

ATTACHMENT 1

Science Investigations & Citizenship

Not all the content of science topics can be related easily to citizenship. However all investigations provide opportunities for more than science skill development. Enabling children to work co-operatively to carry out investigations provides many opportunities to consider and practice Citizenship skills. For example, science investigations should provide the opportunity for pupils to:

- Work co-operatively and responsibly with concern for everyone's safety;
- Express and test their own ideas;
- Present their own ideas as well as listening to and valuing others' ideas;
- Communicate findings honestly;
- Make decisions based on full and balanced information;
- Rethink ideas in the light of new evidence; and
- Consider how their findings can be applied.

Relating Science Content and Citizenship

Some science topics lend themselves more easily to raising citizenship issues and some of these are suggested below. However, examples within other topics can provide appropriate discussion points. For example, diets from different cultures and religions can be included on work on healthy eating. Different methods of lighting and musical instruments from around the world can be used in topics on light and sound. A topic on electricity might include how electricity is produced using waterpower in different countries to help the children appreciate that all styles of provision have merit.

Care of living things and the environment

There are many opportunities in most years of the primary school to consider care of living things and the environment as indicated by the QCA Scheme of Work www.standards.dfes.gov.uk/schemes2/science which has units in Years 1, 2, 4, 5 & 6 that lend themselves to covering environmental issues. Therefore the teacher only needs to add relatively small amounts of time to enable pupils to understand and discuss the issues.

Talk about care of pets and animals being studied in school can arise during all topics on animals such as Plants and Animals in the Local Environment (QCA Unit 2B). The children can be shown how important it is to handle animals carefully, feed them with appropriate food and return collected specimens to their correct natural environment. The Habitat (QCA Unit 4B) suggests including thinking about the effect of changing the habitat the pupils have studied, such as draining a pond or removing shade.

Life Cycles (QCA 5B) suggests discussing why animals need to reproduce with the view

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to considering animals that are facing extinction and how conservationists try to deal with the issue.

Studies of food chains in a topic such as Interdependence and adaptation (QCA Unit 6A) enables the teacher to explain how removal of producers (green plants) has a devastating effect on the whole food chain and how pollutants in the food chain can have particularly bad effect on top consumers such as humans.

Controlling sound pollution can be included in a topic on Sound and Hearing (QCA Unit 1F) and/or Changing Sounds (QCA Unit 5F). Either of these units could include talking about being considerate to people with differing taste in music and the dangers to loud music. A Year 1 class might compare whether ear muffs or no ear muffs would help someone who doesn't like the music that is played. A Year 5 class could investigate different materials to find suitable materials for ear muffs. A different investigation could be to explore the best material for sound proofing a house.

A topic on heat insulation such as Keeping Warm (QCA Unit 4C) could include talking about insulating houses using loft insulation, insulation in wall and double glazing and how this would help reducing cost of heating the home as well as saving energy resources in general.

Developing a healthy life style

There are many opportunities throughout the primary school to cover health issues. The QCA Scheme of Work has suggested units for Years 2-6. Any topic covering diets can enable teachers to discuss a variety of diets typical of different cultures and show that all can provide well balanced healthy diets. The relevant QCA units (www.standards.dfes.gov.uk/schemes2/science) include:

The Health and Growth topic (QCA Unit 2A) which suggests work on healthy diets, need for exercise and about the safeties and dangers of medicines.

Teeth and Eating (QCA Unit 3A) suggests covering how to care for human gums and teeth.

Moving and Growing (QCA Unit 4A) provides an opportunity to look at how muscles work during exercise and how exercise can help muscle development.

Keeping Healthy (QCA Unit 5A) includes work on appropriate diets, exercise to keep healthy, tobacco, alcohol and other drugs.

Micro-organisms (QCA Unit 6B) includes finding out about how micro organisms cause common illnesses and what action can be taken to protect ourselves such as cleaning teeth and basic food hygiene.

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There are also other less obvious opportunities within science activities that enable health and care of ourselves to be included. For example, work on identifying Solids and Liquids (QCA 4D) could include talking about dangerous liquids and how we can recognise them.

Respecting differences and similarities between people

A topic on Ourselves (QCA: Unit 1A) should include looking at how the human body changes from a baby to an old person. This could include considering how dependency and responsibilities change with different ages. The children could be encouraged to talk about when they should take responsibility for helping to look after someone else or a pet, keeping the home clean, making sure dangerous materials such as disinfectants, weedkillers and matches are kept in safe places.

The topic on Variation (QCA 2C) suggests that teachers compare and contrast individuals obviously being sensitive to differences.

Life Cycles (QCA 5B) includes talking about the growth and development of humans as well as comparing length of stages such as gestation periods for different animals to illustrate the differences between newly born animals of different species in terms of their dependence on their parents.

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