

Science and Technology unit: Water in my world

Stage 1

Duration: 10 weeks

Term 4

Booragul Public School



Unit context

Students develop and awareness of water as an essential resource for all living things. They will develop an understanding of the need for preserving water as a vital resource.

Target outcomes

Stage 1 A student:

ST1-4WS investigates questions and predictions by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know.

ST1-14BE Describes a range of places and spaces in their local environment and how their purpose influence their design.

ST1-2VA Demonstrates a willingness to engage responsibly with local, national and global issues relevant to their lives and to shaping sustainable futures.

ST1-151 describes a range of familiar information sources and technologies and how their purposes influence their design

Unit overview

The Water in our World unit demonstrates to students how water is essential to life. Students will investigate the different ways that humans use water and how important water is in Australia as a dry continent. Students will develop their appreciation of water was a vital resource and explore how water is used and how to use it responsibly.



Content	Teaching and learning	Eval/Reg
<p>ST1-4WS ST1-2VA</p> <p>Students question and predict by:</p> <ul style="list-style-type: none"> -responding to and posing questions - making predictions about familiar objects and events and the outcomes of investigations. <p>Students plan investigations by:</p> <ul style="list-style-type: none"> -identifying the purpose of the investigation -suggesting some types of activities that need to be undertaken during the processes of Working Scientifically -suggesting observations that could be made to - collect data and/or information about their questions and predictions -recognising that the results of investigations can inform the processes of Working Technologically <p>Students conduct investigations by:</p> <ul style="list-style-type: none"> -working cooperatively and individually when participating in different types of guided investigations to explore and answer questions. 	<p>THINKING ABOUT WATER</p> <p>1 Lesson</p> <p><i>Prepare an area of the class 'wondering about water' wall to create a display. Write the headings 'What do we want to know about water? Where does water come from? What do we use it for? Who uses water? How can we use it responsibly?'</i></p> <p>Learning Objective- <i>To develop students' interest and discover what they think they know about water and how to use it responsibly.</i></p> <ul style="list-style-type: none"> - Show students a container full of water and demonstrate how to use senses to explore how it feels, smells, tastes, sounds. - Give students small containers and water. - Ask students to observe and describe the water in their container. Record these in the class science journal. - Survey and discuss similarities and differences in discoveries about the water. - Ask students to smell the water and record responses. - Ask students to taste the water and record responses. - Ask students to feel the water in their containers and describe what it feels like using their fingertips. - Introduce enlarged copy of 'Wonderful Water'. Discuss the questions on the sheet. - Distribute the 'Wonderful water' task sheets. These will establish what students already know about water. - Introduce the 'Wondering about water' and encourage students to contribute to each of the questions. - Discuss the 'what do we want to know about water?' part of the word wall and ask students to communicate any questions they have about water. 	
<p>ST1-2VA ST1-2VA</p> <ul style="list-style-type: none"> -Identify some actions 	<p>WATER WALKING</p> <p>1 Lesson</p> <p>Learning Objective: <i>Students will engage in hands-on experience of</i></p>	



<p>which could be taken to care for and use water sustainably.</p> <p>-Explore ways in which people use science knowledge and skills in their daily lives to care for the environment and use resources sustainably</p> <p>ST1-4WS</p> <p>Students conduct investigations by:</p> <p>-working cooperatively and individually when participating in different types of guided investigations to explore and answer questions.</p> <p>-using a range of methods to gather data and/or information</p> <p>- making and recording observations and measurements honestly, using tally marks and informal units</p> <p>ST1-14BE</p> <p>-observe ways people use a range of places and spaces in their local environment, eg areas within the schoolyard and the home</p>	<p><i>water use at school.</i></p> <ul style="list-style-type: none"> - Explain to students that they are going to explore water usage in our school. Allow students to think about and predict where they may find water in our school and what it may be used for. Record these in the class science journal. - Show a simple map of the school with the places water is used and where it can be accessed. Then discuss and establish a route they will take around the school to investigate these places. Revisit the purpose and features of a map. - Go for a walk around the school and observe how water is used. Take photographs of how and where water is used within the school. - Upon returning to the classroom, ask students to record their observations in the science journals. - Have students record: <ul style="list-style-type: none"> • Water is used for..... • Places where water is used are... • Water access points at school are... - Have students describe what they have learnt about water and record it on the 'Wondering about water' wall. - Discuss the ways water is used responsibly and irresponsibly in our school. 	
<p>ST1-4WS</p> <p>ST1-2VA</p> <p>Students question and predict by:</p> <p>-responding to and posing questions</p> <p>Students conduct investigations by:</p> <p>-working cooperatively and individually when participating in different</p>	<p>RAIN</p> <p>1 Lesson</p> <p>Learning Objective- <i>Students will engage in shared, practical experiences of what happens when rain falls on different surfaces.</i></p> <ul style="list-style-type: none"> - Talk about students' experiences with rain (driving, splashing, floods, umbrellas, raincoats, droughts). Introduce photographs of rain and share stories and experiences. - Explain that students are going to work in cooperative learning groups to complete an activity. Show students the equipment table and explain that this is where leaders collect and pack 	



<p>types of guided investigations to explore and answer questions. -using a range of methods to gather data and/or information, including using their senses to make observations safely and carefully, using simple tools and equipment.</p> <p>Students process and analyse data and information by:</p> <p>-describing changes in objects and events observed in investigations -comparing observations with those of others to identify similarities and differences in the findings of their investigations</p>	<p>away equipment.</p> <ul style="list-style-type: none"> - Introduce an enlarged copy of 'Rain' and discuss it with the class. Explain that the class will record their observations in the classroom after they return from the playground. - Ask students to predict what might happen when rain falls on different surfaces such as grass, sand, paving, soil, sloping areas. - Record predictions in the class science journal. - Explain that students will take turns to pour water on to different surfaces. - Go for an exploration walk and allow groups to investigate what happens when they pour the water on different surfaces. - Discuss and record observations once they return to the classroom. - Prompt a discussion about the differences between water soaking in and running off. - Add to the 'Wondering about water' wall. 	
<p>ST1-4WS ST1-2VA</p> <p>Students conduct investigations by: working cooperatively and individually when participating in different types of guided investigations to explore and answer questions. - using a range of methods to gather data and/or information and informal units</p> <p>ST1-2VA</p> <p>-Identify some actions which could be taken to care for and use water sustainably. -Explore ways in which people use science knowledge and skills in their</p>	<p>WATER AT HOME</p> <p>1 Lesson</p> <p>Learning Objective: <i>Students will plan and conduct an investigation of water usage in and around their home.</i></p> <ul style="list-style-type: none"> - Review the class science journal from lesson 2, including photographs taken on the class exploration walk. - Introduce an enlarged copy of 'Water detectives' and ask students to predict which of the school's water usage they would find in their own home. Record predictions in the class science journal. - Ask students to think about and discuss any other water uses in their own home. - Demonstrate how to complete the 'Water detectives' sheet. - Explain to students that they will survey four places around their home and contribute this information to a class investigation about where and how water is used at home. - Distribute 'Water detectives' sheet. Explain that students can draw or write to record their findings. 	



<p>daily lives to care for the environment and use resources sustainably</p> <p>ST1-14BE</p> <p>-observe ways people use a range of places and spaces in their local environment, eg areas within the schoolyard and the home</p>	<ul style="list-style-type: none"> - Have students create a simple map of their home to record where water is used. 	
<p>ST1-4WS ST1-2VA</p> <p>Students process and analyse data and information by:</p> <p>-using a range of methods to sort information observed in investigations</p> <p>-comparing observations with those of others to identify similarities and differences in the findings of their investigations</p> <p>-comparing observations with predictions through discussion, as to whether observations were expected and related to their questions and/or predictions</p> <p>Students communicate by: representing and</p> <p>-communicating observations and ideas using oral and written language, drawing and role-play</p> <p>-displaying data and information in a variety of ways, including drawings, simple texts, provided tables and graphs, using digital technologies as appropriate</p>	<p>GRAPHING WATER USAGE</p> <p>1-2 Lessons</p> <p>Learning Objective: <i>Students will learn how to use graphs to record water usage.</i></p> <ul style="list-style-type: none"> - Ask students to share their 'Water detectives' sheet and discuss their findings, finding similarities and differences. - Explain that the class is going to organise this information into a graph. Ask students to suggest how they could group their information as a class according to categories. For example: <ul style="list-style-type: none"> ✓ Cleaning ✓ Cooking ✓ Drinking ✓ Gardening ✓ Recreation - Organise students to arrange information they have gathered in columns on the cardboard. Discuss the features and purpose of a graph. - Model how to label the axes of graphs. Count and record the number of responses in each group. - Discuss and record a name for the graph. - Prompt a discussion to interpret and analyse the results. <ul style="list-style-type: none"> - How many homes use water to.....? - How many different ways is water used? - Are there any other ways which we didn't record on the graph? - Discuss how water is being used responsibly/irresponsibly and if water is being wasted. - Have students record in their science journals statements about what was discovered. - Add to the 'Wondering about water' wall. 	



ST1-14BE

ST1-2VA

-observe ways people use a range of places and spaces in their local environment, eg areas within the schoolyard and the home

ST1-4WS

Students plan investigations by:

-identifying the purpose of the investigation

-suggesting some types of activities that need to be undertaken during the processes of Working Scientifically

Students conduct

investigations by:

-working cooperatively and individually when

participating in different types of guided

investigations to explore and answer questions.

-using a range of methods to gather data and/or information.

-using informal measurements in the collection and recording of observations.

Students process and analyse data and information by:

-describing changes in objects and events observed in investigations

-comparing observations with those of others to identify similarities and differences in the findings of

WATER USE IN OUR COMMUNITY

1 Lesson

Organise a guest speaker who could speak to the class about ways in which they use water for an occupation or at home.

Learning Objective: *Students will research the community's use and management of water.*

- Have students brainstorm ways in which we could find out more about water usage in our community. Brainstorm parent occupations that may involve water.
- Discuss different means of communication (letters, emails, telephone, personal interview) that are used to collect specific information.
- Explain the purpose and features of an interview.
- Brainstorm questions that students would like to ask a guest speaker about their management and use of water. Encourage students to develop a variety of open ended questions.

For example:

- What is your job?
- What do you use water for at work?
- How much water do you use?
- Do you have to make any changes to the water that you use?
- Could you do your job without water?
- How to ensure there's limited water wastage?
- Organise for students to record a question they would like to ask the guest speaker so they can use this as a prompt in the interview. Provide students with time to practice asking their question with a partner.
- Model and practice oral communication skills such as using good tone and volume and looking at the person when you and they are speaking.



<p>their investigations</p> <ul style="list-style-type: none"> -comparing observations with predictions through discussion, as to whether observations were expected and related to their questions and/or predictions <p>Students communicate by:</p> <ul style="list-style-type: none"> -displaying data and information in a variety of ways, including drawings, simple texts, provided tables and graphs, using digital technologies as appropriate <p>Students produce solutions by:</p> <ul style="list-style-type: none"> -using a range of everyday tools, equipment, materials and techniques -working cooperatively and safely 		
<p>ST1-151</p> <p>Students:</p> <ul style="list-style-type: none"> -use a range of information technologies to communicate with others, eg letters, telephones, cameras and emails. <p>ST1-4WS</p> <ul style="list-style-type: none"> -investigate questions and predictions by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know. 	<p>INTERVIEWS</p> <p>1 Lesson</p> <p>Learning Objective: <i>Students will reflect on their learning and represent what they know about water and its uses.</i></p> <ul style="list-style-type: none"> - Introduce the guest speaker. Support students to conduct the interview as prepared. Model asking the guest follow-up and clarifying questions. - Organise students to thank the community member for their time. - Take photographs of the guest speaker to assist students to recount the interview. - Ask students to draw and write a factual recount about the visit. - Have students create a summary of how people with the occupation of the guest speaker use water. - Add to the 'Wondering about water' wall. 	



ST1-151

Students:

-use a range of information technologies to communicate with others, eg letters, telephones, cameras and emails.

ST1-4WS

-investigate questions and predictions by collecting and recording data, sharing and reflecting on their experiences and comparing what they and others know.

INFORMATIVE INTERVIEWS

1 LESSON

Learning Objective: *Students will reflect on their learning during the unit and demonstrate what they know about water.*

- Review the class Science journal and the 'Wondering about water' wall and the class graph.
- Explain that students are going to work in groups to role-play an interview to show how much they have learnt about water. Explain that each person will have the opportunity to be the interviewer and interviewee.
- Explain that students need to write questions and answers and practice their interview before they present it to the class.
- Discuss the information they may include in their interview.
- Review and practice oral communication skills.
- Form groups and allocate roles.
- Remind students of the 'Wonderful water' task sheet they completed at the beginning of the unit. Explain that they are going to review the activity to determine how their ideas have changed.
- Ask students to use their science journals, their interview plans and their 'Wonderful Water' sheets and to record in a different colour so it can be seen how their ideas have changed.
- Ask students to summarise their ideas;
 - ✓ What new things have you learnt about water?
 - ✓ How have your ideas changed?
 - ✓ What ideas do you know more about?
 - ✓ What helped you change your ideas?
 - ✓ What helped you learn new things?

Record ideas in the class science journal.



Resources	Assessment overview
<p>Lesson 1: Class science journal, word wall, 'Thinking about water', containers, enlarged copy of 'Wonderful Water'.</p> <p>Lesson 2: class science journal, word wall, 'Wondering about water' wall, digital camera.</p> <p>Lesson 3: class science journal, word wall, 'Wondering about water' wall, One enlarged copy of 'Rain' resource sheets, water, camera.</p> <p>Lesson 4: class science journal, enlarged copy of 'Water detectives',.</p> <p>Lesson 5: class science journal, word wall, 'Wondering about water' wall, cardboard to use for graph.</p> <p>Lesson 6: class science journal, paper to record questions.</p> <p>Lesson 7: class science journal, word wall, 'Wondering about water' wall, digital camera, students' prepared questions.</p>	<p>Lesson 1: Diagnostic Assessment- Find out what students already know and understand about water and its uses.</p> <p>Lesson 2, 3 & 4: Formative assessment. Monitor students' developing understanding and give feedback to extend their learning.</p> <p>Lesson 4: Summative assessment; observe whether students are able to;</p> <ul style="list-style-type: none"> - Follow directions to conduct investigations. - Make and describe observations. <p>Lesson 5: Completed 'Water detectives' task sheet, science journal.</p> <p>Lesson 8: Summative assessment of the learning outcomes, look for evidence that students are able to;</p> <ul style="list-style-type: none"> - Identify and describe uses of water. - Identify sources of water. - Identify how we can save water. - Describe differences between ours and others'



Wonderful Water

Where does water come from?

What is water used for?

Who or what uses water?

How can I use water responsibly?



Rain

What happens when rain falls on different surfaces? Explore and record your observations.

<u>Surface tested</u>	<u>What happened?</u>



Water Detectives

In our science class, we have been investigating water and how it is used. We are going to explore four places at home and record what we find. In each space, draw or write how water is used.

This sheet needs to be returned to school on

<p><i>Place:</i></p>	<p><i>Place:</i></p>
<p><i>Place:</i></p>	<p><i>Place:</i></p>



