

# SEQ Water Grid Water Learning Centres Curriculum Guide 2011



## The Water Journey at SEQ Water Grid Water Learning Centres



SOURCE



TREAT



STORE



SUPPLY



The following is a Curriculum guide to The Water Grid Water Education Program available at our Learning Centres in South East Queensland.




1. North Pine Catchment, Dam and Treatment plant
2. Wivenhoe Catchment and Dam
3. Hinze Catchment and Dam
4. Mt Crosby Weir and Westbank Treatment plant
5. Baroon Pocket Dam, Catchment ,Landers Shute Treatment plant and Ewen Maddock Treatment Plant.
6. Banksia Beach Water Treatment plant
7. Gold Coast Molendinar treatment plant
8. Leslie Harrison Catchment and Dam and Capalaba water treatment plant
9. Bundamba Purified Recycled Water Treatment Plant
10. Tugun Desalination Plant
11. Wyaralong Dam Case Study

Flexibility allows teachers to design a curriculum experience that best meets specific year level requirements. Feel free to mix and match . **Many resource materials are available. Please refer to the Teacher's Guide for more indepth site specific discussion of free site visits and experiences or classroom visits available.**

To reserve your water learning experinece, please follow the booking guidelines located at the end of this guide.



## Learning Sessions for Early Childhood and Prep to Year 3

Session	Location	Duration	Description	Key Learning	Essential Learning
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full Day	<p><b>Source and Store.</b> An in depth look at the Water Cycle and catchment of our dams and how water is stored. Students view a DVD, view the dam and spillway area and also learn about the various Catchment Creatures that live in the area.</p> <p><b>Duration:</b> half to full day</p>	Science SOSE English HPE	Place and Space Life and Living Speaking and Listening
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full Day	<p><b>Source, Store Treat Supply.</b> The students have the chance to view the water journey from water cycle to treatment. An in depth study of the water cycle, the catchment around the dam, storage in the dam Students then can tour treatment plant to view the treatment process as it occurs and how water gets to their homes.</p> <p><b>Duration:</b> full day</p>	Science SOSE English HPE	Life and Living Place and Space Speaking and Listening
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full day	<p><b><u>Water Water everywhere</u></b></p> <p>Find out where the water ends up after all the processes. Learn how to use water wisely. Learn how to do a classroom and home water audit. Find out how much water you can save. What can you do to save water and use it wisely ?</p> <p>This program can be arranged to be done at a Learning Centre or in collaboration with your local council water retail authority at school.</p>	Science SOSE English HPE	Place and Space Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond

**National Curriculum      Science Focus      Years K–2 (typically from 5 to 8 years of age)**

***Curriculum focus: awareness of self and the local world***

Young children have an intrinsic curiosity about their immediate world and a desire to explore and investigate things around them. Asking questions leads to speculation and the testing of ideas. Exploratory, purposeful play is a central feature of their investigations. Observation, using the senses in dynamic ways, is an important skill to be developed in these years. Observation leads into the idea of order that involves describing, comparing and sorting.

**Science understanding**

- comparing, sorting and classifying objects and materials
- pushes, pulls, position and motion of objects
- living and non-living things
- needs, structures and growth of organisms
- objects in the sky
- changes on earth and the effects on living things.

**Science inquiry skills**

- explore, be curious and wonder
- ask questions and begin to investigate
- describe what has happened
- make and share observations
- use evidence to support ideas.

**Science as a human endeavour**

- recognise aspects of science in everyday life
- identify work associated with science in the community
- care for the environment.

## Learning Sessions for Lower Middle School Year 3-7

Session	Location	Duration	Description	Key Learning	Essential Learning
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full day	<b>Source Store and Treat.</b> The students have the chance to view the water journey from water cycle to treatment. An in depth study of the water cycle, the catchment around the dam, storage in the dam Students then travel to the treatment plant to view the treatment process as it occurs. <b>Duration:</b> full day	Science SOSE English HPE	Place and Space Life and Living Speaking and Listening Science as a human endeavour
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze (2010)	Half Day Full day	<b>Source and Store.</b> An in depth look at the Water Cycle and catchment of our dams and how water is stored. Students view a DVD, view the dam and spillway area and also learn about the various Catchment Creatures that live in the area. <b>Duration:</b> half to full day	Science SOSE English HPE	Place and Space Life and Living Speaking and Listening Science as a human endeavour
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full day	<b>Water quality and Catchment Care.</b> This program designed for upper primary students and takes the students to the dams edge as well as river for water testing activities and a look at the catchment conditions that impinge upon water quality. A visit to other parts of the catchment is also possible. Explore the indigenous links to the catchment also. <b>Duration:</b> half to full day	Science SOSE HPE	Place and Space Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full day	<b>What's in it effects the quality!</b> An investigation of water quality as it is effected by numerous elements in the water journey from catchment to dam to treatment plant. Students have the chance to do water testing near the dam using some of the equipment used by Seqwater. Water samples are analysed, compared and checked for macroinvertebrates and other features to ascertain water quality. Students can then take part in a guided tour of the water treatment plant. <b>Duration:</b> full day	Science SOSE HPE	Place and Space Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond
	Wivenhoe North Pine Leslie Harrison Baroon Pocket Hinze	Half Day Full Day	<b>Water Water everywhere</b> Find out where the water ends up after all the processes. Learn how to use water wisely. Learn how to do a classroom and home water audit. Find out how much water you can save. What can you do to save water and use it wisely ? This program can be arranged to be done at a Learning Centre or in collaboration with a local council.	Science SOSE English HPE	

National Curriculum      Science Focus      Years 3–6 (typically from 8 to 12 years of age)

*Curriculum focus: recognising questions that can be investigated scientifically and investigating them*

During these years students will have the opportunity to develop ideas about science that relate to their life and living. A broad range of science concepts will be explored. Within these, the unifying ideas of patterns, systems, cause and effect, and evidence and explanation will be developed.

In the early years of primary school, students will tend to use a trial-and-error approach to their science investigations. As they progress through these years, the expectation is that they will begin to work in a more systematic way. The notion of a 'fair test' and the idea of variables will be developed, as well as other forms of science inquiry. Understanding the importance of measurement will also be fostered.

**Science understanding**

- properties and uses of materials
- forces and motion
- forms, use and transfer of energy
- structures and functions of living things
- life cycles of organisms
- living things and the environment
- changes on earth and in space
- relationship between earth, moon and sun
- earth's resources and their uses.


**Science inquiry skills**

- identify questions and predictions for testing
- plan and conduct simple investigations
- observe, describe and measure
- collect, record and present data as tables, diagrams or descriptions
- analyse data, describe and explain relationships
- discuss and compare results with predictions
- draw conclusions and communicate ideas and understandings.

**Science as a human endeavour**

- consider how science is used in work and leisure
- become aware of science-related careers
- recognise the effect of science and technology on our environment
- be aware of the historical nature of science ideas.

Learning Sessions for Upper Middle School Year 8-9

Session	Location	Duration	Description	Key Learning	Essential Learning
	Wivenhoe NorthPine Leslie Harrison Baroon Pocket Hinze Mt Crosby NorthPine Landers Shute Capalaba	Half Day Full day	<p><b>Source Store and Treat.</b> The students have the chance to view the water journey from water cycle to treatment. An in depth study of the water cycle, the catchment around the dam, storage in the dam Students then travel to the treatment plant to view the treatment process as it occurs.</p> <p><b>Duration:</b> full day</p>	Science SOSE English HPE	Place and Space Life and Living
	Wivenhoe NorthPine Leslie Harrison Baroon Pocket Hinze	Half Day Full day	<p><b>Water quality and Catchment Care.</b> This program designed for upper primary students and takes the students to the dams edge as well as river for water testing activities and a look at the catchment conditions that impinge upon water quality. A visit to other parts of the catchment is also possible.</p> <p><b>Duration:</b> half to full day</p>	Science SOSE HPE	Place and Space Life and Living Science as a human endeavour
	Mt Crosby NorthPine Landers Shute Capalaba	Half Day	<p><b>Water treatment ...from raw to clear and drinkable!</b> Students tour an Seqwater water treatment plant to investigate water treatment processes . Activity material available</p> <p><b>Duration:</b> half day</p>	Science SOSE HPE	Place and Space Life and Living Science as a human endeavour
	Wivenhoe NorthPine Leslie Harrison Baroon Pocket Hinze (2010) Mt Crosby NorthPine Landers Shute Capalaba	Half Day Full day	<p><b>What's in it effects the quality!</b>                      An investigation of water quality as it is effected by numerous elements in the water journey from catchment to dam to treatment plant. Students have the chance to do water testing near the dam using some of the equipment used by Seqwater. Water samples are analysed, compared and checked for macroinvertebrates and other features to ascertain water quality. Students can then take part in a guided tour of the water treatment plant.</p> <p><b>Duration:</b> full day</p>	Science SOSE HPE	Place and Space Life and Living Science as a human endeavour
	Mt Crosby Bundamba PRW	Half Day Full day	<p><b>Water treatment ...from raw to clear and drinkable!</b> Students tour the Seqwater Mt Crosby plant to investigate water treatment process A visit to the Seqwater/Water Secure Bundamba Purified Recycled water treatment plant gives a glimpse of water treatment from a different source of water!                      Activity materials available.</p> <p><b>Duration:</b> half to full day</p>	Science SOSE HPE	Place and Space Life and Living Science as a human endeavour

Wivenhoe  
NorthPine  
Leslie Harrison  
Baroon Pocket  
Hinze  
Mt Crosby  
NorthPine  
Landers Shute  
Capalaba

Half Day  
Full Day

**Water Water everywhere**  
Find out where the water ends up after all the processes. From Source through to supply. Learn how to use water wisely .Learn how to do a classroom and home water audit. What can you do to save water and use it wisely. This program can be arranged done at a Learning Centre or in collaboration with your local council water retail authority.

Science  
SOSE  
English  
HPE

National Curriculum

Science Focus

Years 7–10 (typically from 12 to 15 years of age)

*Curriculum focus: explaining phenomena involving science and its applications*

During these years, students study science concepts associated with each of the disciplines: biology, physics, chemistry and earth science. It is important to include contemporary contexts in which science can be learned and issues and recent research to enhance understanding of science in the world. It is current research and its human uses and implications that motivates and excites students.

In determining what concepts students should learn, it is important to exercise restraint and avoid overcrowding the curriculum, and so provide time to build the knowledge base that underlies science understanding. The unifying ideas of energy, sustainability of systems, equilibrium and interdependence lead to the ideas of form and function that result in a deeper appreciation of evidence, models, explanations and theories.

Science understanding

*Physics and chemistry*

- nature of matter, including particle theory
- forms of energy, energy transfer and storage
- forces and motion
- acids and bases
- metals and non-metals
- elements, compounds and chemical reactions.

*Biology*

- cells and living things
- the human body
- ecosystems
- theory of evolution and the diversity of living things.

*Earth science*

- structure of the earth and geological history
- plate tectonics and geological phenomena
- stars, galaxies and the universe.





Science inquiry skills

- formulate scientific questions or hypotheses for testing
- design and conduct science investigations involving measurement and repeated trials
- gather and organise data from a variety of sources
- analyse and test models and theories based on the evidence available
- explain and summarise patterns in data using science concepts.

Science as a human endeavour

- be aware of contemporary issues such as water and its management, climate change, stem cell research, nanotechnology, gene technology
- apply scientific understandings to make responsible, ethical and informed decisions about issues
- be aware of the nature of science and research of Australian scientists
- appreciate that science provides rewarding careers
- appreciate the diversity of people who have contributed to, and shaped the development of, science.

## Learning Sessions for Senior School Year 10-12

Session	Location	Duration	Description	Key Learning	Essential learning
	Wivenhoe NorthPine Leslie Harrison Baroon Pocket Hinze Mt Crosby Molendinar Landers Shute Capalaba	Half Day Full day	<p><b>Source Store and Treat.</b> The students have the chance to view the water journey from water cycle to treatment. An in depth study of the water cycle, the catchment around the dam, storage in the dam Students then travel to the treatment plant to view the treatment process as it occurs.</p> <p><b>Duration:</b> full day</p>	Science SOSE English Multistrand Chemistry	
	Mt Crosby NorthPine Landers Shute Capalaba Molendinar	Half Day	<p><b>Water quality ..Australian Drinking water Guidelines.</b> Students investigate what makes up the Australian Drinking water guidelines and how Seqwater maintain a rigorous standard of water quality. A tour of the plant and the processes involved is conducted.</p> <p><b>Duration:</b> half day</p>	Science SOSE Multistrand Chemistry	
	Wivenhoe NorthPine Leslie Harrison Baroon Pocket Hinze Mt Crosby NorthPine Landers Shute Capalaba	Full day	<p><b>What's in it effects the quality!</b> An investigation of water quality as it is effected by numerous elements in the water journey from catchment to dam to treatment plant. Students have the chance to do water testing near the dam using some of the equipment used by Seqwater. Water samples are analysed, compared and checked for macroinvertebrates and other features to ascertain water quality. Students can then take part in a guided tour of the water treatment plant.</p> <p><b>Duration:</b> full day</p>	Science SOSE HPE Multistrand Biology Chemistry	SOSE: PS D5.6,6.1,6.4 Science E&B DB6.4 DB6.5 L&L 5.3,6.3 DB 6.4
	Wivenhoe	Full Day	<p><b>The Great Floods. ....The Deluge.</b> Students view a documentary drama about the great floods of 1893 with a viewing of the "The Deluge" telling the story of Henry Plantaganet Somerset and his efforts to save Brisbane and surrounds from the great flood. Students then investigate the building of Wivenhoe Dam and its benefit for flood mitigation. This tour requires a visit to both Wivenhoe and Somerset dams.</p> <p><b>Duration:</b> full day  <b>Year levels:</b> 10-12</p>	Science SOSE English Multistrand	








Wivenhoe  
NorthPine  
Leslie Harrison  
Baroon Pocket  
Hinze  
Mt Crosby  
NorthPine  
Landers Shute  
Capalaba





Half Day  
Full Day

**Water Water everywhere**  
Find out where the water ends up after all the processes. From Source through to supply. Learn how to use water wisely .Learn how to do a classroom and home water audit. What can you do to save water and use it wisely. This program can be arranged done at a Learning Centre or in collaboration with your local council water retail authority.  
**Senior school students are encouraged to look at the issues of water shortages and water saving measures . They are encouraged to design and create water sensitive facilities and look at ways to improve the environment.**

Science  
SOSE  
English  
Multistrand

**Extension sessions-Delivered at school or elsewhere to various Year levels**

Session	Location	Duration	Description	Key Learning	Essential Learning
	Classroom	1 hour	<p><b>Source Store Treat Supply</b> An in-depth look at the Water Cycle and catchment of our dams and how water is stored and treated. Students view a DVD, learn about the various Catchment Creatures that live in the area and journey with Wizzy the water drop on his incredible water journey.</p> <p><b>Duration:</b> 1 hour <b>Year levels:</b> P-7</p>	Science SOSE English HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond
	Classroom	1 hour	<p><b>The Catchment Creatures.</b> View the creatures of the catchment and find out about their unique characters. Have a chance to learn about wildlife in the catchment Students learn about each character and how they are important for the catchment and an indicator of Catchment health.</p> <p><b>Duration:</b> 1 hour <b>Year Levels:</b> P-4</p>	Science SOSE English HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour
	Classroom	1 hour	<p><b>Water quality ..Australian Drinking water Guidelines.</b> Students investigate what makes up the Australian Drinking water guidelines and how Seqwater maintain a rigorous standard of water quality. A DVD is viewed to reinforce the concepts</p> <p><b>Duration:</b> 1 Hour <b>Year Level:</b> 8-12</p>	Science SOSE HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour
	Catchment area	Half Day	<p><b>Looking after the Catchment.</b> Join the Land and Water quality staff as they set about revegetating areas that have been affected in some way or plant a stand of trees for Koala Fodder.</p> <p><b>Duration:</b> Half day <b>Year level:</b> 3-12</p>	Science SOSE HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour
	Classroom	1 hour	<p><b>Up a Dry Gully</b> Join the Catchment Creatures as they set about to help their catchment deal with the problems that occur and how we all need to look after our water. Scenario and work sheets provided. This session can stand alone or support the UP A DRY GULLY competition.</p>	Science SOSE English HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour

	Regional environmental Centres	Half to Full Day	<p><b>Combine a visit to one of our partner environmental centres.</b> Located at Downfall Creek, Boondall Wetlands, Brisbane Forest Park, Osprey House, Kumbartcho or Numinbah aiming to broaden the environmental reach of the water story.</p> <p><b>Year Levels P-12</b></p>	Science SOSE English HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond
	Classroom	1 hour	<p>Combine any session with a further session on being Water Wise and a Water Saver. Look at the ways to save water and what ways we should look to in the future to ensure that the resources is protected. Do a water Audit at home and at school and see who is a water saver or a water waster! What is a sustainable house ?</p> <p>Selected Retail entities or Water Grid Education staff are able to deliver these sessions.</p> <p><b>Year Levels P-12</b></p>	Science SOSE English	Place andSpace Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond
	Linkwater Control Room	1hour	<p>Take a visit to the <b>Linkwater Control room</b> and see how water is moved around the Water Grid in over 585 kms of potable bulk water mains and 28 water reservoirs and 22 bulk water pump stations.</p> <p><b>Year levels 8-12</b></p> <p><b>( beginning mid 2011)</b></p>	Science SOSE English HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond
	<p>Tugun Desalination Plant</p> <p>Bundamba Purified Recycled Water Treatment plant</p>	<p>1.5 hours</p> <p>1.5 hours</p>	<p>Visit the <b>Tugun Desalination Plant</b> and investigate the process of Desalination and how this source of water and the plant are integral parts of the Water Grid.</p> <p>Visit the <b>Bundamba PRW Plant</b> and investigate the process of Purified Recycled Water and how this source of water and the plant are integral parts of the Water Grid</p> <p><b>Year Level 8-12</b></p>	Science SOSE English HPE HPE	Place andSpace Life and Living Speaking and Listening Science as a human endeavour Earth and Beyond

# South East Queensland Water Learning Centres Special Project

.....Scenic Rim Case Study.....

“Developing our water infrastructure for the Future”

Water Supply for the Logan region and beyond


Wyaralong Dam, Bromelton Storage



and

Cedar Grove Weir

## The South East Queensland Water Grid in Action !

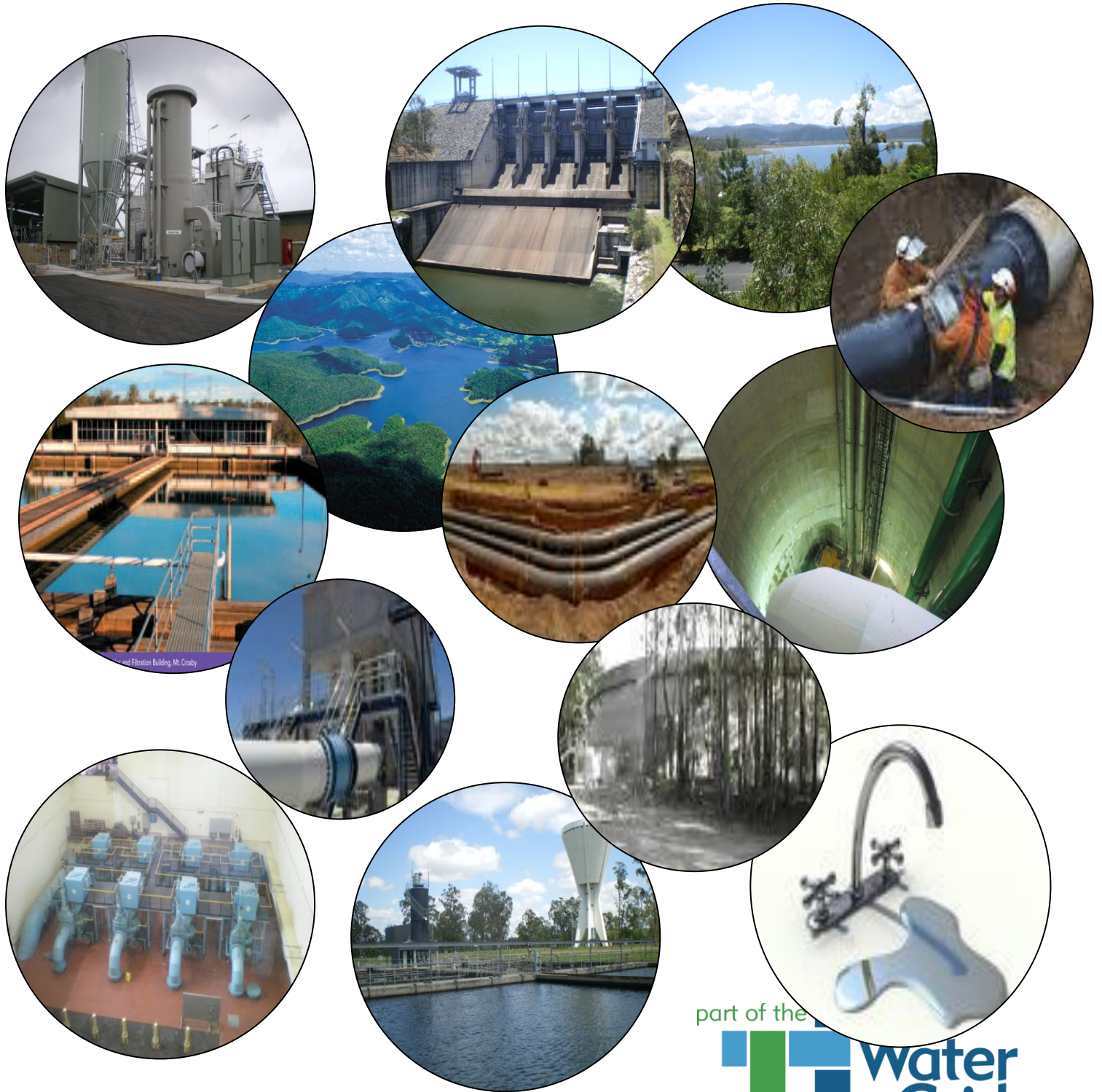
Learning Sessions for Lower middle school, upper middle school and Senior school

Session	Location	Duration	Description	Key Learning	Essential learning
<b>SOURCE</b> 	Wyaralong Dam and Bromelton storage Catchment – The Scenic Rim	<b>1-4 hours</b>  <b>Tour programs can be facilitated to encompass the SOURCE STORE TREAT elements as a full day)</b>	<b>Source.</b> Investigate the unique catchment that surrounds the Wyaralong Dam site and Bromelton water storage. Discover the unique catchment creatures that live in this part of the South East. Discuss the importance of catchment and the various ways that water can be collected and stored. ( Wyaralong Dam, Bromelton Storage and Catchment fact sheets) <b>Duration</b> full day <b>Year Level</b> 4-12	SCIENCE SOSE ENGLISH	<b>Place and Space.</b> <b>Life and Living</b> <b>Science as a Human endeavour</b> <b>Earth and Beyond</b>

Session	Location	Duration	Description	Key Learning	Essential learning
<b>SOURCE</b> 	<b>Bromelton Storage Cedar Grove Weir</b>	1-3 hours	<b>TREAT:</b> Learn about the treatment processes that will be used to treat water from the Wyaralong Dam and the water sources that will be used to supply water to the Logan and Scenic Rim region Duration half day <b>Year level</b> 4-12	<b>Science</b> <b>SOSE</b> <b>Chemistry</b>	<b>Place and Space.</b> <b>Life and Living Science as a Human endeavour</b> <b>Earth and Beyond</b>
	<b>Linkwater Pipe Corridor</b>	1-3 hours	<b>MOVE:</b> Follow the pipes that snake from the dam and storage to the treatment plant and onto the community and how Linkwater is responsible for this infrastructure development. Duration 1 hour <b>Year Level</b> 4-12	Science Maths English Mathematics	

# The South East Queensland Water story .

## Can you tell the story from Source to Supply ?



part of the **Water Grid**  
safe • secure • sustainable

# Booking Procedures

For all bookings and enquiries , please contact Water Grid Education Services.

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## Learning session information

1. Contact to discuss your curriculum program and needs.
2. Make a booking ( Monday to Friday) online or via the booking form.
3. Sessions can be arranged for groups of up to 60 students.
4. A ratio of 1adult to 10 students is expected.
5. There are no costs associated with Learning sessions.
6. Activities are likely to be cancelled if rain occurs.
7. Alternative bookings will be arranged where possible if rain effects the session.
8. Site inductions will take place due to Workplace Safety.
9. Schools undertake selected activities at sole risk and acknowledge and voluntarily accept the level of risk consequent with activities.
10. Limited toilet facilities exist at some sites.
11. Lunch sites are available at all sites.
12. Bus access is available at all sites.



*Disclaimer: Seqwater and The Water Grid takes no responsibility or liability for any damage, loss, costs, expenses, liability, claim, demands, actions, proceedings, injury ( including death) or dispute due to or arising out of , directly or indirectly , the actions or omissions ( whether wilful, negligent or otherwise) of Seqwater and the Water Grid ( including any officer or employee) or participant ( including school, students and teachers and parents) or any third party provider.*



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