Ag@School TEACHER GUIDE
Volume 25, Issue 3 2025/2026

Welcome to Ag@School!

Class sets of this magazine, aimed primarily at 4th grade level, are **FREE** to subscribing Washington teachers. Instructions for subscribing are on Page 6.

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This is the last of three issues for 2025-2026. Your subscription for next year will NOT be automatically renewed. We need to hear from you that you would like to continue receiving the subscription. **PLEASE RENEW NOW** for next school year, and **NO LATER** than mid-September to insure you receive the 1st issue!
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Produced by Washington Ag in the Classroom, Ag@School is designed to help teachers meet student educational goals as well as develop agricultural literacy.

This issue is designed to help students understand:

- farmers and ranchers are caretakers for soil and water resources, so every day is Earth Day for them, not just one day a year
- what the term "sustainable agriculture" means
- the water cycle and soil components
- the importance of grazing animals
- the value and necessity of pollinators
- the role of agriculture in the conservation of our natural resources and its importance to the industry
- the economic and environmental impact of various agricultural commodities in Washington

Why Agricultural Literacy?

Agriculture is society's lifeline and an integral part of our heritage. Unfortunately as our country moved from agrarian to urban, people lost contact with the main industry necessary for survival—food production. America's largest industry has dropped from public discourse except for the occasional media splash. Yet we all eat, and it is important that we have an understanding of where our food is produced and who we depend upon to deliver it to our tables.

Less than 2% of the US population is involved in agriculture production (farming) yet 24 million American jobs are dependent upon it. Agriculture is more than working the land and tending the animals. This huge industry—production, processing, transportation, and marketing—generates billions of dollars each year. Agriculture is vital to national security, a stable economy, and the US trade balance.

Why Agriculture?

Teaching about agriculture is an ideal way for students to make real-life connections to science, math, and social studies concepts. Agriculture is relevant because students encounter it daily. Who doesn't enjoy talking about food? Nearly everything we eat, wear, use- even some fuel that powers cars and buses, comes from plants and animals grown on farms. Agriculture provides perfect real-world connections to STEM and makes learning relevant to students.

Helping students understand the farm-to-table connection is important in our consumer-driven society. Teaching students to be agriculturally literate connects their learning to everyday life.

Browse the Matrix!

Visit *https://washington.agclassroom.org/matrix/* and see all the available lessons including ones specific to Washington agriculture!!

The Agricultural Literacy Curriculum Matrix is an online, searchable, and standards-based curriculum map for K-12 teachers. The Matrix contextualizes national education standards in science, social studies, and nutrition education with relevant instructional resources linked to Common Core Standards.

Search our instructional, classroom ready resources now! After you find what you need, consider storing them in your personal binder.

Farming in a Glove (grades 3-5)

This activity allows students to see the life cycle of plants and learn what seeds need to germinate and grow. It is important to understand how seeds become plants because they product food, shelter and oxygen – we need and use these things every day!

https://washington.agclassroom.org/matrix/lesson/831/

Vocabulary Words

Each issue will introduce several words that may be unfamiliar to students. These words will appear in **bold** type the first time they are used.

Words in the this issue include:

Soil, organic matter, topsoil, stone fruit, erosion, reduced tillage, watershed, edge, seed, embryo, germinate, cotyledons, monocot, dicot, legumes, cereals, annual, perennial, biennial, water cycle, condensation, evaporation, precipitation, groundwater, percolation, transpiration, sustainable agriculture.

Definitions can be found scattered throughout the magazine.

Ag@School Funding

Many businesses, organizations, public agencies and individuals contribute money and time to providing you this magazine at no cost. They are listed on Pages 5 and 6 along with a suggested activity for research and writing letters of thanks. We suggest using the activity as a small group project both for internet research practice and, of course, letter writing experience.

Standards Alignment

This publication is aligned with 4th grade standards for Washington state students

Social Studies EARLS (Essential Academic Learning Requirement) –

Economics 2.2.1, 2.4.1

Geography 3.1.2

Common Core State Standards (CCSS)

Reading –

Questioning, Inference, and Interpretation - RI.4.1, Themes and Central Ideas –RI.4.2

Connections – RI.4.3, Academic vocabulary RI.4.4, Text Structures and Features – RI.4.5, Points of View/Purpose – RI.4.6,

Visual/Auditory Media and Information Sources – RI.4.7, Augment and Reasoning – RI.4.8, Fluency – RF.4.4a.

Writing –

Argumentative- W.4.1b, Informative/Explanatory – W.4.2, Narrative – W.4.3, Task, Purpose and Audience –W.4.4 , Technology –W.4.6, Research – W.4.7, Access and Organize Information – W.4.8.

Speaking and Listening –

Collaborative discussions – SL.4.1, Evaluate Presented Information – SL.4.2, SL.4.3

Language –

Language conventions – L.4.3

Reference materials – L.4.5c

Math –

Multiplication and Division - 4.NBT.B.5, Measurement – 4.MD.A.2

Science (Next Generation Science Standards -NGSS): Energy 4-ESS3-1, Structure, Function and Information Processing – 4-LS1-1, Earth and Human Activity 4-ESS3, Engineering Design 3-5-ETS1-1.

Cover – Every Day is Earth Day

April 22 is Earth Day—a day intended to inspire awareness and appreciation for the earth's natural environment. Farmers understand that the bounty of crops they are able to produce is dependent upon the sun's energy, adequate water, and a healthy soil ecosystem. Sustainable agriculture must be environmentally friendly by taking care of the soil and using water efficiently, but it must also be profitable enough to keep farmers in business, and able to improve the quality of life for the farmer, farm workers, and all of society.

Page 2 – Agriculture Feeds the World

Think and Discuss

Discussion starters:

1. ***Why are farmers important environmentalists?*** It is the right thing to do and they know that they need to care for the land and livestock in order for it to be productive and prosperous in the future. Farmers are "caretakers" of the land. Their livelihood depends on keeping the soil, water, and air clean and healthy.

2. ***Talk about the true definition of sustainable agriculture.*** What would happen if people could not make a living? If all US farmers went out of business what would replace agriculture on the land? Where would people get their food? How secure would our food supply be if we had to rely on other countries to grow it for us?

3. ***How are farmers able to grow more food per acre?*** By using science and technology farmers are able to grow more with less. Please visit Vol 25 issue 2 (Technology issue) to re-visit the many ways farmers use and apply science and technology to farming practices.

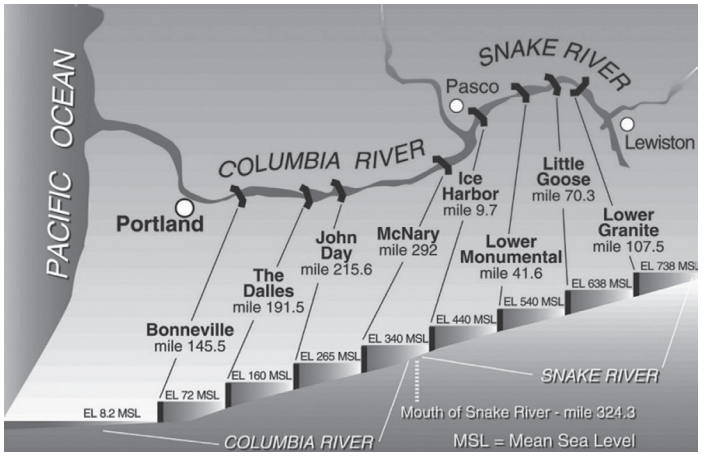
4. Discuss the importance of proper care of air, water, and soil and how urban and rural residents might have differing views on the best use of these resources (water for example, farming use vs recreational use).

"Fruitful State" answers

1. Apple Capital of the World
2. Eastern WA has less precipitation (and irrigation is controlled water application)
3. 9600 x 8070= 77,472,000 # or 38,736 tons (2000 lbs in a ton)
4. Whole grapes have more fiber than juice; both juice and whole grapes are much superior nutritionally than sugar-packed jelly

Page 3 – Columbia Snake River facts

For more information please visit their website - *https:/www.pnwa.net/*



Page 4/5 – Soil, Watershed, Farmers

Soil erosion can be a source of water pollution. Farming machinery and tillage practices have greatly reduced erosion from farm fields.

Discussion starter:

Discuss urban soil erosion and how it might be lessened (construction sites, road building, hillsides with no vegation)

Foresters are farmers too. Why is stewardship of forest land more important in Washington than in many other states? (half of our state is coveed by forests)

Trees are a crop with a life span. When trees get mature they should be harvested to protect the health of the forest and to reduce the amount of fuel that could be consumed in a forest fire.

Watersheds

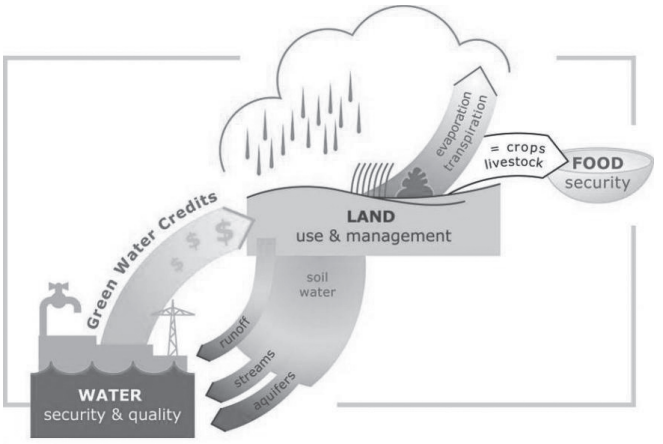
Activity:

1. Make a quick watershed model by crumpling a newspaper and draping a piece of plastic over the 'hills'. Spray on water and have students watch the movement downhill. Find out which watershed you live in and where your runoff eventually ends up.

2. What can you do to help stop pollution in your watershed?

Remember that in a watershed everything travels downhill and can end up in the water supply. Also, most water that enters a storm drain in urban areas goes directly into surface water without any treatment.

Ideas include: don't liter, don't let car wash soap or pet waste go into the storm drain, reduce phosphates in household cleaning products, avoid drips and spills when filling fuel tanks or changing oil, maintain septic tanks, follow directions on yard care products, use eco-friendly personal care products, etc.



Page 6 – Seeds – Miracles of life

Choose a variety of vegetable seeds. Let students examine them with magnifying glasses before planting. Use clear plastic cups with some potting soil. Plant seeds against the side of the cup so students will have a window to view the germination. Plant some seeds upside down or sideways to see what happens. Be sure to keep the potting soil moist, but do not overwater---remember that soil should be 50% empty space. If you fill the empty space with water, you will drown the plant.

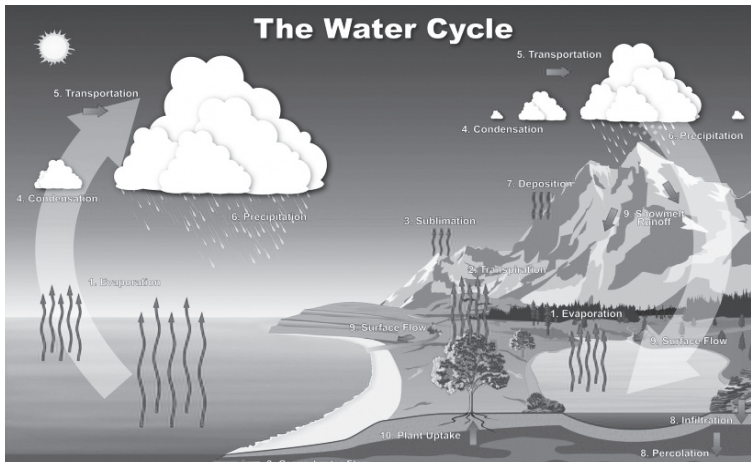
As plants emerge, note the roots and the sprout. How many leaves does each seed produce? Is it a monocot or a dicot? How long does each seed take to germinate? Have students record the results.

Kitchen Seed Search

Students may discover quite a few seeds in their kitchens or on grocery shelves including: anise, caraway, celery, coriander, cumin, dill, dry beans, fennel, flax, lentils, mustard, pepper, poppy, sesame, and sunflower.

Page 7 – Water...

The most common material on earth



Discussion starters:

- How is water cleaned through the water cycle (evaporation---also large particle contaminants like silt are trapped in percolation process)
- What impurities might be left behind when water evaporates?
- What can people do to prevent impurities from getting into the water in the first place?

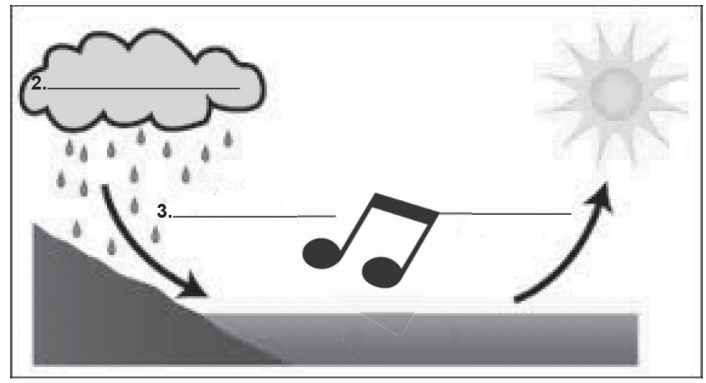
Reinforce that salt water cannot be used for drinking water or to water plants and animals. The amount of water in the world is constant although it changes location and physical form.

Water in the atmosphere is mostly in the form of water vapor. If it all fell as precipitation at once, the Earth would be covered with only about 1 inch of water. Students should recognize that each zero to the right of a decimal point is also a factor of 10. For instance, if told that all plants and animals contain 0.0001% of the total water, they should reason that the atmosphere contains 10 times as much (0.001%). They should also be able to recognize that 0.001% is the same as 1/1000 of 1%.

Water Cycle Song

(to the tune of
"She'll Be Coming
'Round the Mountain)

Water travels in a cycle yes it does,
Water travels in a cycle yes it does,
It goes up as ***evaporation***
Forms clouds as ***condensation***
And comes down as ***precipitation***
Yes it does!



Visit **www.waic.net**

FOR LINKS TO:

• Lessons • Activities • Information
• Student Websites • and more!

Washington Ag in the Classroom is your launch pad for information and activities about all fields of agriculture!

Publication and Credits

Ag@School is a publication of Washington Agriculture in the Classroom, a non-profit entity created in 1981 to encourage and help teachers increase agricultural literacy in their students. Both public and private groups including the WA Dept. of Agriculture, WSU, commodity commissions, farm organizations, agri-businesses and individuals, support this mission. Teachers may reproduce any pages for use.

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