



Project WET Discovering Drought Lesson Plan

Grade: 3rd - 6th
Subject: Science

Introduction: As of August 7, 2012, the National Drought Mitigation Center reported that 52 percent of the United States and Puerto Rico are experiencing moderate or worse drought. Most likely your students have heard this in the news or listened to adults talk about the national drought and raised questions of their own. Without proper context, students may have misconceptions about drought, which can lead to students feeling anxious and scared. Although drought is a serious topic, it can be presented in a way that empowers your students with knowledge and the opportunity to take action. Below is a free lesson plan—complete with extensions, evaluations and pre/post-test questions—designed for providing context for use of Project WET’s *Discovering Drought* activity booklet.

Topic:	Discovering Drought
Background:	<p>Hot, dry days, strange weather—are we in a drought? Drought is a period of water shortage, when a lack of normal precipitation produces dry conditions lasting as long as several years. In many areas of the world, droughts are a normal, recurring climate condition. Some of the earliest human climate accounts describe droughts and their consequences. Some hunter-gatherer and animal migrations are attributed to drought.</p> <p>The Discovering Drought Lesson Plan explores droughts, the consequences of a drought, and what you can do to be prepared for or deal with a drought.</p>
Goals:	<p>This lesson plan uses Project WET’s <i>Discovering Drought</i> activity booklet to help you give students a better understanding of droughts and how droughts might affect them, as well as actions they can take to conserve water. The framework of this lesson plan is based on “the five E’s” learning-cycle model (engagement, exploration, explanation, elaboration (extension) and evaluation).</p>

Objectives:	<p>Students will:</p> <ol style="list-style-type: none"> 1. Explain the climate condition of drought. 2. List some of the consequences of drought. 3. Compare and contrast weather and climate. 4. Explore cause-and-effect relationships between weather, climate and drought. 5. Identify famous historic droughts around the world and in their area. 6. Investigate how to conserve water for future use during dry times. 7. Identify signs of drought on the landscape. 8. Use tree rings (dendrochronology) to identify periods of drought. 9. List actions they can take personally to help conserve water.
Materials:	<ul style="list-style-type: none"> • Discovering Drought activity booklet (enough for 1 booklet per two students) • Optional Internet access and computers (enough for six groups) or a <i>Farmers' Almanac</i>
Classroom Time:	<p>Each of the seven activity spreads can be completed in about twenty minutes. Discussion and wrap-up will take another fifteen to twenty minutes.</p>
Introduction (Engagement):	<p>Beginning on the "What is Drought?" spread from the <i>Discovering Drought</i> activity booklet, instruct the students to read the text and complete the "Figure It Out!" graph. Have students determine the average amount of snow for five years. Discuss how they determined the average.</p> <p>For a technology extension, have students review the water cycle using "The Water Cycle" page from Project WET website DiscoverWater.org. "The Blue Traveler" game is a great supplement.</p>
Activity (Exploration):	<p>Instruct students to explore the <i>Discovering Drought</i> activity booklet, individually or in pairs. There are many ways to accomplish this exercise. For example, you could have students do one spread per day when they first arrive to your class.</p>

<p>Explanation:</p>	<p>Group discussion about drought in YOUR area. Use the following questions as prompts for a class discussion.</p> <ul style="list-style-type: none"> • What is a drought? • Why do farmers and city water managers study snow and rain amounts? • What type of climate does your area have? • What type of weather is typical for your area this time of year? • Can you give an example of drought in another place in the world? At another time in history? • What are water users doing to address the drought or plan for future drought? • What adaptations do some plants and animals have to survive drought? • What can you do to address a current or future drought? <p>Students should come to the discussion prepared and use what they have learned in the <i>Discovering Drought</i> activity booklet.</p> <p>Writing assignment: Each student should write a paragraph addressing the following question, using vocabulary introduced in <i>Discovering Drought</i> and supporting their points using facts and details from the reading.</p> <ul style="list-style-type: none"> • How are weather, climate and drought related?
<p>Elaboration (or Extension) :</p>	<p>Deepen the lesson by using data and examples that are specific to the area in which your students live from information garnered from agencies such as The Weather Channel (www.weather.com), The National Weather Service (NWS) (www.weather.gov) NWS Climate Prediction Center (www.cpc.ncep.noaa.gov) and the U.S. Drought Monitor (www.droughtmonitor.unl.edu/).</p> <p>Students can research droughts as discussed in the “Another Time and Place” spread (pages 6 & 7¹) to understand drought and it’s impacts worldwide.</p> <p>Also, you could use the “Use Water Wisely” and “We All Use Water” pages on DiscoverWater.org to explore ways that water is used and ways you can conserve water. Ask students to use the take action items from these pages and create their own personalized Take Action Poster to remind them to conserve.</p>

¹ Pages 5-6 for the 1st and 2nd Printings of *Discovering Drought*

Evaluation:	<p>Here are some suggested ways to evaluate your students' learning:</p> <ul style="list-style-type: none">• Use the <i>Discovering Drought</i> activity booklet as a graded assignment.• Have students take the <i>Discovering Drought</i> Pre/Post-Test provided.• Use the Take Action Poster as a graded assignment.• Ask students to write three paragraphs that answer the following question. How does drought affect my area currently and how has drought affected it in the past?
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Pre/Post Test—Discovering Drought Lesson Plan

Name: _____

Date: _____

1. What is drought?
2. What is one consequence of drought for farmers?
3. What is the name of the severe drought that the U.S. experienced in the 1930s?
4. What is an aquifer?
5. List three signs of drought that you can see in the landscape.
6. How can tree rings be used to research drought?
7. List three things you can do to conserve water and prepare for a drought.

Teacher Notes	
<p>Rationale: <i>Why am I teaching this lesson?</i></p>	
<p>Assessment: <i>How will I know when my students are successful?</i></p>	
<p>Prior Knowledge: <i>What prior knowledge do my students need in order to be successful with this lesson's focus?</i></p>	
<p>Standards: <i>What Common Core Standards does this lesson meet?</i></p>	
<p>Curriculum Connections: <i>In what unit does this best fit?</i></p>	

Grade 5 Standards for Drought Lesson Plan Components

Note: This 5th grade alignment has been prepared as a sample. Alignments for other grade levels can be prepared using the following sources:

1. National Governors Association Center for Best Practices and Council of Chief State School Officers. "Texts Illustrating the Complexity, Quality, and Range of Student Reading K-5." And "Texts Illustrating the Complexity, Quality, and Range of Student Reading 6-12." Common Core State Standards Initiative. <http://www.corestandards.org/> (June, 2009)
2. Common Core standards, available as a free pdf: <http://www.corestandards.org/the-standards>
3. Committee on Conceptual Framework for the New K-12 Science Education Standards and National Research Council. 2011. A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas.
4. Link to NSS framework also in a free pdf: http://www.nap.edu/catalog.php?record_id=13165

Note: These Discover Water standards apply only when the module is used or discussed in an educational setting and when all materials and science notebooks are utilized.

Discovering Drought KIDS Activity Booklet:

Common Core ELA	RI.5.1, RI.5.2, RI.5.3, RI.5.4, RF.5.4a
National Science Standards Framework (by the end of Grade 5)	LS1.A, LS1.C, LS2.C, LS4.B, LS4.C, LS4.D, ESS1.C, ESS2.D, ESS3.A, ESS3.B, ESS3.C, ETS1.A, ETS2.B, SEP1, SEP4, SEP5, SEP6, SEP7, SEP8, CC2, CC3, CC6, CC7

Lesson Plan Activities:

Common Core ELA	RI.5.1, RI.5.2, RI.5.3, RI.5.4, RI.5.7, RI.5.8, WS.5.2b, WS.5.2d, SL.5.1a, SL.5.1c, SL.5.1d, SL.5.2
National Science Standards Framework (by the end of Grade 5)	LS1.C, LS2.C, LS4.C, LS4.D, ESS1.C, ESS2.D, ESS3.B, ESS3.C, ESS3.D, ETS1.A, ETS1.B, SEP1, SEP4, SEP5, SEP6, SEP7, SEP8, CC1, CC2, CC3, CC6, CC7

www.DiscoverWater.org—[We All Use Water:](#)

Common Core ELA	RI.5.1, RI.5.2, RI.5.3, RI.5.4, RI.5.5, RI.5.7, RF.5.3a, RF.5.4a, RF.5.4c, SL.5.1a, SL.5.1b, SL.5.1d, SL.5.2, LS.5.2e, LS.5.4a, LS.5.4b, LS.5.6
National Science Standards Framework (by the end of Grade 5)	LS1.C, LS2.A, LS2.B, LS2.C, LS4.C, LS4.D, PS3.D, ESS2.A, ESS2.C, ESS2.D, ESS2.E, ESS3.A, ESS3.B, ESS3.C, ETS2.A, ETS2.B, SEP1, SEP6, SEP7, SEP8, CC1, CC2, CC6, CC7

www.DiscoverWater.org—[Use Water Wisely:](#)

Common Core ELA	RI.5.1, RI.5.2, RI.5.3, RI.5.4, RI.5.5, RI.5.8, RF.5.3a, RF.5.4a, RF.5.4c, WS.5.2b, WS.5.2c, WS.5.2d, WS.5.4, SL.5.1a, SL.5.1b, SL.5.1c, SL.5.1d, SL.5.2, LS.5.2e, LS.5.4a, LS.5.4b, LS.5.6
National Science Standards Framework (by the end of Grade 5)	LS1.C, LS2.B, LS2.C, LS4.C, LS4.D, ESS2.A, ESS2.C, ESS2.E, ESS3.A, ESS3.C, ETS1.A, ETS2.A, ETS2.B, SEP1, SEP4, SEP6, SEP7, SEP8, CC2, CC3, CC7

www.Discover Water.org—[The Water Cycle](#):

Common Core ELA	RS.5.1, RS.5.2, RS.5.4, RS.5.8, RF.5.3a, RF.5.4a, RF.5.4c, WS.5.2a, WS.5.2b, WS.5.2c, WS.5.2d, WS.5.3a, WS.5.3c, WS.5.3d, WS.5.4, WS.5.9b, SL.5.1a, SL.5.1b, SL.5.1c, SL.5.1d, SL.5.2, SL.5.4, LS.5.2e, LS.5.4a, LS.5.4b, LS.5.5c, LS.5.6
National Science Standards Framework (by the end of Grade 5)	LS1.A, LS1.C, LS2.B, LS4.D, PS1.A, PS1.B, PS2.B, PS2.C, PS3.A, PS3.B, PS4.B, ESS1.C, ESS2.A, ESS2.C, ESS2.D, ESS2.E, ESS3.A, ESS3.C, ETS2.A, SEP2, SEP7, SEP8, CC1, CC2, CC3, CC4, CC5, CC7

Sources:

National Governors Association Center for Best Practices and Council of Chief State School Officers. "Texts Illustrating the Complexity, Quality, and Range of Student Reading K-5." And "Texts Illustrating the Complexity, Quality, and Range of Student Reading 6-12." Common Core State Standards Initiative. <http://www.corestandards.org/> (June, 2009)

Committee on Conceptual Framework for the New K-12 Science Education Standards and National Research Council. 2011. A Framework for K-12 Science Education: Practices, Crosscutting Concepts, and Core Ideas.