

# 'Herbivore Heaven'

The place to eat!



## QCA Science - Unit 4b: Habitats



### **The 'Herbivore Heaven' café is under new management!**

Undertaking this unit of work, children imagine that they are the new owners of the 'Herbivore Heaven' café now set up in a restored quarry where wildlife is returning. Through developing menus and looking at the animals that may visit their café, children learn about food chains in a fun way. With excellent opportunities for Literacy in the development of menu cards and Science investigations, when finding out which leaves snails prefer to eat, this adapted unit gives a new slant to the Science 4b unit on habitats.

## **Unit 4B - Habitats**

### **Science Year 4**

#### **Herbivore Heaven! - The place to eat!**

#### **Overview Teacher Introduction:**

The themes explored in 'Herbivore' Heaven' are designed to be used in conjunction with the teaching of Unit 4B 'Habitats'. Through the use of the 'Virtual Quarry' resource, children will learn about what a working quarry is and how these are restored when the quarrying is completed. The themes suggested can easily be incorporated into existing teaching to provide a fun and new approach to learning about habitats and food chains.

**The three lessons provided are designed to be slotted into the existing teaching within this unit. You may find that they can replace some of the lessons that you currently teach. These three lessons are not designed to teach all the objectives within this unit, only the sections highlighted in the QCA Unit document. They are designed to enhance and develop existing teaching.**

# 'Herbivore Heaven' – The place to eat!

## Unit 4B Habitats Science Year 4



### ABOUT THE UNIT

Through this unit children will begin to understand the concept of a habitat, how it provides organisms found there with conditions for life and how animals depend on plants or other animals which eat plants for food. Throughout the unit ways in which organisms are suited to the habitat should be emphasised. The subject of working and restored quarries will be explored in the context of the habitats provided by each.

Experimental and investigative work focuses on:

- turning ideas into a form that can be tested, making a prediction
- making observations
- deciding whether the evidence supports the prediction and suggesting explanations in terms of their knowledge of science.

Work in this unit also provides opportunities for children to learn about the interdependence of living things and how the environment and living things need to be protected.

This unit takes approximately 12 hours.

### WHERE THE UNIT FITS IN

Builds on Unit 2B 'Plants and animals in the local environment' and Unit 3B 'Helping plants grow well'

#### Children need:

- to be able to measure temperature, time and distance
- to recognise organisms as plants or animals.

Links with Units 3C, 3F, 4C, 5B, 6A and geography.

### VOCABULARY

In this unit children have opportunities to use:

- words related to life processes  
*eg nutrition*
- words relating to habitats and feeding relationships *eg habitat, condition, organism, predator, prey, producer, consumer, food chain, key, herbivore, carnivore, omnivore*
- words which have a different meaning in other contexts  
*eg producer, consumer, key, condition, working quarry, restored quarry*
- expressions making generalisations and comparisons.

### RESOURCES

- hand lenses, collecting nets, containers for small animals
- posters, video, CD-ROMs, reference books, simple biological keys, pictures of a variety of habitats in or close to the locality of the school or similar to those in the locality of the school, including local quarries
- plastic containers suitable for investigating preferences of small animals *eg snails, woodlice*
- Virtual Quarry Resource

### EXPECTATIONS

#### at the end of this unit

*most children will:*

identify some local habitats; name some of the organisms that live there; understand how a working quarry and restored quarry differ; how the habitats provided in a working and restored quarry differ; use simple keys to identify organisms; state the food source of some animals; distinguish between those which eat plants and those which eat other animals and plan how to investigate some of the preferences of small animals found in the habitat

*some children will not have made so much progress and will:*

identify some local habitats; name a few of the organisms that live there and, with help, identify these using simple keys and make observations of animals and plants; understand how a working quarry and restored quarry differ.

*some children will have progressed further and will also:*

represent feeding relationships within a habitat by food chains; explain that food chains begin with a green plant which 'produces' food for other organisms and explain why it is necessary to use a reasonably large sample when investigating the preferences of small invertebrates; understand how a working quarry and restored quarry differ and how restoring a quarry sensitively can provide a habitat for a variety of plants and animals.

| LEARNING OBJECTIVES<br>CHILDREN SHOULD LEARN   | POSSIBLE TEACHING ACTIVITIES   | LEARNING OUTCOMES<br>CHILDREN   | POINTS TO NOTE  |
|--|--|---|---|
|  | <p>Elicit children's understanding of 'plant' and 'animal'. Introduce the term 'organism' as a general term for all living things. Use pictures of <i>eg vertebrates, invertebrates, humans, small flowering plants, trees</i> and challenge children to sort them according to their own criteria and then into plants and animals. Let children choose how to record their groupings.</p>  |   | <p>Teachers will need to ensure that children who have difficulty recognising an organism as a plant or animal have particular support in subsequent activities. Most living things which children encounter in everyday life, apart from fungi (which are now placed in a separate category) can be classified as plants or animals. Children often think that invertebrates, <i>eg worms, spiders</i> are not animals. Similarly children may not classify trees as plants.</p> |
| <ul style="list-style-type: none"> <li>to identify different types of habitat</li> </ul> | <ul style="list-style-type: none"> <li>Introduce children to the word 'habitat' using pictures to illustrate meaning. Explain the meaning of 'habitat'. Explain to children that they will be studying local habitats, and go for a walk round the school and/or immediate locality to find and make a list of habitats. Review the final list with the children and group habitats of similar scale or diversity together <i>eg pond, field, wood, tree, hedge, flower bed, grassy patch, plant trough, under leaf, under stone</i>. Ask children to record the habitats identified.</li> </ul> | <ul style="list-style-type: none"> <li>identify local habitats and recognise those which are similar in scale or diversity</li> <li>recognise that animals and plants are found in many places <i>eg on window sills</i></li> </ul> | <p>A 'class' habitat can be created using a plant trough or a grow bag.</p> <p>When comparisons between habitats are made it is helpful to choose habitats of similar scales or diversity <i>eg ponds, fields and woods, or tree, hedge, flower beds, grassy area (mini-habitats), or under leaf, under stone (micro habitat)</i>.</p> <p><b>SAFETY</b> – All off-site visits must be carried out in accordance with LEA/school guidelines.</p>                                   |

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|--|--|--|--|
| <p><b>See Quarry Lesson 1: 'Herbivore Heaven – The place to eat!'</b></p> <ul style="list-style-type: none"> <li>To think about what habitats would be provided in a working vs. restored quarry in context of 'Herbivore Heaven' café</li> <li>that different animals are found in different the habitats provided by a working and restored quarry</li> <li>to make predictions of organisms that will be found in a habitat</li> <li>to observe the conditions in a local habitat and make a record of the animals found</li> <li>that animals are suited to the environment in which they are found</li> </ul> | <ul style="list-style-type: none"> <li>Using the Virtual Quarry , photos or a trip to a local quarry, ask children to predict where a particular organism / plant will be found <i>eg woodlice, snail, butterfly, bee, dandelion, grasses etc.</i> Compare environment on gravel drive to a lawn and relate to working / restored quarry. Explain that collecting animals must be done with care so that the animals are not damaged. Help children to collect invertebrates and record locations in which they were found. Ask children to observe and describe the conditions <i>eg light, water, soil, shade, temperature.</i> Ask children whether they found the organisms they expected. Help children return any animals collected to their habitat.</li> <li>Introduction / planning / setting up of 'Herbivore Heaven' café.</li> </ul> | <ul style="list-style-type: none"> <li>make and justify a prediction <i>eg the woodlice will be under the stones because it's damp there</i></li> <li>describe a habitat in terms of the conditions <i>eg leaf litter is cool, damp and dark</i></li> <li>state that animals and plants are found in some places and not in others and explain why <i>eg worms are found in the soil not in tarmac because they cannot find food or burrow through tarmac</i></li> </ul> | <p>Different groups could investigate different habitats and share results with others. This gives a valid reason for recording carefully and deciding on how to present information to others.</p> <p>Information may be collated on an IT data-handling program (see IT Units 3C 'Introduction to databases' and 4D 'Collecting and presenting information: questionnaires and pie charts').</p> <p>If animals are brought into the classroom, ensure that they are treated sensitively and their needs met and that they are returned to the habitat from which they came as soon as possible.</p> <p><b>SAFETY</b> – Children should wash their hands after handling animals.</p> <p><b>SAFETY</b> – All off-site visits must be carried out in accordance with LEA/school guidelines.</p> |
| <ul style="list-style-type: none"> <li>to group organisms according to observable features</li> </ul>  | <ul style="list-style-type: none"> <li>Present children with pictures (or living organisms collected earlier) including similar pairs <i>eg bee/wasp, spider/beetle, daisy/dandelion</i> and discuss features <i>eg legs, wings, eyes, colours.</i> Ask children to group similar organisms together and explain their groupings.</li> </ul>   | <ul style="list-style-type: none"> <li>identify similarities and differences between similar organisms</li> <li>group animals and explain criteria <i>eg number of legs, wings/no wings</i> on which the groups are based</li> </ul>   | <p>Encourage children to use hand lenses/microscopes carefully to identify detail of organisms.</p>  |

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|--|--|---|--|
| <ul style="list-style-type: none"> <li>to use keys to identify local plants or animals</li> </ul>  | <ul style="list-style-type: none"> <li>Present children with an organism (or picture of an organism) from the local environment which is likely to be unfamiliar to most of them. Ask them to write down two or three things about it. Show some reference books and ask children how easy it would be to identify the organism from these. Show children a simple key and how to use it. Practise with other keys and other organisms.</li> </ul>   | <ul style="list-style-type: none"> <li>use simple keys to identify local plants and animals</li> </ul>  | <p>Children may devise their own keys using a simple IT program (see IT Unit 4C 'Branching databases').</p>  |
| <p><b>See Quarry Lesson 2: The 'Snail Trail' Menu!</b></p> <ul style="list-style-type: none"> <li>to pose questions about organisms and the habitat in which they live and make predictions</li> <li>to decide what evidence to collect and to design a fair test</li> <li>to make reliable observations of organisms</li> <li>to indicate whether their prediction was valid and to explain findings in scientific terms</li> </ul> | <ul style="list-style-type: none"> <li>Ask children to generate a question related to the owners of 'Herbivore Heaven' wanting to find out which leaves to serve at the snail bar.                         <ul style="list-style-type: none"> <li><i>Which leaves to snails prefer to eat?</i></li> <li><i>In which type of conditions do snails eat the most?</i></li> </ul> <p>Discuss the questions with the children and help them to decide how to collect evidence for their investigation and what equipment to use eg</p> <ul style="list-style-type: none"> <li><i>How many snails should we use?</i></li> <li><i>How long should we leave them to find out?</i></li> <li><i>What sort of food should we give the snails?</i></li> </ul> <p>Help children to carry out the investigation and to make careful observations. Discuss their results and ask children to explain these in terms of what they already know about the animals and their usual habitats.</p> </li> </ul> | <ul style="list-style-type: none"> <li>suggest a question which relates to an organism in its natural habitat and say what they think will happen</li> <li>recognise what evidence is needed eg <i>snails should be able to choose between a variety of different leaves and that a reasonable number of snails should be used</i></li> <li>make observations which are relevant to the question under investigation</li> <li>draw conclusions which match the observations made and relate these to their prediction and to their knowledge about the habitat</li> </ul> | <p>Teachers will need to decide which of the children's questions may be investigated safely and profitably with respect to living things.</p> <p>This activity offers children the opportunity to carry out a whole investigation. It may be helpful to concentrate on the aspects of investigation highlighted in the learning objectives.</p> |

| LEARNING OBJECTIVES<br>CHILDREN SHOULD LEARN  | POSSIBLE TEACHING ACTIVITIES   | LEARNING OUTCOMES<br>CHILDREN  | POINTS TO NOTE  |
|---|--|--|---|
| <ul style="list-style-type: none"> <li>to identify the food sources of different animals in different habitats</li> </ul>   | <ul style="list-style-type: none"> <li>Using secondary sources <i>eg reference books, CD-ROMs, videos</i> investigate the food needs of a chosen animal from a local habitat, and where it finds its foods. Use one that is found locally <i>eg bird, small mammal, mollusc</i>. Record findings as a class poster or book.</li> </ul>   | <ul style="list-style-type: none"> <li>describe what a particular animal eats and explain that it can only live where its food source is available and where conditions <i>eg warmth, moisture</i> are suitable</li> </ul>   | <p>Children may be familiar with the everyday use of the word 'consumer'. It may be helpful to use this as an analogy for the consumers in a food chain.</p>  |
| <p><b>See Quarry Lesson 3: 'So, who's going to visit the café?'</b></p> <ul style="list-style-type: none"> <li>to identify the structure of a food chain in a specific habitat</li> <li>that animals are suited to the habitat in which they are found</li> <li>that most food chains start with a green plant</li> </ul> | <ul style="list-style-type: none"> <li>Review the habitat provided in the new restored quarry with children and ask them to say which organisms could be found in this habitat and would want to visit 'Herbivore Heaven'. Challenge children to identify the food of specific animals, some of which eat plants and some of which eat animals – refer back to previous activity. Extend children's ideas about the food of animals using secondary sources <i>eg CD-ROM, reference books</i>. Introduce terms 'predator' and 'prey' and start by considering pairs <i>eg plant and one animal or two animals</i>. Challenge children with the question 'where did the prey get its food?' Ask children to find out about this using secondary sources <i>eg CD-ROM, reference books</i>. Show how a food chain is represented. Give children pictures of organisms in a habitat with information about what each eats and ask them to practise writing or sequencing food chains. Where possible relate this to the local habitat to consolidate earlier work.</li> </ul> | <ul style="list-style-type: none"> <li>identify food of a specific animal <i>eg the privet hawk moth prefers privet</i></li> <li>state that predators eat other animals</li> <li>identify animals which are predators and their prey <i>eg birds feed on insects, foxes feed on rabbits, herons feed on fish</i></li> <li>state that many animals which are prey live on green plants</li> <li>sequence valid food chains relating to the local habitats using the arrow convention correctly</li> </ul> | <p>It may be helpful to explain the term 'producer' to some children as 'producing' food for other organisms and 'consumer' as something that 'consumes' or eats other organisms.</p> <p>Children are usually unable to observe food chains in action; video clips and TV programmes are helpful.</p> <p>Many children think the arrow in the food chain means 'eats'. It may be helpful to suggest to children that the arrow implies 'gives food to' as a way of explaining the direction in which it points.</p> |
| <ul style="list-style-type: none"> <li>to recognise ways in which living things and the environment need protection</li> </ul>  | <ul style="list-style-type: none"> <li>Ask children to think about the effect on plants and animals of changing conditions in a particular habitat in various ways <i>eg The restoration of a quarry</i>. Ask children to prepare a presentation to an audience to explain how the restored quarry provides new habitats and use the 'restore a quarry' game / option on the Virtual Quarry</li> </ul>   | <ul style="list-style-type: none"> <li>identify the effect of changes to the habitat on some organisms</li> </ul>  | <p>IT simulation programs could be used to support work in this unit (Virtual Quarry – Restore your own quarry) (see IT Unit 3D 'Exploring simulations').</p>   |

## Lesson 1: 'Herbivore Heaven' - The place to eat!

### **Prior Knowledge / Work:**

Introduce the children to the subject of quarrying by ascertaining what they already know about quarries. Use the 'Virtual Quarry' Tour so the children are aware of what a quarry looks like and what processes are involved in quarrying. Discuss what the children think happens when the quarrying has finished. Discuss with them how all quarries must be restored and what this might mean. Use the VQ to find out more about restoration and what new habitats can be developed. Are there any working or restored quarries near you?

### **Learning Objectives:**

- To appreciate how the habitats in a working and restored quarry differ
- To appreciate how the habitat influences the animals that live there
- To understand that different organisms eat different foods
- To understand the terms; herbivore, carnivore, omnivore, consumer

### **Subject Links:**

- Literacy - Developing a menu (descriptive / imaginative writing)  
Creating an advert (persuasive / descriptive writing)
- ICT - Use ICT to design a menu card or an advert

### **Resources:**

- Class access to 'Virtual Quarry'
- Gravel path / grassy area or tank with stones, gravel and rocks and tank with soil, pebbles and a small dish of water
- Worksheet 1 - 'Herbivore Heaven' menu

### **Background Information:**

The children are to imagine that they are the new herbivorous creature owners of 'Herbivore Heaven', a café that has been on the site of a working quarry for the last five years. (They can be the herbivorous animal of their choice!) The background to the café is that it has been owned by a snail family for the last five years, but the working quarry has not been an ideal place to have a café as the habitat has meant that only a few animals could live there. The quarry is now in the process of being restored and there are now improved habitats and animals are starting to return. 'Herbivore Heaven' now needs to be developed and new, exciting menus drawn up, as well as an advertising campaign to tell all the local animals about the service offered! In order for the children to do this, they need to find out some facts:

- What kind of habitat conditions might be expected in a working quarry?



- What plants and animals might we find in the working quarry?
- What kind of habitat conditions might be expected in a restored quarry?
- What plants and animals might we find in the restored quarry?
- Which herbivorous animals (or omnivorous) might want to visit 'Herbivore Heaven' café?
- What kind of plants could be found in the restored habitat? (that could feature on the menu)

### Activity:

Discuss with the children what kind of habitat a working quarry would provide. Use images and pictures on the Virtual Quarry to help them. If possible, visit a local working quarry to look at the habitat and the plants and animals that might live there. Alternatively, look around the school's locality to find habitats that might be similar. A gravel drive may offer a similar habitat. Such a habitat could be recreated in the classroom in a tray. Mix some gravel, pebbles, stones and rocks together and allow the children to look at this tray. If they were a seed falling onto this 'habitat', or a small creature looking for somewhere to live, how easy would it be to survive? Discuss with the children what problems they might encounter if they were a plant or small animal trying to live there:

- Can be very dry as water drains quickly away - not good for plants (pour water on to see what happens)
- Few nutrients to allow plants to grow healthily.
- Can be dangerous / difficult for small animals to live as the rocks move and slide, easily trapping them
- Not much food around for minibeasts, especially if they eat plants
- Not much water to drink for animals

Compare this to the kind of new habitat that a restored quarry might offer. This time, let the children look at a tray filled with earth, maybe with a container of water in it, representing a lake or pond in a restored quarry. Again, think about being a seed or a minibeast and what this habitat would provide:

- Water is absorbed by soil and soil becomes damp - a better environment for plant growth
- More nutrients in soil than on rocks, so a seed would grow into a healthier plant. Lots of different kinds of plants would be able to grow in soil
- Soil is easier to burrow into and hide and make homes for minibeasts
- With more plants growing, there would be more food / habitats for animals.

Discuss with the children what animals they might expect to be returning to the restored quarry.

Having established that a working quarry would have limited places for animals and plants to grow and a restored quarry would be a better habitat, return the children to the idea of the 'Herbivore Heaven' café soon to open in the restored quarry.

Talk to the children about what different animals eat. How would the diet of a caterpillar differ from that of a blackbird? Explain that some animals eat plants, some eat meat and others eat both. A plant eater is called a 'herbivore', a meat eater is called a 'carnivore' and an

animal that eats both is an 'omnivore'. Working in small groups, get the children to think of five animals that are herbivores, five that are carnivores and two that are omnivores. They could use books to help them.

In groups, ask the children to list the animals that might visit 'Herbivore Heaven' and what they might like to eat. Provide them with books about British wildlife to help them. Their list might include:

- Snails (leaves)
- Slugs (leaves)
- Caterpillars (leaves)
- Wasps (sweet juices from berries)
- Bees (nectar)
- Ants (nectar, aphid 'honeydew')
- Grasshopper (grasses)
- Earwig (petals)
- Millipede ( soft / rotting vegetation)
- Worms ( rotting leaves)
- Mouse (leaves, berries, buds, nuts)
- Vole (leaves, berries, nuts)
- Squirrel (nuts, buds, seeds)

Create a class list of possible customers to the café and the foods that could be used to create a menu. These could include:

- Leaves: A variety of different leaves from plants that could be found in the restored quarry e.g. nettle, dock, clover, ivy, hogweed, buttercup, poppy, thistle
- Grasses
- Berries (blackberries, hawthorn, blackthorn, holly, wild strawberries)
- Nectar (from flowers such as buddleia, dandelions, clover, daisies, thistles)
- Petals (from common wild flowers such as poppy, buttercup, daisy, dandelion, thistle, buddleia)

Look at Worksheet 1 with the children. It shows the beginnings of a menu that is being created for 'Herbivore Heaven'. The children must then complete this menu card by adding some ideas of their own. They should bear in mind that they are trying to attract as many different animals to the café as possible. They can think about starters, main meals, puddings and drinks! Once they have decided, a photocopy of this sheet can be used and the children can complete and decorate this menu card. Alternatively, children can create their own menu cards. This could be done using a word processing package on the computer. This activity links in well with the Literacy Hour as children are encouraged to write descriptively, using a range of adjectives to describe the dishes.

Extension work on this theme could include the children producing adverts to go up in the local area advertising the café and its delicious menu. Children could also design recipes for some of the dishes they have designed.



# Herbivore Heaven

*The best herbivore cafe around!*

## Menu

### Starters:

- ❖ **Nerve-tingling Nettle Soup!** - *This delicious soup leaves a fresh tingling sensation in the mouth. Perfect with a fresh green salad.*
- ❖
- ❖

### Main Courses:

- ❖ **Bulging Buttercup Burgers** - *These beautiful burgers are bursting with buttercup goodness and served in a dock leaf bun with a sprinkling of clover petals.*
- ❖ **Classy Clover Casserole** - *A delicate blend of clover and Ivy in a green sap sauce, this delicious casserole, will satisfy the biggest herbivore appetite.*
- ❖
- ❖

### Puddings:

- ❖ **Delicious Dock & Dandelion Delight** - *A divine blend of dock leaves and dandelion flowers, this sweet pudding is served with a wild strawberry icecream.*
- ❖
- ❖

### Drinks:

- ❖ **Thistle Tea**
- ❖ **Dandelion and Burdock fizzy delight**
- ❖



## **Lesson 2: The 'Snail Trail' Menu!**

### **Prior Knowledge / Work:**

Children should be familiar with setting up an investigation and ensuring that it is a 'fair' test. This activity offers children the opportunity to carry out a whole investigation. It may be helpful to concentrate on the aspects of investigation highlighted in the learning objectives and plan some aspects of the investigation as a class.

The children should also have completed the lesson prior to this, so are aware that they are setting up a 'Herbivore Heaven' café for the local herbivores living in the restored quarry.

### **Learning Objectives:**

- To pose questions about snails and the habitat in which they live and make predictions
- To decide what evidence to collect and to design a fair test
- To make reliable observations of organisms
- To indicate whether their prediction was valid and to explain findings in scientific terms

### **Subject Links:**

- PSHE - caring for and respecting animals

### **Resources:**

- Selection of garden snails
- Tanks with soil in the base
- A selection of different leaves for foodstuffs
- Squared paper
- Worksheet 2 - Am I ready to start my investigation?
- Worksheet 3 - The 'Snail Trail' Menu Investigation

### **Background Information:**

As new owners of the 'Herbivore Heaven' café, the children must develop a new menu. As snails are going to be one of the most common customers, the children are going to devise an investigation to find out which foods the snails like best. This information can then inform the new menu!

Snails are particularly useful organisms for simple science investigations. They are readily collectable, widely available in the local environments and easy to keep in the primary classroom over short periods. There are lots of different types of snails that all belong to the *mollusc* group (animals with no segments or limbs and usually a fleshy foot for movement). The one most commonly found in gardens and around schools is the common snail. This has a

mottled brown shell and grows to a medium size. Generally smaller than the common snail is the brown-lipped or white-lipped snail. This is found in grassy areas, woodlands and hedgerows. Apart from the lip, the shell is often yellow, but may be shades of pink, white or brown. There may also be up to five brown or black bands spiralling round the shell.

Snails are herbivores and will eat a variety of different plant materials. Those that are least favoured are hairy or spiky leaves, so it would be good to encourage children to use these in their tests.

Snails feed in one of two ways. Usually the snail uses its *radula*. This is the snail's tongue. It has over 14,000 minute saw-like teeth all over its surface and is used to 'scrape' away at the surface of the foodstuff. The snail also has a horny jaw. It sometimes uses this to bite pieces out of a leaf in much the same way as a caterpillar eats.

### **Activity:**

Explain to the children that they need to find out which type of leaves snails prefer to eat, so they can create the 'Herbivore heaven' menu. They must devise a test, with real snails, that will show them which are most popular. First, the children must come up with a title for their investigation and this must be posed as a question that will be answered by carrying out the investigation. Encourage the children to think of this question. It could be; 'Do snails prefer certain types of leaves to eat?' or 'Which type of leaf do snails prefer to eat?' Once the children have decided on a question for their investigation, then they are ready to plan what they are going to do. This process is dependant on the previous experience of the class and the ability of individuals. In some cases, this process can be carried out with the whole class, discussing each aspect together. Alternatively, groups of children can work together, with groups discussing their plans at intervals with the teacher and/or the rest of the class.

The children will need to decide the following:

- What one factor are they going to change in their investigation?
- What factors will need to be kept the same?

To help them, brainstorm, as a class, all the different factors that they could change. These could include:

- The size of snail used
- The species of snail used
- The temperature of the tank
- The number of snails used
- The type of leaves used
- The size of the leaves used
- Where the leaves are put
- The time the snails have to eat the leaves

Once a list has been created, ask the children what ONE factor they are going to change. In this case it will be the 'type of leaves used'. In that case, the children must consider keeping all the other factors the same.

They will need to decide what leaves they are going to use. Preferably they will collect these from the grounds and need to be able to recognise what type they are. Dandelion, daisy, dock, nettle and bramble are good examples as the bramble is spiky and the nettle hairy (be careful of stings!). The children need to then decide how to keep the size of leaf the same and how they will decide how much had been eaten. The best method is to cut 2cm or 3cm square sections from the leaves. At the end of the investigation, the children can remove the leaves, draw round what is left on squared paper and estimate the amount eaten. If accurate scales are available, then the leaf sections can be weighed.

This process may take a whole lesson and it is up to the teacher to decide when the children are actually ready to carry out the investigation. An investigation template (Worksheet 3) is available for use, if required.

They should be able to answer the following questions if they are ready to carry out the investigation:

1. What is the title of your investigation?
2. What one factor are you changing in your investigation?
3. What factors are you keeping the same?
4. How many snails are you going to use?
5. How long are you going to leave the snails with the food?
6. Where are you going to put the food in the tank? (Are the leaf bits going to be on a tray, on the soil, hung up?)
7. How are you going to measure how much of each type of leaf has been eaten?
8. How will you know which leaf is most popular?

These questions are available on a photocopiable worksheet, 'Am I ready to start my investigation?' (Worksheet 2).

Once the class have completed the investigation, review what has been found out. Discuss whether there are ways of improving the investigation. The children may suggest trying a similar investigation with slugs!

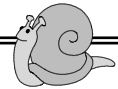
# Am I ready to start my investigation?



1. What is the title of your investigation?



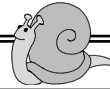
2. What one factor are you changing in your investigation?



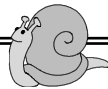
3. What factors are you keeping the same?



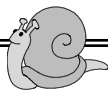
4. How many snails are you going to use?



5. How long are you going to leave the snails with the food?



5. Where are you going to put the food? (Are the leaf bits going to be on a tray, on the soil, hung up?)

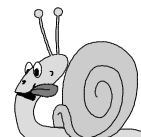


6. How are you going to measure how much of each type of leaf has been eaten?

YUM!



7. How will you know which type of leaf is most popular?



### Lesson 3: 'So, who's going to visit the café?'

#### **Prior Knowledge / Work:**

The children should have done some work researching a range of common animals and the food that they eat. They should be familiar with the word 'consumer' and that the animals in a particular habitat live there because the food that they eat is available.

#### **Learning Objectives:**

- To identify the structure of a food chain in a specific habitat
- To be able to create food chains using the arrow convention

#### **Subject Links:**

- **Literacy** - newspaper report

#### **Resources:**

#### **Background Information:**

The children should have completed lessons 1 and 2 and be familiar with the 'Herbivore Heaven' café theme. They are now going to look more closely at the animals that might visit the café. They are also going to consider other animals that may visit, not for the food served at the café, but to eat the clientele!

#### **Activity:**

The children will have already thought about some of the herbivore consumers that may live in a restored quarry and the food that they might eat in lesson 1. Make a list of these animals for the children to look at. Discuss what other animals might live in this habitat. What would these animals eat? Think about birds and mammals as well as insects. Encourage the children to work in groups to draw up a new list of 'non-herbivores' and what they might eat. They may need books to help them. Introduce words such as 'predator' and 'prey'.

This list could include:

- Hedgehog (snails, slugs, insects)
- Shrew (insects)
- Fox (small animals such as shrews, mice, worms, slugs, frogs)
- Frog (insects, slugs)
- Toad (insects, slugs)
- Badger (roots, seeds, berries, slugs, snails, earthworms, beetles)
- Weasel (small mammals)
- Grass snake (frogs, small mammals)
- Blue tit (caterpillars)
- Mole (earthworms)



- Blackbird (slugs, earthworms)
- Thrush (snails)

Explain that the cafe had been open for a week and was doing well. Then, unfortunately, there was a disastrous day last week, when five customers were eaten!! A hedgehog came to the café and ate three slug visitors and a blue tit flew down and gulped down two caterpillar friends who were sharing a mixed leaf salad!! What is to be done??

Using the list of possible herbivore visitors and the list of other animals, get the children to make lists of who might eat who. Once they have a few examples, explain the food chain arrows and how they are used to show who has 'eaten' who, or who 'gives food to' who. Explain that most food chains start with a green plant as plants make their own food in their leaves. Get the children to start drawing food chains, starting with a plant on the menu at the cafe, followed by a customer eating at the café and ending up with an animal who may eat that customer! Discuss the different food chains possible. Introduce terms such as *predator*, *prey*, *consumer* and *producer*. You can also talk about *carnivores* and *omnivores*.

To extend this further, children could write newspaper reports about the events at the café and think about what they, as café owners, can do to protect their customers from predators.

# The 'Snail Trail' Menu Investigation

Write here what your investigation is trying to find out. It should be written as a question. You will find out the answer by carrying out the investigation.

Investigation Team Names:



**Title:**  
My investigation is to find out.....

**Apparatus:**



Draw a diagram to show how you are setting up your investigation. Make sure you label it clearly!

Write here what you think will happen in your investigation.



**Prediction:** I predict that....

## What we did:

1. The apparatus was set up as in the diagram.
- 2.
- 3.

Write here how you carried out your investigation.



Now, write down your results. You may want to display them in a table.

## Results:

So, what have you found out? Can you now answer the question you set yourself at the beginning?



What we found out: We found out that....

## Unit: Herbivore Heaven

### Website Links:

- [www.bbc.co.uk/nature/wildfacts](http://www.bbc.co.uk/nature/wildfacts)  
Search this website for information on British wildlife
- [www.wildlife.co.uk](http://www.wildlife.co.uk)  
This website has lots of links to sites all about British wildlife
- [www.arkive.org](http://www.arkive.org)  
Fantastic website for images and information about worldwide wildlife, including images of British species