

Grade Two Unit Plan

Introduction

This unit plan has been designed to provide an overview of the importance of water to living things. It starts with an introduction to the significance of water to humans. Water is then investigated in terms of its properties and the three states water takes – solid, liquid, and gas. The unit then covers the interaction of water with soil and air through an examination of the water cycle. This leads to an understanding of how changes in water quality and flow can affect animals. The unit concludes with a suggested action project. At the end of the unit are a number of suggestions for field trip and classroom opportunities, teaching resources, and further action projects.

How to use this Unit Plan



The Unit Plan was developed assuming **two 40 minute Science blocks per week.**

A 6-week implementation, broken down into 12 lesson plans, is outlined in the following Unit Plan Chart. Teaching suggestions are given in the “Tips” section. The Dragonfly Symbol indicates that the lesson has a component of physical activity. The Assessment column indicates that an Assessment Tool and Rubric is available and can be found on the Teacher CD.

Resources used to develop unit plan:

Leap Into Action! Simple Steps to Environmental Action – this resource will assist you and your students in choosing, planning and implementing action learning in your classroom.

Project WET – this activity guide contains 91 activities focused on the theme of water and water stewardship.

Wild BC provides numerous publications and workshops for educators. Over 20 activity guides developed to increase environmental literacy are available. Contact Wild BC at 250 356 7111 or 1 800 387 9853 or visit our website at www.hctf.ca/wild.htm to view or order these publications.


Your Notes Here

Grade Two Unit Plan



Week 1

Week 1


Lesson at a Glance	Summary	B.C. Min. of Education Learning Outcomes	Linked Activities	Assessment	Teaching Tips / Notes
<p>Lesson 1 </p> <p><i>The Thunderstorm</i> Project WET p. 196 One 40-min blocks Season: Any Setting: Outdoor or Indoor</p>	<p>Goal: an introduction to water</p> <p>How: students simulate the sounds of thunderstorm through an aerobic activity.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Distinguish ways in which air, water and soil interact Explain why water is important for living things <p>Life Science</p> <ul style="list-style-type: none"> Describe some changes that affect animals 	<p><i>Water Address</i> Project WET p. 122</p>	<p>✓</p>	<ul style="list-style-type: none"> Teach part 1 of this activity only. Discuss the effects of sudden heavy rainfall. Ask students if they have ever seen a flood and if they have, what caused it. If necessary draw a parallel between a blocked drain and a river or creek blocked with debris. Demonstrate what happens to very dry, hard packed soil when a sudden deluge of water occurs. Prepare an aluminium baking dish of soil by packing the soil in tightly and allowing it to dry on a heater or by baking it in an oven. Place the baking dish on a thick towel, on the ground or in a large basin and use a watering can with a generous spout to pour water quickly over the soil. Have students observe what happens as the water runs off the soil faster than it can be absorbed. Emphasize why rainfall is important. An effective way to show this is to have a plant, such as a basil plant (the 'living basil' available at larger supermarkets works very well) that droops readily when dry but responds quickly when watered. This provides a dramatic illustration of the importance of water to plants.
<p>Lesson 2</p> <p><i>Aqua Notes</i> Project WET p. 66 One or Two 40-min blocks Season: Any Setting: Outdoor or Indoor</p>	<p>Goal: students learn why is water important to human beings.</p> <p>How: while singing simple songs about water, students gain an appreciation for the many ways they need water.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Explain why water is important for living things 	<p><i>Raining Cats and Dogs</i> Project WET p. 435</p>	<p>✓</p>	<ul style="list-style-type: none"> There are seven songs included with this lesson plan. You may wish to have your class work together to develop their own aqua tune. Choose a song that is familiar to all the students and brainstorm ways to adapt it to be about water. You may also wish to choose a song that is familiar to your students and work together to create new lyrics and write your own aqua tune. Be sure to include the actions given or create your own actions for the songs.

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Week 2

Week 3

Lesson at a Glance	Summary	B.C. Min. of Education Learning Outcomes	Linked Activities	Assessment	Teaching Tips / Notes
Lesson 3 <i>Aqua Bodies</i> Project WET p. 63 One 40-min block Season: Any Setting: Outdoor or Indoor	<p>Goal: students learn that are humans made of water.</p> <p>How: students trace their bodies and colour portions to represent the amount of water their bodies contain. How does their water content compare to that of a cactus, lettuce or a whale?</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Explain why water is important for living things 		✓	<ul style="list-style-type: none"> Teach part one of this activity only. You may wish to obtain a food dehydrator as suggested in the extensions for this activity. This is an excellent way to demonstrate how the removal of water makes changes to fruits and vegetables as students are able to predict and observe what occurs.
Lesson 4 <i>Water Match</i> Project WET p.50 One 40-min block Season: Any Setting: Outdoor or Indoor	<p>Goal: learning to identify the three states of water.</p> <p>How: students match up pairs of water picture cards and in the process learn to distinguish the three states of water – solid, liquid, gas.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Describe physical properties of water <p>Physical Science</p> <ul style="list-style-type: none"> Identify properties of solids, liquids and gases Investigate changes to the properties of matter when heated or cooled 		✓	
Lesson 5  <i>Molecules in Motion</i> Project WET p. 47 One 40-min block Season: Any Setting: Outdoor or Indoor	<p>Goal: learning about the three physical states of water.</p> <p>How: this activity brings water molecules up to size (student-size) by physically involving students in simulating molecular movements in each of water's physical states (solid, liquid, gas).</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Describe physical properties of water <p>Physical Science</p> <ul style="list-style-type: none"> Identify properties of solids, liquids and gases Investigate changes to the properties of matter when heated or cooled 		✓	<ul style="list-style-type: none"> This lesson contains some complex ideas about the properties of matter. With good scaffolding younger students should be able to grasp the concept. To facilitate learning, use lots of analogies with explanations and activities. For example, when using the red flashlight to indicate a heat source, name the heat source – the sun, a campfire, a heater, etc. Be sure students understand that 'gas' does not mean the substance used to make a car run but actually means all things in that state such as steam (from the kettle or a boiling pot), helium (which makes balloons float), or oxygen (they may have seen someone with an oxygen tank such as a diver, astronaut or a person with breathing difficulties).

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Week 3

Lesson at a Glance	Summary	B.C. Min. of Education Learning Outcomes	Linked Activities	Assessment	Teaching Tips / Notes
<p>Lesson 6 <i>What's the Solution?</i> Project WET p. 54 One 40-min block Season: Any Setting: Outdoor or Indoor</p>	<p>Goal: distinguishing a solution from a mixture.</p> <p>How: students investigate the interaction of solids and liquids and learn to distinguish a solution from a mixture.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Describe physical properties of water <p>Physical Science</p> <ul style="list-style-type: none"> Identify properties of solids, liquids and gases Investigate the interactions of liquids and solids 	<p><i>Adventures in Density</i> Project WET p. 25</p>	<p>✓</p>	<ul style="list-style-type: none"> This lesson is quite complex for younger students but has good background information regarding the properties of water. To adapt this lesson for younger grades focus on the properties of water as a solvent. Use the following ideas to supplement the background information provided. Explore with students how water is such an amazing substance – it is so good for mixing with things. Ask students what they drink that has water in it: milk, juice, tea, pop, kool aid. Demonstrate mixing frozen juice with water. Ask the students the following questions: Why doesn't the fruit juice sink to the bottom of the water? Why does it stay mixed? Does it always stay mixed? Explain the polarity of the water molecule using the analogy of tiny magnets. When frozen orange juice separates from the water, explain that the little water magnets were not quite strong enough to hold up the juice. They are strong enough to hold many other things. Be sure to explain the meaning of solvent, solute and solution. Compare a suspension (e.g. snow globe) with a solution (e.g. food colouring mixed with water). Have students experiment with mixing water with the following substances – drink mix crystals, sugar, sand, vegetable oil, glitter. Have students complete a prediction and observation for each mixture (see assessment section).



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Week 4

Week 4

Week 5

Lesson at a Glance	Summary	B.C. Min. of Education Learning Outcomes	Linked Activities	Assessment	Teaching Tips / Notes
Lesson 7 <i>Imagine!</i> Project WET p.157 One 40-min block Any Season Outdoor or Indoor	<p>Goal: understanding how water travels around the world.</p> <p>How: students take an imaginary journey with water in its solid, liquid and gaseous forms as it travels around the world.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Distinguish ways in which air, water and soil interact Explain why water is important for living things 	<i>House of Seasons</i> Project WET p. 155	✓	<ul style="list-style-type: none"> During the warm up, omit diagram or written description and instead discuss how water moves around the planet. You may wish to diagram the water cycle on the board. For the wrap up, discuss where the water traveled and record student answers on board.
Lesson 8  <i>The Incredible Journey</i> Project WET p. 161 One 40-min block Any Season Indoor or Outdoor	<p>Goal: to have students track the movement of water through the water cycle</p> <p>How: with the roll of a die, students simulate the movement of water within the water cycle.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Distinguish ways in which air, water and soil interact Explain why water is important for living things 	<i>Just Passing Through</i> Project WET p. 166	✓	<ul style="list-style-type: none"> During the warm up, record student responses on the board. You may also wish to review/illustrate the water cycle. Provide students with a minimum of 30 paper tokens each. Have students initial them. These tokens will be used to track the students' movements as they 'travel' through the water cycle.
Lesson 9  <i>A-maze-ing Water</i> Project WET p. 219 One 40-min block Any Season Indoor or Outdoor	<p>Goal: students discover where water goes when it disappears down the drain.</p> <p>How: students become a drop of water flowing through a maze of "drainage pipes" to learn how actions in the home and yard affect water quality.</p>	<p>Earth and Space Science</p> <ul style="list-style-type: none"> Distinguish ways in which air, water and soil interact Explain why water is important for living things <p>Physical Science</p> <ul style="list-style-type: none"> Investigate the interactions of liquids and solids <p>Life Science</p> <ul style="list-style-type: none"> Describe some changes that affect animals 	<i>Branching Out!</i> Project WET p. 129	✓	<ul style="list-style-type: none"> Use option 1 for this lesson. You may wish to use option 2 as a demonstration activity during the warm up.

Grade Two Unit Plan



Week 5

Week 6

Week 6

Lesson at a Glance

Summary

B.C. Min. of Education Learning Outcomes

Linked Activities

Assessment

Teaching Tips / Notes

Lesson 10
Macroinvertebrate Mayhem!
Project WET p.322
One 40-min block
Any Season
Outdoor or Indoor



Goal: learning how changes in water quality can affect animals.

How: students play a game of tag to simulate the effects of environmental stressors on macroinvertebrate populations.

Earth and Space Science
• Explain why water is important for living things

Life Science
• Describe some changes that affect animals

Salt Marsh Players
Project WET p. 99



- Omit part I of the lesson.
- Be sure to record the numbers of each invertebrate species at the beginning of the game and after each round
- During the wrap up, discuss the importance of having a diversity of species. Diversity is what makes us strong. Imagine if everyone had the same strengths and no one was good at spelling, or music, or math. How might that affect us? It is the same with animals – each creature has an important role to play and if we lose them, we lose the strength and health of the ecosystem they live in.

Lesson 11
The Life Box
Project WET p. 76
One 40-min block
Any Season
Indoor or Outdoor

Goal: learning to meet the basic needs of a plant.

How: through a though provoking activity, students discover four essential factors needed to sustain life.

Earth and Space Science
• Distinguish ways in which air, water and soil interact
• Explain why water is important for living things

Physical Science
• Investigate the interactions of liquids and solids

Life Science
• Describe some changes that affect animals

Processes of Science
• Use their senses to interpret observations
• Infer the probable outcome of an event based on observation

Thirsty Plants
Project WET p. 116



- Continue this activity by providing students with seeds to plant in the life boxes.
- Each student will be responsible for meeting the needs of their plant and recording their observations with a weekly sketch of their plants progress
- Plant some extra seeds to do some experiments with. Try watering the seedlings with salty water, water collected from puddles, water with oil or other toxins in it, etc. Have students observe and record their observations.

Lesson 12
Water Celebration
Project WET p. 446
Variable
Any Season
Indoor or Outdoor

Goal: deepening the connection to the importance of water to living things.

How: students plan a water celebration.

Earth and Space Science
• Distinguish ways in which air, water and soil interact
• Explain why water is important for living things

Physical Science
• Investigate the interactions of liquids and solids

Life Science
• Describe some changes that affect animals

Processes of Science
• Use their senses to interpret observations
• Infer the probable outcome of an event based on observation

Water Actions
Project WET p. 12



- Plan a presentation for a school assembly or special event to showcase what has been learned about water. The following are some suggestions for what could be done:
 - Lead the whole school through the first part of the activity – The Thunderstorm
 - Act out the water cycle
 - Perform one of the Aqua Note songs for the rest of the school.