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# Cross-curricular links

Chapter	Science SoW	Art SoW	Literacy framework	Numeracy framework	ICT SoW
1	Unit 1B		Y1, Term 1: T12, T14 Y1, Term 2: T22 Y1, Term 3: T19		Unit 1B
2	Unit 1B		Y1, Term 1: T12, T14 Y1, Term 2: T22		Unit 2B
3	Unit 1B		Y1, Term 1: T12, T14	Y1: Handling data	Unit 1E
4	Unit 1B		Y1, Term 1: T12, T14 Y1, Term 2: T22 Y1, Term 1: S4		Unit 2A
5	Unit 1B	Unit 2B	Y1, Term 1: S4		Unit 2B
6	Unit 2B		Y1, Term 1: T12, T14 Y1, Term 2: T22		Units 1B/2A
7	Unit 2B		Y1, Term 1: T12, T14 Y1, Term 2: T22 Y1, Term 3: T19		Unit 1C
8	Unit 2B		Y1, Term 1: T12, T14 Y1, Term 2: T22		Unit 2B
9	Unit 2B		Y1, Term 1: S4		Units 1B/2A
10	Unit 2B	Unit 2B	Y1, Term 1: T12, T14 Y1, Term 2: T22		Unit 2B
11	Unit 2B		Y1, Term 1: T12, T14 Y1, Term 2: T22 Y1, Term 1: S4		Units 1D/2E
12	Unit 2C		Y1, Term 1: S4 KS1 NC Speaking and listening		Unit 1C
13	Unit 2C		KS1 NC Speaking and listening Y1, Term 1: T12, T14 Y1, Term 2: T22		Unit 1B
14	Unit 2C		KS1 NC Speaking and listening	Y1: Handling data	Unit 2E
15	Unit 2C		Y1, Term 1: T12, T14 Y1, Term 2: T22	Y1: Handling data	Unit 1D

# Introduction

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*Curriculum Focus: Animals, Plants and Habitats Key Stage 1* helps to make science fun by giving you (especially those of you who are not science specialists) the support you need to plan stimulating and exciting lessons.

This book will help you to plan and teach a unit of work based on the QCA Scheme of Work for Science at Key Stage 1. Also, where appropriate, this book gives indications as to how the work can be linked with other areas of the curriculum.

The material in this book gives you a sound foundation from which to plan a unit of work for your classes.

The material includes:

- detailed **Teachers' notes** giving **background information** on each topic and/or concept to be taught;
- fully illustrated **Generic sheets** offering a wealth of resource material that can be used again and again;
- a **Lesson plan** full of ideas for introducing and developing the lesson;
- photocopiable and **differentiated Activity sheets** to support individual and group work.

Any unit of work on science must involve an opportunity to carry out practical activities. The work will be enhanced by visits to local environments where the children will learn from studying the plants and animals in their natural habitats.

Each chapter in the book is related to a specific unit from the QCA Scheme of Work for Science at Key Stage 1.

Chapters 1 to 5 relate to Unit 1B.  
Chapters 6 to 11 relate to Unit 2B.  
Chapters 12 to 15 relate to Unit 2C.

*Curriculum Focus: Animals, Plants and Habitats Key Stage 1* recognises that there will be different levels of attainment among the children and that their developing literacy skills will require different levels of support during individual and group work. To help you provide activities that meet the needs of your classes, each chapter contains three photocopiable sheets based on the same material, but for children of different levels of attainment. This enables the whole class to take part in a similar activity.

- Activity sheet 1 in each chapter is intended for lower-attaining children.
- Activity sheet 2 is suitable for most children.
- Activity sheet 3 challenges the higher-attaining children.

A plant is a living organism, usually characterised by having leaves, a stem and roots. Green plants are the only living things that can manufacture their own food through the highly specialised process of photosynthesis. Most plants (but not all) have a vascular system, which is involved in the movement of water and minerals. Plants respire, require nutrition, reproduce, move, grow, excrete and are sensitive to their environment. Most plants are terrestrial although some live in water.

## Different plants in the environment

Different environments will support different plants. Many factors affect which plants live in which environment. The climate of an area – the temperature, humidity, wind strength and rainfall – affects plants. Plants such as the cactus or palm tree favour warmer temperatures, while the Scots pine tree grows quite happily in much colder temperatures. Most plants will flourish as long as enough water is available for them to survive, and a plentiful supply of rain may even increase their growth and reproduction. But if a plant receives too much water, then lack of oxygen to the roots can cause it to drown, or persistent wetness may cause the roots to rot. Some plants are structured so that they will be able to resist strong winds – such plants may be found in coastal areas. Others may have a more delicate structure and will prefer more sheltered environments where wind is at a minimum. Some plants can tolerate a great climatic range, while for others even the smallest deviation from the favoured climate could result in unhealthy growth.

Soil is another factor that influences the types of plants that grow in a certain environment. Soil types can be acidic, alkaline, sandy or heavy with clay. The roots of a plant penetrate the soil to gain water and nutrients, and a plant will grow best in a soil that provides the specific elements that it needs. Too many unwanted factors, such as high levels of lime, could be damaging to some plants, while others would flourish in a soil of this kind.

Other factors affecting the type of plant that lives in a certain area may be the amount of sunlight and shade present. Plants such as poppies need a

regular supply of sunlight to grow properly, while shade-loving plants such as bluebells would probably not flourish if exposed to continuous direct sunlight.

The presence of other plant inhabitants will also have an effect on which plants grow and survive in a particular area. When more than one species of plant is living in the same environment, then interaction between them is often inevitable. If the interaction between the species is beneficial for both, and both grow healthily without any problems, this is known as 'mutualism' or 'symbiosis'. Often one species benefits at another species' expense – for example, mistletoe grows parasitically on oak trees, robbing them of water and nutrients. The term for this kind of interaction is 'competition'. Other organisms such as animals, fungi and bacteria also live in the same specific environment as a plant, and they may interact with the plants in a mutualistic or competitive way.

## Different places they grow

When looking in an immediate environment, children usually think that plants only grow in the soil they can see on the ground. But a closer look will reveal that plants are living and reproducing in a multitude of places. Algae, mosses and liverworts are all plants. Algae grow on a variety of surfaces such as water, rocks, soil and tree trunks. Mosses and liverworts favour damp places and can grow anywhere, including on walls and roofs. Some plants live on or in other plants – for example, bramble plants, which often live in hedgerows.

## Structure of plants

The structure of green plants is designed to allow them to catch the light of the Sun, which they then use to synthesise their own food. The roots of a plant anchor it to the ground and bear root hairs by which the plant takes in water and nutrients. The stem contains tubes and the water and nutrients taken up by the roots are transported around the plant through these tubes. The stem also supports the leaves and flowers of the plant. The leaves of most green plants are usually green but may change colour depending on the season. The

green colour is due to the green pigment, called 'chlorophyll', present in the cells of the leaf. These special cells, called 'chloroplasts', allow the process of photosynthesis to take place, where energy (from sunlight), water and carbon dioxide are converted into glucose (food) for the plant and oxygen. Leaf surfaces are also dotted with tiny holes called 'stomata'. Air and water can move through these holes. Some plants also have flowers, which are used for reproduction.

## Plants you may find in your local environment

The plant kingdom includes algae, mosses, ferns, conifers and flowering plants (broad-leafed trees are flowering plants). Here are some examples of plants that can be found in different local environments, but there are obviously many more.

Environment	Plants
Town	Ivy, shepherd's-purse, moss, lichen
Country	Oak, poppy, primrose, bluebell
Coast	Common scurvy grass, marram grass, sea kale, golden samphire

## Walking around the local area

When organising a walk to look at the plants that grow in your local environment, it is important to comply with the local education authority's guidelines for taking children on a visit. The adult-to-child ratio must be strictly adhered to, even if you are only taking the children a short distance away from the school.

It will help if you visit the area yourself beforehand, so that you can assess any potential dangers or obstacles and complete a risk assessment. Visiting the area will also give you the chance to observe things to show the children and to assess whether the area will provide them with enough examples of plants to look at.

- Consult the school and local authority guidelines that deal with taking children out of school. These will cover all the key points of

administrative detail and ensure that you have completed all the necessary risk assessments.

- Check that you have enough adult helpers – again, guidelines will detail how many are essential. Aim for at least one adult for every ten children, although more is better.
- Walk the route yourself first, and highlight potential danger points, such as road crossing points, and what you intend to do about them.
- Brief all your adult helpers as to what you want the children to do. Ensure they understand why they are going out, what you expect of them and exactly what you want each child to do and to have achieved/experienced by the end of the visit.
- Make sure that you gain parental approval if this is deemed necessary by the headteacher, school and local education authority.
- Take adequate first-aid equipment with you and make sure that you have enough adults who know how to use it.
- Make sure that the children understand exactly why they are going out and what you want them to do, as well as how you expect them to behave.
- Ensure that you are clear about what you will do if the weather is poor on the day or becomes poor during the outing.
- Don't aim to be out for longer than about 45 minutes.

## Treating plants with care

When out looking for plants that grow in their local environment, the children must remember the importance of not picking or touching the plants that they see. Some plants are poisonous or can cause an allergic reaction. Delicate leaves and petals may be damaged by touch. If picked, plants will eventually die – in only a few hours their appearance will change and they will wither and become limp due to lack of water in their cells. Remind the children that the plant may be a home for animals and that they will not learn anything more about the plant by holding it, so they should leave it growing where it is.

# Plants around us

## Science objectives (Unit 1B)

- To know that there are different plants in the immediate environment.
- To treat growing plants with care.
- To make careful observations of one or two plants and of where they grow and to communicate these.
- To know that plants have leaves, stems and flowers.

## Resources

- Generic sheets 1 and 2 (pages 10 and 11)
- Activity sheets 1–3 (pages 12–14)
- Potted plant
- Coloured stickers
- Large, simplified map of the area
- OHP
- Clipboards
- Plain A4 paper
- Plant reference book

## Starting points: *whole class*

Explain to the children that they are going to learn about plants and how they grow. Ask them if they can explain what a plant is. Ask one of the children to describe what a plant might look like. Show the children a potted plant that you have brought into the classroom. Using Generic sheet 1, ask them to help you label the leaves, stem, roots and flower of the plant. Explain the roles of the various parts of the plant as you label them. (The leaves help the plant produce its own food. The stem moves water and nutrients around the plant, and supports the leaves and flowers. The roots absorb water and anchor the plant. The flowers help the plant reproduce itself.)

Ask the children where they think they could find a plant to look at. Discuss indoor plants that may be in pots, which people look after, and plants that live outdoors naturally and look after themselves.

Children may not realise that a tree or moss is a plant. Cut out the cards on Generic sheet 2 and show them to the children one at a time. Ask them to help you sort the pictures into two groups, writing them on the board under the headings ‘a plant’ and ‘not a plant’. Each time you show them a new card, ask them if they think it is a plant and what sort of plant it is.

## Fieldwork

Take the children for a walk in your local environment and ask them to look for plants that are growing there. Before you set out, remind them of the importance of not touching the plants or picking them.

Take with you a large simplified map of the area you are visiting. Show the children some coloured stickers and explain that each different colour will stand for a type of plant – for example, moss has a red sticker, trees have a yellow one, grass blue and flowers brown. You could decide on a key for the coloured stickers before you go for your walk and take it with you as a reference. Ask the children to look around and see if they can recognise types of plants growing in the area. Ask them to feed back information about the plants they can see and put stickers on the map to show where plants of a certain type were found.

Give the children a clipboard and some plain paper and encourage them to draw pictures of plants they see. Encourage them to look closely at the plant and ask them questions such as ‘What shape are the leaves?’ and ‘Does the plant have a flower?’ It may be useful to take a plant reference book with you on your walk, so that you can look up the names of some of the plants that you see.

## Group activities

Tell the children that they are going to label some pictures of plants.

### Activity sheet 1

This sheet is aimed at children who need more support. Using this sheet the children have to match pictures to the names of types of plants they might find in their local environment. They also have to

label the main parts of a plant that they are likely to have seen before and colour the parts of the plant.

### **Activity sheet 2**

This sheet is aimed at children who can work independently. Using this sheet the children have to label different types of plants with the help of a word bank. On the back of the sheet, they have to draw a plant they have seen in their local environment, label its main parts and write a caption saying what sort of plant it is.

### **Activity sheet 3**

This sheet is aimed at more able children. They have to draw pictures to match types of plants, and label given pictures. On the back of the sheet, they have to draw two plants that they saw in their local environment, write captions and label their main parts.

## **Plenary session**

Look at the site map where you placed the stickers. Ask the children if they can see any patterns. Are all the trees in one place? Are all the flowering plants in an open spot? Ask them to show their drawings, say where they found them and talk about the parts of the plants.

## **Ideas for support**

Some children will need help with reading the words on the activity sheet. Display a word bank in the classroom with words such as 'stem', 'leaf', 'root' and 'flower'.

While on the walk in the local environment, take photographs of some of the plants the children find. The plants could then be named and the photographs could be displayed in the classroom as examples of the plants that can be found in the local environment.

Show the children how to add captions and labels to their drawings and photographs.

## **Ideas for extension**

Ask the children to find out the names of three plants that grow best in the shade and three plants that grow best in the sunlight.

Ask them to look for two plants in their own or someone else's garden. They should draw the plants and write captions about what sort of plants they are; for example, moss or tree. They should then write a sentence about what sort of area they were found in; for example, under a shady tree or on a damp wall.

Ask the children to design a poster to warn other people not to pick or touch plants.

## **Linked ICT activities**

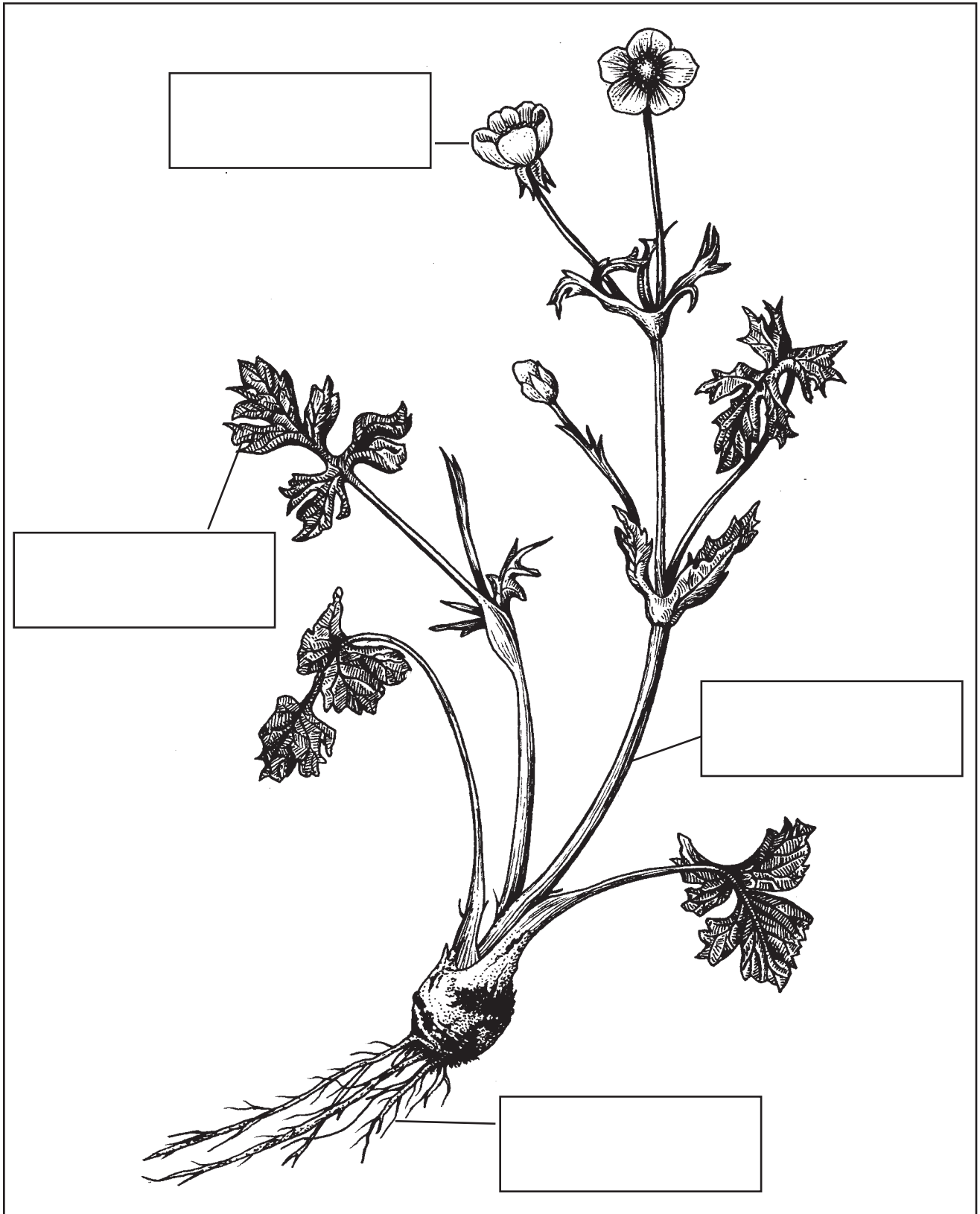
Using 'Talking Write Away', 'Teaxtease', 'Clicker 4' or any other similar program that allows you to create word banks, create a word bank that contains words the children will recognise as parts of a plant. Mix these words with other words that may be parts of the human body, for example. The children will need to read the words in the word bank before using them.

Show them how to change the font style, size and colour of words in the word bank.

Then ask the children to choose five words from the word bank that are the names of the parts of a plant. Having chosen the words, they should change the font style, size and colour to make labels for the wall display. Print out the words, cut them out and add them to the wall display.

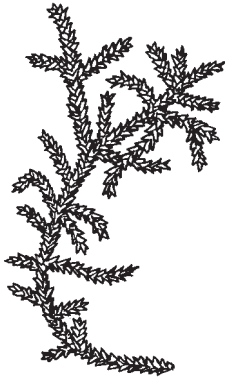
# Plants around us

Label the plant.

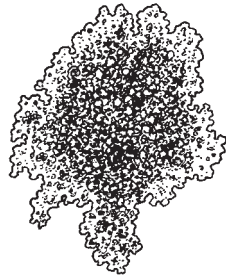




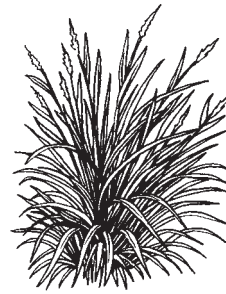
# Plants around us



moss



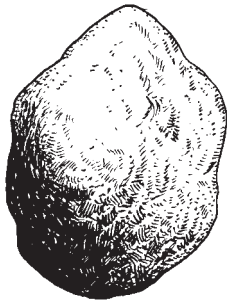
lichen



grass



conifer



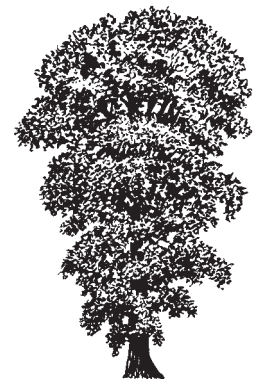
stone



dog



flowering plant



tree



hedgerow



fern



pondweed



child