CurriculumVisions 2C Science@School

Variation

Teacher's Guide CD

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Curriculum Visions

A CVP Teacher's Guide

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Contents

Introduction

The pupil's book

The Key stage 1 Science@School series is a series of twelve books. Each one addresses one of the QCA units in the Key Stage 1 science curriculum.

Each spread in the book addresses one or more objectives in a QCA unit by providing photographs, simple text and questions to stimulate discussion.

Each book has an illustrated glossary and a simple index for finding information.

The teacher's guide

It may be that you already have a scheme of work and wish to use the books to support it. Alternatively you could use the books, this CD ROM and the **CurriculumVisions.com** web site, which provides support material in the form of extra text (with audio option), pictures, captions, activities and demonstration videos to build a new scheme. Whichever way you choose, the notes in this teacher's guide have been set out as if you were using each page or spread as the basis for a lesson. You may follow each set of notes in their entirety to build up your lesson or take parts of the notes to fit into your scheme.

The teacher's notes contain information about practical work. You should check your school policies on practical science work and only select activities for which you are confident to take responsibility.

The book *Be Safe!* published by the ASE (ISBN 978–0–86357–324–8) provides useful guidance on carrying out science activities.

The structure of the notes

The notes for each page or spread follow the same structure, which is outlined here.

Objectives

These may be linked to the QCA objectives or build on them to enrich the topic.

Resources and preparation

Suggestions may be made for building on the visual display of the books with posters and models.

There are also pictures (aka flashcards) at the end of the notes to each lesson, which may be printed off and used as triggers to start the lesson or used in the plenary as revision. When the pictures have been used they could be displayed on a wall and others added as the subsequent lessons are completed. This will make a colourful summary of the work which could be used as a final revision resource when the book is completed.

If you are using the **CurriculumVisions.com** web site log in, go to Science, Year 2, Unit 2C Variation.

There may be some suggestions for building practical work into the use of the pages in the book and these include a list of requirements (simple, readily available materials) and advice on preparing the requirements for use in the lesson.

Introduction

Starting the lesson

Each lesson begins with a short activity, which helps settle the children and focus them on the work ahead.

Activities with the page

These may be reading activities, observing and discussing the pictures or answering a question. There may also be practical activities which are designed to develop a range of practical science skills from making observations to carrying out fair tests.

Differentiation

There are suggestions for providing help and activities for children of different abilities.

Assessment

There are suggestions for assessing the children's work. There are three assessments for you to print off at the end of this guide. These are for use with lesson 1 (page 59), lesson 3 (page 61) and lesson 4 (page 63), or you could use all three together as an end of unit test. Guidance for the answers is given in the assessment section of the lesson notes.

Plenary

The work done in the lesson is reviewed in this section and there may be a further activity to help secure the children's knowledge.

Outcomes

These may be linked to the QCA objectives or build on them to enrich the topic.

1

Teacher's sheet

2C

Plants and animals

Objectives

- To know the features of living things.
- To know the names of a large number of plants and animals.

Resources and preparation

Window overlooking a grassy area with a few trees and bushes. Plant pot, small trowel, compost, broad bean.

Starting the lesson

Take the children to the window and ask them to point out the living things they can see. They may look for birds or other animals or people and may need encouragement to recognise plants as living things.

Discuss how a living thing can be recognised from something that is not alive such as a rock or brick. Look for answers about living things growing and having young. The children may also mention breathing in animals and wonder if plants breathe. You can tell them that they have microscopic holes in their leaves through which they take air to get the air they need. Trees have holes called lenticels in their bark, which can be seen by the naked eye. The children may mention feeding in animals and you can point out that plants need fertiliser and they also need light to make their own food. Everyone should easily agree that living things also need water. Some children may mention that animals move and wonder if plants move. Plants move as they grow as revealed by time lapse films of growing seedlings. The senses of people and animals may be mentioned and you could add that plants are sensitive to light and grow towards it. You could set up a broad bean seed in a pot of compost and dig it up carefully every few days and turn it over to see if the root is sensitive to gravity and always grows down. The children will find that this is so.

Activities with pages 4 and 5

- Read the two introductory sentences with the children to confirm that living things are divided into two groups.
- Let the children read the sentences and captions on the page and look at the pictures.
- Ask the children to find out more about the fern by using the glossary.
- Ask them to answer the question on page 4 in the following way. They should think of as many plants as they can, draw them and label them like the pictures on the page.
- Move on to page 5 and let the children read the sentences, and captions and look at the pictures.
- Ask them to answer the question on page 5 in the following way. They should think of as many animals as they can, draw them and label them like the pictures on the page.

1 Teacher's sheet 2C

Differentiation

Less confident learners may need help thinking about plants and could be encouraged by thinking about the plants that they eat. More confident learners may be encouraged to look in books to find out about plants that grow in different parts of the world.

Assessment

The children could be assessed on the number of plants and animals they have thought of and the presentation of the pictures. There is an assessment sheet at the end of the guide (page 59).

Answer guidance

1–4 in any order – root, stem, leaf, flower

1–6 in any order – head, body, legs, eyes, nose, mouth, ears. Also fur, scales, feathers.

Plenary

The children can display their pictures and you could make a list of all the plants and animals that they have featured in their pictures. You could conclude by telling the children that there are over four hundred thousand different kinds of plant and millions of animals. (This high number is due to the huge number of insect species.)

Outcomes

The children:

- Know the features of living things.
- Know the names of a large number of plants and animals.

2 Teacher's sheet 2C

Plant and animal parts

Objectives

- To know the basic parts of a plant.
- To know the basic parts of an animal.
- To make an accurate drawing of a plant and label it.

Resources and preparation

House plants with a few parts which are easy to draw, for example, geranium cuttings have a stem with a few leaves and may also have a flower. Some geraniums have variegated leaves. Spotty wallpaper, access to the school grounds.

Starting the lesson

Tell the children that every living thing has a body and the body is divided into parts. The limbs are major parts of our body and they are made up from smaller parts. Ask the children to name the parts of the arm and leg. You may say that the head is a vital part of the body and ask the children to name the parts. They should include detail such as eyelids and eyelashes and earlobes.

Activities with pages 6 and 7

- Read the introductory sentences with the children then move on to the first and second paragraphs.
- Let the children look at the pictures, caption and labels and then tell them that you want them to make an accurate drawing of a plant. Emphasise that it does not need to be the same size as the plant.
- Issue the plants to the tables and let the children make their drawings, then use the picture of the plant in the plant pot to help them label their drawings.
- Move on to page 7 and read the paragraph with the children and ask the children to name some animals that do not have tails. Look for answers about frogs, toads chimpanzees, gorillas, orangutans and gibbons. Remind them, if necessary, that humans are animals.
- Let the children read about the elephant and look at its picture and ask them if they can think of other ways in which the elephant uses its trunk. Look for answers about sucking up water and squirting it into its mouth or onto its back to cool down. Elephants also use their trunks to pick up food.

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- Move on to the chameleon and let the children read about it and look at its picture. Ask them to find out more about it in the glossary.
- Let the children draw a picture of a chameleon and colour it in so that it blends in with some spotty wallpaper you have pinned to a board.

Differentiation

Less confident learners could draw the plant in the book or draw and colour in some variegated leaves. More confident learners could be set the task of making their chameleons blend in with a grassy or bushy area in the school grounds.

Assessment

The children can be assessed on the accuracy of their drawing and the correct use of label lines (one end touching the part of the plant).

Plenary

Let the children put their chameleons against the wallpaper or take them into the school grounds and assess how well they hide.

Remind the children that they have been studying parts of the bodies of living things and ask them to answer the question on page 7.

Outcomes

The children can:

- Know the basic parts of a plant.
- Know the basic parts of an animal.
- Make an accurate drawing of a plant and label it.

3

Teacher's sheet

2C

Different animals

Objectives

- To know that animals differ in many ways.
- To compare the human body with the bodies of other animals.
- To make accurate descriptions of animals.

Resources and preparation

Pictures of a range of animals.

Starting the lesson

Ask the children to imagine that they were in radio contact with an alien and the alien had heard there were human beings on the Earth and wanted to know what one looked like. Ask the children what they would say. Look for answers, which include a description of the head and body and limbs. Write down their descriptions and then pretend that you are the alien and you are trying to make a drawing from what they have said. You may have problems locating the arms and legs and need more precise descriptions.

Activities with pages 8 and 9

- Read the introductory sentence with the children and let them look at the pictures of the animals and the captions.
- Ask the children if they have any stories about their experiences with any of the animals on the page.
- Move on to page 9 and read the first two lines of the paragraph, stopping to test their knowledge of small animals and of long-lived animals.
- Read the rest of the paragraph with the children and ask the children to tell you what fur is. Let them check their answer in the glossary.
- Let the children look at the pictures and captions of the animals. Ask them to find out more about the wild boar in the glossary.
- Ask them to describe the parrot and the snake.
- Ask the children to answer the question on page 9.

Differentiation

Less confident learners can be steered towards choosing a picture of an animal with few features such as a snake, starfish or a lizard. More confident learners can be steered towards pictures of more complicated body shapes such as beetles and butterflies.

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Assessment

The children could be assessed on their involvement in the discussion at the start of the lesson and the precision of their descriptions. They can be assessed on their descriptions of animals by the drawings made from them. There is an assessment sheet at the end of the guide (page 61).

Answer guidance

Different – A ears , B no ears, A fur, B scales, A legs, B fins, A whiskers, B no whiskers.

Similar – they both have head, body and tail, eyes, mouth. You are most like the mouse because you have fur on your head, ears, legs.

Plenary

Remind the children that making accurate descriptions is very important in comparing animals. Let each child secretly select a picture of an animal and then describe it to a partner who then has to draw it from the description. The partner should then try and guess its identity or animal type. At the end the children can compare the real pictures with the animals drawn from the descriptions.

Outcomes

The children:

- Know that animals differ in many ways.
- Can compare the human body with the bodies of other animals.
- Can make accurate descriptions of animals.

Animals groups

Objectives

- To recognise similarities between objects.
- To recognise similarities between animals.
- To recognise differences between animals.
- To put animals into groups by considering their similarities and differences.

Resources and preparation

Each table should be given a box containing pencils, wooden or plastic blocks (or knives, forks or spoons), pieces of cardboard and pieces of paper.

Starting the lesson

Give out the boxes of items and ask the children to sort them into groups. When they have finished they should have a group of pencils, blocks, cardboard and paper. Ask the children how they sorted out the objects and look for an answer about seeing which objects were similar and which were different. Tell the children that scientists use the same method when sorting out animals into groups. Scientists find it is easier to study animals when they can arrange them into groups.

Activities with pages 10 and 11

- Read the introductory sentence with the children and say that animals can have similarities as well as differences and ask them how the calf and the lamb are similar. Look for an answer about four legs and large ears.
- Read the first paragraph and ask the children if the calf and the lamb could be put in the same group, and, if so, what would the group be called. If someone says farm animal group point out that the duckling is a farm animal. If they say young animal group point out that the duckling and caterpillar are young animals. Remind the children that animals should be put into groups according to the features of their bodies.
- Read the second paragraph with the children and ask them to think up some names of groups and sort out the animals into those groups. They could do this by writing down the names of the animals and cutting them out. Then writing down the names of the groups and sort out the animal names under the group names. Using the groups on the page the big ear group would have the lamb and calf, the beak group would have the duck and starling and the no leg group would have the worm. From the angle of the photographs, the caterpillar and butterfly do not appear to have legs but if the children have studied the butterfly in

Science@School 2C Variation they will know that both have legs.

- Some children may be familiar with the term insect and put the ladybird, beetle, butterfly and caterpillar in that group. Ask them to look up ladybird in the glossary and this may lead them to grouping it with the beetle. Tell the children that insects have six legs in the adult form.
- Ask the children to answer the question on page 11. Look for answers such as big ear group – elephant, pig, the dogs (basset hounds) at the front of the book; beak group – heron, sparrow, pigeon; no leg group – snake, sea anemone, maggot, tadpole.

Differentiation

Less confident learners could be given a mixture of pictures featuring fish, birds, and mammals. More confident learners could be challenged to set up other group names and assign animals to them.

Assessment

The children could be assessed on the ease with which they sorted out the objects and animals. There is an assessment sheet at the end of the guide (page 63).

Answer guidance

A and K – 8-legged group (spiders); D, G and I – 6-legged group (insects); B,E and H – no legs or feelers group (worms); J and M – feelers but no legs or shell group (slugs); C, F and L – shell group (snails); I and D winged group.

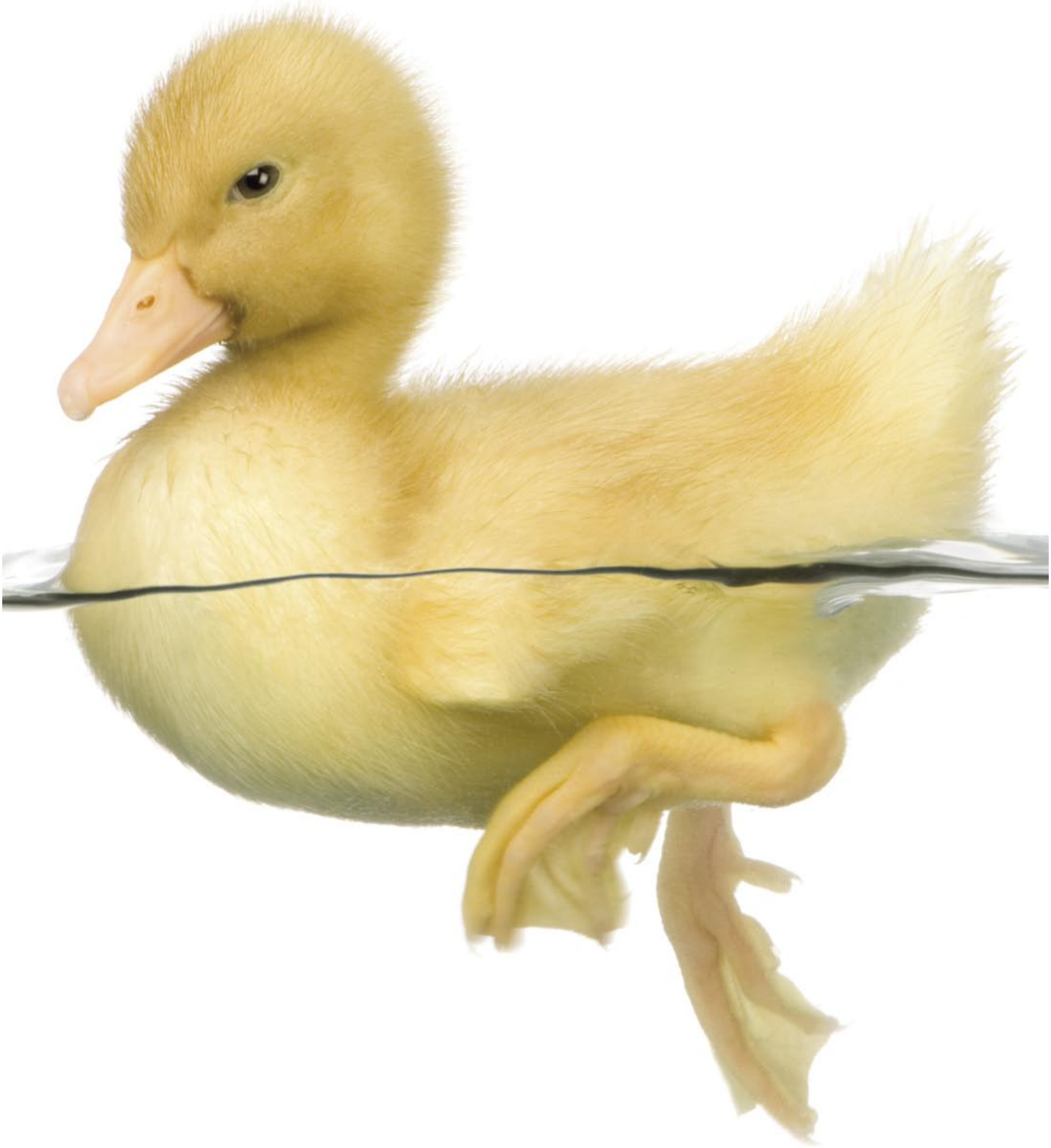
Plenary

Tell the children that you have thought of the two leg group and show them a picture of a bird, a kangaroo and a person. Ask them whether it is a good name for a group and steer them to concluding that it is not. Tell the children that when scientists group animals they look at more than one feature. For example, the bird has two legs and feathers so these two features could be used to put some animals in one group. The kangaroo has two legs and fur and the person has two legs and fur (hair) on their head and could be put in the same group. Ask the children if that is a good way to group and look for answers about the human and the kangaroo being quite different. Tell them that when this happens scientists make sub groups so in this case there could be a subgroup with tails in which the wallaby could also be put and the sub group without tails in which the gorilla and chimpanzee could be put. You may like to finish by telling the children that the major groups of animals are the fish, amphibians, reptiles, birds, mammals, insects, spiders, snails and worms.

Outcomes

The children:

- Can recognise similarities between objects.
- Can recognise similarities between animals.
- Can recognise differences between animals.
- Can put animals into groups by considering their similarities and differences.



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Teacher's sheet

2C

Differences in people

Objectives

- To know how humans are similar.
- To know that humans are different from each other in some ways.
- To make close observations and comparisons.

Resources and preparation

Fingerprint ink from an educational science supplier, white paper, magnifying glasses.

Starting the lesson

Remind the children of how the human was sorted from the kangaroo in the last lesson and ask them to describe other ways in which all humans are similar. Look for answers such as hair on head but lack of fur, two arms, two legs, can change the expression on the face, etc. Conclude that all animals who fit the list of descriptions are humans.

Activities with pages 12 and 13

- Read the introductory sentences with the children then look at the two pictures on page 12. Ask the children how the heads of the two children are different. Look for answers which include the boy has curly black hair, an oval face, black eyebrows, brown eyes, dark skin and the girl has straight brown hair, a round face, brown eyebrows, blue eyes and a light skin.
- Ask the children to compare the hands and look for an answer about the boy's hand being dark skinned on the back and lighter skinned on the front of the fingers and the girl's hand being entirely light skinned.
- Let the children look at the fingerprints and look up the definition in the glossary. Point out that the third print shows a loop while the fourth one shows a whorl.
- Let the children make their fingerprints on the white paper. They should be set out in order from left little finger to right little finger and numbered 1 – 4 for each hand and the thumb labelled with a T. Let the children examine them with a magnifying glass and look for loops and whorls. If they find any they should label the appropriate print.
- Read the paragraph on page 13 with the children then ask them to write a description of another member of the class and keep for the plenary.
- Let the children answer the question on page 13. Look for answers which include the second, fourth and sixth people are girls, the second person has blonde hair and the third person has dark hair. The third person has darker skin than the others. If suitable and with sensitivity this could be

extended to the children making comparisons among themselves.

Differentiation

Less confident learners may need help in looking for loops and whorls. More confident learners could try and make toe prints.

Assessment

The children could be assessed on the neatness of their prints and labelling.

Plenary

The children can read out their descriptions either to the class or in small groups and see if the others can guess the identities.

Outcomes

The children:

- Know how humans are similar.
- Know that humans are different from each other in some ways.
- Can make close observations and comparisons.

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Teacher's sheet

2C

Growing up

Objectives

- To know that people change as they get older.
- To measure a feature of the body and produce a graph.
- To take part in a survey to investigate a correlation.

Resources and preparation

Paper, pens, rulers.

Starting the lesson

If the children have used the activities in lesson 4 with Science@School 1A Ourselves they will have drawn around their body outlines. If these have been kept, the children could look at them now and lie in them to see how much they have grown.

If the children have not got their outlines you could compare the span of your hand with theirs and say that one way to measure growth is to compare how a body part such as the hand changes in size. Let them draw around an outstretched hand and measure the distance from the tip of the little finger to the tip of the thumb. Alternatively the children could keep their fingers and thumb together and measure from the outside of the little finger to the outside of the thumb. Let the children make a tally chart and a block graph of the class results and keep it for later. Tell the children that they are going to repeat this activity every month of the school year and see if their hands grow during that time. The children may like to write dates on a calendar so they can remind you when the measurements are due.

Activities with pages 14 and 15

- Read the opening two sentences with the children and ask them if it helps them to predict that their hands will grow. Look for an answer about them being young so they should grow quickly and there should be some change over the rest of the school year.
- Let the children look at the photograph of the babies and read the caption. Ask them to pinch a finger and thumb to make out the top of the baby's head and its chin in the orange outline. Ask them to move this measurement below the chin and see that the head is nearly the same length as the body. Ask them to repeat this with the other pictures and tell you what they find. They should find that the head becomes smaller in proportion to the body and reaches a smaller distance down the body as the person gets older. They may say that it reaches further down the body in the old person because the old person has developed a stoop.
- Let the children look at the second photograph on page 14 and read the caption. If you feel it is appropriate

and not insensitive you could let the children measure their heights each month at the same time as they measure their hand spans.

- Move on to page 15 and read the first paragraph. Remind the children that they are going to measure the growth of their hands over the year but then challenge them to think about the size of their hands and their feet. Ask them how they could find out if people with the largest hand spans had got the largest feet. Present the block graph to help them think about the problem and direct them to the answer of arranging people in order of hand spans then measuring their shoe size and arranging them in order of shoe size.
- Let the children read the second paragraph and look at the photograph and caption. Ask the children if they can remember what a wrinkle is. Then look it up in the glossary in Science@School 1A Ourselves and look for an answer about lines in the skin of an old person.
- Let the children read the last paragraph and then ask them what they think the colour of the skin of the old man was when he was a baby. Look for an answer about the skin being fair.

Differentiation

Less confident learners may need help in drawing around their hands or making measurements. More confident learners could make predictions about how much their hand spans will change from one month to the next and check their predictions with the measurements at the appropriate time.

Assessment

The children could be assessed on the accuracy of their measurements, their recording skills and the presentation of their graphs.

Plenary

Ask the children to answer the question on page 15 and look for answers about they could have it cut shorter and let it grow longer. Girls could have their hair put in pig tails or plaits. Older people, both men and women, change the colour of their hair by using hair dye.

Outcomes

The children:

- Know that people change as they get older.
- Can measure a feature of the body and produce a graph.
- Can take part in a survey to investigate a correlation.

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Teacher's sheet

2C

Flowers and leaves

Objectives

- To know that plants are similar to each other in some ways.
- To know that plants are different from each other in some ways.
- To make comparisons between plants.

Resources and preparation

A selection of flowers from a florist. You need to buy flowers like lilies, freesia, pinks or chrysanthemums. Note that flowers like dahlias and gerberas are really flower heads like daisies which are made up of many small flowers called florets which form a group in the centre with their petals around the outside. A selection of leafy house plants.

Starting the lesson

Remind the children that plants are living things and ask them to draw a plant and label its parts. Tell them they should have four labels. Look for neat drawing with the flower, leaf, stem and root correctly labelled.

Activities with pages 16 and 17

- Read the introductory sentences with the children and then continue on to the rest of the text on the page and look at the pictures of the daffodil, bluebell, daisy and dandelion.
- Issue the children with pairs of flowers and ask them to say how the flowers are similar and different.
- Let the children answer the question on page 17 (also see 'Differentiation' below).
- Move on to the text about leaves on page 17 and let the children look at the leaves of the daffodil and the dandelion in the picture.
- Let the children look at the selection of leafy house plants and draw a leaf from each plant and name it. Ask them how they can tell the leaf of one plant from another.

Differentiation

Less confident learners may need help in remembering the parts of the plant. More confident learners could correctly name the plant they have drawn and possibly draw and label another named plant. Less confident learners could compare two flowers in the collection of five on page 17 and carefully copy their shapes and colour them in. More confident learners could compare all the flowers in the collection.

Assessment

The children can be assessed on the presentation of their drawings and the accuracy of their label lines. One end of each line should touch the part it is labelling.

Plenary

The children display their drawings of the plants and explain how they can tell plants from each other by looking at their flowers and leaves. Bring in a plant that they have not seen before and ask them if it is the same as the plants they have been studying. Look for answers describing how its flowers and leaves are different from the other plants.

Outcomes

The children:

- Know that plants are similar to each other in some ways.
- Know that plants are different from each other in some ways.
- Can make comparisons between plants.

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Teacher's sheet

2C

Trees with flowers

Objectives

- To know that trees are plants.
- To know that trees can be distinguished by their bark and twigs.
- To know that trees can be identified by their flowers and leaves.
- To know that some trees lose their leaves in the winter.

Resources and preparation

Access to some deciduous trees in the school grounds or a park. Paper and crayons for bark rubbings. If appropriate in early spring you could perhaps bring in some twigs and let them burst into leaf over the coming weeks. Avoid catkins as their pollen can stimulate allergic reactions when brought indoors. A collection of dried leaves of deciduous trees. Green paper and scissors for less confident learners to make model leaves for their mime. Secondary sources about trees for more confident learners.

Starting the lesson

Remind the children that trees are plants. Take the children to look at a deciduous tree. Let them measure round its trunk and measure round their waists to compare sizes. Let the children look at the bark and make bark rubbings. Back in the classroom they should write down the name of the tree on the rubbing. You could show the children the twigs and the buds. Point out the shape and the colour of the buds and their positions on the twig. If possible repeat with another species of tree and compare them.

Activities with pages 18 and 19

- Remind the children how they could tell trees apart by their bark, twigs and buds, and then read the opening sentences with them.
- Read the first paragraph with the children and let them look at the picture of the horse chestnut flowers. Ask the children to find out more about the horse chestnut tree in the glossary.
- Ask them to explain why some people think the groups of flowers look like candles.
- Point out that the horse chestnut leaves are around the group of flowers and let them read the paragraph below the photograph and the first two lines of the third paragraph, then look at the picture of the catkins. Ask the children to find out more about catkins by looking them up in the glossary.
- Move on to the last sentence in the paragraph and let the children look at the picture of the magnolia flower. You may like to tell the children that magnolia trees have been growing on the Earth for a long time and there were magnolia trees growing on the

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Earth when the dinosaurs were alive. These trees died but we see their descendants living today.

- Move on to page 19 and read the first paragraph with the children. Let them look at the photographs of the tree in summer and winter. Ask them to describe the condition of trees they have examined – are they losing leaves, just in bud or are the leaves coming out?
- Read the second paragraph with the children and look at the pictures of the leaves. Issue the children with other leaves in your collection and let them compare them.

Differentiation

Less confident learners may need help making bark rubbings and noticing the features of twigs. They could make some paper leaves. They could then mime being a deciduous tree by holding the 'leaves' in the palms of their hands, hidden by their curled fingers then outstretch their arms to be trees in winter. Tell them to mime a tree in spring and look for them gently pushing out the leaves from their hands. Tell them to mime a tree in summer and look for them holding the leaves out fully. Tell the children to mime a tree in autumn and look for them dropping their leaves. More confident learners could use secondary sources to find out more about broadleaved trees.

Assessment

All children could be assessed on their bark rubbings. Less confident learners could be assessed on their mime. More confident learners could be assessed on their research.

Plenary

The children can review what they have learnt about deciduous trees and the children could find out about trees around their home for homework as the question on page 19 suggests.

Outcomes

The children:

- Know that trees are plants.
- Know that trees can be distinguished by their bark and twigs.
- Know that trees can be identified by their flowers and leaves.
- Know that some trees lose their leaves in the winter.

Trees with cones

Objectives

- To know that some trees keep their leaves all the year round.
- To know that some trees produce cones instead of flowers.

Resources and preparation

Access to a place such as a park where there are holly trees and rhododendron bushes. A picture of rhododendrons in flower. Do not let the children touch any part of the holly trees as they are poisonous. Access to a place where coniferous trees are growing. Many gardens have coniferous trees so it may be possible to arrange for the children to look at them in a local garden. Note you should not let the children examine yew trees as all parts of the tree are poisonous. A collection of cones. Each group of children (of groups of more confident learners) will need two plastic jars with lids, two pieces of string about 18 cm long, sticky paper, access to a tap and a sunny window or warm place. Each group (or groups of less confident learners) will need a piece of white paper 12 cm square, a wax crayon, a small wooden block, a hardback book.

Starting the lesson

Take the children to a location where there are holly trees and rhododendron bushes. Let the children look at the leaves and point out that they are broad leaves like those of the deciduous trees.

Remind the children that deciduous trees have flowers and say that holly produces flowers and bright red berries which are the flower's fruit. Show the children a picture of rhododendrons in flower – they are planted in a park to provide colour in the late spring. Tell the children that holly and rhododendrons are unusual because they have flowers but also keep their leaves all year round. Tell the children that they are going to look at some other trees which keep their leaves all the year round.

Let the children look at the leaves and point out the cones. If the conifers are not producing cones show the children a cone from your collection. Ask the children how the leaves of the conifers are different from the leaves of deciduous trees and look for an answer that they are long and thin.

Activities with pages 20 and 21

- Read the opening two sentences with the children and look at the picture of the pine cone.
- Give out pine cones for the children to examine and ask them how the cone is different from a flower. Look for an answer about the cones being tougher and woody and not having bright colours or petals.
- Read the paragraph on page 20, then ask the children to look up cone in the glossary where they can confirm

their description of it being a woody structure.

- Tell the children that the cone releases its seeds in dry weather but holds on to them in damp weather. Tell them that they can see what happens to cones in damp and dry conditions by performing the following experiment. Take two cones and tie one end of a piece of string to each one. Take two plastic jars with lids and pour water into one to a depth of a centimetre. Suspend each cone inside its jar by using sticky paper to hold the string to the outside of the jar. Close the lids on the jar and put them on a sunny windowsill. Let the children look at the jars over the following days. They should find that the cones in the jar with water are clamped shut and the cones in dry conditions open (you may even be able to see their seeds inside).
- Ask the children what would happen if you swapped the cones in the jars and look for an answer about the open cone closing and the closed cone opening. Let the children test their prediction.
- Move on to page 21 and let the children look at the spruce cones and leaves. Point out how the leaves look like long green needles.
- Read the first paragraph and emphasise that as different deciduous trees can be identified by their flowers so different kinds of conifers can be identified by their cones.
- Read the second paragraph with the children and let them look at the trees covered in snow. Tell them that the leaves of conifers are covered in thick wax, and you want them to see if this affects the way snow may slide off them. Tell them about the following experiment. Half of a piece of paper is rubbed with a waxy crayon. This half represents the waxy conifer leaf. The other half is left alone. The paper is placed on a hardback book and held at one end so that the book with the paper on it can be tipped up. A wooden block is placed on the unwaxed part of the paper and the book is very slowly tipped up and the height noted at which the block starts to move. The block is then put on the waxed part of the paper and tipped again. The block should move when the book and paper are only tipped a small amount. This experiment shows that the wax helps the snow to slip off the leaves.

Differentiation

Less confident children could, with help, investigate the effect of wax on making a block slide. More confident children could investigate the effect of dry and damp conditions on the behaviour of a cone.

Assessment

The children should provide an illustrated account of the experiment they have tried and be assessed on its presentation.

9 Teacher's sheet 2C

Plenary

Review the children's knowledge of conifers and let them discuss their experiments and perhaps demonstrate them. Ask them to answer the question on page 21.

Outcomes

The children:

- Know that some trees keep their leaves all the year round.
- Know that some trees produce cones instead of flowers.

Assessment

Name: .....

Plants and animals

Name four things that plants have.

1. .....

2. .....

3. .....

4. .....

Name six things that an animal may have.

1. .....

2. .....

3. .....

4. .....

5. .....

6. .....

Assessment

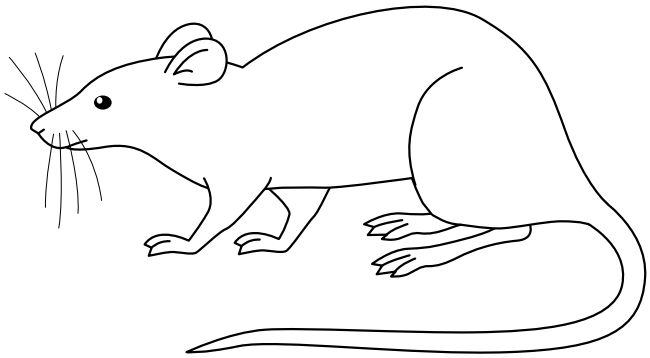
Name: .....

Different animals

1. How are these two animals different?

.....

A



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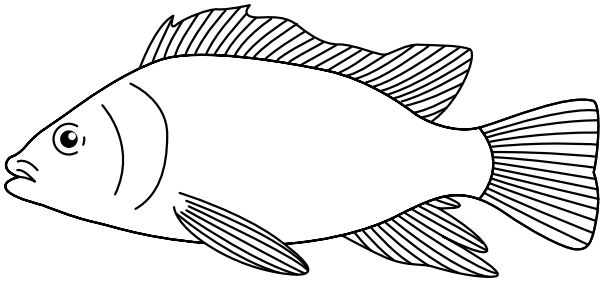


2. How are they similar?

.....

3. Which animal are you most like?

.....

4. Explain your answer.

.....

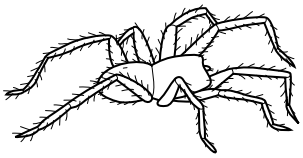
.....

Assessment

Name: .....

Animal groups

A



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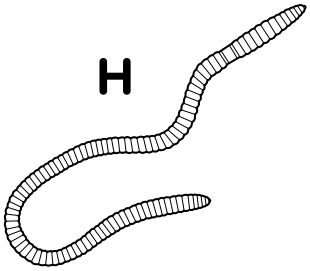

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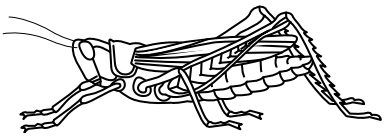

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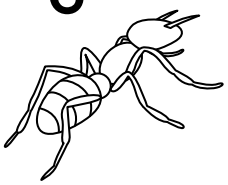

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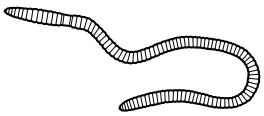

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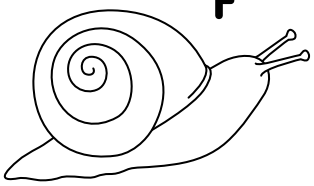

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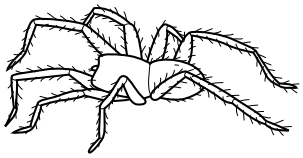

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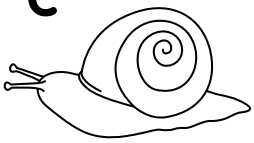

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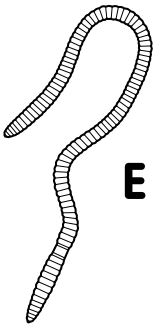

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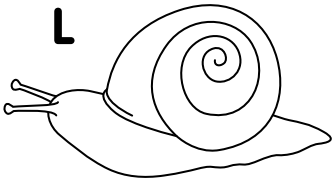

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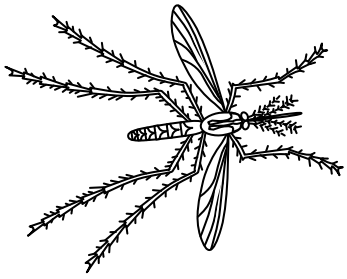

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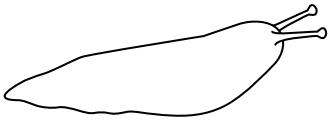

1. **Sort these animals into groups.**

2. **Give each group a name.**