

Southern Water

WaterWise Teaching Resource



A drip in time

Teachers' notes

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- Overview of project
 - Curriculum areas supported
 - Introductory Session: suggestions
 - OHP sheets to support the sessions
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- OHT1: Introductory Session *The Water cycle*
 - OHT2: Introductory Session *Daily water demand*
 - OHT3: Introductory/ Debate Session *Daily water use around the home*
 - OHT4: Introductory Session *Group tasks*
 - OHT5: Introductory Session *Data collection sheet example*



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Overview of the project

Introduction

Citizenship will be a compulsory National Curriculum subject in secondary schools from September 2002.

The Citizenship programme aims to raise young people's awareness of the world around them and provide them with opportunities to air their views and more importantly make their views count.

'**A drip in time**' provides pupils with a 'real-life challenge' to focus on their personal responsibility for water use and to promote their views in the community.

At least 95% of pupils' homes in your area will be serviced by Southern Water, so their services and water management will have an impact on almost everyone.

Topic

Pupils are asked to carry out a personal or family water audit over the space of a week. By entering their statistics on the spreadsheet provided, pupils are able to consider and discuss water use within their family. They can then extend their investigations to the wider community - their school, street and local area, using the additional data provided to estimate water consumption for these groups.

Pupils are not expected to carry out door-to-door surveys on health and safety grounds.

The Fact Sheets provide local and national statistics for pupils to use as comparisons with their own data, and to estimate consumption for their area.

To complete their research, pupils are involved in planning and organising an environmental awareness day on 'Water Conservation' for the whole school, their year group or the local community.

The aim of the event is to promote water efficiency strategies in their school and community and to encourage friends and neighbours to be part of a water-conscious community.

As they work through the wealth of material presented, they will, hopefully, learn about local services and environmental considerations and the need to become 'informed citizens' making 'informed choices.'¹

¹ Pupils should be encouraged to develop skills of participation and responsible action (see 3a, 3b and 3c in the citizenship programme of study). Depending on the context and planning of the activities, they may also address aspects of knowledge and understanding about becoming informed citizens, and of developing skills of enquiry and communication. (*Citizenship at Key Stage 3 & 4, Draft document*)



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Length of project

The project is designed to run for six weeks (depending on the length of each lesson), and may take place in citizenship lessons, tutorial time, or PSHE according to the timetable arrangements for your school.

An overview for the sessions is given below. These are not necessarily 'lesson units' but rather a chronological order for things to happen. The timing for each activity is at the discretion of the teacher. It will also be dependent on school timetable arrangements.

The 'event activity' itself will take at least a half-day.

Pupils should be encouraged to develop their ideas and research out of school.²

² Some activities can be delivered as off-timetable events, and others will require the involvement and co-operation of members of communities outside the school. In all cases, pupils should have opportunities to reflect on their involvement, and to identify what they have learned and how it can be applied. (*Citizenship at Key Stage 3 & 4 Draft Document*)



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Individual sessions

- 1. Introduction to project by teacher:** Together, teacher and pupils examine the issues and look at the resources available. Pupils are introduced to the data collection sheets.
Homework: collect data about themselves and families using the data collection sheets.
- 2. Reporting and modelling:** Pupils enter their collected data on the water-use spreadsheet (downloaded from these resources) to record and present their data in graphical format. They work in small groups and report back on their findings. The group could decide on a secretary/ secretaries to take notes of the discussion, and a group chairperson to present the views of the group. During the session, pupils can model possible situations by changing the parameters of the spreadsheet.
- 3. Survey:** Pupils work in small groups to plan some research. Their objective is to look at water-use in a small community (class, school, place of work, street, community centre, etc.). Each group can be allocated a different target audience.
Homework: pupils estimate water-use data from their chosen community using their own data and figures from the Fact Sheets. Sessions 2/3 may be combined into 1 lesson.
- 4. Reporting and modelling:** Pupils enter their collected data on the water-use spreadsheet to record and present their data in graphical format. They work in their groups and report back on their findings. During the session, pupils can model possible situations by changing the parameters of the spreadsheet.
- 5. Preparation for 'Water Conservation' event:** Groups use their data plus other resource material (Web links, Fact Sheets, Subjective Literature and Clip Art) to produce information literature and materials - posters, leaflets, charts, advice etc. When preparing the materials they should consider their target audience - the whole school, their year group or the local community.
To allow pupils time to prepare materials, sessions 4 and 5 can be run together.
- 6. Presentation 'Water Conservation Day':** Pupils present their materials to each other and their target audience at an open exhibition.
- 7. Reflection:** Each group reflects on the success of the event and decides on an action plan for an on-going campaign to promote water efficiency, e.g. through school newsletters, using bulletin boards, by example, etc.

The level of pupils' independence and teacher involvement in activities will vary according to pupils' ability and Key Stage.

Resources

Resources are downloadable for easy access and ease of use.

Teacher Notes

- Overview of project
- Curriculum areas supported
- Introductory Session: suggestions
- OHTs (Overhead Transparencies)



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Water use audit spreadsheet

- An Excel file that enables pupils to carry out a water-use audit for individuals and groups. Entered data can be used to model water use over a chosen period, 1/ 5/ 10 years etc.

Data Collection Sheets

- Data Collection Sheets to enable pupils to survey different groups and communities (family, friends, classmates, neighbours) prior to entering data into spreadsheet. Survey also includes questions related to attitudes to water use.

Fact sheets

Background information to support the investigation and presentation

- Demographic information - population and water consumption (current and projected figures)
- Water Data - average user statistics
- Water Data - average water use for different household activities
- Water Data - water use in commercial production processes
- Successful ways to save water

Subjective literature -as a starting point for pupils to produce their own promotional literature, articles, posters, etc. to promote their campaign e.g. slogans, reports.

Web links - to external sources of information and opinion; e.g. Water companies, government agencies.

Clip art - of related images for pupils to use in their presentations.

Developing a citizenship portfolio

The following recommendations are taken from the DFES draft materials '*Citizenship at Key Stage 3 & 4*' [See The Standards Site <http://www.standards.dfes.gov.uk/schemes/>]. They complement the work being carried out in this project.

Keeping a citizenship portfolio enables pupils to record their progress and achievements. It allows them to build on their experience at Key Stage 2, where some pupils may have started a citizenship logbook. The citizenship portfolio supports pupil self-assessment and provides evidence for both formative and summative assessment during, and at the end of, the key stage.

One approach could be to make entries in sections such as:

- *the school community*
- *the wider local community*
- *the national/global community*
- *personal targets.*

It is helpful if pupils form small groups to support each other in reviewing progress and establishing action plans. The citizenship portfolio should be given a high profile by using the evidence of achievement it provides as part of class/school awards and assessment. It can prepare pupils for the development of a progress file, link the key stages, and support the transfer to voluntary post-16 participation.



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Curriculum areas supported

Introduction

The approach towards the teaching of Citizenship will vary from school to school. Some schools may opt for set lessons but it is more probable that the themes will be incorporated and developed across the curriculum, through a number of already established curriculum areas, such as PSHE, English, Geography or Science.

'A drip in time' is a flexible set of resources that can meet the needs of either approach.

The topic has also been structured so that it can be developed over several sessions throughout a half term, or in longer sessions within a shorter time scale.

Curriculum areas supported

- Citizenship
- Geography
- Science
- Numeracy and Maths
- Literacy and English
- PSHE
- ICT

Citizenship

The activity encourages and promotes:

Social and moral responsibility: from the beginning, pupils develop self-confidence and learn the need for socially and morally responsible behaviour, both in and beyond the classroom, towards those in authority and towards each other.

Community involvement: pupils learn how to become helpfully involved in the life and concerns of their neighbourhood and communities, including the need to listen to others' points of view and arrive at a consensus of opinion.

Political literacy: pupils learn about the institutions, issues, problems and practices of our democracy and how citizens can make themselves effective in public life, locally, regionally, and nationally, through skills and actions as well as knowledge.

To achieve this, pupils:

- carry out research into a relevant social issue
- take account of the views of individuals and communities
- engage in informal and formal debate about the issues
- communicate their findings to others in their peer group
- formulate action plans to challenge peoples' attitudes and behaviours



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The topic relates to the QCA Citizenship Guidelines -
Developing skills of Campaigning/advocacy (Environmental Issues)

'Pupils identify an issue of concern to them, perhaps a sustainable development issue. They undertake research to inform their views, form partnerships with community groups or policy-makers, and take action on the issue. For example, pupils could campaign for improved measures to save water by surveying pupils'/ families' attitudes to water use. They form partnerships within the local community to press for water conservation. They organise a promotional activity such as a 'save our water' day or campaign. They design leaflets and T-shirts. They create links with pupils from other European countries to discuss environmental issues in an international context.' This can be carried out at school, local, national or international level.

The topic relates to the QCA Citizenship Schemes of Work - Draft Unit 3 - *Developing skills of democratic participation*

'Pupils should be encouraged to develop skills of participation and responsible action. Depending on the context and planning of the activities, they may also address aspects of knowledge and understanding about becoming informed citizens, and of developing skills of enquiry and communication.'

Geography

The topic relates to QCA Geography Schemes of Work - Unit 14 - *Can the earth cope? Ecosystems, population and resources*

'Pupils investigate the global distribution of one or more selected biome, e.g. population and water resources. They find out about the relationships between these two themes and about resulting environmental issues/consequences. Activities in this unit provide the opportunity for pupils to improve their literacy skills and think about important topical issues linked with citizenship'.

The topic relates to the QCA Geography Schemes of Work - Unit 23 - *Local action, global effects.*

'In this unit pupils investigate the conflict between increasing economic activity and conserving the environment and resources. The unit encourages pupils to think about how individual action taken at a local level may have positive or negative effects at a variety of scales. This provides a strong link with citizenship. There are numerous opportunities for pupils to practise their research and enquiry skills'.

Science

The topic relates to the QCA Science Schemes of Work - Unit 9M - *Investigating scientific questions*

'Pupils identify questions that are suitable for scientific enquiry. They use a variety of strategies to answer scientific questions of different kinds. They plan and set targets for a piece of work; consider the strength of the evidence, or the quality of the product, in relation to the question investigated; compare the different investigative methods used; and work together in a group. This unit provides an opportunity for pupils to focus on the variety of strategies that are used to answer scientific questions and to evaluate their own and others' investigations'.



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The topic relates to the QCA Science Schemes of Work - Unit 9G - *Environmental Chemistry*:

Pupils consider how the atmosphere and water resources are affected by natural processes and the activity of humans. They also consider how environmental conditions are monitored and controlled

Numeracy and mathematics

*The topic relates to the QCA Framework for teaching Maths Years 7,8,9
'Pupils collect data, discrete and continuous, and draw, interpret and predict from graphs, diagrams, charts and tables. They use calculators and other ICT resources appropriately and effectively to solve mathematical problems'.*

Literacy and English

The topic relates to the QCA Framework for teaching English Years 7,8,9

Reading

'Pupils read in different ways for different purposes, including skimming to pick up quickly the gist of a text, scanning to locate specific information, close reading to follow complex passages and re-reading to uncover layers of meaning. They are reflective, critical and discriminating in response to a wide range of printed and visual texts'.

Writing

'Pupils write for a variety of purposes and audiences. They are able to write imaginatively, effectively and correctly. They are able to organise, develop, spell and punctuate writing accurately'.

Speaking and Listening

'Pupils speak with the clarity and confidence to convey a point of view or information. They explore, create, question and revise ideas, recognising language as a tool for learning. They are able to work effectively with others in a range of roles'.

ICT

The topic relates to the QCA Schemes of work - Unit 10 - Information: reliability, validity and bias

'Pupils use data collection sheets to gather information on a particular topic and enter the data on a Spreadsheet to present it. They model possible situations by changing the parameters of the spreadsheet. Pupils experience data handling and modelling in a meaningful context. It requires them to consider the usefulness, provenance, reliability, status and bias of the information they collect and use.

Areas for research could include any topical subject arousing controversy, e.g. genetically modified foods, growth-enhancing hormones, as long as it is one that allows for a variety of points of view'.



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The topic relates to the QCA Schemes of work - Unit 5 - *Data: capturing and presenting data*

'Pupils consider the information that they need in order to collect appropriate data to test a hypothesis. They collect data using questionnaires and enter it into a file. Using this data, they analyse results and draw conclusions. Once all data has been collated they use the results to produce a report to support their campaign.'

PSHE

PSHE: 1a, 1c, 1e, 1f, 3e, 3h, 3k, 4b, 4c, 4d, 4f in the non-statutory guidelines



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Introductory Lesson: Setting the Scene Some suggestions

Your role

The Introductory Lesson is vital in setting the scene. Your role as teacher is much more than the 'provider' of information. You need to stimulate and motivate pupils to encourage them to think and talk about the issues. At the same time, you need to encourage them to behave positively towards those outside school who they want to include in their audit.

Resources:

5 Overhead Transparencies

Learning Objectives:

Pupils understand what it is to be an active citizen with rights and responsibilities. They investigate and discuss an issue of current concern, 'water conservation' in school and in the wider community and contribute to small group and class discussions.

Pupils develop skills of responsible action by working towards an environmental day event to promote water saving strategies in their school and community and to encourage friends and neighbours to be part of a water-conscious community.

Ideas session

What do we know about water?

OHT 1 The Water Cycle

Who supplies the water we use every day?

OHT2 Daily Water Demand

About 1 million homes receive their water from Southern Water. Other Water Companies supply the rest. Southern Water deals with the wastewater from all the homes in the area.

How much do you think they need to supply ?

What do we use water for?

OHT3 What do we use our water for every day?

Pupils' Tasks and Water Audit

Divide pupils into mixed ability groups (5 or 6 depending on class size)



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OHT4 Group tasks

1. You have to carry out some research to find out how much water you and your family use every week
(Use data collection sheets provided by your teacher to collect information, see OHT 4)
2. You have to enter your information onto a prepared spreadsheet and produce some graphs to show how much water you use.
3. You have to carry out some research to find out how much water a small community group (e.g. school, class, year group, neighbours, community centre, place of work, street) uses every week.
(Use data collection sheets provided by your teacher to collect information, see OHT 4)
4. You have to prepare information (leaflets, posters, advice) for a Water Conservation Day to be held in your school.
5. Resources to help you - A Water Audit (spreadsheet), Data Collection Sheets, Fact Sheets, Subjective Literature (giving you some starting points for your leaflets), Web Links, and Clip Art

OHT5 Data Collection Sheet - Example