

## Unit 21 People and the environment

### About the unit

Schools need to decide which opportunities to develop as explicit citizenship provision. In this unit pupils investigate the complexity of evaluating choices by considering values and scientific evidence together. A key subject for scientific investigation is the interaction between people and the environment, and how this differs both geographically and historically. By appreciating the wider impact of individual behaviours, pupils can begin to consider the need for changing lifestyles, now and in the future.

The unit meets some of the requirements for both citizenship and science at key stage 3. Aspects of the unit that are specific to science are set in **this typeface**. This unit links with the science programme of study and refers to the science scheme of work.

Taking a real local issue relating to the environment as a starting point, pupils consider the rights and responsibilities of different groups of people. They evaluate what should be done in a particular context and consider human values, distinguishing these from scientific evidence. In this context the notion of sustainability is introduced. Pupils are encouraged to empathise with viewpoints that are not their own, and to understand the importance of basic rules for discussion. Pupils also learn about how the media covers situations and the effect this can have on our understanding and opinion of events. By discussing power and authority, pupils learn how they themselves can influence decision-making.

*Pupils are encouraged to consider the positive and negative effects of scientific and technological developments on the environment. They take account of others' views and understand why opinions differ. They evaluate the strength of the evidence they have collected. They select and use a wide range of reference sources. They communicate clearly the results of their research and explain its significance. They begin to appreciate the power and the limitations of scientific methodology. The specific science content will, however, depend on the issues that pupils investigate.*

This unit uses energy resources – a key theme in the key stage 3 science programme of study – as an example. Any other environmental issue could be used as a focus, such as waste management, wildlife conservation, road-building, creating new housing on a greenfield site or food production. This unit could be taught in citizenship, or through science or geography. A non-science teacher could liaise with the science department to establish the most appropriate way of building on the science content in the key stage 3 programme of study.

### Where the unit fits in

This unit addresses the following aspects of the key stage 3 citizenship programme of study:

#### Knowledge and understanding about becoming informed citizens

Pupils should be taught about:

- 1a the legal and human rights and responsibilities underpinning society, basic aspects of the criminal justice system, and how both relate to young people
- 1c central and local government, the public services they offer and how they are financed, and the opportunities to contribute

- 1g the importance of resolving conflict fairly
- 1h the significance of the media in society
- 1i the world as a global community, and the political, economic, environmental and social implications of this, and the role of the European Union, the Commonwealth and the United Nations

#### Developing skills of enquiry and communication

Pupils should be taught to:

- 2a think about topical political, spiritual, moral, social and cultural issues, problems and events by analysing information and its sources, including ICT-based sources
- 2b justify orally and in writing a personal opinion about such issues, problems or events
- 2c contribute to group and exploratory class discussions, and take part in debates

#### Developing skills of participation and responsible action

Pupils should be taught to:

- 3a use their imagination to consider other people's experiences and be able to think about, express and explain views that are not their own
- 3b negotiate, decide and take part responsibly in both school and community-based activities
- 3c reflect on the process of participating

This unit links with unit 7 'Local democracy', unit 10 'Citizenship and geography: Debating a global issue' and unit 18 'Developing your school grounds' in the citizenship scheme of work.

*This unit could link with one of the following in the key stage 3 science scheme of work: unit 7C 'Environment and feeding relationships', unit 7I 'Energy resources', unit 8D 'Ecological relationships', unit 8I 'Heating and cooling', unit 9C 'Plants and photosynthesis', unit 9D 'Plants for food', unit 9G 'Environmental chemistry', unit 9I 'Energy and electricity'.*

## Expectations

### At the end of this unit

#### most pupils

**for citizenship:** show knowledge and understanding of rights and responsibilities. They consider rights and responsibilities in a situation where these may conflict between individuals and/or between groups. They understand the need to balance competing rights and appreciate the complexity of decision-making in such situations. They identify and use sources of information relating to environmental issues. They clarify their opinions on the issue that they have investigated and recognise other points of view. They contribute to class and group discussions and reflect on their participation.

**for science:** show some understanding of the nature and limitations of scientific evidence in making decisions about environmental issues. They start to show some understanding of the nature of sustainability.

#### some pupils have not made so much progress and

**for citizenship:** show limited knowledge and understanding of rights and responsibilities. They discuss rights and responsibilities in a structured situation. They use some sources of information relating to environmental issues.

**for science:** identify scientific evidence in considering environmental issues.

#### some pupils have progressed further and

**for citizenship:** show understanding of rights and responsibilities and use these concepts in analysing environmental conflict. They show understanding of the complexity of decision-making and identify factors that are important in particular environmental issues. They recognise the need to balance the competing rights of individuals and groups in different situations and draw on examples they have investigated. They identify and use sources of information relating to environmental issues and appreciate the strengths and limitations of different sources. They confidently contribute to group and class discussions of the issues and reflect on their participation, recognising the contribution of others.

**for science:** show a good understanding of the nature and limitations of scientific evidence in making decisions about environmental issues. They show understanding of the nature of sustainability.

## Resources

Resources include:

- *Citizenship education: the global dimension* (a booklet available in pdf from the Citizenship education: the global dimension website, or tel: 020 7490 8108)
- *Environment teacher's packs, Key Stage 1, 2, 3* (designed to complement the national curriculum; include colourful wall charts, photocopyable worksheets and teacher's notes. Download from the Environment Agency website – see [www.standards.dfes.gov.uk/schemes](http://www.standards.dfes.gov.uk/schemes))
- Ratcliffe, Mary (ed), *ASE Guide to Secondary Science Education*, 1998 (contains a number of relevant articles: those on understanding evidence, the nature of science, environmental education and social and ethical applications of science)
- The Charis Project, *Charis Science Units A1–A9*, 2000 (teacher resources promoting moral and spiritual development through the school curriculum. Available through the Association for Science Education website – see [www.standards.dfes.gov.uk/schemes](http://www.standards.dfes.gov.uk/schemes))
- Hicks, David, *Citizenship for the future: a practical classroom guide*, WWF UK, 2001
- Development Education Centre, *Learning today ... with tomorrow in mind, sustainable development education*, Birmingham, 2000
- Fullick, P L and Ratcliffe, M (eds), *Teaching Ethical Aspects of Science*, 1996 (available through the ASE website; case study 3, 'Ethical considerations in the personal use of energy', is particularly relevant)
- Solomon, J, *SATIS 16–19: How does society decide?* ASE, Hatfield, 1992 (provides very useful material for the teacher)
- [www.nc.uk.net/esd](http://www.nc.uk.net/esd) (QCA's education for sustainable development website; includes information about what education for sustainable development is and useful resources)
- Association for Science Education (ASE) *Science Year* CD-ROM

Many groups and organisations produce online resources that are relevant to citizenship. QCA has not printed these website addresses as it recognises that they can and do change, often at short notice. So that we can monitor and maintain a reliable and useful resource, the website addresses of the following organisations can be accessed through the key stage 3 citizenship scheme of work site at [www.standards.dfes.gov.uk/schemes](http://www.standards.dfes.gov.uk/schemes)

- CREATE (Centre for Research, Education and Training in Energy)
- *SchoolEnergy* (encourages staff and pupils to think about the energy used by the school)
- Centre for Alternative Technology, mid-Wales
- Centre for Sustainable Energy (particularly the page on fuel poverty within the UK)

- Anglian Centre for Renewable Energy Study (for useful information and links to other websites)
- National Energy Foundation (information about energy conservation)
- Department of Trade and Industry (DTI) – energy website
- The Renewable Energy Trail (a DTI site; pupils follow an educational trail that gives helpful information on current UK renewable energy use, with examples)
- The Environment in your Pocket (a Department for Environment, Food and Rural Affairs (DEFRA) site containing data, notes, graphs and charts on a wide variety of environmental issues, ranging from air quality, waste and recycling and radioactivity to wildlife and public attitudes)
- DEFRA – global warming website (activities for 12–16-year-olds)
- Waste Watch (information on waste reduction, reuse and recycling, including educational packages for schools)
- Energy from Waste Association
- Association for Science Education

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## Literacy and language

References to the Key Stage 3 National Strategy *Framework for teaching English, Years 7, 8 and 9* (NSE) are given in brackets and are indicated in appropriate sections of this unit.

Through the activities in this unit pupils will be able to understand, use and spell correctly words relating to:

- citizenship, *eg rights, responsibilities, community, negotiation*

Speaking and listening – through the activities pupils learn to:

- explore and develop issues in role (year 7 S&L15, year 8 S&L14, year 9 S&L12)
- use and reflect on their talk in group discussions (year 7 S&L11, year 8 S&L9, year 9 S&L8)

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## Links with other subjects

Geography: 5b, 6j, 6k, 7a, 7b in the programme of study

D&T: unit 6a ‘Shelters’ in the scheme of work

ICT: 3b, 3c, 4a, 5a in the programme of study

Pupils should learn:

Pupils:

### How do local environmental issues affect our community? What are our rights and responsibilities?

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| <ul style="list-style-type: none"> <li>• about a topical local environmental issue</li> <li>• to contribute to exploratory class discussion</li> <li>• to analyse a range of sources of information</li> <li>• to use their imagination to consider other people's experiences</li> <li>• to consider the importance of resolving conflict fairly</li> <li>• to justify opinions orally and/or in writing</li> </ul> | <ul style="list-style-type: none"> <li>• Choose (with the involvement of pupils) a real local environmental issue, <i>eg an application to build a waste incineration plant or a wind farm</i>. Suitable stimulus materials could include: maps or photos, local newspaper headlines, a cartoon, diagrams, or a directed reading activity based on a newspaper article.</li> <li>• Use one of the following activities in considering rights and responsibilities in relation to the chosen environmental issue:             <ul style="list-style-type: none"> <li>– a real or fictional case study, perhaps relating to renewable and non-renewable energy resources. Pupils devise a grid showing the goals, rights and duties of a particular group of people affected by the issue they are investigating</li> <li>– a structured class discussion</li> <li>– a 'consequence mapping' exercise, in which pupils think about different situations and explore 'what might happen if...?'. Focus on the likely impact on specific groups of local people, <i>eg the effect on local jobs, air quality or traffic volumes</i></li> <li>– a role-play in which the rights and responsibilities of different individuals are explored; conclude with a detailed debriefing and review</li> <li>– the collection and presentation of data relating to the case (perhaps data-logging environmental information collected at school), followed by either a case study or a role-play</li> <li>– an exercise in which pupils rank local services in order of importance, <i>eg competing claims on a council budget for removing burnt-out cars, improving litter collection or improving environmental education</i>. Pupils could research among their family and friends whether (and how) priorities differ between generations</li> </ul> </li> <li>• Make a list of key words, <i>eg</i> <ul style="list-style-type: none"> <li>– <i>citizenship: right, responsibility, duty</i></li> <li>– <i>science: renewable, non-renewable, fuel</i></li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>• contribute to group and class discussion</li> <li>• identify and use relevant information sources</li> <li>• produce and understand a structured summary of relevant information about an environmental issue for use in subsequent work</li> <li>• identify people who are affected by the environmental issue</li> <li>• identify the rights and responsibilities of different groups within society, including themselves</li> <li>• justify their opinions orally and/or in writing</li> </ul> | <ul style="list-style-type: none"> <li>• The purpose of this activity is to explore rights and responsibilities and to consider different points of view.</li> <li>• Choose a topic that offers sufficient scope and interest. Local media reports can be useful sources; pupils could find all the stories relating to the environment in a particular week or a particular edition.</li> <li>• A guest speaker could be invited to address the class, or audiotaped comments from local people could be used.</li> <li>• In this section pupils start to consider difficult issues and their effects on people. Whichever teaching activity is chosen, it is likely that the pupils will be working from incomplete information. Consideration of the nature of the information available should form part of the teaching strategy.</li> </ul> |
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**Learning objectives**

Pupils should learn:

**Possible teaching activities****Learning outcomes**

Pupils:

**Points to note****How can we weigh up the arguments?**

- about the impact of local action on the wider environment
  - about the concept of sustainability
  - to contribute to structured group discussion
  - to use their imagination to consider other people's experiences and to think about, express and explain views that are not their own
  - to understand the terms 'rights', 'responsibilities', 'authority' and 'power'
  - to evaluate arguments and draw their own conclusions
- Ask pupils to suggest how the behaviour of individuals or groups impacts on the wider environment, and introduce the concept of sustainability, *eg what impact would shifting to renewable energy resources have on specific groups of local people and on the environment*. Pupils could consider changes in their own behaviour and that of others, *eg using a different form of transport, changing car, switching electricity supplier, recycling*. In small groups, pupils apply their knowledge and beliefs to this situation and evaluate and decide what should be done, either by:
    - a 'consequence mapping' ('what if ...?') activity, in which the impact of change on the people concerned is identified and then discussed in relation to rights and responsibilities, or
    - considering the goals, rights and duties of the people affected
  - Each group records its discussion (perhaps using a grid showing the goals, rights and duties of a particular group of people). Encourage pupils to identify:
    - value judgements, *eg we think the farmer has a right to build wind turbines on his land*
    - where knowledge of scientific principles are useful, *eg for taking action or supporting renewable and non-renewable energy resources*
    - where information is lacking, *eg on the power output of a wind farm*
    - how decisions about this issue are made, *eg who decides, whether and how their decisions can be influenced, and what role pupils can play in the decision-making process*
  - Extension activity: Introduce data on probability and risk and ask pupils to take these into account in weighing up the arguments.
- identify the wider (possibly global) dimensions of a local issue
  - understand the concept of sustainability, referring to examples of how this affects their school and local community
  - recognise their own values and opinions about the issues they are investigating
  - identify scientific evidence and distinguish it from value judgement
  - identify the limitations of available information
  - know and understand the terms 'rights', 'responsibilities', 'authority' and 'power' and relate these to decision-making in the local community
  - evaluate different situations and make decisions about how to take responsible action
  - justify their personal opinion
  - recognise how young people can contribute to decision-making processes
- This activity aims to: develop understanding of links between the local environmental issue and its wider impact; extend citizenship ideas from rights and responsibilities to include value judgements, power and authority; gain insight into the power and limits of science and information.
  - Alternatively, use a pupil-enacted drama to prompt explorations of value judgements. Small groups could each pursue a separate aspect, so that a more rounded picture emerges.
  - A clear structure is needed to prevent polarised arguments and unfocused discussion.
  - This section links with unit 7 'Local democracy', unit 10 'Citizenship and geography: Debating a global issue', and unit 14 'Developing skills of democratic participation'.

**Learning objectives**

Pupils should learn:

**Possible teaching activities****Learning outcomes**

Pupils:

**Points to note****Why is it important to weigh up the arguments?**

- about different points of views on the issues they have investigated
- to contribute to group and class discussion
- to justify opinions
- to negotiate responsibly
- to reflect on the process of negotiation and participation (NSE)
- In a plenary session, a spokesperson from each group from the previous activity displays or presents the record of their group's discussion. Compare the records of the different groups. Are there any common threads?
- Although the class discussion will depend on the group discussion that pupils have undertaken, the following are likely to be key questions:
  - Can the conflicting rights and responsibilities of different people in the case study be resolved? Is there one best solution or are there alternative possibilities?
  - Can pupils justify their own value judgements? What values do they express? How have they applied their values in this case?
  - What are the limitations of scientific evidence in making decisions about energy use? (Scientific principles provide some information about what can be done).
  - If we have to make decisions on the basis of incomplete information, how can we make sensitive decisions? Would we form 'better' opinions if we had more information? What type of information is most important?
  - Why is it important to gather information and think for ourselves when it is so much easier simply to echo the opinions of others?

- know and justify their own viewpoint and recognise the viewpoints of others
- know how the rights and responsibilities of different groups may conflict
- identify ways of balancing competing viewpoints

- The purpose of this section is to show the interaction of value judgements and scientific evidence in forming opinions. The process of discussion and consideration of different rights and responsibilities is more important than reaching a consensus.
- If the records were completed on A3 paper or larger, they could be presented as posters for display within the classroom or around the school.
- If the opportunity arises, highlight the fact that environmental monitoring requires the cooperation of scientists from many countries.
- Link with NSE: year 7 S&L11, year 8 S&L9, year 9S&L 8.

**What have we learnt?**

- about the legal and human rights and responsibilities
- about the importance of resolving conflict fairly
- about the significance of the media in society
- to reflect on what they have learnt and communicate their views with a range of different target audiences
- Ask pupils to discuss in pairs and identify what they have learnt about: rights and responsibilities; the influence of the media on public opinion, consultation and the power of decision-makers; using scientific principles to inform decision-making; and the process of decision-making and resolving conflict, with regard to the issues they have investigated. Discuss whether individuals can make a difference, *eg what pupils can do to change local energy use or supply in the school, home or community.*
- Pupils share what they have learnt with different audiences – within the school, their local, national or global communities. For example, they could:
  - write articles for the school or local newspaper or environmental magazines and websites
  - prepare a display for the school buildings or local council office
  - develop a school policy on environmentally sustainable practices, which could be discussed at Student Council or with governors and members of the local community
  - take part in a local citizens' forum, *eg on a council website*, or a young people's forum
  - write letters making recommendations to their MP, the Department for Environment, Food and Rural Affairs, the European Parliament or the United Nations
- identify their own learning outcomes with respect to: understanding rights and responsibilities; resolving conflict; identifying and using information sources
- make connections between their own actions and choices and the effects these have on other communities – locally, nationally and globally
- communicate their views to a chosen audience, having agreed an appropriate method of presentation and making appropriate use of ICT
- This activity aims to review the process of forming and balancing opinions. Pupils could go on to decide how to respond to what they have learnt.
- For help in assessing progress in citizenship, see page 16 of the *Teacher's guide*.
- Guidance about discussions and debates is available on the DfES citizenship website: [www.dfes.gov.uk/citizenship](http://www.dfes.gov.uk/citizenship). Emphasise that the outcome is less important than the discussion and decision-making process itself. Pupils should learn to value that becoming more informed about different topical issues helps broaden their understanding about a balance of views.