

# Liquid Gold

## Thematic Unit



# Contents

|  |  |   |  |
|--|--|---|--|
| <b>About this Thematic Unit</b>                                |  |   | 1                                      |
| <b>Section 01</b><br><b>Where Does Water<br/>Come From?</b>    | Activity One<br>Activity Two<br>Activity Three<br>Activity Four  | Water Use At Home<br>Water Use At School<br>Water Cycle (a)<br>Water Cycle (b)  | 5<br>6<br>9<br>10                      |
| <b>Section 02</b><br><b>What's So Special<br/>About Water?</b> | Activity Five<br>Activity Six<br>Activity Seven<br>Activity Eight<br>Activity Nine<br><br>Activity Ten | Water in the Body<br>Water for the Body<br>Needs and Wants<br>Counting the Cost<br>Making a Change<br>Optional Activity: What a Waste!<br>Water Harvesting (Extended Project) | 15<br>16<br>17<br>19<br>21<br>21<br>23 |
| <b>Section 03</b><br><b>Is Water Precious?</b>                 | Activity Eleven<br>Activity Twelve<br>Activity Thirteen<br>Activity Fourteen                           | Buckets of Fun<br>A Precious Resource<br>Liquid Gold<br>Water Saving Campaign (Extended Project)<br>Optional Activity: Water Charities  | 27<br>28<br>29<br>30<br>31             |
| <b>Resources</b>   |  |   | 33                                     |
| <b>Appendices</b>  | Appendix 1<br>Appendix 2   | Gibson Primary School Case Study<br>St Columbkille's Primary School Case Study  | 43<br>46                               |

## **Acknowledgements**

CCEA wishes to acknowledge those staff Gibson Primary School and St Columbkille's Primary School for providing the enclosed case studies and images of their school and pupils.

# About this Thematic Unit

This Thematic Unit is linked to the Years 5/6 ICL, *The Blue Planet*. Water is often referred to as *Liquid Gold*. In this thematic unit, children develop an understanding of the value of water and why they must not take this precious resource for granted.

Children begin to recognise that their choices about water can have both a local and global impact. They learn that by using water wisely they can ensure that there is enough for everyone, now and in the future.

Children explore:

- the importance of water in their own lives;
- the importance of water for people in other parts of the world;
- the similarities and differences between people and places; and
- how water is vital to sustaining communities.

The teaching methodologies presented in this thematic unit support active and enquiry based learning both through individual learning and group work. Children participate in a range of thinking, problem-solving and decision-making challenges.

This thematic unit presents children with opportunities to develop some of the skills that meet the statutory requirements of the Northern Ireland Curriculum at Key Stage 2. The focus within this unit is outlined below:

|  |   |
|--|---|
| <b>Northern Ireland Curriculum Objective</b>     | To develop the young person as a contributor to the economy and environment.  |
| <b>Key Element</b>                               | <i>Education for Sustainable Development</i>  |
| <b>Thinking Skills and Personal Capabilities</b> | <p>This thematic unit focuses on <i>Thinking, Problem-Solving</i> and <i>Decision-Making</i>.</p> <p>Children have opportunities to:</p> <ul style="list-style-type: none"> <li>• sequence, order and rank along different dimensions;</li> <li>• identify similarities and differences by making simple comparisons and connections;</li> <li>• make decisions and generate options;</li> <li>• suggest possible solutions to problems;</li> <li>• explain methods and opinions and the reasons for choices and actions.</li> </ul>  |
| <b>Cross-Curricular Skills</b>                   | <p>Where appropriate, learning intentions that relate to the Cross-Curricular skills are signposted. These cross-curricular skills are:</p> <ul style="list-style-type: none"> <li>• Communication (Comm)</li> <li>• Using Mathematics (UMaths)</li> <li>• Using ICT (UICT)</li> </ul>  |
| <b>Connecting the Learning</b>                   | <p>This thematic unit provides teachers with opportunities to connect learning across the following Areas of Learning:</p> <ul style="list-style-type: none"> <li>• <i>The World Around Us</i>;</li> <li>• <i>Personal Development and Mutual Understanding</i>; and</li> <li>• <i>Mathematics and Numeracy</i>.</li> </ul>   |
| <b>Aim</b>                                       | <p>The aim of this thematic unit is to encourage children to:</p> <ul style="list-style-type: none"> <li>• begin to understand what it means to live sustainably;</li> <li>• develop their thinking through a range of problem-solving and decision-making challenges (which make connections from their own experience to a global issue);</li> <li>• build up their knowledge of the wider world and of diverse societies and cultures, through identifying similarities and differences between people and places;</li> <li>• understand that their choices can have a global and local impact; and</li> <li>• consider how they can make a difference.</li> </ul> |



Where Does Water  
Come From?

SECTION  
01

# Activity One

## Water Use at Home

### Suggested Learning Intentions

Children will:

- understand what a water source is;
- know some of the common uses of water in the home; and
- use mathematics to solve simple, everyday problems (UMaths)



### Suggested Learning and Teaching Activities

Explain to the class that in this activity they will explore:

- the importance of water in their own lives; and
- the importance of water in the lives of people in other parts of the world.

As an introductory activity, invite the children to think about how they use water. Encourage them to share their thoughts using a *Think, Pair, Share* approach. Following the discussion, focus the children's thinking on how they use water at home. Ask them to close their eyes and think about the rooms in their house. Invite them to guess which room uses most water.

Demonstrate a *bird's eye view* by drawing an aerial outline of the classroom on the board. Next, invite the children to draw a *bird's eye view* of the main rooms in their home. Encourage them to try to draw the rooms in proportion to their size.

Ask the children to imagine they are *water detectives*. Their task is to carry out a survey of where water is used in their homes. Invite them to use the aerial drawings of their homes and to highlight each place where water is used. Ask them to insert a symbol such as a water tap or the letter W to indicate on the aerial drawing where water is used. Introduce the term *water source* to the class.

As a home learning activity, ask the children to count the number of water sources in each room in their house and to calculate the total. Invite them to present the results of their surveys to the rest of the class. Discuss which rooms have the highest number of water sources.

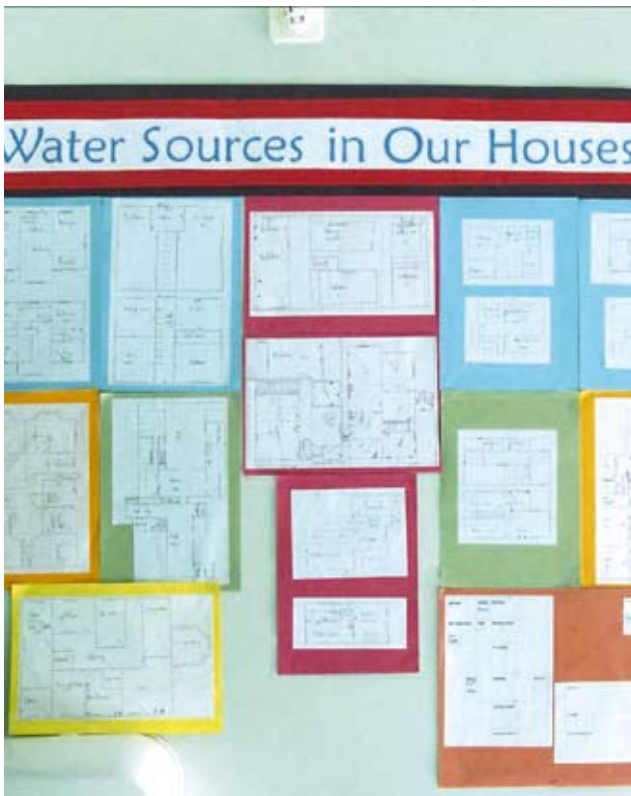
# Activity Two

## Water Use at School

### Suggested Learning Intentions

Children will:

- use ICT to organise and present data (UICT); and
- find, collect and interpret information (UMaths).



### Suggested Learning and Teaching Activities

Explain to the class that in this activity they will design and carry out a survey to show the number of water sources in the school environment.

Ask the children to reflect on the water sources found in their homes. Next, turn their attention to the sources of water in school. Initiate a class discussion by posing the following questions to the class:

- Are there any sources of water found in both the home and school?
- Are there any sources of water found only in school?

Record the children's answers on the board.

Organize the class into groups. Invite each group to design a data collection sheet that they can use to collection information from their survey. Provide time for the groups to safely survey the school and to complete their data collection sheet. Encourage the children to use ICT to enter and present their results in an appropriate format. As a class, examine and analyse the results. Invite the children to:

- locate where water is used in the school;
- calculate the number of water sources in each location; and
- decide which water source is used most frequently for example, the toilet, wash hand basin or drinking fountain.

## Section 01 **Where Does Water Come From?**

Next, ask the children to estimate how much water is needed to flush the toilet, wash their hands or provide a drink at the water fountain. Encourage them to use mathematical resources to estimate the water usage. Distribute a copy of *How Much Water Do We Use?* (Resource A) to each child. Use this to reflect on the accuracy of children's estimates. Next, ask the children to calculate how much water is used to flush the school toilets in a day, week and/or month.

Ask the class to write a summary of the school's current water use. Have them identify where they think water is being wasted. Ask the children to make a list of what needs to be done to reduce costs. Once completed, pass on a selection of the children's work to the Principal for comments. Alternatively, invite the Principal to the class and allow the children to present their findings.

Distribute some magazines to the class. Ask the children to identify and cut out appliances that use water for example, a washing machine, toilet or kettle. Stick the pictures in a Venn diagram (bathroom/kitchen).





# Activity Three

## Water Cycle (a)

### Suggested Learning Intentions

Children will:

- know about the water cycle; and
- be able to sequence information to demonstrate understanding (TS&PC).

### Suggested Learning and Teaching Activities

Talk about what is meant by a *cycle of events*. Explain that a *cycle* is a continuing process. Tell the class that in this activity, they are going to learn about the water cycle. Explain that the water cycle is the movement of water from the ground to the sky and back to the ground. Demonstrate the water cycle to the class by constructing a simple model. Instructions for building the model are included below:

### Items needed for model

- Clear plastic bag
- Measuring spoon
- Rubber band/twist tie
- Masking tape

### Instructions for building model

- Pour one dessert-spoon of water into a clear sandwich or zip bag.
- Blow air into the bag and quickly seal it with a rubber band or twist-tie.
- Place the bag in direct sunlight or on a windowsill.
- Ask the children to observe the bag during the day and to record any changes they see.

### Alternative demonstration of water cycle

- Pour one dessert-spoon of cold water into a clear sandwich or zip bag.
- Pour one dessert-spoon of hot water into a clear sandwich or zip bag.
- Place the bags in direct sunlight or on a windowsill.
- Ask the children to observe the bags and compare any differences in changes that occur.

Organise the class into groups. Provide materials for them to carry out their own investigation of the water cycle. Provide an opportunity for the children to indicate how well they think they carried out the activity using the *Thumbs Tool Strategy*.



# Activity Four

## Water Cycle (b)

### Suggested Learning Intention

Children will:

- Learn how to communicate important information effectively (Comm).

### Suggested Learning and Teaching Activities

#### The Water Cycle

Use a data projector to display the NI Water Service interactive water cycle presentation. This is available at [www.niwater.com/education.asp](http://www.niwater.com/education.asp). This presentation will introduce the children to the concept of the water cycle and the associated vocabulary.

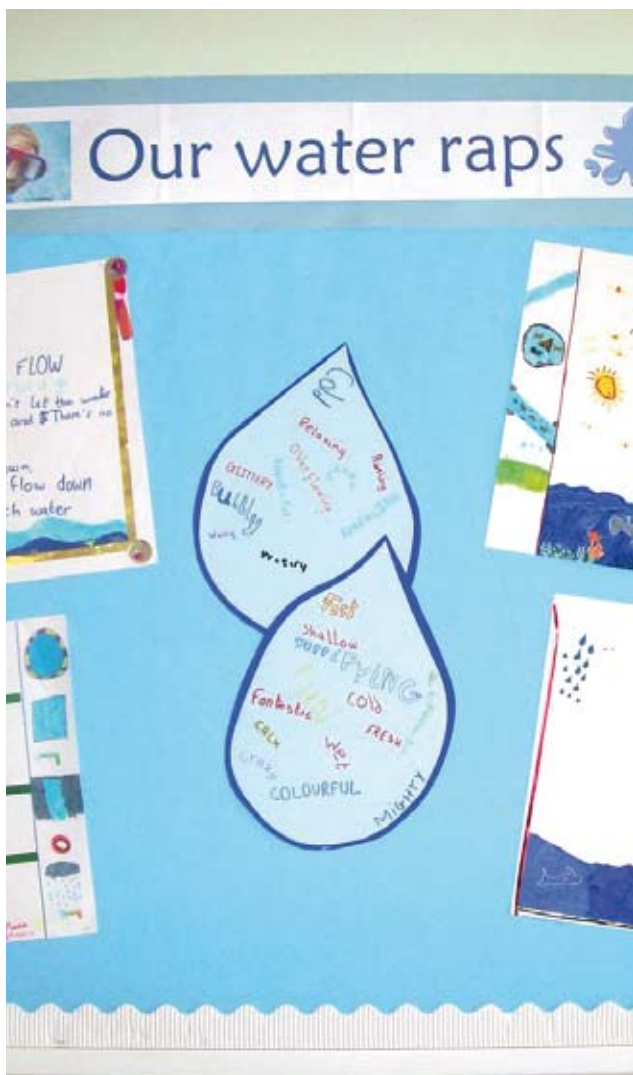
Talk about the water cycle. Explain that the water cycle is the movement of water from the land to the sea to the air and back again. The process is outlined below:

- Heat from the sun causes the water to evaporate and become a vapour.
- As the water vapour cools, it condenses, forming tiny droplets which gather to form clouds.
- As the droplets get larger, they become heavier causing them to fall to the ground as precipitation (rain, sleet, or snow).
- Some of this precipitation joins lakes and streams (called surface water), and some of it soaks into the ground where it becomes groundwater.

Remind the children that water is always on the move.

Here are some useful facts for the class to research:

- Only 1 percent of the world's water is part of the water cycle.
- 97 percent of all the world's water is salt water, found in the oceans and seas.
- 2 percent of the world's water is fresh water – some of this is frozen as ice.
- Only a small proportion of the world's water is available for use by people. Some of it is in lakes and rivers while the rest is trapped underground and called groundwater.



## Section 01 Where Does Water Come From?

Organise the class into groups. Ask them to draw a series of pictures to illustrate the water cycle. Next, ask each group to sequence the images and be able to explain why they have placed them in a particular order. Invite them to present their drawings to the rest of the class. Encourage the children to think of ways in which they see the water cycle take place in their everyday lives.

Challenge the class to think about how the climate change affects the water cycle. Initiate a class discussion by posing the following questions to the class:

- Is the water cycle the same in all parts of the world?
- Does it rain frequently in all countries?

As an optional activity, have the children research answers to these questions.

### Waterfall of Words

Invite children to generate a list of words to describe water. Use the *Think, Pair, Share* strategy for this activity. Organise the class into groups. Ask them to classify the water vocabulary and to discuss what the different words mean.

As a whole class activity, create a waterfall of water words and display it in the classroom.





What's So Special  
About Water?

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# Activity Five

## Water in the Body

### Suggested Learning Intentions

Children will:

- understand how the body uses water;
- communicate information effectively (Comm)
- use ICT to record and present information (UICT); and
- find, collect and interpret information (UMaths).

### Suggested Learning and Teaching Activities

Challenge the class to estimate how much of the human body is made up of water. Explain to the children that two thirds of the human body is made up of water. Demonstrate the amount of water in the body by using a transparent container marked in thirds. Fill two thirds of the container with water. Leave the container in a corner of the classroom and ask the class to observe the water level decrease over a period of time. Ask the children to try to explain why this happens. Encourage them to top up the container if the water level falls.

Explain to the class that it is important that we maintain our body's water levels. Share the following facts with the class:

- Human beings need water to live and cannot survive without it for more than a few days.
- Water is the most needed nutrient of all.
- On a regular day, the body loses two to three litres of water through sweating, urinating and carrying out normal body functions.
- The body loses even more water when exercising and sweating.
- It is very important to replace the water our body loses during the day.



Explain to the class that they are going to carry out a survey to find out how well they top up the water levels in their bodies. Ask the children to design a method for recording how much water they drink over seven days. Explain to the class that fruit juice and fizzy drinks do not count in the survey - only tap or bottled water!

Invite the children to complete the survey and to use ICT to record their results. Once the survey is complete, display individual's tables or graphs of results. Next, collate the information from all of the surveys to create a class graph. Use the class graph to display interesting findings for example, the number of children who drink less than six to eight glasses of water per day.

Finally, remind the class that in order to stay healthy they need to listen to their body's needs and drink plenty of water. Encourage the children to drink six to eight glasses of water per day.

# Activity Six

## Water for the Body

### Suggested Learning Intentions

Children will:

- understand the relationship between water and health;
- use ICT to communicate and develop ideas (UIC); and
- demonstrate an ability to share and co-operate when working in a group (TS&PC).



### Suggested Learning and Teaching Activities

Use a *Think, Pair, Share* approach to get the children to consider how important water is for health and hygiene. Organise the class into pairs. Ask pairs to complete the following statements:

- Water keeps me healthy because...
- I use water for...
- Without water I would...

Encourage each child to share their thinking, first with their partner and then with the class.

Invite the children to carry out some research to determine how important water is in order to stay healthy. Split the class into two teams; Team 1 and Team 2. Ask Team 1 to research the health benefits of having access to clean, safe water. Ask Team 2 to research what happens when there is not enough access to clean, safe water.

Within the two teams, create smaller, manageable research groups. Encourage the children to agree and assume roles within their group for example, group leader, scribe and reporter. Allow each team time to access a range of information resources, including the internet. Inform teams that they must come up with five points to report back to the class. Invite teams to present their findings to the rest of the class.

As a debrief, focus children's thinking on their everyday hygiene routines. Encourage them to think about how good personal hygiene can minimise sickness and/or disease.

Have the class use ICT to design posters that highlight how important water is in maintaining good health and hygiene.

Display these posters around the school or publish them on the school intranet or website.

# Activity Seven

## Needs and Wants

### Suggested Learning Intentions

Children will:

- know the difference between a need and a want; and
- be able to rank information (TS&PC).



### Suggested Learning and Teaching Activities

Explain to the class that making good choices involves recognising the difference between what we need and what we want. We do not *need* everything that we *want* in life. It is important to distinguish between needs and wants and understand the effect our choices can have on others.

Ask each child to make a list of five items they *need* to keep them feeling:

- happy;
- healthy; and
- safe.

Next, ask each child to make a separate list of five items they *want* to keep them feeling:

- happy;
- healthy; and
- safe.

In pairs ask the children to:

- review each other's lists;
- agree five items people *need* to keep them happy, healthy and safe; and
- agree a list of five items that people *want* to keep them happy, healthy and safe.

Invite pairs to present their lists to the rest of the class. As a class, discuss which item from the *wants* list would be most difficult to do without. Encourage the children to justify their choices.

Distribute a copy of the *Needs or Wants* (Resource B) to each child. Ask the children to work individually and to decide which items on the list are *wants* and which are *needs*. Next, organize the class into pairs. Have pairs identify the items on the list that are basic needs. Inform pairs that they should be able to justify

their decisions. Distribute a copy of *My Needs and My Wants* (Resource C) to each pair. Invite them to use this to display their findings. Invite pairs to present their findings to the rest of the class.

Next, as a class, try to decide which of the basic needs are related to basic human rights for example, the right to water. To stimulate the children's thinking, refer back to the data collected during the home and school surveys. Get the children to list verbs or action words that describe how they use water for example, to clean, to cook, to drink, to wash, for heating, to shower and/or to bath.

Challenge the children to think which of these action words are water *needs* and which are water *wants*. Invite them to rank the action words to show how they would prioritise their water use.

Finally, initiate a class discussion. Invite the children to answer the following questions:

- Does everyone need the same things?
- Who might have different needs?
- Do children in different parts of the world have the same needs as you?

# Activity Eight

## Counting the Cost

### Suggested Learning Intentions

Children will:

- foster responsible attitudes to water use;
- use ICT to make predictions and solve problems (UICT);
- use mathematics to solve simply everyday problems (UMaths);
- make some attempt to plan their talk (Comm); and
- explain their views/thinking and listen for specific information (Comm).



### Suggested Learning and Teaching Activities

Organise the class into two groups; Group A and Group B. Explain that in this activity, the children will take part in a debate. Display the following statement on the board: *We would be more careful about using water if we had to pay for it.* Ask Group A to work together and list arguments to support the statement. Ask Group B to work together and list arguments that oppose the statement. Ask them to adopt group roles for example, scribe, reporter and group leader. Invite the two groups to take part in a debate. Act a chairperson or alternatively invite one child from each group to chair the debate.

Display the table below on the board or on a flip chart.

| Task                                       | Water required |
|--|----------------|
| Shower                                     | 27 litres      |
| Bath                                       | 80 litres      |
| Toilet flush                               | 9 litres       |
| Wash basin (inc hand wash, brushing teeth) | 4 litres       |
| Washing machine (per load)                 | 80 litres      |
| Washing dishes in a dishwasher             | 30 litres      |

Divide the class into groups. Ask each group to work together and agree an appropriate price for one litre of water. To stimulate thinking, encourage them to think about and compare the cost of:

- a litre of bottled water;
- a litre of milk;
- a litre of lemonade; and
- a litre of petrol.

Invite each group to reveal how much they think a litre of water should cost. Next, ask them to use their water price to calculate the cost of the following activities:

- four showers;
- one bath;
- flushing the toilet ten times;
- doing two loads of washing; and
- using the dishwasher once.

Allow the children to use calculators. You may wish, however, to set up a spreadsheet for the children to use.

Next, ask groups to calculate how much it would cost for a family to do these activities over a week, a month and a year. Invite them to present their findings to the rest of the class. Initiate a class discussion about each group's findings. Ask the children if they think the proposed costs for one litre of water are realistic. Also ask them if they are surprised by the projected costs.

Inform the class that the average household bill for water in England during 2005/6 was £246 (this includes both clean water and sewage treatment). Discuss as a class if they think this is a fair amount to pay.

Carry out two class ballots. First ask the class if they believe that we should pay for water. Secondly, ask the class if they believe that we would be more responsible in using water if we had to pay for it.

Pose the following questions to the class and ask the children to vote yes or no:

- Do you think we should pay for water?
- Do you think we would use water more responsibly if we had to pay for it?



# Activity Nine

## Making a Change

### Suggested Learning Intentions

Children will:

- develop informed attitudes about water waste; be able to explain their opinions (Comm and TS&PC); and
- use ICT to create and express ideas (UICT).

### Suggested Learning and Teaching Activities

Initiate a class discussion. Ask the children to identify some of the ways water is wasted in the home. Record each response on an individual flip chart page under the heading *Problem*. Aim to record at least six of the children's responses. For each response, ask the children to generate a possible action to help save water supplies. Record solutions to the problems under the heading *Solution*. Display all the flip chart pages separately in the classroom.

Distribute three dots to each child in the class. Explain that in this activity, the children will use a *Dot Voting* strategy to select the ideas they think are most important. Invite the children to move around the classroom and to read the flip chart pages with the problems and solutions. Next, ask them to place a dot beside the three solutions they believe are most important. Ask them to return to their seats. Establish which of the solutions are most popular.

Invite the children to produce *How to Save Water at Home* leaflets. The leaflet must include the three most popular recommendations on how to reduce the amount of water wasted in the home. Some children may wish to use ICT to create their leaflets. Ask the children to distribute their leaflet to their parents and relatives.

## Optional Activity

### What a Waste!

#### Suggested Learning Intention

Children will:

- think about ways of sharing and taking responsibility (TS&PC).

#### Suggested Learning and Teaching Activities

Remind the class of the learning outcomes of the last activity. Challenge the children to think about whether they should care about wasting water.

Tell the class that they are going to take part in an activity called *Conscience Alley*. Split the class into two groups; Group A and Group B. Ask Group A to imagine that they care about water waste. Ask them to complete the following statement: *I care about water because...* Ask Group B to imagine that they do not care about water waste. Ask them to complete the following statement: *I do not care about water waste because...*

Allow each group five minutes to prepare their statement. Encourage them to consider the different opinions that exist about water waste and try to include these in their statement. Invite them to present their statements to the rest of the class. Finally ask half of Group A to join Group B and half of Group B to join Group A. Invite the children to discuss their statements further.

### Class Display – Water Promises

Encourage the children to understand that if people work together they can make a big difference to the amount of water wasted. Invite them to write statements about how they can save water. Explain that these are *water promises*. Stick the *water promises* onto a large sheet of paper, cut into the shape of drop of water. Use the water promises to create water saving posters. Have the children distribute these to businesses, community centres and/or youth clubs in the local area.



# Activity Ten

## Water Harvesting

(Extended Project)

### Suggested Learning Intentions

Children will:

- suggest solutions to problems (TS&PC);
- make decisions and generate options (TS&PC);
- be systematic and work through the stages of a task (TS&PC);
- be able to co-operate when working in a group (TS&PC); and
- use ICT to record and present data (UICT).

### Suggested Learning and Teaching Activities

Organise the class into groups. Present the following scenario to the groups:

*We want water for the plants in our classroom. However, water has been rationed and we are not allowed to use water from the taps. What can we do to help?*

Ask each group to identify ways to resolve this problem for example, by collecting rainwater (water harvesting). Inform them that their challenge is to design a model to show how water could be collected within the school grounds.

Distribute a copy of the *Consider all Factors Template* (Resource D) to each group. Ask them to complete this. Explain to the children that it is very important that they consider all factors when planning and making decisions about their model for example, deciding what materials to use. Invite each group to present their completed *Consider all Factors Template* to the rest of the class. Invite the children to identify the most important factors that need to be considered.

Provide time over a number of weeks for the children to collect materials that can be recycled and used in their model. Allow the groups time to work together to build their water collection model. They will also need time to test their models at various intervals in the design process.

When the models are completed, invite each group to place them in the school grounds. Ask them to monitor their water collection model. In particular, ask them to measure the amount of water collected and decide if their design was successful or not. Encourage the groups to use ICT to record and present their findings in an appropriate form.

Invite the children to suggest two other ways of reusing water collected within the school environment. Encourage them to put their ideas into practice.





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Is Water Precious?

03

# Activity Eleven

## Buckets of Fun!

### Suggested Learning Intentions

Children will:

- recognise that people are not always treated equally and fairly;
- use ICT to communicate and develop ideas (UICT); and
- Record and present their findings using simple mathematical formats (UMaths).

### Suggested Learning and Teaching Activities

Refer the children's thinking back to the needs and wants identified in Activity Seven. Initiate a class discussion about needs and wants. Pose the following questions to the class:

- Does everyone in the world have the same needs and wants?
- Does everyone in the world have a right to clean, safe water?
- What is meant by a *right* to something?

Invite the children to share their ideas. Introduce and explain the concept of basic human rights. Explain to the class that access to clean and safe water is a basic human right, however, not everyone has access to clean and safe water.

Ask the children to think about how easily they can access water: when they want a drink they just have to turn on the tap. Explain that in some parts of the world, people do not have easy access to water and that many people live in homes without a water supply. Many people have to walk a long way from their home to fetch the water they need from rivers or wells. Explain that in order to experience what this is like (to empathise) the class is going to carry

out an investigation. The investigation will measure how far the children can carry water across the playground. Instructions for the investigation are included in *Buckets of Fun* (Resource E). The children work in pairs for this investigation.

Following the practical challenge, ask each pair to use ICT to present a short report or digital presentation to describe their experience. Ask them to include information and pictures/images about:

- what equipment they used;
- what they did;
- what happened; and
- what conclusions they reached.

Ask the children to produce a graph to show how far they each carried the water and to include this in their report. Also ask them to answer the following question in their report: *If the nearest river or well was one kilometre from your house, would you have reached home with the water?*

Finally, invite the class to sing and perform, 'There's a hole in my bucket'. As an optional activity, invite pupils to rework the lyrics using their own ideas or, alternatively, perform the song in another language.

# Activity Twelve

## A Precious Resource

### Suggested Learning Intentions

Children will:

- investigate real-life issues;
- learn how to show empathy towards others, locally and globally; and
- use ICT to collaborate with others (UICr).



### Suggested Learning and Teaching Activities

Explain to the class that water is a precious resource. We all need to look after our water to make sure there is enough for everyone now, and in the future. Remind the children of some of the small actions they can do to help conserve water supplies in the home and in school. Refer their thinking back to the *water promises* listed during the optional Activity Nine.

Organise the class into five groups. Distribute a different *Wateraid: Case Studies of 7-11 year olds* to each group. These are available online at [www.wateraid.org/uk/learn\\_zone/educational\\_resources/770.asp](http://www.wateraid.org/uk/learn_zone/educational_resources/770.asp).

These case studies introduce the children to the experiences of people from other parts of the world and their daily struggle to access clean, safe water. Ask each group to read the stories and to look closely at the photographs and list what they can see. Ask them to generate three questions they would like to ask the person in the story/photograph. Next, invite each group to share their case study, in their own words, with the rest of the class. Also, ask them to share their three questions with the rest of the class. Challenge individuals to imagine they are the child in the photo and to describe what they think or feel. Use ICT to record descriptions.

As a home learning activity, ask each child to write a diary entry about a typical day in the life of a child from a developing country. Remind them to focus on how precious water is in their lives. Back in class, invite the children to share their diary entries with the rest of the class. Encourage them to compare their lives to the lives of children in developing countries.

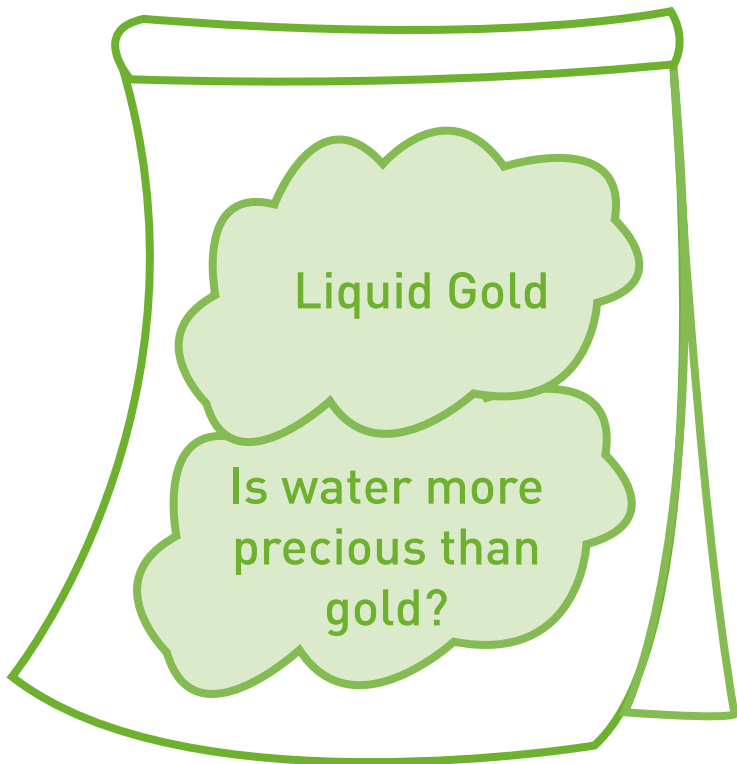
# Activity Thirteen

## Liquid Gold

### Suggested Learning Intentions

Children will:

- value the ideas of others (TS&PC); and
- listen to others and share ideas and opinions (TS&PC).



### Suggested Learning and Teaching Activities

Write the following words on the board or on a flip chart page: *Liquid Gold*. Challenge the children to suggest what these words describe. Explain that water is sometimes referred to as *Liquid Gold* because it is so valuable in our lives.

Organise the class in groups. Distribute a sheet of flip chart paper and a coloured marker to each group. Next, write on the board: *Is water more precious than gold?*

Set a time limit and ask each group to record five answers, thoughts or ideas in response to the question. After the allocated time, ask them to forward their answers to the group next to them. Ensure that all groups exchange their answer sheet with another group. Invite them to review the responses of another group and discuss whether they agree or disagree with their answers. Ask each group to put a tick beside the answers they agree with and a X beside the answers they disagree with. Invite them to write a short summary to explain why they do not agree with certain answers. When all the groups have finished ask them to return the answer sheet to the original group. Allow each group time to read and review the feedback.

# Activity Fourteen

## Water Saving Campaign

(Extended Project)

### Suggested Learning Intentions

Children will:

- develop a sense of responsibility for the environment and for the use of resources;
- make ideas real (TS&PC);
- identify, locate and select appropriate information (Comm); and
- use ICT to access, select, edit and present information (UICT).



### Suggested Learning and Teaching Activities

Explain to the class that they are going to plan and organise a *Saving Water Campaign* in the school and local community. The campaign will be supported by:

- posters;
- newspaper advertisements; and
- radio or TV advertisements.

Invite the children to choose which part of the campaign they want to work on and to negotiate agreement with their peers. Once groups are established, distribute the relevant *Water Saving Task Card* (Resource F) to each group. Ask them to follow the instructions on their *Water Saving Task Cards* and to create the publicity materials.

Ask each group to nominate one child to speak to the Principal about how the campaign can be run in school. Provide time for these children to:

- agree the group strategy;
- meet with the Principal; and
- report back to their group.

Encourage the groups to use ICT to create their presentation. As a class, discuss which materials could be circulated to parents, other primary schools, youth-clubs and/or local businesses and how to do this.

## Optional Activity

# Water Charities

### Suggested Learning Intentions

Children will:

- be able to identify, locate and select appropriate information (Comm and TS&PC); and
- find, select and use data (UICT).

### Suggested Learning and Teaching Activities

Organise the class into groups. Ask each group to research the work carried out by a charity (such as Water Aid or Oxfam) to provide communities in developing countries easy access to water. Allow them supervised access to the internet to carry out their research. Encourage them to highlight what they consider to be the most important information. Carry out a *Just a Minute* feedback activity. Invite the groups to select and present their key findings in just one minute.

As an extension activity, invite the children to produce a picture *Mind Map* to bring together all the information they have gathered during their research.



# Resources

# Resource A

## How Much Water Do We Use?

(Approximate figures)

| Activity                                    | Litres |
|---|--------|
| Shower                                      | 27     |
| Power shower                                | 80     |
| Bath  | 80     |
| Toilet flush                                | 9      |
| Wash basin (inc hand wash, brushing teeth)  | 4      |
| Washing clothes by hand                     | 15     |
| Washing machine (per load)                  | 80     |
| Washing dishes by hand                      | 7.5    |
| Washing dishes in a dishwasher              | 30     |
| Car wash (per bucket)                       | 7      |
| Hosepipe (per minute)                       | 15     |
| Watering garden with sprinkler (per minute) | 9      |

# Resource B

## Needs or Wants

|                         |              |                        |                |
|-------------------------|--------------|------------------------|----------------|
| Bottle of mineral water | Mobile phone | Designer trainers      | Football shirt |
| Crisps                  | Fresh water  | MP3 player             | Name           |
| Television              | Tree house   | Air                    | Teachers       |
| Bicycle                 | Own bedroom  | Golden Retriever puppy | Computer       |
| Warmth                  | Shelter      | Ice-cream              | Playground     |
| Clothes                 | Salad        | To like myself         | Cinema         |
| Sleep                   | Hugs         | Money                  | Friends        |
| Food                    | Home         |                        |                |

Resource C

**My Needs and My Wants**

| My Needs | My Wants |
|----------|----------|
|          |          |

# Resource D

## Consider All Factors Template

|   |                      |
|---|----------------------|
| Ideas to be discussed:                            |                      |
| Factor 1  | Advantages:          |
|   | Disadvantages:       |
|   | Interesting factors: |
| Factor 2  | Advantages:          |
|   | Disadvantages:       |
|   | Interesting factors: |
| Factor 3  | Advantages:          |
|   | Disadvantages:       |
|   | Interesting factors: |
| After discussing all the factors, I think that... |                      |

# Resource E

## **Buckets of Fun**

- Work with your partner.
- Fill up two buckets with water. Try not to spill any!
- Choose a flat, straight part of the playground to work on.
- Mark a start line with chalk.
- Measure ten metres from the start line and mark the finish line with the chalk.
- Decide who will carry the water and who will measure the distance.
- The water carrier must carry the buckets of water backwards and forwards between the start and finish lines until their arms get tired.
- The measurer must record the number of times the carrier is able to walk from the start line to the finish line and back again.
- Swap roles and repeat the activity.
- When finished find a useful way of using the water!

# Resource F

## Water Saving Task Card

### Poster Group

Your task is to produce a poster that will encourage people to save water. You may wish to use ICT. Your poster should create:

- **Attention**  
It should be eye catching. It is important to use colours and graphics.
- **Interest**  
It should be interesting to look at and be read quickly.
- **Desire**  
It should make the people who read it want to help save water.
- **Action**  
It should encourage people who read it to make changes and save water.

### Designing your poster

When you design a poster, remember to:

- include all the information that is needed;
- use pictures and different colours; and
- try to arrange things in a bright and eye-catching way.

### Remember to include the following information on your poster:

- the name of the campaign;
- why people should save water;
- what people can do to save water; and
- where people can get more information.

### Presenting your poster

When you have planned and created your poster you will have to present it to the rest of the class. Try to involve all of your group in the presentation.

Here are some helpful tips:

- Before showing the poster, introduce your work in a lively way.
- Say what your ideas were when planning the poster.
- Display your poster and point out to the class the ways in which it creates:
  - attention;
  - interest;
  - desire; and
  - action.

Also explain how it gets the *save water* message across.

## Newspaper Advertisement Group

Your task is to produce a full-page (A3) newspaper/magazine advertisement for the *Saving Water* Campaign. Your advertisement must create:

- **Attention**  
It should grab people's attention when they are reading the newspaper/ magazine.
- **Interest**  
It should be interesting to look at and be read quickly.
- **Desire**  
It should stimulate readers to want to save water.
- **Action**  
It should inform readers how they can save water.

## Designing your newspaper advertisement

Your advert should:

- grab people's attention when they are reading the newspaper;
- be interesting to look at and read;
- make people want to save water; and
- tell people how to save water.

## Presenting your newspaper advertisement

When you have finished your advert, you will have to present it to the rest of the class. Try to use all of your group in the presentation.

Here are some helpful tips:

- Introduce the advert in a lively way; and
- Tell the class why you think that it will make people save water.

## Radio or TV Advertisement Group

Your task is to produce a 30 second radio advertisement or Podcast for the *Saving Water* Campaign. This advertisement should try to create the following reactions:

- **Attention**  
It should make listeners sit up and listen.
- **Interest**  
It should create interest in what is said and how it is said.
- **Desire**  
It should stimulate listeners to want to save water.
- **Action**  
It should tell readers how to save water.

## Radio Advertisement Design

Remember to include:

- the name of the campaign;
- information about why we need to save water; and
- how we can save water.

The advert should make listeners sit up, pay attention and be interested in what you are saying. You might want to use sound effects or music and perhaps even a jingle.

## Radio Advertisement Presentation

- When you have planned your radio advert or Podcast, present it to the rest of the class. Try to involve all of your group in the presentation. Perform your advertisement *live* to the class and if you have created a Podcast, publish it on the school website.

# List of Suggested Resources

## Suggested Books:

### Fiction

Foreman, Michael *One World*  
Andersen Press Ltd (2004)  
ISBN: 1 84270334 X

Murpurgo, M. *The Rainbow Bear*  
Corgi Childrens (2000)  
ISBN: 0 55254640 2

Rose, D. L. *The People Who Hugged Trees*  
Roberts Rinehart Publishers (2004)  
ISBN: 1 87937350 5

Seattle, C. and Jeffers, S. *Brother, Eagle, Sister, Sky*  
Puffin Books (1993)  
ISBN: 0 14054514 X

Thompson, C. *The Tower to the Sun*  
Alfred a Knopf (1997)  
ISBN: 0 67988334 7

Wood, D. *Grandad's Prayers of the Earth*  
Candlewick Press (2005)  
ISBN: 0 76360660 X

### Non-Fiction

Atgwa, P. *Stand Up for Your Rights*  
Two-Can Publishing (2001)  
ISBN: 1 58728401 4

McLeigh, E. *Keeping Water Clean*  
Raintree (1998)  
ISBN: 0 81724935 4

### Definition of Terms

(Comm) Communication

(UMaths) Using Mathematics

(UICT) Using ICT

(TS&PC) Thinking Skills and Personal Capabilities

(ICLs) Ideas for Connecting Learning

## Useful Websites

### Environment Agency

[www.environment-agency.gov.uk/fun/455518/371786?version=1](http://www.environment-agency.gov.uk/fun/455518/371786?version=1)  
[www.environment-agency.gov.uk/fun/370863](http://www.environment-agency.gov.uk/fun/370863)

### Online Water Conservation Game

[www.thewaterfamily.co.uk/index2\\_content.html](http://www.thewaterfamily.co.uk/index2_content.html)

### Oxfam Cool Planet

[www.oxfam.org.uk/coolplanet/kidsweb/index.htm](http://www.oxfam.org.uk/coolplanet/kidsweb/index.htm)

### Mama Lisa's Sites

[www.mamalisa.com](http://www.mamalisa.com)

### Momes Net

[www.momes.net](http://www.momes.net)

### Scottish Water Service

[www.scottishwater.co.uk/education](http://www.scottishwater.co.uk/education)

### Thames Water: Water Wise

[www.waterwise.fortune-cookie.com/water-wise-kids/](http://www.waterwise.fortune-cookie.com/water-wise-kids/)

### Wateraid

[www.wateraid.org.uk/uk/learn\\_zone/games/pani/default.asp](http://www.wateraid.org.uk/uk/learn_zone/games/pani/default.asp)

### Water Service of Northern Ireland

[www.waterni.gov.uk/home1.htm](http://www.waterni.gov.uk/home1.htm)

### Water4Life

[www.dwi.gov.uk/children/games/games.htm](http://www.dwi.gov.uk/children/games/games.htm)

### Christian Aid

[www.christian-aid.org.uk](http://www.christian-aid.org.uk)

### CAFOD

[www.cafod.org.uk/resources/primary\\_schools/water](http://www.cafod.org.uk/resources/primary_schools/water)

### Oxfam

[www.oxfam.org.uk/education/resources/water\\_for\\_all/water/](http://www.oxfam.org.uk/education/resources/water_for_all/water/)

# Appendix 1

## Gibson Primary School

### Case Study

#### School Profile

|                                       |   |
|---------------------------------------|---|
| School                                | Gibson Primary School, Omagh                                    |
| Type of School                        | Urban School (250 pupils)                                       |
| Linked to ICL                         | The Blue Planet (Years 5/6)                                     |
| Northern Ireland Curriculum Objective | To develop the young person as a contributor to the environment |
| Key Element                           | <i>Education for Sustainable Development</i>                    |

#### Planning

This thematic unit links in well with the water cycle topic we currently teach as part of our Year 5 curriculum.

We wanted to introduce this thematic unit by building on existing activities. We extended our planning to incorporate all areas of the curriculum. We decided that the children would record their learning in a Water Project Book instead of recording progress in individual subjects.

The thematic unit offered plenty of opportunities to develop Thinking Skills and Personal Capabilities. However, we carefully considered how to offer the children more opportunities to develop Communication, Using Mathematics and Using ICT skills.

#### Starting Points

We held a class discussion and invited the children to thought shower what they knew about water and what they wanted to find out. We then asked them to search for images of water on the internet. We invited them to choose an image that was special to them and to share it with the rest of the class. We also asked the children to explain why the image was special to them.

We displayed a variety of images on the interactive whiteboard and asked the children to list adjectives to describe each one. We discussed the diversity of water and what it meant to us. We also created a large 3D waterfall of words to display the children's initial thoughts. This stimulated the children to ask questions about where water comes from.

#### Development

We used a water cycle simulator to demonstrate the water cycle to the children. The children then made their own model of the water cycle using *modroc*. We invited them to explain the water cycle in their own words.

#### Water Surveys

We had the children carry out a survey to find out how many electrical appliances in their home use water. We encouraged them to think about personal water use and common uses of water in the home.

We asked the children to draw a plan of their home and identify the water sources on it. The class worked collaboratively to produce a letter to parents, to explain the purpose of the thematic unit. In the letter, the children also asked their parents to help them carry out a water survey of how much water their house uses on a typical day.

# Gibson Primary School

## Case Study continued

When the children had completed the water survey of their homes, we collated all of their findings on a spreadsheet. We used the software package *Numberbox*. We asked the children to make calculations, draw graphs to display their results and to analyse their results. This activity encouraged the children to consider how much their family impacts the water cycle and the environment.

We organised the children into groups to plan and carry out a survey of water usage in the school. Again, we asked them to collate their results and analyse them. We encouraged the children to reflect on the results of their surveys and discuss ways in which they could save water. As a shared writing activity, we had them write a water rap incorporating all their ideas. We invited the children to add music and body percussion to their water rap. We had them present their water rap on World Water Day.

As part of investigating one of the ideas to save water, the children designed and built rain collectors and recorded the amount of rainfall over the period of a week. This was a natural lead into a capacity topic in mathematics.

### Water from the Reservoir to the Tap

We looked at the journey of water from reservoir to tap. The children used modroc to create Tiny Drip characters. They planned and wrote stories about *Tiny Drip's Adventure*.

### Why our Body Needs Water

We focused on why our bodies need water. The children carried out a walking debate and discussed water needs and wants.

### Water Problems Around the World

We organised the children into groups. We asked the groups to use the Cool Planet website to research water problems around the world. We also asked them to manage the information and present their findings in a report to the rest of the class. We then held a class discussion to talk about the water problems.

The children used a *cause and consequence framework* to reflect on the impact of the water problems and what it would be like to live without easy access to water. We then asked the children to plan how they would sensibly use 500ml of water a day and to justify their answers.

As a class, we built a 3D golden waterfall display to reflect the importance of water.

We organised the children into groups and asked them to identify ways to encourage people in the community to save water. One idea was to use a radio broadcast to promote water saving. We invited a local radio presenter to talk to the children and tell them what makes a good radio broadcast. The children were also given opportunities to ask the radio presenter questions and link to the local station from the classroom.

We organised the children into groups. We asked each group to write a radio broadcast to inform people about their water saving project and to suggest ways to save water. The children travelled to the radio station to record their broadcasts.

As a final activity, we invited the children to plan and write an assembly to present their project to the rest of the school. They used the PowerPoint software package to make a digital presentation that included images and graphs.

## Physical Education

In Physical Education, we used words that describe the movement of water to create and sequence movements to music.

## Evaluation

The children thoroughly enjoyed taking part in this thematic unit. In particular, they enjoyed:

- taking part in group work;
- having freedom to research and investigate more than usual;
- developing their own ideas;
- the hands-on learning experience at the radio station; and
- planning and presenting information to other children at the school assembly.

Through taking part in this thematic unit, the children really developed as learners. They were given opportunities to share their ideas, discuss and debate them with others. The children developed greater confidence through taking part in the school assembly.

We found that the teacher-pupil relationship was more open. Feedback from other teachers was very positive. Some teachers in the school began to incorporate some of the ideas and teaching strategies into their own lesson plans. Parents were encouraged by the diversity of work taking place.

On the whole, we found the thematic unit very enjoyable. However, it did involve a great deal of additional planning and preparation throughout. If we were to repeat this thematic unit next year, it would be much easier to manage as we have already completed the planning and preparation.

## Appendix 2

# St Columbkille's Primary School Case Study

### School Profile

|                                       |   |
|---------------------------------------|---|
| School                                | St Columbkille's Primary School, Carrickmore                    |
| Type of School                        | Rural School (285 pupils)                                       |
| Linked to ICL                         | The Blue Planet (Years 5/6)                                     |
| Northern Ireland Curriculum Objective | To develop the young person as a contributor to the environment |
| Key Element                           | <i>Education for Sustainable Development</i>                    |

### Planning

We currently teach the water cycle as a part of the Year 5 curriculum. However, this thematic unit complemented and enriched our existing planning for the water cycle.

It also provided new ideas for learning and teaching across the curriculum. We found the suggested resources to be invaluable. We adopted many aspects of this thematic unit in our planning and used it to support the teaching of Mathematics, English, The World Around Us, and ICT.

We focused on different teaching methodologies for example 'think, pair and share' and 'group work'. Through using this approach, the children had opportunities to develop all the areas of thinking skills and personal capabilities.

This thematic unit also allowed teachers to be creative and to expand on their own ideas.

### Starting Point

As our starting point, we discussed the importance of water in our lives, home, school, community and environment. We talked about the different ways in which water is used in the children's homes and in the school.

We asked the children to work in groups and to think about where water comes from. We then talked about the possibility of visiting the *Rocwell* water factory to see how water is processed.

### Development

Our main focus in completing this thematic unit was to enable the children to find out:

- how valuable and precious water is to them;
- how valuable and precious water is to people in different countries; and
- how important water is to the environment.

We followed the activities outlined in the thematic unit. As a home learning activity, we asked the children to draw a plan of their home and highlight all the water sources. When they returned to school, the children shared their findings with the rest of the class. We then had the children carry out a water source survey in the school. We asked them to display their findings in Venn diagrams and graphs created by Excel.

### Water Cycle

We then invited the children to use the internet to research the water cycle diagram. We encouraged them to discuss the different stages of the water cycle. The children enjoyed this activity. Finally, we

asked them to draw their own version of the water cycle. This activity gave the children an opportunity to record their understanding of the water cycle. Children across the range of abilities produced a high standard of work. Some children with learning difficulties included great detail in their artwork to compensate for lack of written labels on their work.

We then spent time carrying out the water experiments suggested in the thematic unit. We eventually purified water from salt. We used a transparent plastic container, one small cup, cling film and a solution of water and salt. We poured the solution into the container and placed the cup in the centre. We covered the box with cling film and placed a small stone placed on top so that the water droplets would collect in the cup.

## Visit to Rocwell

We decided that a visit to the Rocwell water factory would enhance the children's understanding of the water cycle and create enthusiasm for the topic. We asked the children to carry out a survey of the volume of water they drank each day for a week. Rocwell provided each child with a 250 ml bottle of water. This was convenient for them to use because each bottle was the same size.

This visit to the Rocwell factory was very successful because it created great enthusiasm for the topic and it also provided us with an opportunity to write letters to the factory.

This visit was also the stimulus for our intranet project. While working under the guidance of our ICT co-ordinator the children each designed their own Story Board using the information they had learned through the topic. The children worked in pairs to design their final Story Board. They used the Black Cat Spider software package to design and publish their Story Boards on the school's intranet. The children worked with enthusiasm and excitement with each child contributing to the ICT work.

## Evaluation

### Teachers

This was our first time piloting CCEA materials with Year 5 children. The quality of this thematic unit made it a positive experience for us. The design of this resource kept us focused on the topic. It also allowed us the freedom to develop our own ideas to suit our classes.

The support from our principal and ICT co-ordinator enabled us to take the children's ICT learning experiences to a new level. Without their help this

would not have been possible. Group work gave the children more opportunities to take responsibility for their own work. Throughout the thematic unit, each child had the opportunity to be a leader or a scribe within a group. Some of the children found it difficult to participate in group work but as time went on they became more confident in expressing themselves and taking on roles within a group.

Children with special needs felt that they had made a valuable contribution. One child who has great difficulty in expressing his ideas in writing drew the water cycle in great detail. Through using this medium, he demonstrated his level of understanding, which was equal to his peers.

### Children

The children loved taking part in the thematic unit. They particularly enjoyed:

- researching web sites provided in the folder;
- working in groups and in pairs to design study boards;
- the visit to the Rocwell Factory;
- drawing a plan of water sources in their own home; and
- carrying out a school survey of water sources.

All the children achieved success at their own level during the thematic unit.

### Parental Involvement

The thematic unit offered parents opportunities to support their child's home learning by:

- helping to create a plan of their home; and
- measuring, recording and monitoring water consumption in the home.



## Visit to Rocwell





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