Food

MODULE 1

Thinking about edible plants

TIME
1 hour 20 min

MATERIAL
A fresh vegetable from each part of the plant, e.g. carrot, pea/bean, cabbage, tomato, potato, celery, onion, sprouts, broccoli.
Images from the Media Gallery (Food M12 Vegetable Library) are adequate but not as good.
Photocopies of sheets F1, F2 & F3

SKILLS
Enquiry skills
Analysis of data

KEYWORDS
Root
Stem
Leaf
Fruit
Tuber
Bulb
Flower
Bud
Pod

CROSS-CURRICULAR ACTIVITY
Numeracy
PSHE
ICT

Overview

Observation of vegetables and their growth will aid identification of the parts of the plant.

Aims

To relate plant structure to the parts of the plant that we eat.

Teaching sequence

1. The survey can be used as a quiz for a single class. Each child answers the questions on sheet F1 (useful for assessment). In groups of 5 they combine their results and present them to the class. The survey could also be used by pairs to collect information from older or younger children (to see whether different age groups know more or less about vegetables). Each pair should collect 5 surveys.
2. Once the information has been collected the data can be entered into Excel worksheets and graphs made from there, or collated and presented as a histogram, pie chart or bar graph (see Teachers' notes).
3. Charts have been provided as a guide to alternative methods of presenting results. Posters or PowerPoint presentations could also be considered.
4. Once the data has been collected the children can be encouraged to question their results, e.g. by sorting them into categories (statements sheet F2 are provided to cut out and categories are shown on sheet F3).

Teachers' notes

An activity for the early autumn term when harvesting or for spring when sowing seeds (see Media Gallery Food Module 1 Vegetable crops to grow in a school garden or in containers).
It would be helpful before and after these lessons for children to cook and eat a range of vegetables. There is a PowerPoint presentation on vegetables in the Media Gallery Food M1 Vegetable Pictures.
The survey is an evidence-gathering tool in the first instance but the completed survey also provides data for formative assessment. If children revise their initial survey at the end of the unit, changes in thinking can be tracked.
The parts of plants we eat are tasty and nutritious. Food plants have been bred over centuries, e.g. the Egyptians experimented with varieties of cereal crops, selecting seed from those varieties that gave the highest yield. These experiments mean that those parts of the various plants we eat are larger than their wild relatives. Now they are also bred to keep well and last longer on supermarket shelves.
The aim of the activity is to focus attention on those parts of the plant eaten. Previous knowledge of plant structures will be revised and children will make close observation of the vegetables and individual plant structures.
By eating a range of vegetables we eat all plant parts. We don't eat stalks or roots of some plants because they are too fibrous or lack nutritional value. (Ask the children whether people might eat these plant parts in a famine situation.)

Health and Safety

Some parts of vegetable plants are poisonous, e.g. after flowering, small green fruits develop on potato plants. These are poisonous which is not surprising because potatoes belong to the same family as deadly nightshade (its berries are also poisonous). If left in the light potatoes go green because solanine and chlorophyll form under the skin of the tuber. In large quantities solanine is toxic. (Ask children what can be done to with potatoes to prevent them from going green then test these ideas by putting potatoes in various containers and leave control tubers in the light.)

Personal, Social and Health Education (PSHE)

This might be a good time to talk about how people in the past found out which plants were poisonous and discuss why children should not repeat their experiments!

Extension Activities

The children could keep a note in their science notebook of the type of vegetables and the part of the plants they are eating at home for a week prior to or after the survey.

Paired Science

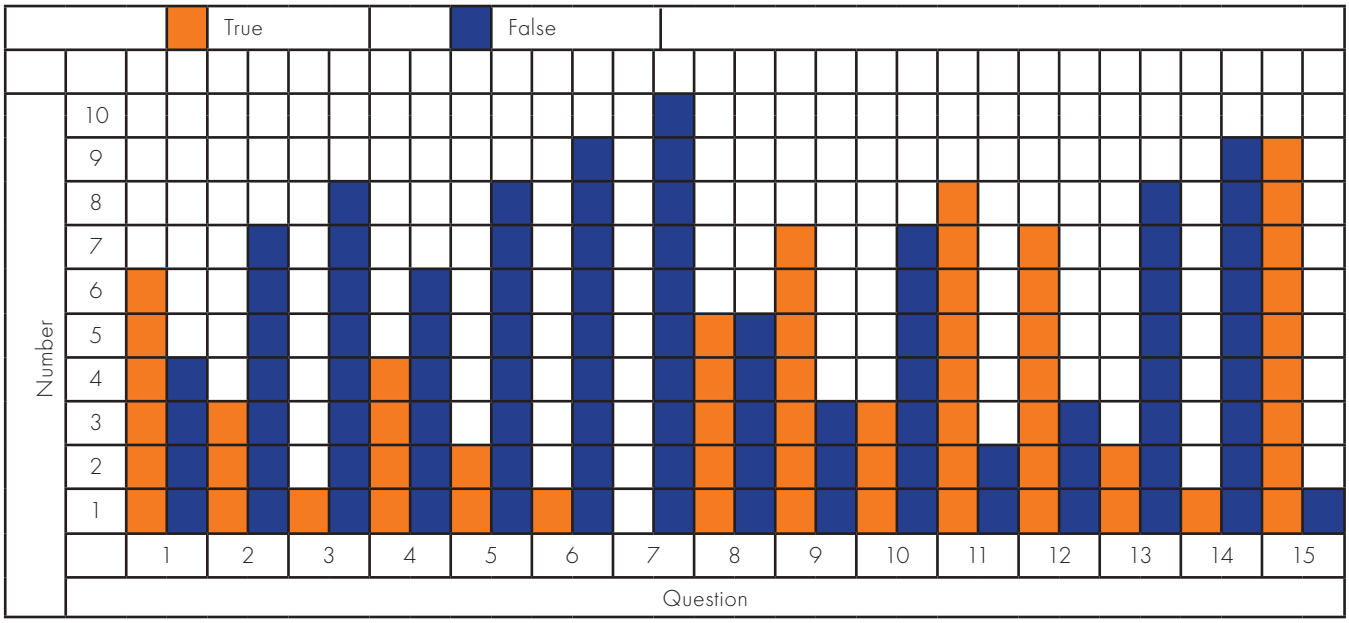
The activity can be preceded by adults/mentors/talk partners encouraging taste, texture, shape and colour experiences of a range of vegetables at meal times, during shopping trips or in school.

Example of data presentation

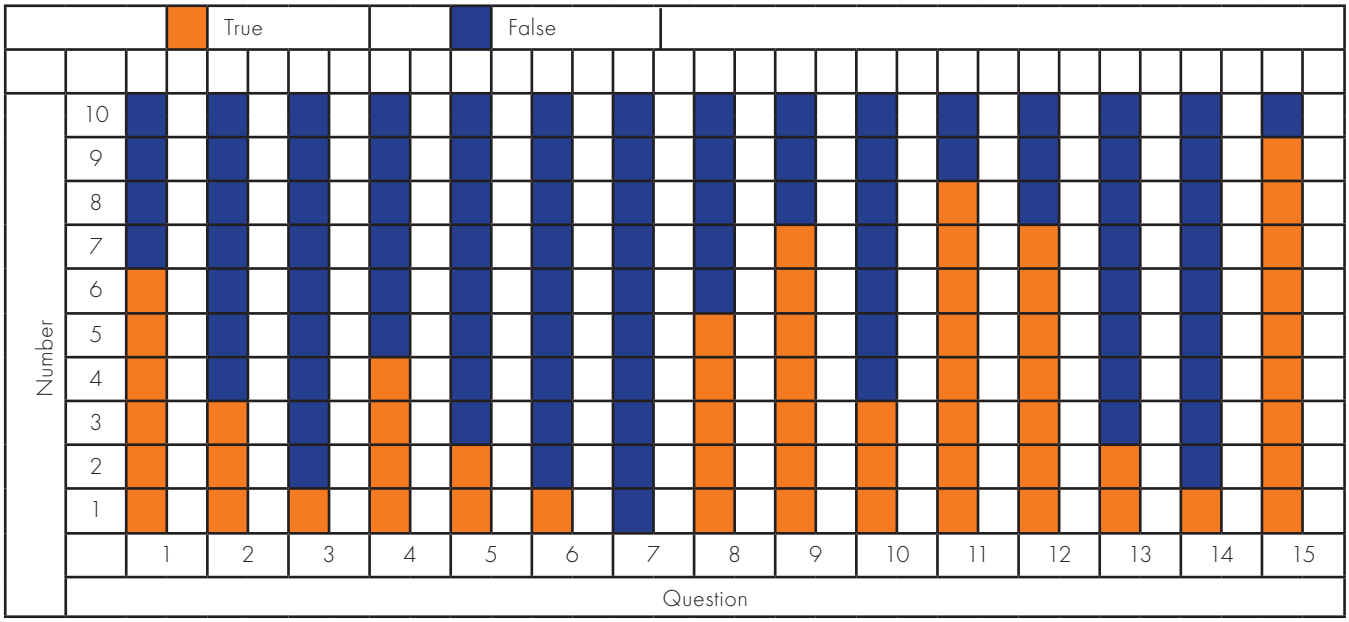
Completed table (for 10 surveys – groups join together)

number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number who thought it **True**	6	3	2	4	2	1	0	5	7	3	8	7	2	1	9
Number who thought it **False**	4	7	8	6	8	9	10	5	3	7	2	3	8	9	1

One data presentation style



An alternative data presentation style



This sorting activity can be differentiated or completed in mixed ability groups.

Here is a simplified example using 4 statements. The sorting sheet (F3) can be photocopied onto A3 paper to give plenty of space for statements to be placed in the chosen categories.

Most people believe that	**All vegetables are plants.**
	All vegetables are green.
Some people believe that	**All vegetables grow under the ground.**
Few people believe that	**All plants are vegetables.**

Survey: What is a vegetable?

	True	False
1. All plants are vegetables.		
2. Only some plants are vegetables.		
3. Some vegetables can only be bought in tins.		
4. Only green, leafy plants are vegetables.		
5. Vegetables are only roots of plants.		
6. All vegetables grow above the ground.		
7. Some vegetables grow above the ground.		
8. All vegetables have roots, stems, leaves, flowers and seeds.		
9. All vegetables are green.		
10. Vegetables only grow in countries with cold climates.		
11. All vegetables are plants.		
12. Vegetables grow all year round.		
13. Some vegetables are only found in a supermarket freezer.		
14. Salad (cucumber, tomatoes, lettuce) is not made up of vegetables.		
15. Vegetables only have leaves and roots.		

Now put your results into the chart and then make a graph of your results.

Number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Number who thought it **True**															
Number who thought it **False**															

Statements

All plants are vegetables.	Vegetables only grow in countries with cold climates.
Some vegetables can only be bought in tins.	All vegetables are plants.
Only green leafy plants are vegetables.	Vegetables grow all year round.
Vegetables are only roots of plants.	Some vegetables are only found in a supermarket freezer.
All vegetables grow above the ground.	Salad (lettuce, tomatoes) is not made up of vegetables.
Some vegetables grow above the ground.	Vegetables only have leaves and roots.
All vegetables have roots, stems, leaves, flowers and seeds.	Only some plants are vegetables.
All vegetables are green.	

Most people believe	Some people believe	Few people believe

Today I learned