

Go wild at Mill Waters

at Mill Waters heritage site

TN
TEACHER'S NOTES

TITLE SLIDE

In this lesson you will find out about the many different species (types of creatures) that live in harmony at Mill Waters, in a variety of habitats. This is called the ecosystem.

You will look at the different food chains within the ecosystem and the importance of even the smallest creatures and plant life to provide food for the predators higher up the food chain.



To start with, here's a note from one of Mill Waters Wildlife Rangers, Bashaer:

“Thank you for your interest in Mill Waters. My role is a Wildlife Ranger, and my job is to help protect the habitat for the various wildlife that live at Mill Waters. We have such a special place here on our doorsteps – a place to enjoy some fresh air and explore nature and wildlife with your friends and family. Why not come and look for yourself? We also have volunteering opportunities for older children if you are interested. See you soon! Bashaer.”

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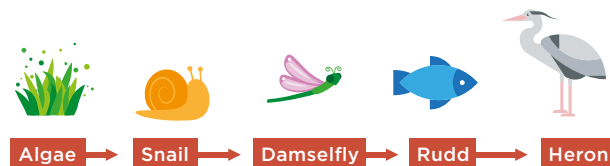
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SLIDE 2 THE FOOD CHAIN

In an ecosystem all the plants and animals that live in a particular area together are dependent on the place that they live, their habitat; most importantly, it must be somewhere they can get enough food to eat.

We eat food to give us energy. The order in which one species eats another is called a food chain.

Here is an example of a food chain at Hermitage Pond on the Mill Waters site. However, every habitat has a different food chain.



Here we can see that the algae (an underwater plant) is eaten by snails; which in turn are eaten by the damselfly; which becomes dinner for the Rudd and finally, the Grey Heron at the top of the food chain sweeps down from its nest into the water below to eat the Rudd (and lots of other things besides).

At King's Mill Reservoir, bacteria and algae in the water are the producer organisms - the smallest thing at the bottom of the food chain. Plants are always at the bottom of the food chain because they can turn energy from the sun into food; this

is called photosynthesis. The algae is eaten by the invertebrates, (creepy crawlies that don't have a backbone), dragonflies, as well as fish, frogs and toads - known as the consumers. They, in turn, are eaten by small mammals and birds who are eaten by the heron and fox - the predators.

Now let's watch this short clip which shows some of the wildlife at King's Mill Reservoir and Hermitage Pond at the Mill Waters site.

Click here to watch the film:
http://www.youtube.com/watch?v=auvVHQHuq_w

SLIDE 3 DIFFERENT SPECIES' EATING HABITS

We can group animals by the types of foods they eat. Some creatures eat a mixture of plants and animals and some only eat plants or only other animals.

Let's watch this short clip: <https://www.bbc.co.uk/bitesize/clips/zxrmp39>

Carnivores - eat only animals. Examples include heron, owls and larger fish. They are always at the top of the food chain.

Omnivores - eat animals and plants. Examples include fox, bats and hedgehogs (consuming slugs, worms and acorns).

Herbivores - eat only plant-based foods. Examples include rabbits, birds and vole.

You might ask pupils:

"What are humans (in terms of their eating habits)?"

Answer: They can be omnivores - who eat animals and plants. Some people choose not to eat meat (vegetarians) or no animal products at all (vegan). Some only eat fish and plants; they are known as pescatarians.

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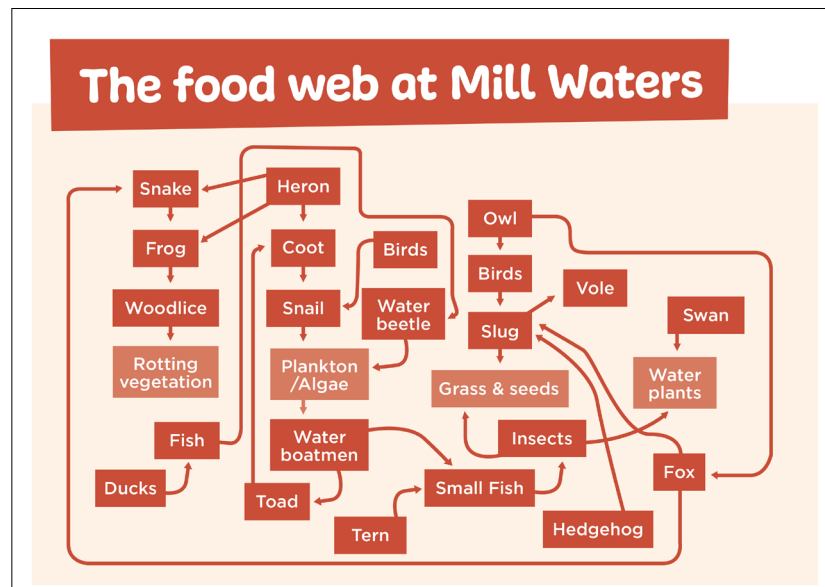
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SLIDE 4 THE FOOD WEB AT MILL WATERS

At Mill Waters there is a complex network of food chains. Some species eat more than one type of food and are part of different food chains. Where there are lots of different food chains that intersect (join at different places) it is called a food web.

Many simple food chains around the Mill Waters site intersect to create the complicated food web in this slide.



Let's watch this short (3.50 minute) clip about food chains and habitats <http://www.youtube.com/watch?v=Vtb3l8Vzlfq>

SLIDE 5 THREATS TO THE FOOD CHAIN

A loss of any species in the food chain poses a threat to the whole ecosystem.

Dangers include:

- The invasion of new predators (such as birds of prey).
- Extremes in weather which results in nests being destroyed or baby animals being killed.
- A disease spread by wild animals (such as tuberculosis which badgers spread).
- Or invasive water plants like Pennywort, which takes over water bodies and is not good for the fish, insects and other plant life that already live there.

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SLIDE 6

MILL WATERS - A HAVEN FOR ENDANGERED SPECIES

A habitat is a place where certain species can find food, shelter, protection and also a good place to have their babies and bring them up.

Mill Waters is a great wildlife habitat because it meets lots of different species' needs: a vast area of water for fishing; reed beds and hedgerows for protection; tall strong trees for building nests; and banks for creating underground homes.

Since 1970, 60 per cent of the world's animal population has been wiped out due to human intervention, such as killing wild animals to eat and irresponsible fishing. We have also destroyed a lot of natural habitats to create farmland and to make way for new buildings.

The use of insecticides in farming means that birds have less to eat; farmers have also destroyed a lot of hedgerows where birds once nested - so we can see why Mill Waters is such a welcoming and much-needed habitat for them.

To stop more species being lost, laws have been made across Europe, as well as in Britain, to make sure we protect species that are under threat because their numbers are going down. One such example is the Water Vole, which is known to live at Mill Waters. The Water Vole is protected by the Wildlife and Countryside Act 1981, which means it is illegal to kill it, or even to disturb its place of shelter.

The Common Tern is also classified as being at risk (Amber on the Species of European Conservation Concern list) which is why Ashfield District Council is taking extra care of those who have adopted Mill Waters as their habitat. You might be able to spot them enjoying their specially built islands in the Reservoir.

SLIDE 7

BIRDWATCHING AT MILL WATERS

In the following slides we will see that Mill Waters comprises three different types of wildlife habitats:

As we can see on this slide, Mill Waters is a haven for birdwatching.

Birds, of course, can fly around, so live in and around all of the habitats at Mill Waters. Between 215-250 species of birds use the site.

Some of the birds that you can see at Mill Waters include the cheeky little Chiffchaff with his unmistakable little chirrup, as well as the occasional Kingfisher, which has been spotted showing off his dazzling plumage darting across Hermitage Pond.

Link to Chiffchaff song: <https://www.british-birdsongs.uk/chiffchaff/>

Fantastic short clip of Kingfisher hunting: <https://www.youtube.com/watch?v=82o224s-Au8>

Birdwatching is a very popular activity at Mill Waters and something everyone can enjoy without the need for expensive equipment – although a pair of binoculars helps. Bird watchers record the types of birds they see, how many they see and their movements and this helps build a picture of each species.

Did you know that birdwatchers are sometimes called 'Twitchers', after a renowned bird enthusiast in the 1950s, Howard Medhurst, who had a twitch!

You can discover different birdsong using the links below:

<https://www.rspb.org.uk/birds-and-wildlife/bird-songs/what-bird-is-that/>

<https://www.british-birdsongs.uk/alphabetical/>

Now let's look at the three key habitats on the following slides:

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SLIDE 8: WOODLAND AND HEDGEROWS

SLIDE 9: THE RESERVOIR AND THE SURROUNDING REEDBEDS

SLIDE 10: POND HABITAT (AT HERMITAGE POND)

We will learn about these species in more detail as part of an exciting TV presenting task you are going to do (Activity 4).

Refer to Handouts 3 i - iv for details about the various species in the three habitats at Mill Waters.

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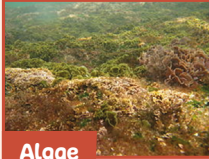








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LEARNING ACTIVITIES

1. Can you find these species at Mill Waters?

W_L3HO1

Look and find

 <p>Coot</p>	 <p>Algae</p>	 <p>Damselfly</p>	 <p>Grey Heron</p>
 <p>Pochard</p>	 <p>Swan</p>	 <p>Watervole</p>	
 <p>Snail</p>	 <p>Tern</p>	 <p>Pondskater</p>	



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LEARNING ACTIVITIES

2. Food chain challenge

This is a really fun way for pupils to get to know the food chains at Mill Waters.

Print out the species cards which relate to the six food chains below. Now mix them up and hand them out to your class. Make sure everybody has one - you may need to duplicate a food chain.

Now ask the children to stand next to the species that they consume or who their prey is (what they eat or whom they are eaten by). Once the pupils have ordered themselves into a food chain you could ask them to read out the back of the card to explain who they are, where they live and what their diet consists of.

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LEARNING ACTIVITIES

3. Writing task

Print off several copies of Handouts 3 i - iv and distribute these to your pupils, so that each table has a variety of different habitats to write about.

Pupils should imagine that they are a Wildlife Ranger at Mill Waters. They have been asked to write an article for a local magazine about what the site offers for wildlife enthusiasts. They should focus on the species on their handout.

Their article should draw upon everything they have learnt about Mill Waters as a wildlife habitat, as well as provide interesting facts about the particular species on their handout. They might mention if the species have any interesting habits or if they are protected by the law? Pupils may be able to undertake additional desk research to include further detail or interesting facts.

Perhaps pupils could include a 'call to action' at the end - like 'Come and visit Mill Waters to see the wildlife up close', or 'Why not find out about volunteering opportunities and help protect the incredible wildlife at Mill Waters?'

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LEARNING ACTIVITIES

4. Produce a TV feature for Springwatch

In this activity pupils get the chance to play TV presenter and produce a feature on any species which chooses to make Mill Waters its habitat.

Before giving them the detail of the task show them this short clip of Springwatch starting at 9.15mins in to 11.35 mins: <https://www.youtube.com/watch?v=Ex5mRAb9BUA>

The clip is of the three Springwatch presenters discussing some footage of a Reed Warbler – a bird that you can find at Mill Waters. The bird is taking it in turns to look after some eggs it has laid in a nest in a reed bed. It has travelled all the way from Africa to the UK. The clip talks about how Cuckoos disguise themselves as pigeons to scare off the Reed Warblers so that they can lay their eggs in the Reed Warbler's nest.

Divide your class into groups of three or four and set them the challenge of producing a feature for Springwatch all about a particular species at Mill Waters. Perhaps they could imagine that they have some 'web cam' footage, or they could actually shoot some footage of their chosen species (if it is easy to view) during a visit to Mill Waters?

Groups are expected to write down the key points they want to make about their chosen species. They can do further research using reputable sources such as the Wildlife Trust or RSPB websites.

What are the key points they need to tell the viewer about the species? How can their species be identified? Is there a clear difference between the male and the female of the species? What is clever about the way it feeds and protects its young? How does it hunt for food and what is its prey? Does it have any amazing characteristics or habits, or a beautiful song?

Pupils can screen their TV feature to the rest of the class, or give a live presentation in front of their 'studio audience'.