

1. What is our purpose?

To inquire into the following:

Central Idea:

**Fresh water is essential for life.
However, it will continue to be a limited resource until we learn to capture and manage it effectively**

- **Transdisciplinary Theme**
- **How the World Works** or **Sharing the Planet**

Summative Assessment task(s):

What are the possible ways of assessing students' understanding of the central idea? What evidence, including student-initiated actions, will we look for?

1. Students will develop personal mind maps using 'Inspiration' to record their thoughts and understandings. By colour coding and dating the colours, or by saving and printing dated versions, students will have a personal record of their learning journey.
2. Each of the four class groups will keep a 'group reflection log', in addition to recording their personal reflections in their own journals.
3. All members of the class, together with their teacher, will help to develop an Assessment Rubric which will guide the development of the four presentations and also serve as a summative assessment tool.
4. The four groups will share a presentation of their learning about their 'line of inquiry'.
5. Each group will assess the other three class presentations using the rubric which they helped develop. Eventually all groups will receive four assessment rubric sheets; three from their peers and one from their teacher.

Schools: Victoria, Australia/Sha Tin, Hong Kong, 2006.

Water Unit Planner

Focus: **Science**/Social Studies

Class/grade: **4 or 5**

Age group: **9-10 years**

Teacher(s):

Proposed duration: 60 hours over 6-7 weeks

2. What do we want to learn?

What are the key concepts to be emphasized within this inquiry?

Function and Responsibility

What lines of inquiry will be pursued?

- **How water cycles around our Earth**
- **How we capture and manage fresh water**
- **Our responsibility towards water**

What teacher questions will drive these inquiries?

1. **How does the water cycle work?**
2. **From where does our fresh water come and how is it collected?**
3. **How is fresh water brought to our homes and what happens to it after it leaves?**
4. **How healthy are our local waterways and what are our responsibilities towards our local storm drains, rivers and streams?**
5. **How can we support the Right of all Children to Clean Water?**

3. How might we know what we have learned?

This column should be used in conjunction with ‘How best might we learn?’ What are the possible ways of assessing students’ prior knowledge and skills? What evidence will we look for?

Have the class brainstorm what they need to survive. Highlight water when it comes up. Begin a discussion by asking:

- **How many times a day do you drink, or use water?**
- **How much water do you personally use a day? Have students record this information at school and at home.**
- **How would you manage if you suddenly had no water?**
- **Where do you see water in relation to other important aspects of your life?**
- **Is there anything that could replace it?**
- **If you had to cut your water usage back to just one jug a day (as millions have to do around the world) what would you use it for? What would you decide to leave out?**
- **How does it feel to be very thirsty? Try not drinking for a morning.**
- **What would you do if you were trapped with no water?**

What are the possible ways of assessing student learning in the context of the lines of inquiry?

- Personal journal reflections, group logs, continuous sharing of ideas.
- A rubric for guiding and assessing the presentations, and a video recording of these presentations for later student and teacher analysis.
- Group responses to the teacher questions, which will come at the conclusion of the unit.

4. How best might we learn?

What are the learning experiences suggested by the teacher and/or students to encourage the students to engage with the inquiries and address the key questions?

The unit follows the ‘inquiry cycle’ and dedicates a full three weeks to ‘deepening’ students’ connections with water. These connective experiences include: field trips to water treatment facilities, reservoirs and local waterways, watching videos such as the one featured in the movie from ‘321 Contact’ developing flowcharts of the learning gathered from this source, listening to experts, reading widely and deeply from a range of both non-fiction and fiction sources.

An interesting novel with huge scope for discussion is the ‘**Crystal Drop**’ by **Monica Hughes** (ISBN 0-382-28631-6) see more details under Resources.

What opportunities will occur for transdisciplinary skill development and for the development of the attributes of the learner profile.

Collecting and analysing data of personal water use among class members, then comparing this data with how children in different countries use water.

Transdisciplinary skills: gathering information, reading, collaborating, writing, and reporting in inquiry groups.

Field trips, invitations to guest speakers, group preparation and presentation of lines of inquiry, offer opportunities for personal goal setting and reflection in terms of the Learner Profile by both students and teacher.

5. What resources need to be gathered?

What people, places, audio-visual materials, related literature, music, art, computer software, etc, will be available? How will the classroom environment, and/or the community be used to facilitate the inquiry?

Visits to local rivers, treatment plants, and reservoirs

A range of videos on water (see list following)

Posters from Waterwatch and Melbourne Water

Guest speakers from Hong Kong University and Melbourne Water

Range of literature and non-fiction resources from, school, home and neighbourhood libraries: Fiction “The Crystal Drop’ Non-fiction (see list which follows)

Expressing the significance of water through music, dance and art.

Computer software: Inspiration, Photostory, Powerpoint, Texttease.

6. To what extent did we achieve our purpose?

Assess the outcome of the inquiry by providing evidence of students' understanding of the central idea. The reflections of all teachers involved in the planning and teaching of the inquiry should be included.

Responses may point to evidence from individual student's inspiration /concept maps and personal journal reflections on their learning
Group reflections on the Central idea and teacher questions should provide further evidence, together with evidence from student portfolios.

Reflections from Ms Angela Florio:

Students comments and written reflections revealed a growing appreciation of the fact that clean water is a luxury and that water management is a huge issue worldwide'.

How could you improve on the assessment task(s) so that you would have a more accurate picture of each student's understanding of the central idea.

Possibly focus on personal journal reflections and thought of how they might choose to take action from their learning.

What was the evidence that connections were made between the central idea and the transdisciplinary theme?

Possibly a journal starter, which directly addresses the connection between the two, i.e. **What connections do you see between the idea of 'Sharing the Planet' and 'Water as a limited resource which needs to be captured and managed effectively'.**

7. To what extent did we include the elements of the PYP?

What were the learning experiences that enabled students to:

1. develop an understanding of the concepts identified in 'What do we want to learn?'
2. demonstrate the learning and application of particular transdisciplinary skills?
3. develop particular attributes of the learner profile and/or attitudes?

In each case, explain your selection.

1. The key concepts underlying this unit were **function** and **responsibility**.

Learning experiences that helped students understand the concepts:
Researching and demonstrating the 'water cycle'.

Visiting a water treatment facility and a reservoir. Inviting experts to the class to talk with students. Viewing the film from 321 Contact and other videos. Experimenting and observing at a local river. Collecting data on water usage. Observing where the water goes (storm drains take it to the sea, in other places it may be captured)

2. Reading and researching were ongoing as were writing and was the sharing of information. Hypothesising and analysing data were also ongoing. Social skills such as setting goals for personal and group projects, managing time in order to meet deadlines, using teamwork skills. Researching using school, home and community resources. Using and developing new skills in ICT such as Skype, Google Earth, Photostory 3, and Inspiration.

3. Preparation for field trips and planning for guest speakers. Working harmoniously in groups and reflecting on the success of this work using the rubric for the presentations as a guide and reminder of the Learner Profile:

8. What student-initiated inquiries arose from the learning?

Record a range of student-initiated inquiries and student questions and highlight any that were incorporated into the teaching and learning.

How do people clean water?
How does the water get to our homes?
How do we recycle water?
If most of the Earth is covered in water then why can't we use it all?
From where do we get hot water?
When you close the tap, how does it close?
How do floods happen?

At this point teachers should go back to box 2: 'What do we want to learn?' and highlight the teacher questions/provocations that were most effective in driving the inquiries.

Teacher questions

6. **How does the water cycle work?**
7. **From where does our fresh water come and how is it collected?**
8. **How is fresh water brought to our homes and what happens to it after it leaves?**
9. **How healthy are our local waterways and what are our responsibilities towards our local storm drains, rivers and streams?**
10. **How can we support the Right of all Children to Clean Water**

What student-initiated actions arose from the learning?

Record student-initiated actions taken by individuals or groups showing their ability to reflect, to choose and to act.

Only flush the toilet half flush or full flush as needed
Run the dishwasher and washing machine only when you have a full load
Put buckets under leaking taps and gutters and use this water for the garden. Don't flush dead bugs down the toilet
Take short showers
Don't put chemicals down the drain

9. Teacher Notes

See the list of Resources. You might include here the resources you have found useful in the unit, or wish to use in the future.

This is also the place to record notes for next year – what do you want to change in the unit and what new ideas and contacts should be included?