not realise this.

Humans have historically persecuted birds of prey by shooting them, poisoning them and by stealing their eggs. Sometimes this happened to protect red grouse (chicken-sized birds which live on heather moorlands, which people pay to shoot). Eggs may be stolen by/for collectors who collect eggs from different species. It is now illegal to persecute merlin (and other birds of prey) but it still happens on occasion.

The video is a 5 minute long, Ted Educational video, about pesticides, including both positive and negative effects:  
<https://www.youtube.com/watch?v=GLIIZ-qjXJA>

Pesticides can help farmers grow more food so they have more to sell and can earn more money. This also means there's more food for people to eat. But pesticides also have a negative impact on the environment.

Pesticides have also been used directly to poison merlin and other birds of prey. This is often done by 'baiting' – putting poison into an animal carcass which the bird of prey then eats.

**Perhaps have a class discussion about whether the use of pesticides is worth it, if they are also potentially harming animals.** Are there other methods that could be used (for example using natural pesticides such as releasing ladybirds to eat the pest insects instead)?

**What will happen to the numbers of bilberry, skylark and merlin if there are fewer insects to eat?**

*Bilberry numbers would increase as there are fewer crane fly larvae eating them.*

*Skylark numbers would decrease as they have less food to eat, and therefore merlin numbers would also decrease as they also have less to eat.*

### Food Chains

Lots of factors can affect animal numbers. In a food chain, changes in numbers of one animal or plant affect the others.



What might cause the numbers of plants or animals to change?



### Merlin

In past years the numbers of Merlin declined for a variety of reasons such as habitat loss, human disturbance and hunting by humans.



### Pesticides

One big factor that affected Merlin numbers was **pesticides** being used on farms to kill insects eating the crops.

Watch this video to find out more:  
[8871 Do we really need pesticides? - Fernán Pérez-Gálvez - YouTube](https://www.youtube.com/watch?v=8871Do-we-really-need-pesticides?)

Pesticides can kill the insects **Merlins** eat



### Food Chains

What will happen to the numbers of Bilberry, Skylark and Merlin if there are less insects?





## Slide 7-14

Birds of Prey are now protected by the Wildlife Act 1981 in the UK, meaning it is illegal to harm them, their eggs or nests (along with all other UK wild birds). Work is done to try and police this with instances of persecution being investigated. Sometimes landowners work to actively protect bird of prey nests on their property.

**If you have looked at the Peat in the Peak presentations you could ask questions about how the restoration work has helped merlin numbers increase.**

**What will happen to the number of skylark and crane flies if the number of merlin increase?**

*Skylark numbers will decrease as there are more merlin to eat them, and crane fly numbers would increase as there are fewer skylarks to eat them!*

At this point you may want to look at Activity 1 which contains cut outs for different plants and animals and arrows for groups or individuals to make many different food chains.

Depending on the group you may want to pre-make the sets rather than giving the groups the worksheets to cut out and prepare themselves.

### Food Chains

Merlin numbers are starting to increase again due to the most damaging pesticides now being banned and people working to protect the Merlin and its habitat



### Food Chains

What will happen to the numbers of Bilberry, Skylark and Crane flies if the numbers of Merlin increase?



### Food Chains – Activity 1

Have a go of making your own Peak District food chains!



## Slide 15-16

This is the last slide of the presentation with a short recap of the session

It also encourages continuation of the themes by looking for similar concepts around your school/home. This could be done as part of a future lesson, in homework or encouraged in free time.

### Peak District Wildlife

The Peak District is a very diverse place full of different types of plants and animals.

The plants, animals and environment all connect together in many different and unique ways, which we've explored a few of today.

See how many animals and plants you can spot around your home and school. Can you create food chains out of them?

## Slide 15-16

Image permissions. These also apply to photos in the activities below.

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# Work Sheets

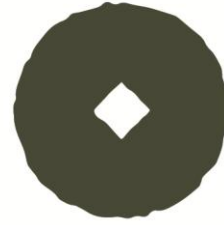
## Activity 1 - Food Chain Game

In groups, cut out these sheets along the dotted lines. Leave the arrows as they are and fold the other cut out strips in half. You should be left with 3 arrows, 8 labels and 15 cards with a picture on one side and a description on the other side.

See how many different food chains you can make with the cards!

	<p><b>Leaf Litter</b></p> <p>Leaves fall to the ground and decompose, eventually becoming soil.</p> <p>This decomposition can be helped by the actions of worms and other animals who eat the leaf litter</p>
	<p><b>Earthworm</b></p> <p>I like to eat dead plants and leaves in the soil</p> <p>I have to watch out for birds, reptiles and some mammals trying to eat me!</p>
	<p><b>Heather</b></p> <p>I use energy from sunlight to grow</p> <p>Lots of different birds, mammals and insects rely on me for food</p>





### **Bilberry**

I use energy from sunlight to grow

Lots of animals rely on eating my leaves and berries to survive



### **Mountain Hare**

I eat grass, heather and bilberry leaves to get my energy!

I have to watch out for birds of prey, stoats and foxes who might try to eat me, especially when I'm young!



### **Bilberry Bumblebee**

I eat nectar from the flowers on bilberry plants

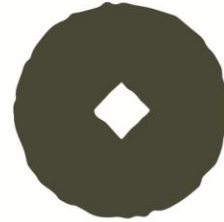
I have to watch out for insect-eating birds!



### **Curlew**

I like to eat worms and insects which I usually find in mud or sand

I have to watch out for birds of prey, stoats and foxes who might try to eat me, or eat my eggs!



### **Crane Fly**

I eat nectar from the flowers on bilberry plants

I have to watch out for insect-eating birds and reptiles!



### **Green Hairstreak Butterfly**

I eat nectar from the flowers on bilberry plants and other plants

I have to watch out for insect-eating birds, snakes and frogs



### **Ring Ouzel**

I eat bilberries, worms and insects!

I have to watch out for birds of prey and foxes who might try to eat me



### **Merlin**

I mostly eat small birds but will also eat small mammals, reptiles and insects

I have to watch out for larger birds of prey but I'm usually fast enough to get away!



### **Common Lizard**

I eat worms and insects!

I have to watch out for birds of prey and foxes who might try to eat me



### **Fox**

I eat small birds, mammals and reptiles. I'll even eat worms!

I'm a top predator so I don't need to watch for anyone trying to eat me!



### **Short-eared Owl**

I eat small mammals!

I'm a top predator so I don't need to watch for anyone trying to eat me!



### **Voles**

There are different kinds of voles and we eat bilberries, leaves, seeds and grass!

I have to watch out for birds of prey and foxes who might try to eat me!





predator	prey
consumer	producer
predator	prey
consumer	producer





**Activity 2 – School Grounds Wildlife**

Explore your school grounds to see what different plants and animals you can spot, and then fill in the table below using the examples you have found. Then try to create a food chain which includes some of these.

Name	Producer or Consumer?	Predator or Prey?

**My School Ground Food Chain:**