Science@School | Book 3A

Food, teeth and eating

Teacher's Guide

Support material for the pupil book
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Peter Riley

Teacher's sheet: comprehension

See **pages 4 and 5** of *Food, teeth and eating*

Answers

1. **(i) Maize; (ii) Rice.**
2. **Maize.**
3. **(i) Rice; (ii) Fish, ducks.**
4. **(i) 1 Central America; (ii) 2 Southeast Asia.**
5. **Banana leaves.**
6. **Maize (some tortilla chips use a mixture of maize and wheat flour).**

Complementary work

(a) Show the children some foods from plants around the world such as sweet potato, squash and aubergine and challenge them to find out more about them.

(b) Bean sprouts can be grown in accordance with the instructions on the packet, and if strict hygiene rules have been followed the children can taste their 'crop'.

Teaching notes

The main food crops of the world are wheat, maize, potato, rice, sorghum (and millet), cassava and sweet potato.

Wheat grows in temperate climates, but some is grown in subtropical regions. Maize grows in temperate and hot climates. Potatoes grow best in cool moist temperate climates. Rice grows in wet, tropical climates or temperate climates. Sorghum and millet grow in drier tropical climates than rice and in temperate climates. Cassava can be grown in a tropical climate where droughts occur. Sweet potatoes grow in some wet, tropical climates and also in drier climates.

Traditionally, maize is the staple grain in central and South America; rice is the staple in southeast Asia; sorghum and maize are staple grains in central and southern Africa; and wheat is a staple grain in Europe, north Africa and northeast Asia. Potatoes originally came from South America.

Teacher's sheet: activity

Based on **pages 4 and 5** of *Food, teeth and eating*

Introducing the activity

(a) Ask the children to bring in pictures of food from magazines (see note (i)).

(b) Get the children to cut out different foods and label them on a large sheet of paper (see note (ii)).

(c) Tell the children that they can use their sheets to identify foods in meals from around the world (see note (iii)).

Using the sheet

(d) Give out the sheet. Let the children fill in their names and form, then go through tasks 1 to 3.

(e) Let the children try tasks 1 to 3.

(f) Go through task 4 and let the children try it.

(g) Let the children try tasks 5 to 8.

(h) Let the children try tasks 9 to 12.

(i) Go through tasks 13 and 14, then let the children try them.

Completing the activity

(j) Let the children compare their results.

(k) You could ask the children to identify frequently used foods.

Conclusion

The results will vary depending on the meals used, but the children should find that more food comes from plants than from animals, and that certain foods such as potatoes, rice, pasta may feature largely in some dishes (see note (iv)).

Teaching notes

(i) You may like to make a collection of food magazines which the children can use.

(ii) Each group could make a poster, or you could make a large class poster. You may like to use this as an opportunity to group foods into meat, vegetables, fruits, cereals and dairy products.

(iii) Have some pictures of foods from around the world. You may like to use the pictures off the cartons of prepared or frozen foods. On the back of the picture, write down what part of the world the meal comes from.

(iv) You may like to keep the work from this activity and use it in later activities to identify body-building and energy foods.

Teacher's sheet: comprehension

See **pages 6 and 7** of *Food, teeth and eating*

Answers

1. **(i) Potatoes; (ii) In slices. If other forms, such as chips and mash, are included you could give them extra marks.**
2. **Because the sea is close by.**
3. **(i) Bitterness; (ii) Sourness; (iii) Saltiness; (iv) Sweetness.**
4. **Bread, meat, potato, lettuce, tomato.**
5. **Salt, sugar, vinegar.**

Complementary work

(a) The children could try the following activity to test the effect of the sense of smell on the sense of taste. The children should hold their noses, then chew a piece of pickled onion. After about half a minute the children should let go of their noses and report how the taste of the onion changes. It will now taste much stronger.

Teaching notes

The diagram shows the basic arrangement of the four taste areas on the tongue, but there are many variations. Some areas overlap, particularly the salty and sweet areas. The sourness and bitterness areas tend to be more clearly defined, but some people are unable to differentiate between the two tastes.

Taste and smell work together to help you assess if a food may be safe to eat. In the past, food that was spoiled or of poor quality had herbs or spices added to it to hide the 'off' taste.

In the grooved surface of the tongue are 9,000 taste buds. These are the places where a taste is sensed, and information about it is relayed to the brain by nerves in the tongue.

Teacher's sheet: activity

Based on **pages 6 and 7** of *Food, teeth and eating*

Introducing the activity

(a) Say that the sight and smell of food is important to making your mouth water.

(b) Ask the children about their favourite food smells.

(c) Ask the children if they think everyone can tell a food by its smell (see note (i)).

Using the sheet

(d) Give out the sheet. Let the children fill in their names and form, then go through tasks 1 to 5 (see note (ii)).

(e) Let the children try tasks 1 to 5.

(f) Go through tasks 6 and 7 (see note (iii)).

(g) Let the children try tasks 6 and 7.

(h) Let the children try tasks 8 to 11.

Completing the activity

(i) If the children have worked in groups, ask them to report to the whole class. In the report they do not need to mention names, just the numbers of people who identified certain foods.

(j) Say that data can be used in more than one way. Ask the children to work out which foods were most easily detected and which were the most difficult to detect (see note (iv)).

Conclusion

Foods produce smells to make them appetising, but the smells may not be detected by everybody.

Teaching notes

(i) You may like to use this in the context of making predictions.

(ii) Use foods such as celery, garlic, onion, orange, banana, apple, cheese (do not use nuts or any food which contains nuts).

(iii) You may wish to do this as a demonstration, or divide the class into groups giving each group a different combination of foods. The children in each group decide who will smell the food and who will present the food and record the data.

(iv) This is an example of how data from an investigation can provide information for other questions.

Teacher's sheet: comprehension

See **pages 8 and 9** of *Food, teeth and eating*

Answers

1. **Vegetables – B; Fruit – C; Cereals – F; Meat and eggs – A and D; Dairy products – E.**
2. **Root, stem, leaves.**
3. **Seeds.**
4. **Wheat, oats, rice and maize.**
5. **Sheep, cattle, pigs, chicken.**
6. **Yoghurt is made from milk, which is produced in a dairy.**

Complementary work

(a) The children may have done a survey about their favourite foods and produced a bar chart of their results in year 2. They could use the data again to find out which food groups contain their favourite foods.

Teaching notes

A potato may be called a root vegetable, but it is really a swollen part of an underground stem. The celery stalk is often called a stem at this level, but it really is a leaf stalk. The real stem forms the disc where the leaf stalks meet. Sweet corn is the same as maize, which is a cereal, but in supermarkets it is grouped with canned vegetables. The tomato is really a fruit, but is also described as a salad vegetable. Exotic vegetables might include bamboo shoots, water chestnuts and bean sprouts. Pasta and noodles are placed in the cereal group, since they are made from wheat and rice.

The children should know that water is an essential part of the diet. It may be addressed by drawing attention to the fact that water is lost through sweat and going to the toilet, and must be replaced by drinks.

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Teacher's sheet: activity

Based on **pages 8 and 9** of *Food, teeth and eating*

Introducing the activity

(a) When you have been through pages 8 and 9 in the pupil book, ask the children, "What was the last thing you ate?"

(b) Ask them to say which food group or groups it belonged to.

(c) Ask the children to guess what group most of their food belongs in (see note (i)).

Using the sheet

(d) Give out the sheet. Let the children fill in their names and form, then go through tasks 1 to 4 (see note (ii)).

(e) When each child has made a list of food, explain how they should perform task 5 (see note (iii)).

(f) Let the children try task 5.

(g) Go through tasks 6 and 7 with the children, then let them try them.

(h) Remind the children of their predictions at (c) above and let them match their results with their prediction.

Completing the activity

(i) Let the children compare their results.

(j) Tell the children to keep the results for later work.

Conclusion

The food in meals can be divided into five food groups.

Teaching notes

(i) The children may or may not be used to making a guess before their investigation. Introduce the word prediction for guess. Once the children have made their predictions, they should forget about them and get on with the investigation. Thinking about the prediction can make them be less objective in what they do.

(ii) You may wish the children to only use foods at this stage and not drinks. Drinks could be used later in connection with tooth care.

(iii) Some foods belong in a number of different groups. For example, apple pie contains fruit, cereal and dairy products. If the children have made biscuits, ask them about the ingredients to help them judge what food groups are used in confectionery.

4 Teacher's sheet: comprehension

See **pages 10 and 11** of *Food, teeth and eating*

Answers

1. **Bread – 4; Butter – 1; Apple – 3; Eggs – 2; Fish – 2; Carrot – 3.**
2. **To give us energy, for growth, for repair of the body.**
3. **In the evening.**
4. **Diet B.**
5. **Foods high up on the pyramid.**

Complementary work

(a) The children can use the meal plan for the day shown in the pupil book as a model for a record of all the food they eat in a day. They could record their data in a table or as a series of pictures. You may need to deal with this topic in a sensitive way as some children may not be able to enjoy a balanced diet due to socio-economic circumstances.

Teaching notes

In the previous unit, the children were introduced to five food groups. Here they are introduced to the four levels of the food pyramid. It is important for the children to see how the food groups fit into the food pyramid.

In the bottom layer of the pyramid are cereals, bread, pasta, rice, potatoes and beans. In the layer above that are fruits, vegetables and milk, and in the layer above that are eggs, meat, fish, nuts, pulses and dairy products. In the top layer are fats and sugars.

The children may ask where the foods in the top layer come from. They can be told that fats in butter come from dairy products while lard is animal fat. Oils are produced by plants. Sugar is produced from sugar cane or sugar beet, but because of its own special properties – being a very high energy source and little else – it is grouped on its own.

The children should see that grouping foods according to their origin helps make sense of the wide variety of food we eat, and also that grouping foods according to how they affect the body is essential for constructing healthy meals and a balanced diet.

4 Teacher's sheet: activity

Based on **pages 10 and 11** of *Food, teeth and eating*

Introducing the activity

(a) You may like to begin by saying that it is sometimes in the news that children are not eating healthily (see note (i)). Tell the children that one way to check out this idea is to do a survey (see note (ii)).

Using the sheet

(b) Give out the sheet. Let the children fill in their names and form, then ask them to look at the table (see note (iii)).

(c) Explain how to fill in the table by giving an example. A meal of fish, peas and potatoes would have a tick in the first three columns (see note (iv)).

(d) Tell the class how the survey is to be made (see note (v)).

(e) Go though tasks 1 to 3 with the children, then let them try them.

Completing the activity

(f) Go through tasks 4 to 6 (see note (vi)), then let the children try them.

(g) Depending on how you have arranged the children's work you could pool their results on the board, or in a spreadsheet.

(h) If you have brought in a news item, you could compare the news item with the results of the survey. Ask the children to comment.

(i) You might want to have a poster competition to encourage more healthy eating.

Conclusion

A meal can be described as healthy or unhealthy by considering the foods in it.

Teaching notes

(i) If possible, pin up some newspaper items on the wall or show a video of a news item.

(ii) You could make a survey of the lunches of the class first, perhaps examining the meals brought to school in lunch boxes. You could then have groups of children from the class make surveys in other classes, and perhaps even survey the whole school.

(iii) Remind the children of how the foods were arranged in the food pyramid, and say that the headings correspond to the levels in the pyramid.

(iv) You should decide with the class the detail you wish to use before they make the survey. For example, potato crisps could have one tick in the first column and one tick in the fourth column for more able children, or just a tick in the first column for less able children.

(v) You may begin this by discussing various options, then steer the children towards how you would like the survey to take place. You may want each group in your class to survey a corresponding group in another class, for example.

(vi) For task 6, you could ask the children to write the answer as a fraction.

Teacher's sheet: comprehension

See **pages 12 and 13** of *Food, teeth and eating*

Answers

1. **A = sieve; B = rice; C = bowl; D = starch or starch in water.**
2. **Sugar.**
3. **Sugar.**
4. **Fat.**

5 **They could eat lean meat, remove fat from the juice produced by cooking, do not add fat to gravy, change to semi-skimmed milk.**

Complementary work

(a) You may be able to get a piece of sugar cane from a supermarket to show the children. They could use secondary sources to find out how sugar cane is treated to release its sugar.

(b) You could get some wheat grains from a health food store and grind them in a mortar and pestle, then sieve the ground up material to collect the starch in the flour. This will support work in separating materials.

(c) You could demonstrate the boiled rice activity in Picture 3.

Teaching notes

The concept of energy is a difficult one for many children (and adults) to understand. In science it is often described as the ability to do work. In this definition, work can be a movement, so the linking of energy and movement can be a useful one.

The energy in food gives power to the heart to move and pump the blood; but it also gives power to the nerves to send electrical messages and gives power to all the building blocks of the body, the cells, to perform their functions and keep the body alive.

The body releases a certain amount of sugar into the blood, which is sent to the various parts of the body as the blood flows by. This is topped up with sugar stored in the liver, and by the ingestion of sugar and starch in meals.

In the body, starch is broken down to a sugar called glucose. This is the sugar that the body uses. Cane sugar is a type of sugar called sucrose, but can also be broken down to produce some glucose.

Fat can only be slowly changed into sugar for the body to use, but sugar that is not used up in supplying energy can be more easily converted to fat.

Teacher's sheet: activity

Based on **pages 12 and 13** of *Food, teeth and eating*

Introducing the activity

(a) In the unit the children learned that food provides energy for activity. Remind the children of this, and ask them to think about how active the body is at different times.

(b) Divide the body into three parts – the arms, legs and trunk, or torso. Make sure the children understand what the trunk, or torso, is. Ask the children about how the different parts of the body move when they walk (see note (i)). Say that in this investigation, they are going to find out how active they are.

Using the sheet

(c) Give out the sheet and let the children fill in their names and form, then go through task 1 (see note (ii)).

(d) Let the children try task 1.

(e) Go through task 2, then let the children try it.

(f) Let the children try tasks 3 and 4.

Completing the activity

(g) Relate the activities of the body to the energy needed from food by asking, "When is the body using large amounts of energy?" and, "When is it using small amounts of energy?"

(h) Extend the children's ideas about energy use by letting them think about how long they take part in each of the activities. What do they spend most of their free time doing – playing sports or watching TV?

(i) Ask the children to assess themselves as very energetic, energetic or not very energetic.

Conclusion

The body's activities can be analysed by examining the movements of the different parts of the body. This analysis can be used to assess the daily activity of a person.

Teaching notes

(i) This investigation leads to the concept of life style, which is important in health issues. This does not need to be mentioned now but can be referred to again when the balanced diet is being considered.

(ii) Explain how the table is arranged, with one column of activities and three columns related to the three parts of the body. Each of the body columns is itself divided into three columns. When the children look at an activity, they tick column 1 if they think the part moves a little, they tick column 2 if they think the part moves more than a little, and they tick column 3 if they think the part moves a lot. You may fill in the first one for them – which is a tick in 2, 1, 1.

Teacher's sheet: comprehension

See **pages 14 and 15** of *Food, teeth and eating*

Answers

1. **The shaded foods should be chicken, peas, beans, meat and cheese.**
2. **For growth, and to repair damaged or worn out parts.**
3. **Tiny building blocks.**
4. **Peanuts, lentils, soy beans.**
5. **Protein.**
6. **There is no meat in the diet, only food from plants. If you have extended the work you might like to award marks for milk, eggs and cheese.**

Complementary work

(a) The children can use secondary sources to find out how milk is collected and distributed.

(b) The children can use secondary sources to find out how cheese is made.

(c) The children can use secondary sources to find out how chickens are farmed for egg production.

Teaching notes

Body-building foods are called proteins. They are made of building blocks called amino acids. You can think of amino acids as joined together like beads in a necklace to make a molecule of protein. When protein is digested, it is broken down into its amino acids, which can then be used to build up other kinds of proteins the body needs. The reason for this breaking down and building up again is because the protein in one organism is not directly suitable for use by another organism.

If you have introduced the concept of the vegetarian diet, you may also wish to mention that a vegan does not eat meat or any animal products, but by carefully selecting food from plants can still get all the body-building materials that are needed.

6 Teacher's sheet: activity

Based on **pages 14 and 15** of *Food, teeth and eating*

Introducing the activity

(a) Children often measure their heights. Some may have a measuring chart in their bedrooms where height is recorded each year. You may wish to refer to this (see note (i)).

(b) You may wish to say that as the body uses body-building foods, its height and weight increase. Some people will naturally grow more than others, but all can be healthy.

Using the sheet

(c) Give out the sheet and let the children fill in their names and form, then go through task 1.

(d) Let the children answer the questions (see note (ii)).

(e) Go through the answers with the class. The answers are:

(a) Clare.
(b) Beth.
(c) Clare.
(d) Beth.
(e) Arif.
(f) Beth.
(g) Because she has been shortest in the other years, because she is not growing as fast as the others.
(h) Arif.
(i) He is growing faster than the others (see note (iii)).

Completing the activity

(f) Refer to pets and ask for anecdotes about the growth of pets. If any children have young pets, see if they can provide data about length or weight with the consent of the parent or carer. This data could then be examined, and predictions against average growth in height or weight for the animal could be made.

Conclusion

People grow at different rates.

Teaching notes

(i) The topic of growth is a sensitive one so your approach may vary with your class. This activity attempts to depersonalise the subject by clearly using made up data. The heights are around the averages for the age. The ages have been made remote from the ages of the class to prevent direct comparisons.

(ii) Some of the children may need help with some of the questions. Questions (f), (g), (h) and (i) call for the children to recognise a pattern in the data and make predictions based on it.

(iii) The explanations relate to the rate of growth and call for the children to look at the heights in years 3 and 4. They will find that Arif has grown 7cm, Beth 6cm and Clare 5cm.

7 Teacher's sheet: comprehension

See **pages 16 and 17** of *Food, teeth and eating*

Answers

1. **(i) Cheese; (ii) Three; (iii) Blackcurrant; (iv) Vitamin C.**
2. **They bleed.**
3. **Scurvy.**
4. **Calcium.**
5. **Iron.**
6. **Beans, wholemeal bread, cereals, potatoes, dried prunes and figs.**

Complementary work

(a) The children could look on packets of food such as breakfast cereals to find what vitamins and minerals they contain.

Teaching notes

There are a number of vitamins but the ones the children may most easily recognise on food labels are vitamin A, B, C and D.

As each vitamin was discovered it was given a letter of the alphabet. After the discovery of vitamin B it was found that there are several B vitamins. They are grouped together as vitamin B complex, which includes: B1 (thiamin), B2 (riboflavin), B3 (niacin), B5 (pantothenic acid), B6 (pyridoxine), B12 (cobalamin), folic acid, biotin and lecithin.

Vitamin A (retinol) is considered to be an important health-giving vitamin, as it helps keep the moist linings of the nose and airways healthy, so they can form a first line of defence against infection. Vitamin A is found in milk, liver, carrots, tomatoes and fish liver oils. Vitamin A also aids in growth and is essential for vision in dim light.

There are twenty minerals needed by the body. Calcium and iron are two that are needed in relatively large amounts.

The children may note that the weights of vitamins and minerals are measured in milligrams (mg), and this should allow you to introduce the term milligram as one-thousandth of a gram, and say that only small amounts of vitamins and minerals are needed but they produce important effects on the body.

Teacher's sheet: activity

Based on **pages 16 and 17** of *Food, teeth and eating*

Introducing the activity

(a) Tell the children that scientists sometimes make models to help with their investigations. Remind the children of how vitamins help the body, and tell them that vitamin D makes the bones grow strong. Scientists can investigate the effect of having a diet without vitamin D by making model bones and testing their strength (see note (i)).

Using the sheet

(b) Give out the sheet and let the children fill in their names and form, then go through tasks 1 to 4.

(c) Let the children try tasks 2 to 4.

(d) Go through tasks 5 and 6, then let the children try them.

(e) Go through tasks 7 to 10, then let the children try them.

(f) Let the children try tasks 11 to 13.

Completing the activity

(g) Let the children compare their results.

(h) Ask the children how they would expect a child's legs to be shaped if their diet lacked vitamin D. When they have answered, show them a picture of a child suffering from rickets. Tell the children that the disease in children can be cured by eating more foods which contain vitamin D.

Conclusion

The thicker legs are the strongest. They support more weight than the thinner legs. Weak legs bend when they have to support a heavy weight.

Teaching notes

(i) Vitamin D helps the body take up calcium and pack it into bones to make them strong. In this activity, the concept of bone strength is simplified and strength is related to just thickness. The end result, however, is the same – weak bones bend. Once the children discover this information they can then use it to make a prediction.

Teacher's sheet: comprehension

See **pages 18 and 19** of *Food, teeth and eating*

Answers

1. **(i) Two incisor teeth should be labelled; (ii) One canine next to them should be labelled; (iii) Five molar teeth next to the canine should be labelled.**
2. **Milk teeth.**
3. **Incisors.**
4. **Molars.**
5. **(i) Enamel; (ii) Forming the white surface of the teeth.**
6. **(i) Plaque; (ii) Sugar sticks to the plaque, the plaque turns the sugar into acid and the acid rots the enamel.**

Complementary work

(a) Look at sterilised human teeth or plastic models to see the crown and the root.

(b) The children could look at mirrors to identify their own teeth (and work out which teeth may have recently fallen out!). Make sure that any small mirrors the children use do not have sharp edges.

Teaching notes

When children describe anecdotes about their teeth they invariably talk about wobbly teeth and teeth falling out. You can build on this by saying that when the first set of teeth are due to be replaced by the second set, the body takes in, or absorbs, the roots of the first set of teeth. This makes the teeth wobble and eventually fall out. If sterilised human milk teeth are examined, they will be found to have hardly any roots.

We need two sets of teeth because the first set becomes too small for the mouth as the jaws grow. They are also too small to deal with the larger amounts of food we eat as we grow.

The first set of teeth contains 8 incisors, 4 canines and 8 molars (known as milk molars).

The second set of teeth contains 8 incisors, 4 canines, 8 premolars and 12 molars.

Between 6 and 7 years of age, the first molar erupts behind the last milk molar. Between 6 and 8 years, the lower incisors are replaced. Between 7 and 9 years, the lower canines are replaced. Much later, between the ages of 16 and 21, four wisdom teeth (two top and two bottom) grow in. Before modern dentistry, these teeth may have helped push together the remaining teeth to make chewing easier. This may be why they usually grow in at an angle.

Teacher's sheet: activity

Based on **pages 18 and 19** of *Food, teeth and eating*

Introducing the activity

(a) Begin by reminding the children of how acids attack teeth. Tell the children that some drinks contain acids, and show them a range of drinks (see note (i)).

(b) Say that we cannot test the drinks on real teeth but we can use a tooth substitute – eggshell (see note (ii)).

(c) Ask the children how they could set up a test, and direct them towards the need for the test to be fair – use the same volume of liquid in each beaker and the same size eggshell.

(d) Remind the children that they are testing the effect of acid. How could they be sure that acid made a difference? To check this, one beaker should be set up with water. This is called the control.

Using the sheet

(e) Give out the sheet. Let the children fill in their names and form, then go through tasks 1 to 3.

(f) Let the children try tasks 1 to 3.

(g) Go through tasks 4 to 6, then let the children try them.

(h) Let the children try tasks 7 and 8 (see note (iii)).

Completing the activity

(i) Let the children try task 9. If different groups have tested different drinks, ask each group to report to the class. If the whole class has studied the same set of drinks, discuss the results with them (see note (iv)).

(j) Ask the children how the results of the investigation may affect their drinking habits.

Conclusion

The corrosive properties of drinks can be investigated by suspending eggshells in them for a few days.

Teaching notes

(i) You should include fruit drinks, fizzy drinks and cola drinks.

(ii) This is an example of scientific modelling in which data from a model is related to the real thing. You will also need to prepare the eggshells in their string slings before the lesson.

(iii) The children may like to use magnifying glasses to look for signs of a pitted surface or crumbling edges.

(iv) The children should arrange the drinks in order, starting with the most damaging drink and ending with the least damaging drink.

Teacher's sheet: comprehension

See **pages 20 and 21** of *Food, teeth and eating*

Answers

1. **The teeth at the front of the lower jaw should be labelled.**
2. **A = incisor; B = canine; C = molar.**
3. **Elephant, giraffe.**
4. **Fruit, nuts, strips of bark.**
5. **Bear, wild boar.**
6. **(i) Their incisors have an enamel layer that wears down more slowly than the rest of the tooth – leaving a sharp edge.**
   (ii) Because they grow continuously.

Complementary work

(a) The children could be shown a video of a particular habitat in which the feeding of different animals are featured. Afterwards, they could be asked about the animals they have seen and the ways in which the animals fed. If there is enough information on the video they could classify the animals as plant eaters (herbivores), meat eaters (carnivores) and animals that eat both meat and plants (omnivores).

Teaching notes

Some children may still have difficulties with the concept of animal life, so you could use this unit to help them. Try to choose examples of animals feeding from all the major animal groups. These are the segmented worms (e.g. earthworms, ragworms, lug worms), Crustacea (e.g. crabs, lobsters, woodlice), insects (e.g. butterflies, ladybirds), spiders, molluscs (slugs, snails, octopus, squid), fish (e.g. goldfish), amphibian (e.g. frog), reptile (e.g. crocodile), birds (e.g. blackbird, eagle) and mammals.

If the children have studied plants and animals in their local environment in earlier years you could remind them of the animals they found.

Although not needed at this level, some children may ask about the following terms. A herbivore is any animal that eats plants (not just cattle and sheep), a carnivore is any animal that eats other animals (not just lions and wolves), an omnivore is an animal that eats both plants and animals. There are few omnivores. The best known are humans, bears and wild boar.

9 Teacher's sheet: activity

Based on **pages 20 and 21** of *Food, teeth and eating*

Introducing the activity

(a) Ask the children how an animal like a lion or wolf gets its food, and look for answers about stabbing their prey with their teeth (see note (i)).

Remind the children that scientists sometimes make models to use in investigations where studying the real thing could be dangerous or impractical.

Using the sheet

(b) Give out the sheet and let the children fill in their names and form, then go through task 1 with the children.

(c) Go through tasks 2 and 3, then let the children try them (see note (ii)).

(d) Go through tasks 4 and 5, then let the children try them.

(e) Go through tasks 6 to 8, then let the children try them.

(f) Let the children try tasks 9 and 10.

(g) Let the children try task 11.

(h) Let the children try tasks 12 and 13.

Completing the activity

(i) Let the children compare their results.

(j) The children should have discovered that tooth A frequently bends as it makes a hole and has to be straightened between drops. You may use this observation as an example of how an investigation can provide new information.

Conclusion

Tooth A bends when it is dropped. Tooth B is the best tooth for stabbing because it goes deepest and does not bend. Tooth C makes the shallowest hole.

Teaching notes

(i) Wildlife films abound on television so it is likely that the children will have seen some predators in action. You may wish to reassure more sensitive children that the stabbing teeth are intended to bring a quick death to the prey so that suffering is not prolonged. A quick death is really in a predator's favour, as it prevents undue loss of energy dealing with struggling prey.

(ii) You may wish the children to begin task 11 at this stage. You may also ask them to write a plan first, or to write up their work as they go along.

Teacher's sheet: comprehension

See **pages 22 and 23** of *Food, teeth and eating*

Answers

1. **(i) Cat; (ii) Canine.**
2. **Hamster, rat.**
3. **Tame them.**
4. **The wolf.**
5. **(i) Hay, grass; (ii) It helps them digest their food.**
6. **Rodents have teeth which grow all the time and are worn down on hard foods. They are not worn down on soft foods, so the twigs are added to give them something hard to file their teeth on.**

Complementary work

(a) You may wish to extend the work and look at quantities of food related to the animal's size. This can be done by examining the labels from canned dog food. The children can convert a table of recommended amounts of foods for dogs into a chart. Try to get the children to express the relationship that the larger the dog, the more food it needs.

Teaching notes

You may like to make the children familiar with constructing tables and filling them in by asking them about their pets. You could make a table on the board and record the number of different types of pets. This would give the children an opportunity to see a table being used to collect data before they carry out their practical investigation in this unit.

You could also record the information on a database, or use it to prepare a bar chart about the number of pets in the table. The children could use your example to help them handle and present their data in a similar way.

Teacher's sheet: activity

Based on **pages 22 and 23** of *Food, teeth and eating*

Introducing the activity

(a) You may begin by asking the children about what their pets eat. From this discussion, invite ideas for an investigation such as, "Do all dogs eat the same food?"

Using the sheet

(b) Give out the sheet. Let the children fill in their names and form.

(c) Go through task 1, then let the children try it (see note (i)).

(d) Go through task 2, then let the children try it (see note (ii)).

(e) Let the children write down all the foods in a brainstorming session to address task 3.

(f) Let the children select five foods for task 4 (see note (iii)).

(g) Let the children complete task 4.

(h) Go through task 5, then let the children try it (see note (iv)).

(i) Let the children try task 6.

Completing the activity

(j) Have the class make a display of the charts and have a discussion about what all the results show (see note (v)).

Conclusion

The food pets eat can be investigated by making a survey of pet owners.

Teaching notes

(i) The whole class can be set the same question, but then groups could work separately to answer it.

(ii) This must be practical within the time scale of the investigation. It will be important not to have the same person being asked about their pet's food by several groups.

(iii) If there are a large number of foods, they can be split among different groups.

(iv) Care must be taken in working out a regime for collecting data from pet owners. Select pets which are owned by parents or carers of the children in the class, or in other classes in the school.

(v) Make sure the children realise that they need to have a large amount of data to see patterns.