

Healthy Water, Healthy People

Alignment with Maryland State Curriculum / Core Learning Goals Grades 9-12ⁱ

Activity	Page	History & Government	Science
HITTING THE MARK STUDENTS INVESTIGATE THE CONCEPTS OF ACCURACY AND PRECISION IN DATA COLLECTION, AND LEARN THE IMPORTANCE OF WRITING DETAILED PROCEDURES.	49	None	Goal 1 Skills & Processes [Meets Goal 4 Chemistry 4.4 (properties of acids & bases; pH scale) when water quality test is conducted.]
Water Quality Windows STUDENTS EXPLORE THE DIFFERENT WATER QUALITY RANGES REQUIRED BY ORGANISMS BY INTERPRETING DATA; SORTING AND CLASSIFYING ORGANISMS ACCORDING TO THEIR REQUIREMENTS; AND APPLYING THEIR KNOWLEDGE TO DETERMINE HOW CHANGES IN WATER QUALITY AFFECT ORGANISMS.	164	None	Goal 1 Skills & Processes Goal 3 Biology 3.5 (interdependence). [Meets Goal 3 Biology 3.6 (investigate a biological issue) & Goal 4 Chemistry with water quality tests.]
H TO OH! STUDENTS SIMULATE THE CREATION OF ACIDS AND BASES; MANIPULATE ACIDIC AND BASIC SOLUTIONS; AND IDENTIFY COMMON ACIDS AND BASES FOUND AT HOME.	15	None	Goal 4 Chemistry 4.2 (structure of matter); 4.3 (formulas & chemical reactions); 4.4 (properties of acids & bases; pH scale). [Meets Goal 3 Biology 3.5 (interdependence) if “extension” includes environmental impacts.]
WATER QUALITY MONITORING FROM DESIGN TO DATA STUDENTS CREATE A STUDY DESIGN, THEN ANALYZE AND INTERPRET WATER QUALITY DATA TO MODEL THE PROCESS OF WATER QUALITY MONITORING.	70	[Potential exists to meet U.S. History 5.2 (Clean Water Act; EPA).]	Goal 1 Skills & Processes Goal 3 Biology 3.1 (chemistry’s effect on living systems); 3.2 (environmental conditions); 3.5 (interdependence); 3.6 (investigate a biological issue). [Meets Goal 4 Chemistry with water quality tests.]
THERE IS NO POINT TO THIS POLLUTION STUDENTS ANALYZE DATA TO SOLVE A MYSTERY, INTERPRET A TOPOGRAPHICAL MAP, AND ANALYZE AND COMPARE WATER QUALITY DATA TO LEARN ABOUT THE CUMULATIVE IMPACTS OF NONPOINT SOURCE POLLUTION.	136	[Potential exists to meet U.S. History 5.2 (Clean Water Act; EPA); Government 1.3 (pollution issues); & 3.1 (environmental issues).]	Goal 1 Skills & Processes Goal 3 Biology 3.2 (environmental conditions); 3.5 (interdependence); 3.6 (investigate a biological issue). [Meets Goal 4 Chemistry with water quality tests.]

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TURBIDITY OR NOT TURBIDITY: THAT IS THE QUESTION STUDENTS EXPLORE THE EFFECTS OF SEDIMENT ON TURBIDITY; COMPARE THE TURBIDITY OF MUDDY AND CLEAR WATER; SIMULATE ENVIRONMENTAL CONDITIONS THAT CAUSE EROSION; AND INVESTIGATE WAYS TO REDUCE EROSION THAT LEADS TO TURBIDITY.	83	[Potential exists to meet U.S. History 5.2 (Clean Water Act; EPA); Government 3.1 (environmental issues).]	Goal 1 Skills & Processes Goal 2 Earth Science 2.8 (investigate an earth science issue). Goal 3 Biology 3.2 (environmental conditions); 3.5 (interdependence).
BENTHIC BUGS AND BIO ASSESSMENT STUDENTS INVESTIGATE THE RELATIVE WATER QUALITY OF A STREAM BY CONDUCTING A SIMULATED BIOASSESSMENT BY SAMPLING AQUATIC MACROINVERTEBRATES (REPRESENTED BY ORDINARY MATERIALS).	154	None	Goal 1 Skills & Processes Goal 3 Biology 3.2 (environmental conditions); 3.5 (interdependence).
STONE SOUP STUDENTS WILL MODEL AND OBSERVE THE ACID NEUTRALIZATION CAPACITY OF ALKALINE WATERS, AND COMPARE IT WITH NON-ALKALINE WATERS.	35	None	Goal 1 Skills & Processes Goal 4 Chemistry 4.2 (structure of matter); 4.3 (formulas & chemical reactions); 4.4 (properties of acids & bases; pH scale). [Potential exists to meet Goal 2 Earth Science 2.4 (properties of minerals; composition of rocks).]
LIFE AND DEATH SITUATION STUDENTS LEARN ABOUT DIVERSITY AND GLOBAL LOCATIONS OF WATERBORNE DISEASES AND THE ROLE OF EPIDEMIOLOGY IN DISEASE CONTROL BY SEARCHING FOR STUDENTS "INFECTED" WITH A WATERBORNE ILLNESS. THEN, THEY CREATE NEWSPAPER ARTICLES THAT SUMMARIZE THEIR DISEASE.	125	[Potential exists to meet U.S. History 5.2 (Clean Water Act); Government 1.3 (health care & disease).]	Goal 1 Skills & Processes Goal 3 Biology 3.2 (environmental conditions); 3.5 (interdependence); 3.6 (investigate a biological issue). [Meets Goal 4 Chemistry with bacteria testing.]
WASH IT AWAY STUDENTS EXPLORE HOW DISEASES CAN BE TRANSMITTED EASILY BY USING GLITTER TO REPRESENT COMMON PATHOGENS; AND THEN INVESTIGATE HAND-WASHING AS A METHOD OF DISEASE PREVENTION.	121	[Potential exists to meet Government 1.3 (health care & disease).]	Goal 1 Skills & Processes Goal 3 Biology 3.2 (environmental conditions). [Meets Goal 4 Chemistry with bacteria testing.]

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LOOKS AREN'T EVERYTHING STUDENTS STUDY MAPS AND CLUES FROM HYPOTHETICAL CAMPING TRIP TO DETERMINE HOW AND WHY SOME OF THE CAMPERS BECAME ILL. THEY THEN INVESTIGATE THE ROLE OF WATER QUALITY IN HUMAN ILLNESS.	99	[Potential exists to meet U.S. History 5.2 (Clean Water Act).]	Goal 1 Skills & Processes Goal 3 Biology 3.2 (environmental conditions); 3.5 (interdependence); 3.6 (investigate a biological issue). [Meets Goal 4 Chemistry with bacteria testing.]
A SNAPSHOT IN TIME STUDENTS USE A TOPOGRAPHIC MAP TO EXPLORE A WATERSHED THEN APPLY THAT KNOWLEDGE TO WATERSHED MONITORING. STUDENTS ANALYZE DIFFERENCES BETWEEN AN INDIVIDUAL DATA SET COLLECTED AT ONE PLACE AND TIME VERSUS A SERIES OF DATA SETS COLLECTED AT VARIOUS POINTS ALONG A WATERSHED OVER TIME. STUDENTS WILL FIRST GRAPH DATA THEN ANALYZE, COMPARE AND SUMMARIZE TRENDS IN WATER QUALITY.	61	[Potential exists to meet Government 3.1 (land use).]	Goal 1 Skills & Processes Goal 3 Biology 3.1 (chemistry's effect on living systems); 3.2 (environmental conditions); 3.5 (interdependence of diverse living organisms); 3.6 (investigate a biological issue).

ⁱ Activities meet Core Learning Goals as noted. When a standard is listed without notation, the activity meets the Core Learning Goals fully.