

Arizona Project WET 5E Lesson 4 – It All Adds Up

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LESSON 4 IT ALL ADDS UP

PROJECT WET WATER LITERACY PRINCIPLES

Water Is a Natural Resource	a. All life on Earth uses water. b. The available freshwater supply on Earth is limited and must sustain multiple users. c. Water is not distributed equally across the Earth—there are arid regions and wet regions.
Water Resources Are Managed	a. Multiple users of water resources creates diverse and sometimes conflicting demands, which require water resource management practices. b. Management decisions involve distribution of water resources and protection of acceptable water quality and quantity. c. Management of water quality is critical for the health of humans and ecosystems. d. Individuals, communities, and industries have unique water footprints that impact water resources.
Water Resources Exist within Social Constructs	a. Over time, societies develop water management systems and practices to meet the needs of diverse water users. b. Political and economic systems affect equal access by all to water with geopolitical impacts. c. Communities do not have equal access to water quantity or quality. d. People's values, attitudes, and beliefs about water are shaped by their experiences. e. Individual and community water conservation efforts impact water availability on a local level.
LESSON SUMMARY	Students develop a plot of waterfront property then learn how everyone can prevent pollution entering a river by identifying the pollution emitted from each property. Students recognize that everyone contributes to and is responsible for good water quality and learn how to differentiate between point and nonpoint source pollution.

MATERIALS	• Piece of flip chart paper or poster board prepared as instructed for each group • Colored markers, pencils, or crayons • Items representing pollution (see suggested pollution items table below) • Lesson-4-Best-Management-Practices.pdf • SumofthePartsStormwaterExtension.pdf • 26-27-AWF-Lesson-4-Slides.pptx • SumoftheParts_BackgroundReading_CareerConnections.pdf • LESSON-4_STUDY-NOTES-WATERSHEDS-SUSTAINABILITY_FITB-NOTES_QUIZ-WITH-KEY.pdf
TIME	50 minutes
GUIDING QUESTIONS	How do contaminants/pollutants travel downstream? What are the ways that pollution in a watershed is reduced or prevented?
LESSON PLAN	AWF-Unit-Lesson-Plan-4-It-All-Adds-Up.pdf
ARIZONA STATE STANDARDS ADDRESSED IN LESSON	
SCIENCE	4.E1U2.10 Define problem(s) and design solution(s) to minimize the effects of natural hazards (in the context of droughts and water scarcity).
MATH	4.MD.B.4 Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots.
ELA	*4.W.2 Write informative/explanatory texts to examine a topic and convey ideas and information clearly. a. Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. b. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. c. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because). d. Use precise language and domain-specific vocabulary to inform about or explain the topic. e. Provide a concluding statement or section related to the information or explanation presented.

Social Studies (Elaborate)	G2.1 Compare the different ways people or groups of people have impacted, modified, or adapted to the environment of the Americas. Key concepts include but are not limited to disease, farming, family structure, housing, cultural assimilation, cultural amalgamation, climate, transportation, domestication of animals, clothing, recreation, and utilization of renewable and non-renewable natural resources.
CTE (Elaborate)	Explore jobs, occupations, and careers to understand the value of all careers to society. Lesson 4 Sum of the Parts Career Connections.
ENGAGE	
Students use a full body activity to create a systems model to illustrate the downstream effects of pollution sources (Sum of the Parts).	
EXPLAIN	
Use slides to introduce point and non-point pollution.	
VOCABULARY	
EXPLORE	
Students differentiate between point and nonpoint source pollution and identify Best Management Practices to reduce pollution and explore ways communities can reduce urban heat.	
ELABORATE	
Students can review other Green Stormwater Infrastructure that communities can implement to help with reducing pollution, runoff and heat.	
EVALUATE	
Ask students to share their best solutions with a partner. Listen as you move around the class and then ask some students to share their solutions with the class.	
REFLECT	
CONTENT KNOWLEDGE AND SUGGESTED READING FOR TEACHERS	

Digital Resources:

- [Green Stormwater Infrastructure](#)
- <https://azdot.gov/sites/default/files/2019/07/major-rivers-and-streams.pdf>
- [Arizona's Water Story](#)