Water Reader
Teacher's Guide

AG IN THE CLASSROOM - HELPING THE NEXT GENERATION UNDERSTAND THEIR CONNECTION TO AGRICULTURE

RESOURCES

Government Agencies

Colorado Water Conservation Board
http://cwcb.state.co.us/Pages/CWCBHome.aspx

Colorado Division of Water Resources
https://cdnr.us/#/division/DWR

Colorado Department of Natural Resources
https://cdnr.us/#/start

Water Festivals & Events

City of Aurora
https://www.auroragov.org/

City of Boulder
http://www.keepitcleanpartnership.org/pollution-prevention/teachers/operation-water-festival/

City of Fort Collins
http://www.fcgov.com/utilities/community-education/youth/water-festival

City of Greeley
https://www.facebook.com/GreeleyWaterFest?sk=wall&filter=3

Western Colorado (Grand Junction)
https://www.facebook.com/cowaterfestival?fref=nf

City of Denver
http://www.denverwater.org/EducationOutreach/WaterFestival/Teachers/

Cities of Northglenn, Thornton, Westminster
http://youthwaterfestival.blogspot.com/

Independent Websites

Project WET (Water Education for Teachers)
http://www.coloradowaterwise.org/

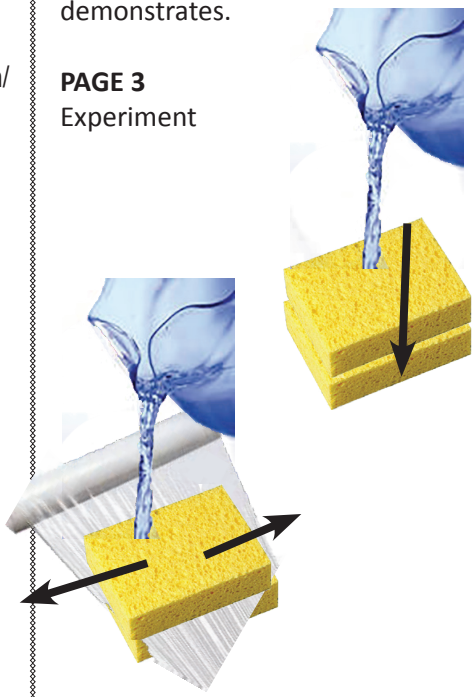
Colorado Foundation for Water Education
https://www.yourwatercolorado.org/

Colorado Alliance for Environmental Education (CAEE)
https://www.caee.org/

Water is crucial for things living on Earth. Have your students brainstorm all the ways they use water. Have them make a list. Be sure to talk about all the ways water might be used in manufacturing, or to create the food we eat. Ask your students how they might be able to protect this resource. Keeping water from becoming polluted is one of best ways to protect it.

This reader explores groundwater. Ask your students to list some sources of surface water. Lakes, rivers, streams and oceans are examples of surface water. We don't see groundwater so it is harder for people to understand what it is. It is not large pools of water under the ground, it is all the water that fills in the gaps around rocks under the ground. This water not only moves downward but it can also move sideways. That is what the experiment on page 3 demonstrates.

PAGE 3
Experiment



PAGE 4 We call the saturated ground beneath the water table an aquifer. Aquifers can be large or small. You can download a map of major aquifers at: https://water.usgs.gov/ogw/aquifer/map.html

PAGE 5 &6 Provides a list of 62 water conservation tips. See if your students can come up with more ways to save water.

PAGE 7 Conservation by the numbers

1. Answers will vary. A family of 4 x 100 gallons = 400 gallons per day x 30 days = 12,000 gallons per month.
2. Answers will vary. Assuming a class of 25 students x 100 gallons each day = 2,500 gallons per day x 365 days = 912,500 gallons per year.
3. 25 students x 10 gallons = 250 gallons saved each day x 365 = 91,250 gallons saved in a year.
4. Answers will vary but if there are 300 students in a school and they all save 10 gallon, then 3,000 gallons will be saved each day. 3,000 x 365 = 1,095,000 gallons saved.
5. 5,540,000 people x 1 gallon = 5,540,000 gallons per day saved x 365 days = 2,022,100,000 gallons saved in a year.
6. 2,022,100,000 x 5 gallons = 10,110,500,000 gallons saved

Comments, questions, suggestions and feedback about the Colorado Reader are welcome.

Contact: Colorado Reader Publisher:
Colorado Foundation for Agriculture
Bette Blinde, Director
P.O. Box 10
Livermore, CO 80536,
Phone (970) 881-2902
bblinde@growingyourfuture.com

PAGE 8:
This map shows through pie charts the amount of water used from surface sources and ground water sources. The larger the circle, the more water being used. Have your students study the key. Ask them: What does the pink color mean? What does the blue color mean? What does the size of the circle mean? Then have them answer the questions below the map as true or false.

1. The size of the circles on the map indicates the amount of water used in an area, with the larger circles meaning more water withdrawn. TRUE
2. The pink represents the percent of surface water being used in an area. FALSE
3. There is more groundwater being used in the western part of the state. FALSE
4. The blue represents the percent of surface water being used in an area. TRUE
5. Kit Carson County uses no groundwater. FALSE
6. Most of Mesa County's water comes from surface water. TRUE
7. About 1/4 of Weld County water comes from groundwater. TRUE

More Information:
Groundwater use in Colorado dates back to before the turn of the 20th century. Nineteen of Colorado's 63 counties rely solely on ground water for potable supplies and domestic uses. Ground water withdrawals by private wells and public water supply systems serve an estimated twenty percent of the state's population. Agriculture is the largest user of groundwater, primarily for irrigation. However, groundwater is also used to meet nearly all livestock and rural domestic water needs.

More Colorado groundwater information can be found:
http://coloradogeologicalsurvey.org/water/groundwater/

An atlas of Colorado groundwater can be found:
http://coloradogeologicalsurvey.org/water/groundwater-atlas/

Here is a link to best management practices for water conservation:
http://coloradowaterwise.org/BestPractices

Here is the link to Colorado's Water Plan:
https://www.colorado.gov/cowaterplan

It is time to sign up to attend the Food, Fiber & More Summer Agriculture Institutes. Three locations:
Rifle - June 12 - 16
Fort Collins - June 19 - 23
Denver - June 26 - 30
3 Continuing Education Credits
Scholarships Available
go to: www.growingyourfuture.com

This reader helps you achieve the following standards with your students:

Colorado Academic Standards
SCIENCE Standard 3: Earth System Science: GLE-4. Evaluate evidence that Earth's geosphere, atmosphere, hydrosphere, and biosphere interact as a complex system; Describe how humans are dependent on the diversity of resources provided by Earth and Sun.
GLE-6. 1. Complex interrelationships exist between Earth's structure and natural processes that over time are both constructive and destructive. 2. Water on Earth is distributed and circulated through oceans, glaciers, rivers, groundwater, and the atmosphere.
SOCIAL STUDIES GLE-4.
2. Geography: 1. Use several types of geographic tools to answer questions about the geography of Colorado;
Core Curriculum State Standards
ELA-LITERACY
CCSS.ELA-Literacy.CCRA.L.4
Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.
CCSS.ELA-Literacy.CCRA.R.1
Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
CCSS.ELA-Literacy.CCRI.R.1
Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
CCSS.ELA-Literacy.CCRI.R.3
Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.
CCSS.ELA-Literacy.CCRF.R3a
3. Know and apply grade-level phonics and word analysis skills in decoding words.
a. Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
CCSS.ELA-Literacy.CCRF.R4
Read with sufficient accuracy and fluency to support comprehension.