

The Quarry Mouse and the Woodland Mouse



QCA Science - Unit 2B: Plants and Animals in the Local Environment



The Quarry Mouse and the Woodland Mouse

Based on the story 'Town Mouse and Country Mouse', this unit revolves around the story of two mice, who are cousins. One lives in the working quarry and the other lives in a local woodland. They visit each other's homes and learn about what it is like to live there. Through working within this unit, children are encouraged to think about different habitats, including that of a working quarry, and what they provide for the plants and animals that live there. They also write postcards and illustrate a book of the story.

Unit 2B - Plants and animals in the local environment
Science Year 2
The Quarry Mouse and the Woodland Mouse

Overview Teacher Introduction:

The themes explored in 'The Quarry Mouse and the Woodland Mouse' are designed to be used in conjunction with the teaching of Unit 2B 'Plants and animals in the local environment'. Through the use of the 'Virtual Quarry' resource, children will learn about the habitats created in a working quarry and the plants and animals that can live there. The themes suggested can easily be incorporated into existing teaching to provide an additional fun slant to learning about plants and animals in their environment.

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.

ABOUT THE UNIT

Through this unit children learn about plants and animals in their immediate environment and how differences between places very close to each other result in a different range of plants and animals being found. They learn that like humans, plants and other animals reproduce.

Experimental and investigative work focuses on:

- turning ideas into questions that can be investigated
- presenting results
- drawing conclusions.

Work in this unit also offers opportunities to relate understanding of science to the local environment, to consider how to treat living things and the environment with care and sensitivity and to recognise hazards to themselves and to take action to control the risks from these hazards.

This unit takes approximately 9 hours.

WHERE THE UNIT FITS IN

Builds on Unit 1A 'Ourselves' and on 1B 'Growing plants'

Children need:

- to know the names of the parts of flowering plants
- to understand that plants and animals are living.

Links with Units 1D, 2C, 3C and geography.

VOCABULARY

In this unit children will have opportunities to use:

- words and phrases relating to life processes *eg produce new plants, produce young, reproduce*
- names for animals *eg worm, snail, fly, robin*
- names for plants *eg daisy, dandelion, oak tree*
- words which have a different meaning in other contexts *eg shoot, fruit, earth, table*
- expressions to describe location *eg within, under, next to*
- comparative expressions.

RESOURCES

- secondary sources *eg video, CD-ROM* showing adults and young in a range of animals
- Virtual Quarry Resource
- pictures of plants in flower and with fruits and seeds *eg apple trees, tomato plants, horse chestnut trees, dandelions, peas, beans*
- soil, compost, sand, absorbent paper
- transparent containers for growing seed without soil
- seed pods and fruits *eg sunflower, pepper (capsicum), tomato, horse chestnut, apple*

EXPECTATIONS

at the end of this unit

most children will:

recognise that different plants and animals live in the local environment and name some of them; know that flowering plants produce seeds which grow into new plants; describe what they observe as new plants grow; record observations in tables, using these to draw conclusions

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

recognise that different plants and animals live in the local environment and name some of them; know that plants produce seeds; make observations of plants and animals, recording these, with help, in tables

some children will have progressed further and will also:

suggest reasons why different plants and animals are found in the different environments



LEARNING OBJECTIVES CHILDREN SHOULD LEARN	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES CHILDREN	POINTS TO NOTE
	<p>Introduce unit by asking children what they understand by the word 'animal' and 'plant' and extend to asking them where they expect to find animals and plants locally.</p>		<p>Children may well not think of small animals <i>eg snails, worms, birds</i> as animals, or trees as plants. Teachers will need to take account of what the introductory work shows about children's understanding in their short-term planning.</p>
<p>See Quarry Lesson 1</p> <ul style="list-style-type: none"> • that there are different kinds of plants and animals in the immediate environment • to treat animals and the environment with care and sensitivity • to recognise hazards in working with soil • to observe and make a record of animals and plants found • to present results in a table 	<ul style="list-style-type: none"> ◆ Arrange a visit to a local quarry and to a contrasted habitat, such as a woodland. Identify where some of the plants are growing and where animals might live. Use Virtual Quarry to supplement information from visit. ◆ Walk round the school or visit the local park to identify where plants are growing and where there are animals <i>eg turn over stones and lift plant pots to find woodlice, look under damp bushes or by damp walls for snails, dig up soil to find earthworms or observe a bird feeding area in the playground</i>. Help children to make a brief record of what they find using a table prepared for them. Talk with them about what animals and plants were found and where they were found. 	<ul style="list-style-type: none"> • identify a number of plants <i>eg dandelion, daisy, buttercup, daffodil, oak tree, holly tree, cherry tree</i> and animals <i>eg worm, snail, robin, sparrow, caterpillar, fly</i> • state where some of these were found <i>eg the daisies were in the grass, the snails were under the bucket by the wall</i> • produce a record showing clearly the living things they saw and where they were found 	<p>Children may not expect to find any animals in the immediate locality of the school. It is sometimes helpful to make sure there are flower pots, stones or logs in suitable places near to the school a few days before this activity.</p> <p>Children may need to be reminded about not disturbing the animals they find.</p> <p>SAFETY – When working out of doors, teachers should check that there is no broken glass etc. Sites unlikely to have been contaminated with dog faeces should be chosen. Ensure that children wash their hands after handling soil etc.</p>
<p>See Quarry Lessons 2 and 3</p> <ul style="list-style-type: none"> • that there are differences between local habitats • to make predictions about the animals and plants found in different local habitats and to investigate these • to use drawings to present results and make comparisons saying whether their predictions were supported 	<ul style="list-style-type: none"> ◆ Read the 'Quarry Mouse and the Woodland Mouse' story. Contrast the habitat that each lives in. Use Virtual Quarry' to find out more about plants and animals in quarry compared to woodland. How do these areas differ? ◆ Write the postcards that the mice sent. ◆ Illustrate booklet of the story, showing differences in habitats. 	<ul style="list-style-type: none"> • identify differences between two habitats and living things found there <i>eg by illustrating the story</i>. • suggest reasons for differences <i>eg why do the owls like living in the woodland and not the quarry. Why do kestrels prefer a quarry to hunt?</i> 	<p>SAFETY – All off-site visits must be carried out in accordance with LEA/school guidelines.</p>



LEARNING OBJECTIVES CHILDREN SHOULD LEARN	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES CHILDREN	POINTS TO NOTE
<ul style="list-style-type: none"> that flowering plants produce seeds 	<ul style="list-style-type: none"> Review children's understanding of where new plants come from. Use simple reference books or show children a series of pictures of plants in flower and with fruits <i>eg apple trees, dandelions, horse chestnut trees</i> and explain that the fruits which contain the seeds are produced from the flower. Introduce the term 'reproduce'. Present children with a collection of seeds and fruits of different shapes and colours and invite them to add to the collection <i>eg tomato, apple, mango, pepper, grape, beanpod, seed head from grass, conker, avocado</i>. Challenge children to find the seeds in some plants <i>eg old wallflower plants, honesty, sunflower, pea pod</i>. 	<ul style="list-style-type: none"> state that seeds come from the flower of a plant suggest fruits and seeds which could be added to the collection or add to the collection recognise the huge variety of seeds from which plants grow 	<p>If this unit is taught in the spring, it should be possible to show children shoots of new plants growing in the local environment. If possible, grow a broad bean/pea plant so that children can see the flower and seeds develop.</p> <p>It is important to cut open fruits to show the seeds inside so that children do not think plants <i>eg tomato plants</i> grow from the whole fruit. A sunflower head or honesty, kept from the previous year, are excellent for showing children where the seeds are.</p> <p>SAFETY – Children may be allergic to fruits and seeds, especially peanuts. Avoid red kidney beans. See 'Be Safe' section 12.</p>
<ul style="list-style-type: none"> to turn ideas of their own, about what plants need to begin to grow, into a form that can be tested to observe and make a day-by-day record of observations to use the results to draw a conclusion about what seeds need to begin to grow and decide whether this is what they expected that seeds produce new plants 	<ul style="list-style-type: none"> Ask children to suggest what is needed for seeds to begin to grow. If necessary, prompt them to think about where they found plants growing in the local environment. Plant seeds <i>eg broad bean, sunflower</i> in <i>eg soil, potting compost, sand or paper</i>. If children do not mention water, ensure that they consider whether the growing medium is wet or dry <i>eg by having one set of 'wet' and one set of 'dry' containers</i>. Discuss what they are going to look for <i>eg shoots, roots</i> when they observe their seeds and help children to make a day-by-day record of their observations. 	<ul style="list-style-type: none"> suggest how they should plant seeds in <i>eg soil or water</i> and what they should see if they grow with help, produce a record of their observations and say what this shows state that seeds grow into plants explain that seeds need water, but not necessarily soil, to begin to grow 	<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. At this stage it is not necessary to introduce the word 'germinate'.</p> <p>It is helpful if some seeds can be grown in water in transparent containers so that children can see the roots develop.</p> <p>At this stage it is not necessary to consider warmth as a condition for germination. However, children will see results more quickly if the seeds are in a relatively warm place.</p> <p>SAFETY – Use soils free from glass etc and unlikely to be contaminated with dog faeces. Wash hands after handling soils.</p>



LEARNING OBJECTIVES CHILDREN SHOULD LEARN	POSSIBLE TEACHING ACTIVITIES	LEARNING OUTCOMES CHILDREN	POINTS TO NOTE
<ul style="list-style-type: none"> to recognise when a comparison is unfair 	<ul style="list-style-type: none"> Show children results from the previous activity <i>eg a germinated seed on wet paper and one which hasn't germinated in dry sand</i> and ask them whether it was fair to compare them. 	<ul style="list-style-type: none"> recognise that a test where two factors are changed <i>eg growing medium and water</i> does not provide a fair comparison 	
<ul style="list-style-type: none"> that animals reproduce and change as they grow older 	<ul style="list-style-type: none"> Use secondary sources <i>eg video, CD-ROM, reference books</i> and/or first-hand observation <i>eg of frogspawn</i> to illustrate to children that animals in their local environment <i>eg birds, frogs, snails, butterflies</i> produce young which grow into adults. Ask children to write about, and illustrate, changes in one animal. 	<ul style="list-style-type: none"> recognise that animals in their local environment produce young describe how one animal changes as it grows <i>eg tadpole to frog or baby bird to adult</i> 	<p>This activity is designed to illustrate that animals reproduce and change as they grow older. Some children may wish to go into more detail about a particular animal, but this is not an expectation for all children.</p> <p>If frogspawn is taken from the environment, use only a small amount and, if possible, return tadpoles to the pond from which they came.</p>
	<p>Draw together work in this unit by discussing the habitats with the children and asking them to produce an information sheet, for their parents, about these habitats and the animals and plants that are found there.</p>		<p>This could involve the use of IT which builds on IT Unit 2A 'Writing stories: communicating information using text'.</p>

Lesson 1: What lives there?

Prior knowledge / work:

Children will need to have some understanding of what a habitat is and the fact that different animals and plants live in particular places. Discuss with the children what different types of habitats are near the school and check the Virtual Quarry to see if there is a quarry near you that can be visited. Use the virtual quarry site to introduce the children to what a quarry does and to help them think about the habitats that might be there for plants and animals to live in.

It is advantageous if children can visit a working quarry to see for themselves the habitat that is there. If this is not possible, then they could think of areas that may offer a similar habitat - part of a gravelled drive, a pile of rocks or sand in the garden.

Learning Objectives:

- To understand that there are different habitats and different animals and plants live in these
- To appreciate how the habitat in a working quarry would provide different living conditions to the habitat in a woodland
- To make the children appreciate that lots of plants and animals can live in a working quarry

Subject Links:

- **Science** - Plants and animals in the local environment

Resources:

- Pictures of habitats, such as a pond, woodland, school grounds and a working rock quarry
- Worksheet 1 - Where might I live?

Background Information:

Wildlife in a working quarry

For many, the picture in their mind of a working quarry is one of 'a scar on the landscape' - an inhospitable place that is noisy and dirty and would support very little wildlife until it was restored at the end of the quarries working life. This, in fact, is far from the truth. An amazing amount of wildlife survives in working quarries, particularly the rock quarries, where cliff faces are exposed providing nest places for a variety of birds. One piece of research suggests that one quarter of Europe's peregrine falcons use quarries for nesting. Sand martins are another species that have learnt to make the most of the habitat opportunities created by quarrying.

Many plants are also able to grow in quarries. These include:

- Dandelion
- Rosebay willowherb
- Buddleia
- Coltsfoot
- Goatsbeard
- Ragwort

Some quarries boast a good range of other animals:

- Wood mouse
- Vole
- Fox
- Badger
- Peregrine falcon
- Crow
- Kestrel
- Pied wagtail
- Hedgehog
- Sand martin
- House sparrow
- Raven

And if there are pools, then dragonflies, damselflies and wildfowl can make a visit.

Activity:

Discuss with the children what they understand by the word 'quarry'. Depending on where your school is based and whether there is a large quarry nearby, children will have varying knowledge of the industry. Even in quarrying areas, where many parents work for the quarry, children can still have little understanding of what happens within the quarry gates.

If possible, take the children out in a variety of habitats and look for different plants and animals. The school grounds, a local greenspace and a quarry visit would be perfect, but not an option for all schools. It is important that children experience habitats and the plants and animals there first-hand, wherever possible.

Show the children pictures of different habitats. These could be pictures of a woodland, a pond, the school grounds and a working rock quarry. Ask them what plants and animals they might find in each. Give them examples of animals and get them to say whether they think that animal would live in each of the habitats. Use examples, such as mouse, kestrel, frog, fox. Many children will think that these animals could not live in a working quarry, but most of them could. Use Worksheet 1. Children can write the names of the animals into the boxes of the habitats that they think they might live. Once completed, encourage the children to use their experience to fill in a couple more plants and animals to the habitat boxes.

Where might I live?

Woodland

Working Quarry

Pond

School Grounds

Mouse

Frog

Fox

Dandelion



Dragonfly

Sparrow

Kestrel



Lesson 2: The Quarry Mouse and the Woodland Mouse

Prior Knowledge / work:

Information from lesson 1.

Learning Objectives:

- To appreciate that one type of animal can live in a number of different habitats
- To appreciate that a working quarry can provide a habitat for animals
- To use information gathered through research and the Virtual Quarry, to complete a postcard from a mouse.

Subject Links:

- **Science** - Plants and animals in the local environment
- **Literacy** - Writing postcards

Resources:

- 'The Quarry Mouse and the Woodland Mouse' story
- Worksheet 2 - Postcard template

Background Info:

The wood mouse is probably the most widespread and abundant British mammal. It has a sandy-brown coat and large ears. The under-parts are white with a yellow streak on the chest. The body is about 95 mm long. They have large hind feet that enable them to leap away from predators. They usually move very fast, often bounding along with their front feet tucked up.

It thrives in a range of habitats. It is active, mainly at night, searching for food. This includes any berries, nuts, buds, shoots and buds. They will also eat snails, insects and their larvae. They live in underground burrows, cracks or crevices, where they spend the day. Young are born in a nest chamber. Breeding starts in March and a female may bear up to four litters, each of about five young, in a year.

Most wood mice stay in the same general area but may travel up to a quarter of a mile in one night. In winter, they sometimes go into a torpid state, almost like hibernation, to cut down on energy use.

Wood mice generally quite short-lived; the maximum lifespan in the wild rarely exceeds two years.

Activity:

Read the story to the children and discuss the issues within:

- How are the places that the mice live in different?
- What do you think woodland mouse thought about quarry mouse's home BEFORE he went?
- What do you think quarry mouse thought about woodland mouse's home BEFORE he went?
- How are their homes different?
- How are their homes similar?
- What food did each of the mice eat?
- What did quarry mouse dislike about woodland mouse's home?
- What did woodland mouse dislike about quarry mouse's home?
- What are the good and bad points about each mouse's home?
- Which home would you prefer?

Talk to the children about the two habitats. Were they surprised by how much quarry mouse liked living in the quarry?

In the story, the mice send each other a postcard, in which they tell the other a little about their home. Explain to the children that they are to choose which mouse they would like to be. They are then going to write a postcard like the one in the story.

Discuss with them what sort of things would go on the postcard. How would they describe their home in the woodland or the quarry? Also discuss what picture might go on the front of the postcard. Use resources from books or the Internet to help them. The children will also need to think about the address they can send their postcard to. This works well as a class activity, whereon an address is decided upon for each mouse, i.e.

Quarry Mouse,
 Rock Hole 2,
 Side of rock pile 1,
 Wonden Quarry,
 Warks,
 QU4 RRY

A postcard template is provided in Worksheet 2. This can be photocopied onto card. The children can then draw a picture of their home on one side and write the postcard on the other side.

Once the children have completed these, they can share them with the other children and act out parts of the story.

The Quarry Mouse and the Woodland Mouse

Once upon a time there were two little wood mice. They were cousins, but they were very different to each other.

One mouse lived in a fine big house in the country. He had a grand and comfortable life in his beautiful tree trunk home. He ate what food he could find in the woodland and had great time exploring. "How very lucky I am!" he said to himself.

His cousin lived in small hole created by several large rocks on a quarry. He ate what food he could find in the quarry. He explored the areas around the quarry, but always had to be careful where he went. He was a very happy chap and thought to himself, "How very lucky I am!"

One day, the woodland mouse decided to send his cousin a postcard.

"I haven't seen my cousin for ages," said woodland mouse. "I will tell him all about my beautiful home and my life in the woods. I will also invite him to stay." So that is what woodland mouse did.

Quarry mouse was very pleased when he received the postcard. He was even more excited when he heard what woodland mouse's home was like and that he was invited to visit. Straight away, he sent a postcard back to woodland mouse. On it, he told woodland mouse what his life in the quarry was like and how beautiful his rocky home was. They arranged to meet at woodland mouse's house the very next week.

Woodland mouse worked hard preparing for quarry mouse's visit. He tidied his tree trunk home and swept the tunnels that he had dug beneath the ground. He collected food from the woods and lay out a feast of nuts, berries, seeds and buds. He sat back and waited for quarry mouse to arrive.

Quarry mouse entered the woodland. How dark it was under the shade of the trees. He struggled through the undergrowth and arrived at woodland mouse's house, out of breath and a little dirty!

"How lovely to see you!" exclaimed woodland mouse and the pair of them gave each other a big hug. "Let me show you around," said woodland mouse to his cousin. He showed him the tunnels dug beneath the old oak tree, where he had made a comfy nest to sleep in. He showed him the feast he had prepared from the woodland. Together they ate a delicious selection of nuts, berries, fresh leaves and buds. "I bet you don't eat like this in your home!" exclaimed woodland mouse.

"You wait and see," answered quarry mouse.

Next, woodland mouse took quarry mouse out into the woodland. Quarry mouse was frightened. It was very shaded and there were lots of trees and bushes. It was damp and muddy. There were loads of strange noises that he was not used to. He did not like it in the woodland at all!

"We need to be very careful," explained woodland mouse, "as there are lots of predators in the woodland looking for a tasty mouse for their tea!"

"You mean the kestrels?" asked quarry mouse as they were the main predator at the quarry.

"We don't have many kestrels in the woodland," explained woodland mouse. "We have weasels, stoats, owls and foxes," he said.

"I think we had better get back now," said quarry mouse, feeling rather scared.

The mice returned to the safety of the tree trunk and soon fell fast asleep.

The next morning, quarry mouse decided to return to his home in the quarry and he took his woodland cousin with him. The woodland mouse was frightened when he was out in the open, away from the trees. "It's so bright out here!" he said.

"Don't worry, we're nearly to my home," explained quarry mouse, hurrying his nervous cousin along.

They soon reached quarry mouse's home between the rocks on the side of the quarry. It was dry and warm inside. "Do sit down and I'll get us something to eat," quarry mouse said.

"What on earth can you find to eat in this awful dry and rocky place?" asked woodland mouse rudely. "My home has far more tasty food!"

"So, what's all this then?" asked quarry mouse as he carried out a plate laden with blackberries, willowherb flowers and fresh dandelions.

Woodland mouse was surprised. He sipped a delicious buddleia nectar drink that quarry mouse had given him. He hadn't thought that there would be enough to eat living on the quarry.

Suddenly, there was a loud rumble. Woodland mouse jumped up and looked towards quarry mouse, who did not appear to have noticed the sound.

"What was that?" asked woodland mouse nervously.

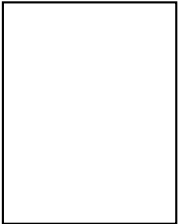
"Oh that was just the daily blast", explained quarry mouse. "It is when the humans here blow up part of the quarry face, so they can take out the rock. It is nothing to worry about, come and have a look."

The two mice ventured out outside. Woodland mouse was frightened. He didn't like all the open spaces and the dry dust made him cough. He was terrified of the huge trucks rumbling up and down in front of his cousin's house. He wanted to go home.

"It was good to see you," said woodland mouse to quarry mouse, "but I don't like it here. It is too open, too noisy and too dry. I like living in the woodland."

"It was good to see you too," said quarry mouse to woodland mouse, "but I don't like it in the woodland. It is too dark, muddy and scary. I like living in the quarry."

The mice laughed and gave each other a hug. Visiting each other had made them realise how happy they were just living in their own homes.



Lesson3: - Become an illustrator!

Prior Knowledge / Work:

From previous two lessons.

Learning Objectives:

- To apply knowledge of two contrasting habitats
- To illustrate the story, using photos / picture resources
- To share the story book with younger children
- To work collaboratively in a joint project

Subject Links:

- **Science** - Plants and animals in the local environment
- **Literacy** - Reading book and illustrating it

Resources:

- Picture resources to help children with illustrations (wood mice, working quarry scenes from Virtual Quarry, woodland pictures etc.)
- Story Book blanks

Background Information:

N/A

Activity:

Explain to the children that they are going to become illustrators as the story they have heard needs to be made into a book, but there are no pictures yet. Ask them what picture books are their favourites. Look at a selection of well illustrated books and try and highlight what makes them attractive.

Show the children the blank pages of the story and read each page out to them. Discuss what would need to go in that picture.

This task then works best if the book is split between the class, so each child has one or two pages to illustrate. The blanks can be photocopied onto A3 paper or card if a 'big' book is more suitable. Alternatively, small groups can work on illustrating a whole book between them. If needed, children can produce their illustration on a separate piece of paper and then stick it onto the appropriate page when it is finished.

Encourage the children to use additional picture resources to try and make their illustration accurate. What do wood mice really look like? What does it look like in a working quarry? Make sure they have adequate picture resources to help them.

Explain that the pages will then be bound together and the book can then be taken down to Year 1 or reception and read to the children there. It can then be displayed in the classroom. The postcards written for lesson two could also be bound together in this way.

This theme could be further developed with the children looking at what will happen to quarry mouse when the quarry finishes working. Virtual Quarry can be used to explore the restoration aspect of quarrying. The children could then think about what quarry mouse's new home might be like in a restored quarry.

Unit: Woodland Mouse, Quarry Mouse

Website Links:

- www.arkive.org
Search for wood mouse for great images of wood mice and their life and young
- www.naturepotfolio.com/mammals/rodents_muridae_wmouse
More images of the woodmouse
- <http://www.abdn.ac.uk/mammal/facts.shtml>
Fact sheets about a range of British mammals