

## Using the special knowledge held by primary children from other cultures in science activities

In this extract we examine the opportunities to make use of pupils' special knowledge in the context of biological, chemical and physical ideas.

### Life Processes and Living things

Children who have visited or have relatives in other countries can enliven such studies by talking about animals and plants they know about in other countries. First-hand experiences of *studying different fruit and vegetables* can include those from non-European countries which are now fairly easily available, such as guava and kiwi fruit. Children from different cultures may be able to explain how they grow and how they are used in their diet or cooking. Growing and studying seeds need not be restricted to common British plants. The class might grow mung beans, coriander, turmeric, chillies, soy beans and so on. In one class, an Asian father brought in a huge variety of seeds which he liked to grow and talked to the children about the plants and how he used them. Jasbir Mann wrote about an imaginative project that involved children finding out the best growing conditions for fenugreek, rather than the usual cress (Science for a Multicultural Society Group, 1985). When older able primary children consider the environmental issues of use of fertilisers in agriculture they might include discussions of the value of natural fertilisers used on Indian and Pakistani farms.

### Diets

*Comparing different ways of preparing and preserving food* enables all children to offer personal knowledge. For example, in a study on bread or yeast the children could observe pitta, naan, chapattis, pizza and pancakes as well as standard British bread. The children can discuss what is the same and different; bake different kinds; and observe changes of size, colour, flexibility, mass, water content and texture.

Many books show a standard Caucasian Western balanced diet. Trainees need to consider whether this should be adapted to take account of the pupils they are teaching. It is necessary to find out about the children's diet so that lessons can be related to their specific needs. They should consider that there are several external influences on children which will effect their concept of a healthy diet.

#### 1. Home life

Patterns of behaviour and attitudes will be established before the age of 5. Sensitivity is needed and it is important that trainees respect the way the child is brought up but not condone things that are less desirable. This is just as applicable to western diets which may compose entirely of hamburgers and chips!

## 2. Original cultural tradition

Diets reflect the climate and availability of food in the original cultural area. For example, many Afrocaribbeans are likely to value the typical cereals such as rice, maize, yams, plantains, sweet potatoes and bread fruit, eaten with meat or fish and well seasoned with herbs and spices that come from the Caribbean.

## 3. Religious beliefs

Orthodox Hindus adhere to the doctrine of 'ahisma' or non violence and therefore many are strict vegetarians who do not eat fish or eggs. The cow is a sacred animal and therefore beef is never eaten even among non- vegetarians, who may eat mutton, poultry, fish and eggs. Milk, butter and ghee (clarified butter) are usually eaten because no killing is involved, but cheese is more rarely eaten because of the unfamiliar taste and rennet in it.

Food and dietary laws for Muslims come from the Koran which says that the flesh of those animals that are cloven footed and those that chew the cud are unlawful food. The consumption of alcohol, pork, carnivorous animals and some birds are forbidden. Poultry and fish with scales are permitted.

Sikhism was founded some 600 years ago and combines both Moslem and Hindu traditions and therefore vegetarianism is not uncommon and Sikhs who do eat meat do not eat pork or beef.

Most Afrocaribbeans have no religious influence on their diet but Rastafarians follow 'I-tal' diets where processed and preserved foods are excluded because food additives are believed to pollute the body and soul. Meat, poultry, eggs, dairy products, alcohol and salt are prohibited. Less strict Rastafarians accept the basic ideas but also eat dairy products, scaled fish, sea salt and other seasonings in small quantities.

## 4. Western influence

There is some evidence to suggest that there is loss of confidence in the traditional diets and changes are moving towards Western diets. However, the changes are often not beneficial with children eating a lot of confectionery, fast foods and fizzy drinks.

## **Materials and their properties**

When studying the properties of different materials there are again many opportunities for children of different cultures to use their special knowledge to add to everyone's understanding.

### **1. Fabrics**

Tests on fabrics might include studying clothes of different cultures, eg sari and kameeze, to explore why different fabrics are used in hot and cold countries; why different colours are appropriate; and why different amounts of cover are necessary. The work could include discussions on the relationship between religious, cultural and environmental influences.

An investigation into testing natural dyes might start by looking at bright colours of saris or Khangas (2 metre pieces of cloth which Kenyans women wear as dresses, skirts, blouses and head dresses.) Which materials keep their colour the longest? Which natural dyes are permanent? (These might be red cabbage, carrot, onion, blackberry, beetroot, pea pods, lichens, coffee and tea. Natural dyes need a mordant or chemical fixer eg alum, iron or chrome.) (Richards R., 1990)

## **2. Homes**

Examining the properties of different materials for keeping in heat or keeping cool might be explored. The children can also be shown homeless people in London 'cardboard city' rather than those of the third world countries.

This topic is closely related to technology and the different factors controlling the choice of materials can be discussed - materials available, climate, economic (amount of decorations), technology available, way of life (design for Gypsies or nomads needs to be portable) and cultural factors (Religious patterns may influence division of living space.). The design of different homes in the world can be studied. For example, homes in Afghanistan and Spain are different from those in Britain but are well designed for the hotter climate by having flat roofs where people can sleep safely; a few small windows to keep out the sun's rays; and open air courtyards which act as an outdoor rooms where the air becomes cool at night and stays cool in the day-time. The materials used should not be automatically regarded as less advanced or bizarre because they are not the same as those Western children are used to but, like the clay adobe houses in Arabia that absorb heat and release it during the cold nights, they usually have ideal properties for their particular situations (James, A., 1987).

## **Physical Processes**

### **Forces**

As making puppets are an effective way of introducing simple forces that appeals to boys and girls, this work might include making and looking at puppets from different cultures.

### **Sound and Music**

Classes with children from a variety of cultures are at an advantage, as the children or members of their families may well be able to play a range of different instruments and will certainly be able to tell the others about the music and instruments of their own culture.

## Using Light

When the children explore a variety of light sources this work can be enhanced by considering the significance of light and different ways of producing it in different celebrations and religions. These might include looking at divas, fairy lights, candles at Hanukah and fireworks. Muslim children will be able to explain that the moon regularly changes in shape and its significance in Islam.

### References:

Science for a Multicultural Society Group (1985) *Science Education for a Multicultural Society*, Leicestershire Education Authority

Richards R (1990) *An Early Start to Technology* Hemel Hempstead: Simon & Schuster ideas on dyes.

James, A. (1987) *Homes in Hot Places* Hove, East Sussex: Wayland and James, A. (1987) *Homes in Cold Places* Hove, East Sussex: Wayland provides useful material on design aspects for children.