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 case the question will also be written on the slide itself.

Presentation Slides

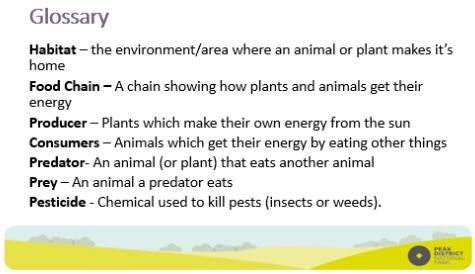
Slide 2

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.



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

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

Slide 7-14

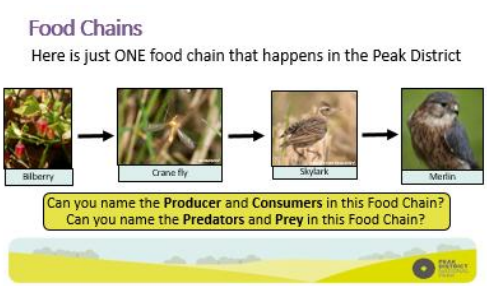
This slide shows the food chain we will discuss over the next few slides so it's important the group understand the different components.

Explain the difference between:

Producers and Consumers

Predator and Prey

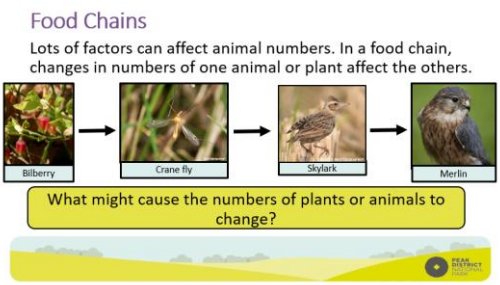
You might want to highlight that food chains actually start with the sun as this is the energy source for the primary producer (in this case the bilberry).



Slide 7-14

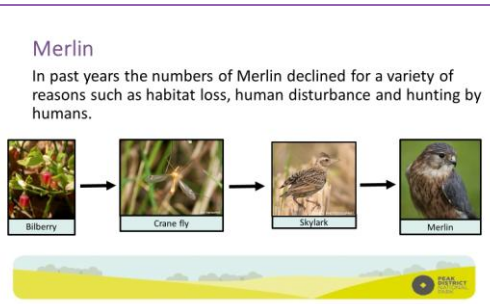
We haven't specified positive or negative changes in numbers so possible answers could include: Hunting, lack of or extra food, habitat is or isn't protected, trees cut down or planted, etc.

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.



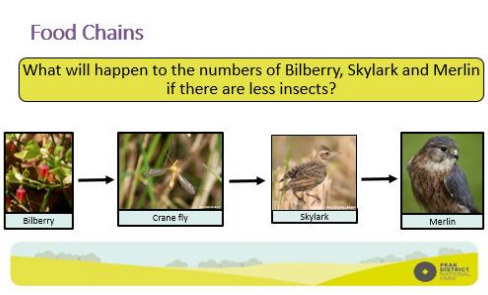
The video is a 5 minute long, Ted Educational video, about pesticides, including both positive and negative effects: https://www.youtube.com/watch?v=GLllZ-qiXJA

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)?

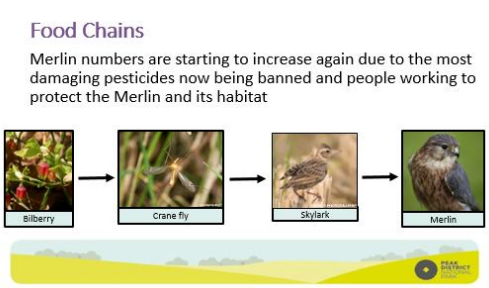
What will happen to the numbers of bilberry, skylark and merlin if there are fewer insects to eat?
Bilberry numbers would increase as there are fewer crane fly larvae eating them.
Skylark numbers would decrease as they have less food to eat, and therefore merlin numbers would also decrease as they also have less to eat.



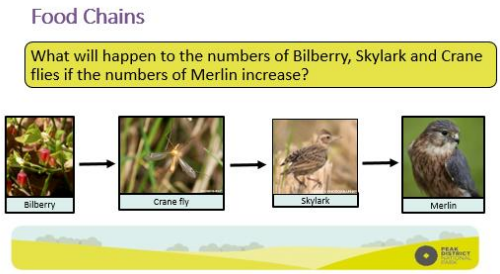
Slide 7-14

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.

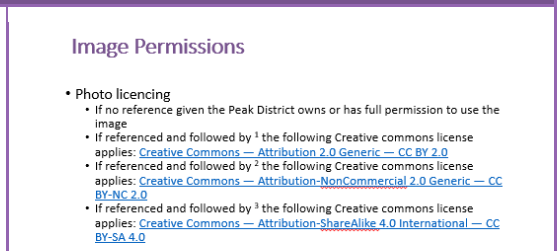
Slide 15-16

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.

Slide 15-16

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



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!

Leaf Litter

Leaves fall to the ground and decompose, eventually becoming soil.

This decomposition can be helped by the actions of worms and other animals who eat the leaf litter

Earthworm

I like to eat dead plants and leaves in the soil

I have to watch out for birds, reptiles and some mammals trying to eat me!

Heather

I use energy from sunlight to grow

Lots of different birds, mammals and insects rely on me for food

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: