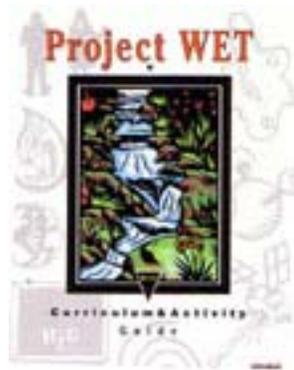
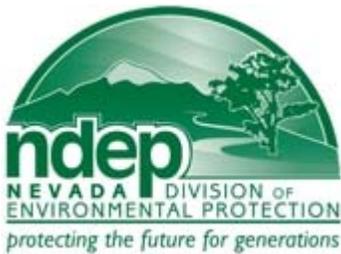


# Correlation of *Project WET Curriculum & Activity Guide* with Nevada State Standards



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## Revision

This January 2007 revision of the “Correlation of *Project WET Curriculum & Activity Guide* with Nevada State Standards” supercedes the June 2005 first edition. It includes the 2005 Nevada Science Standards and the 2006 Nevada Mathematics Standards. This edition follows the standard grade bands (K–2, 3–5, 6–8, and 9–12), which were used but not always closely followed in the previous edition. Some information for other subject areas has been moved into different grade bands, however, it has not been checked or revised.

This edition adds the Summary and Objectives blocks from each of the WET activities, so that the correlation may more easily be used to identify activities that meet academic objectives rather than only being used to check an activity already selected. This edition includes tables which indicate correlation between the guide and standards, for science and math, showing strong and moderate correlation. An appendix with information about standards and correlations has also been added.

## Acknowledgements

The June 2005 first edition was developed by Margie Evans, Clear Creek Watershed Council Coordinator, who worked endless hours to ensure accurate and comprehensive coverage of state standards for each activity, and Mary Kay Riedl, Nevada Project WET Coordinator. Dr. Richard Vineyard, Science Education Consultant, and Dave Brancamp, Mathematics Education Consultant, from the Department of Education reviewed this manual and to verify that the correct correlations were assigned to the activity.

The January 2007 revision was developed by Dan Allison, Director of Nevada Natural Resource Education Council, and Mary Kay Riedl, Nevada Project WET Coordinator. Dr. Richard Vineyard, Science Education Consultant, and Dave Brancamp, Mathematics Education Consultant, from the Department of Education reviewed this manual and to verify that the correct correlations were assigned to the activity.

## Updates

We welcome your input to this document. If you find activities that have stronger or weaker correlation than shown here, or if you have suggestions for improving usability of the correlation for educators, please let us know. Contact Mary Kay Riedl, Nevada Project WET Coordinator, 775-687-9454, [mriedl@ndep.nv.gov](mailto:mriedl@ndep.nv.gov).

## Using the Correlation

In this manual, Nevada’s State Content Standards have been correlated to Project WET activities. The activities are listed in numeric order as they appear in *Project WET Curriculum & Activity Guide*. All parts of the activities were considered when determining which standard applied. While some benchmarks are easy to determine, others are more subjective and so are open to interpretation. Any variation or particular emphasis chosen by you will affect the Nevada State Curriculum Standards covered by the activity.

All subject areas area grouped within each grade band, intentionally, to encourage cross-curricular lessons.

The strength of a correlation varies widely from standard to standard. Though you can use this correlation to determine likely matches, you will need to skim or read the activity description in the guide to determine the strength of the match and whether the activity will meet your particular academic objectives. The Nevada State Standards are cumulative, as expressed in the phrase “*By the end of the grade band, students know and are able to do everything required in earlier grades and:*” However, for reasons of space, the correlations from earlier grade bands are not shown for each activity unless the activity specifies that grade band. If you are looking for activities that teach or review knowledge and skills from earlier bands, you will need to look for similar matches in a higher band and then look at lower bands to see how these activities may meet your academic objectives. The K–2 Option included in thirteen of the activities are not reflected in this correlation.

We hope this guide is beneficial in your education endeavors as you use *Project WET*.

# How to Read the Correlation

Please note that although all the standards have similar organizing schemes, none is identical to the one used for science.

## EXAMPLE

### Adventures in Density

p.25 (ue, MS, hs)

**Summary** – Students conduct investigations to discover how the density of water is affected by heat and salinity, and relate their “discoveries” to literary adventures.

**Objectives** – Students will: demonstrate how heat and salinity affect the density of water; relate the compactness of water molecules to the density of water in different states; and recognize that concepts of density can be found in literature and daily life.

*Grades 6–8*

**Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

## KEY

In the color bar is the title of the activity, the starting page number in the *Project WET Curriculum & Activity Guide*, and the recommended grade level (LE = lower elementary K–2, UE = upper elementary 3–5, MS = middle school 6–8, HS = high school 9–12; uppercase codes are the primary target grade levels).

### Adventures in Density

p.25 (ue, MS, hs)

The summary and objectives for the activity are provided, directly from the Guide.

**Summary** – Students conduct investigations to discover how the density of water is affected by heat and salinity, and relate their “discoveries” to literary adventures.

**Objectives** – Students will: demonstrate how heat and salinity affect the density of water; relate the compactness of water molecules to the density of water in different states; and recognize that concepts of density can be found in literature and daily life.

The standards are organized according to grade-level groups (K–2, 3–5, 6–8 and 9–12). Though only some of the Nevada State Standards are organized in this way, it is an effective way to organize all the standards.

*Grades 6–8*

The Nevada State Standard being addressed, starting with subject, then a part of the subject area, and then further details. For science, these are the subject (Science), the strand (Physical), and the unifying concept (Matter).

**Science: Physical: Matter**

The three-character code and italicized text is the standard itself (finally!).

P.8.A *Students understand the properties and changes in the properties of matter.*

The four-character code and text is the benchmark. First is the strand code (N = nature of science, P = physical science, L = life science, and E = earth science). Second is the upper end of the grade band. Third is the unifying concept (such as matter, forces and motion, and energy). Fourth is the benchmark number. The text is followed by the concept, in parentheses. Please note that although all the standards have similar organizing schemes, none is identical to the one used for science.

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

**Concept 1: Water has unique physical and chemical characteristics:** The nature of the water molecule determines the physical properties of water and its behavior. The physical and chemical properties of water are unique and complex.

## Adventures in Density

p.25 (ue, MS, hs)

**Summary** – Students conduct investigations to discover how the density of water is affected by heat and salinity, and relate their “discoveries” to literary adventures.

**Objectives** – Students will: demonstrate how heat and salinity affect the density of water; relate the compactness of water molecules to the density of water in different states; and recognize that concepts of density can be found in literature and daily life.

*Grades 6–8*

**Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

## H<sub>2</sub>Olympics

p.30 (UE, MS)

**Summary** – Students compete in a Water Olympics to investigate two properties of water, adhesion and cohesion.

**Objectives** – Students will: demonstrate adhesive and cohesive properties of water; and relate adhesion and cohesion to daily activities.

*Grades 3–5*

**Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.2 Students know how to compare the results of their experiments to what scientists already know about the world. (Using Data)

N.5.A.5 Students know how to plan and conduct a safe experiment. (Safe Experimentation)

**Science: Physical: Matter**

P.5.A *Students understand properties of objects and materials.*

P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)

P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

**Mathematics: Content: Data Analysis**

5.3.1 Pose questions that can be used to guide data collection, organization, and representation. Use graphical representations, including number lines, frequency tables, and pictographs to represent data. (Data Collection and Organization)

*Grades 6–8*

**Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)

**Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

## Hangin' Together

p.35 (ue, MS, hs)

**Summary** – Students mimic the water molecule's special ability to hold onto other water molecules; they also present four properties of water that are critical to life on Earth.

**Objectives** – Students will: illustrate the structure and intermolecular forces of the water molecule in relation to hydrogen bonding; explain the role of hydrogen bonding and its relationship with some of the unique characteristics of water; and deduce how these unique molecular properties of water are critical to life on earth.

*Grades 6–8*

**Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.6 Students know scientific inquiry includes evaluating results of scientific investigations, experiments, observations, theoretical and mathematical models, and explanations proposed by other scientists. (Models)

**Science: Physical: Matter**

P.5.A *Students understand properties of objects and materials.*

P.5.A.4 Students know that, by combining two or more materials, the properties of that material can be different from the original materials. (Mixtures and Compounds)

P.5.A.5 Students know the mass of a material remains constant whether it is together, in parts, or in a different state. (Mixtures and Compounds)

**Science: Earth & Space: Atmospheric Processes and the Water Cycle**

E.8.A *Students understand the relationship between the Earth's atmosphere, topography, weather and climate.*

E.8.A.3 Students know the properties that make water an essential component of the earth system. (Sun's Energy)

## Is There Water on Zork?

p.43 (ue, MS, hs)

**Summary** - Students describe the unique characteristics of water and design investigations to distinguish water from other clear liquids.

**Objectives** - Students will: describe qualities that distinguish water from other clear liquids; design a water investigation to test characteristics of water; and analyze the efficiency and effectiveness of the investigation.

*Grades 6–8*

**Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)

N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)

**Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.3 Students know methods for separating mixtures based on the properties of the components. (Mixtures and Compounds)

## Molecules in Motion

p.47 (le, UE, ms)

**Summary** – This activity brings water molecules up to size (student-size!) by physically involving students in simulating molecular movement in each of water’s physical states.

**Objectives** – Students will: model the effects of heat energy on the state of water.

*Grades 3–5*

**Science: Physical: Matter**

P.5.A *Students understand properties of objects and materials.*

P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)

P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

## Water Match

p.50 (LE, ue)

**Summary** – Students match up pairs of water picture cards and in the process learn to distinguish the three states of water – solid, liquid, and gas.

**Objectives** – Students will: identify the three states of water: solid, liquid, and gas; and recognized that water can become polluted and that some water can be cleaned.

*Grades K–2*

**Science: Physical: Matter**

P.2.A *Students understand that matter has observable properties.*

P.2.A.1 Students know matter can exist as solids and liquids. (Properties of Matter)

## What’s the Solution?

p.54 (UE, MS)

**Summary** – While investigating the dissolving power of water, students solve a crime.

**Objectives** – Students will: discriminate solutions from other mixtures; and demonstrate water’s ability to dissolve solids, liquids, and gases.

*Grades 3–5*

**Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)
- N.5.A.2 Students know how to compare the results of their experiments to what scientists already know about the world. (Using Data)
- N.5.A.3 Students know how to draw conclusions from scientific evidence. (Record-keeping)

**Science: Physical: Matter**

- P.5.A *Students understand properties of objects and materials.*
- P.5.A.3 Students know that materials can be classified by their observable physical and chemical properties (e.g., magnetism, conductivity, density, and solubility) (Properties of Matter, Mixture and Compounds)
- P.5.A.4 Students know that, by combining two or more materials, the properties of that material can be different from the original materials. (Mixtures and Compounds)

*Grades 6–8*

**Science: Nature of Science: Inquiry**

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.2 Students know how to critically evaluate information to distinguish between fact and opinion. (Record-keeping)

**Science: Nature of Science: Science, Technology and Society**

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.2 Students know scientific knowledge is revised through a process incorporating new evidence gained through on-going investigation and collaborative discussion. (Ethical Behavior, Collaboration)

**Science: Physical: Matter**

- P.8.A *Students understand the properties and changes in the properties of matter.*
- P.8.A.3 Students know methods for separating mixtures based on the properties of the components. (Mixtures and Compounds)

**Concept 2: Water is essential for all life to exist:** Life processes, from the level of the cell to that of the ecosystem, depend on water. Both the quantity and quality of water contribute to the sustainability of life on Earth.

## Aqua Bodies

p.63 (LE, UE)

**Summary** – Students trace their bodies and color portions to represent the amount of water their bodies contain. How does their water content compare to that of a cactus, lettuce, or a whale?

**Objectives** – Students will: conclude that water is the main ingredient of living organisms.

### *Grades K–2*

#### **Health**

1.2.8 Identify elements of the environment that affect personal health (air, water, food, soil, and pollutants).

1.2.3 Describe how healthy eating promotes growth and well-being.

#### **Mathematics: Content: Numbers, Number Sense & Computation**

1.K.5 Use concrete objects to model simple addition and subtraction. (Facts)

1.1.2 Identify and model a whole. Identify and model  $\frac{1}{2}$  as two equal parts of a whole or a set of objects. (Fractions)

1.2.2 Identify equal parts of a whole. Identify and model the unit fractions of  $\frac{1}{2}$  and  $\frac{1}{4}$  as equal parts of a whole or sets of objects. (Fractions)

#### **Mathematics: Content: Patterns, Functions & Algebra**

2.K.3 Identify and create sets of objects with unequal amounts, describing them as greater than or less than. (Numbers Sentences, Expressions, and Polynomials)

#### **Mathematics: Content: Data Analysis**

5.2.1 Collect, record, and classify data in response to questions posed by teacher and/or students. Use tables, pictographs, and bar graphs to represent data. (Data Collections and Organization)

#### **Mathematics: Process: Mathematical Reasoning**

Justify and explain the solutions to problems using physical models.

### *Grades 3–5*

#### **Health**

1.3.2 Describe the basic structure and function of human body systems.

#### **Mathematics: Content: Numbers, Number Sense & Computation**

1.3.2 Identify and model the unit fractions  $\frac{1}{2}$ ,  $\frac{1}{3}$ ,  $\frac{1}{4}$ ,  $\frac{1}{6}$ , and  $\frac{1}{8}$  as equal parts of a whole or sets of objects. Read and write unit fractions with numbers and words. (Fractions)

1.3.8 Generate and solve two-step addition and subtraction problems and one-step multiplication problems based on practical situations. Model addition, subtraction, multiplication, and division in a variety of ways. Use mathematical vocabulary and symbols to describe multiplication and division. (Solving Problems and Number Theory)

1.5.2 Add and subtract fractions with like denominators using models, drawings, and numbers. Compare fractions with unlike denominators using models and drawings, and by finding common denominators. Identify, model, and compare improper fractions and mixed numbers. (Fractions)

1.5.5 Use multiples of 10 to expand knowledge of basic multiplication and division facts.

(Facts)

**Mathematics: Content: Patterns, Functions & Algebra**

- 3.3.1 Compare, order, and describe objects by various measurable attributes for area volume/capacity. (Comparison, Estimation, and Conversion)
- 3.5.1 Estimate and convert units of measure for weight and volume/capacity within the same measurement system (customary and metric). (Comparison, Estimation, and Conversion)
- 3.5.2 Measure volume and weight to a required degree of accuracy in the customary and metric systems. (Precision in Measurements)

**Mathematics: Process: Mathematical Reasoning**

Draw logical conclusions about mathematical problems. Justify and explain the solutions to problems using manipulatives and physical models.

**Mathematics: Process: Mathematical Connections**

Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science.

**Aqua Notes**

p.66 (LE, UE)

**Summary** – While singing simple songs about water in the body, students gain an appreciation for the many ways they need water.

**Objectives** – Students will: note the different ways the body uses water; and determine that they need water.

*Grades K–2*

**Music**

Discuss and demonstrate how movement in dance is used to communicate.

**Science: Life: Organisms and Their Environment**

- L.2.C *Students understand that living things live in different places.*
- L.2.C.1 Students know plants and animals need certain resources for energy and growth. (Cycles, Ecosystems)

*Grades 3–5*

**Music**

- 1.3.1 Sing a simple melody with accurate pitch.
- 1.3.4 Sing patriotic songs, folk songs, and multicultural selections.
- 4.3.1 Create music to interpret stories, rhymes, and poetry.

**Let's Even Things Out**

p.72 (UE, MS, hs)

**Summary** – Student simulate the role water plays in balancing concentrations of solutes through osmosis and diffusion.

**Objectives** – Students will: describe and demonstrate the processes of osmosis and diffusion.

*Grades 3–5*

**Science: Nature of Science: Inquiry**

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.6 Students know models are tools for learning about the things that they are meant to

resemble. (Models)

### *Grades 6–8*

#### **Science: Life: Structure of Life**

- L.8.B *Students understand that living things are composed of cells, which are specialized in multicellular organisms to perform a variety of life functions.*
- L.8.B.2 Students know cells grow, divide, and take in nutrients which they use to provide energy for cell functions. (Cells)

## **The Life Box**

p.76 (LE, UE)

**Summary** – Through a thought-provoking activity, student discover four essential factors needed to sustain life.

**Objectives** – Students will: identify four essential factors necessary for life; and explain how living things use these four factors.

### *Grades K–2*

#### **Science: Life: Organisms and Their Environment**

- L.2.C *Students understand that living things live in different places.*
- L.2.C.1 Students know plants and animals need certain resources for energy and growth. (Cycles, Ecosystems)
- L.2.C.2 Students know a habitat includes food, water, shelter and space. (Ecosystems)

### *Grades 3–5*

#### **Science: Life: Organisms and Their Environment**

- L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*
- L.5.C.2 Students know organisms interact with each other and with the non-living parts of their ecosystems. (Ecosystems)

## **Life in the Fast Lane**

p.79 (UE, MS, hs)

**Summary** – Through a scavenger hunt and investigations of temporary wetlands in their neighborhood, students learn the benefits of and challenges to organisms living in temporary wetlands.

**Objectives** – Students will: describe physical and biological components of temporary wetlands; recognize the importance of temporary wetlands to larger ecosystems; and explain how organisms in temporary wetlands race against time to obtain water, shelter, food and a mate.

### *Grades 3–5*

#### **English Language Arts**

- 5.3.1 Locate, acknowledge, and use at least three sources to write an informative paper.
- 11.3.2 Use a variety of library resources, media, and technology to find information on a topic.
- 5.5.1 Write informative papers that develop a clear topic with appropriate facts, details, and examples from a variety of sources.
- 11.5.2 Select information from multiple resources to answer questions.

#### **Science: Life: Structure of Life**

L.5.B *Students understand that living things have specialized structures that perform a variety of life functions.*

L.5.B.1 Students know plants and animals have structures that enable them to grow, reproduce, and survive. (Cells)

**Science: Life: Organisms and Their Environment**

L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*

L.5.C.1 Students know the organization of simple food webs. (Cycles)

L.5.C.2 Students know organisms interact with each other and with the non-living parts of their ecosystems. (Ecosystems)

L.5.C.3 Students know changes to an environment can be beneficial or detrimental to different organisms. (Ecosystems)

L.5.C.5 Students know plants and animals have adaptations allowing them to survive in specific ecosystems. (Ecosystems)

*Grades 6–8*

**English Language Arts**

5.7.1 *Write informative papers that have a structured beginning, middle, and conclusion and draw upon a variety of sources.*

11.7.2 Locate and use primary and secondary sources to investigate a research question.

11.6.5 Present research findings using written text or media.

**Science: Life: Organisms and Their Environment**

L.8.C *Students understand how living and non-living components of an ecosystem interact.*

L.8.C.1 Students know how matter and energy are transferred through food webs in an ecosystem. (Cycles)

L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)

**No Bellyachers**

p.85 (UE, MS)

**Summary** – Students will participate in a series of demonstrations and a game of tag to show how illness-causing bacteria and viruses are spread by water.

**Objectives** – Students will: recognize factors that contribute to avoiding a cold or influenza; describe how some infectious diseases are spread by water or water droplets; and identify ways to reduce the chances of becoming infected with a disease.

*Grades 3–5*

**Health**

1.5.1 Explain the relationship between positive **health behaviors** and the prevention of injury, illness, disease and premature death.

1.5.6 Describe how behaviors, pathogens, genetic history, and other factors are related to **disease prevention**.

*Grades 6–8*

**Health**

1.8.1 Explain the impact of personal health behaviors on the functioning of body systems.

1.8.6 Describe ways to reduce risk factors and increase resiliency related to adolescent health.

**Science: Life: Structure of Life**

- L.8.B *Students understand that living things are composed of cells, which are specialized in multicellular organisms to perform a variety of life functions.*
- L.8.B.5 Students know disease can result from defects in body systems or from damage caused by infection. (Disease)

## People of the Bog

p.89 (MS, HS)

**Summary** – Students construct a classroom bog and a mini-composter to observe the rate of decomposition in anaerobic (little or no oxygen present) and aerobic (oxygen available) environments.

**Objectives** – Students will: describe characteristics of bog environments; explain the conditions of bogs that allow for the preservation of artifacts from the past; and compare the rates of decomposition of articles in aerobic and anaerobic environments.

### *Grades 6–8*

#### **Science: Nature of Science: Inquiry**

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)
- N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)

#### **Science: Life: Organisms and Their Environment**

- L.8.C *Students understand how living and non-living components of an ecosystem interact.*
- L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)

#### **Computer Technology**

- 3.8.2 Generate a list of keywords for a research topic or problem and conduct a search of electronic-based sources.

#### **English Language Arts**

- 5.7.1 Write informative papers that have a structured beginning, middle, and conclusion and draw upon a variety of sources.
- 11.8.2 Locate and select **relevant information** from multiple primary and secondary sources.

### *Grades 9–12*

#### **Science: Nature of Science: Scientific Inquiry ( )**

- N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*
- N.12.A.2 Students know scientists maintain a permanent record of procedures, data, analyses, decisions and understandings of scientific investigations. (Record-keeping)

#### **Science: Life: Organisms and Their Environment**

- L.12.C *Students understand that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependencies among the living and non-living components of the Earth.*
- L.12.C.1 Students know relationships of organisms and their physical environment. (Cycles)

#### **Computer Technology**

- 3.12.2 Generate a list of keywords for a research topic or problem with **qualifying modifiers** and conduct a search of electronic-based sources.

## English Language Arts

- 5.12.1 Write a research paper that develops a **thesis**, contains information selected from at least ten sources, and conforms to a style manual.
- 11.12.2 Evaluate possible sources of information for credibility and usefulness.

## Poison Pump

p.93 (ue, MS)

**Summary** – Through a series of clues, students solve a mystery to discover that water can also produce negative effects for people.

**Objectives** – Students will: apply investigative methods used by epidemiologists to trace the source of contagious disease.

### Grades 6–8

#### History

- 2.5.1 Ask a historical question and identify resources to be used in research.
- 2.8.1 Frame historical questions that examine multiple viewpoints.

#### Health

- 1.5.7 Identify programs designed to promote community health.
- 1.5.8 Explain the relationship of the environment to positive health behaviors and the prevention of injury, illness, disease, and premature death.
- 4.8.2 Evaluate the impact of technology on health and disease prevention.

#### Science: Nature of Science: Inquiry

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)
- N.8.A.2 Students know how to critically evaluate information to distinguish between fact and opinion. (Record-keeping)

#### Science: Nature of Science: Science, Technology and Society

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.2 Students know scientific knowledge is revised through a process incorporating new evidence gained through on-going investigation and collaborative discussion. (Ethical Behavior, Collaboration)

#### Science: Life: Structure of Life

- L.8.B *Students understand that living things are composed of cells, which are specialized in multicellular organisms to perform a variety of life functions.*
- L.8.B.5 Students know disease can result from defects in body systems or from damage caused by infection. (Disease)

## Salt Marsh Players

p.99 (UE)

**Summary** – Students role-play how organisms adapt to life in a salt marsh – coastal, marine habitat that is alternatively flooded and drained by tides.

**Objectives** – Students will: demonstrate how various salt marsh plants and animals adapt to environmental conditions; and recognized various plants and animals that live in salt marshes.

### Grades 3–5

**Science: Life: Structure of Life**

L.5.B *Students understand that living things have specialized structures that perform a variety of life functions.*

L.5.B.1 Students know plants and animals have structures that enable them to grow, reproduce, and survive. (Cells)

L.5.B.2 Students know living things have predictable life cycles. (Cells, Disease)

**Science: Life: Organisms and Their Environment**

L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*

L.5.C.1 Students know the organization of simple food webs. (Cycles)

L.5.C.2 Students know organisms interact with each other and with the non-living parts of their ecosystems. (Ecosystems)

L.5.C.3 Students know changes to an environment can be beneficial or detrimental to different organisms. (Ecosystems)

L.5.C.5 Students know plants and animals have adaptations allowing them to survive in specific ecosystems. (Ecosystems)

**Super Sleuths**

p.107 (MS, HS)

**Summary** – Students learn about the diversity of waterborne illnesses and the role of epidemiology in disease control by searching for others who have been “infected” with the same water-borne illness as they have.

**Objectives** – Students will: identify the role of water in transmitting disease; compare symptoms of several waterborne diseases; and analyze the characteristics of environments that promote the transmission of these diseases around the world.

*Grades 6–8*

**Health**

1.5.8 Explain the relationship of the environment to positive health behaviors and the prevention of injury, illness, disease, and premature death.

1.8.6 Describe ways to reduce risk factors and increase resiliency related to adolescent health.

**Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.2 Students know how to critically evaluate information to distinguish between fact and opinion. (Record-keeping)

N.8.A.3 Students know different explanations can be given for the same evidence. (Accuracy)

**Science: Life: Structure of Life**

L.8.B *Students understand that living things are composed of cells, which are specialized in multicellular organisms to perform a variety of life functions.*

L.8.B.5 Students know disease can result from defects in body systems or from damage caused by infection. (Disease)

*Grades 9-12*

**Science: Life: Structure of Life**

L.12.B *Students understand that all life forms, at all levels of organization, use specialized structure and similar processes to meet life's needs.*

L.12.B.3 Students know disease disrupts the equilibrium that exists in a healthy organism.

(Disease)

## Thirsty Plants

p.116 (MS)

**Summary** – Through demonstration and field studies, students learn about transpiration and the significant role plants play in the water cycle.

**Objectives** – Students will: explain how plants transport water through transpiration; describe the importance of plants in the water cycle; and recognize that certain plants are appropriate for xeriscaping.

*Grades 6–8*

**Mathematics: Content: Data Analysis**

5.6.6 Analyze various representations of a set of data to draw conclusions and make predictions. Describe the limitations of various graphical representations. (Statistical Inferences)

**Mathematics: Process: Mathematical Reasoning**

Recognize and apply deductive and inductive reasoning.

**Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

**Science: Life: Structure of Life**

L.8.B *Students understand that living things are composed of cells, which are specialized in multicellular organisms to perform a variety of life functions.*

L.8.B.4 Students know cells combine to form tissues that combine to form organs and organ systems that are specialized to perform life functions. (Cells)

## Water Address

p.122 (le, UE, MS, hs)

**Summary** – Students identify plants and animals and their habitats by analyzing clues that describe water-related adaptations of aquatic and terrestrial organisms.

**Objectives** – Students will: recognize water-related adaptations of some plants and animals.

*Grades 3–5*

**Science: Life: Structure of Life**

L.5.B *Students understand that living things have specialized structures that perform a variety of life functions.*

L.5.B.1 Students know plants and animals have structures that enable them to grow, reproduce, and survive. (Cells)

**Science: Life: Organisms and Their Environment**

L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*

L.5.C.5 Students know plants and animals have adaptations allowing them to survive in specific ecosystems. (Ecosystems)

**Geography**

3.4.1 Recognize that plants and animals have habitats on both land and in water.

3.4.3 Generate examples of various ecosystems found in the U.S.

3.3.4 Locate various ecosystems on earth.

*Grades 6–8*

**Science: Life: Organisms and Their Environment**

L.8.C *Students understand how living and non-living components of an ecosystem interact.*

L.8.C.2 Students know how to characterize organisms in any ecosystem by their function.  
(Ecosystems)

**Geography**

3.6.3 Describe characteristics of a specific ecosystem.

3.8.3 Describe the interdependence among soil, climate, plant life, and animal life within ecosystems.

3.6.4 Describe the biodiversity of various ecosystems on earth.

**Concept 3: Water connects all Earth systems:** Water is an integral part of Earth's structures and plays a unique role in the atmosphere, on the surface and underground. The water cycle is central to life on Earth and connects Earth systems.

## Branching Out

p.129 (Ie, MS)

**Summary** – Students build a model landscape to investigate how water flows through and connects watersheds.

**Objectives** – Students will: predict where water will flow in watersheds; and describe drainage patterns in watersheds.

*Grades 6–8*

### Science

No specific science standards are identified at this grand band, however, a number are available in the Grades 3–5 band.

### Mathematics: Content: Data Analysis

5.6.5 Find experimental probability using concrete materials. Represent the results of simple probability experiments as fractions, decimals, percents and ratios to make predictions about future events. (Experimental and Theoretical Probability)

### Mathematics: Process: Mathematical Reasoning

Recognize and apply deductive and inductive reasoning.

## Capture, Store, and Release

p.133 (UE)

**Summary** – Students use a household sponge to simulate how wetlands capture, store, and release water.

**Objectives** – Students will: recognize that ground water, surface water, and precipitation can contribute water to wetlands; and describe how wetlands capture, store, and release water.

*Grades 3–5*

### Science: Nature of Science: Inquiry

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

### Science: Earth and Space: Atmospheric Processes and the Water Cycle

E.5.A *Student understand the water cycle's relationships to weather.*

E.5.A.2 Students know the processes of the water cycle, including the role of the Sun. (Sun's Energy)

### Geography

3.3.1 Diagram and explain the water cycle.

3.5.5 Investigate an ecosystem by asking and answering geographic questions.

**Get the Groundwater Picture**

p.136 (MS, HS)

**Summary** – Students will “get the ground water picture” and learn about basic ground water principles as they create their own geologic cross section or earth window.

**Objectives** – Students will: identify the parts of a ground water system; compare movement of water through diverse substrates; and related different types of land uses to potential ground water contamination.

*Grades 6-8***Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)

**Science: Earth and Space: Earth’s Composition and Structure**

E.8.C *Students understand that landforms result from a combination of constructive and destructive processes.*

E.8.C.8 Students know soils have properties, such as color, texture, and water retention, and provide nutrients for life according to how they form. (Earth’s Composition and Resources)

*Grades 9-12***Science: Nature of Science: Scientific Inquiry**

N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*

N.12.A.1 Students know tables, charts, illustrations and graphs can be used in making arguments and claims in oral and written presentations. (Using Data)

**Science: Earth and Space: Earth’s Composition and Structure**

E.12.C *Students understand evidence for processes that take place on a geologic time scale.*

E.12.C.5 Student know soil, derived from watered rocks and decomposed organic material, is found in layers. (Earth’s Composition and Resources)

**Geyser Guts**

p.144 (UE, MS)

**Summary** – Students observe a mini-erupting geyser and interpret and diagram how a geyser works.

**Objective** – Students will: list the conditions necessary for a geyser; and compare and contrast a geyser, hot spring, fumarole, and a mud pot.

*Grades 3–5***Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

**Science: Physical: Matter**

P.5.A *Students understand properties of objects and materials.*

P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

## Science: Earth and Space: Atmospheric Processes and the Water Cycle

E.5.A *Student understand the water cycle's relationships to weather.*

E.5.A.2 Students know the processes of the water cycle, including the role of the Sun. (Sun's Energy)

### Grades 6–8

#### Science: Physical: Matter

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

#### Science: Earth and Space: Earth's Composition and Structure

E.8.C *Students understand that landforms result from a combination of constructive and destructive processes.*

E.8.C.3 Students know Earth is composed of a crust (both continental and oceanic); hot convecting mantle; and a dense metallic core. (Geologic Processes)

## The Great Stony Book

p.150 (MS)

**Summary** – Students create layers of buried fossils to learn how ancient, elevated ocean floors create a history book of stone.

**Objectives** – Students will: demonstrate water's involvement in the process of sedimentation and erosion; and recognize that layers of sedimentary rock can contain a record of earlier life (fossils) and environments.

### Grades 6–8

#### Science: Earth and Space: Earth's Composition and Structure

E.8.C *Students understand that landforms result from a combination of constructive and destructive processes.*

E.8.C.1 Students know sedimentary rocks and fossils provide evidence for changing environments and the constancy of geologic processes. (Geologic Processes)

E.8.C.2 Students know that rocks at Earth's surface weather, forming sediments that are buried, then compacted, heated and often recrystallized into new rock. (Geologic Processes)

## A House of Seasons

p.155 (LE)

**Summary** – By constructing a “House of Seasons” collage, students observe the role of water in each of the seasons.

**Objectives** – Students will: recognize the presence of water within each season.

### Grades K–2

#### English Language Arts

4.K.1 Demonstrate an understanding that texts, pictures, and graphs provide information.

4.1.3 Use text, pictures, and graphs to answer questions.

5.K.1 Respond to information by drawing or writing with teacher assistance.

9.K.3 Share and respond to ideas.

9.1.3 Present ideas and ask questions in small and large groups.

#### Science: Earth and Space: Atmospheric Processes and the Water Cycle

- E.2.A *Students understand that changes in weather often involve water changing from one state to another.*
- E.2.A.2 Students know water on Earth can be liquid (rain) or a solid (snow and ice), and can go back and forth from one form to another. (Sun's Energy, Weather)
- E.2.A.3 Students know weather changes from day to day and seasonally. (Weather)

## Imagine!

p.157 (UE, MS)

**Summary** – Students take an imaginary journey with water in its solid, liquid and gaseous state as it travels around the world.

**Objectives** – Students will: identify changes in states of water that enable water to move through the water cycle; and describe the water cycle.

### *Grades 3–5*

#### **English Language Arts**

- 8.3.1 Retell and explain what has been said by a speaker.
- 8.6.1 Identify the tone, mood, and emotion conveyed in both verbal and non-verbal communication.

#### **Science: Physical: Matter**

- P.5.A *Students understand properties of objects and materials.*
- P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)
- P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

#### **Science: Earth and Space: Atmospheric Processes and the Water Cycle**

- E.5.A *Student understand the water cycle's relationships to weather.*
- E.5.A.2 Students know the processes of the water cycle, including the role of the Sun. (Sun's Energy)
- E.5.A.4 Students know the role of water in many phenomena related to weather (e.g., thunderstorms, snowstorms, flooding and drought). (Weather)
- E.5.A.5 Students know air is a substance that surrounds us, takes up space, and moves around us as wind. (Weather)

### *Grades 6–8*

#### **Science: Earth & Space: Atmospheric Processes and the Water Cycle**

- E.8.A *Students understand the relationship between the Earth's atmosphere, topography, weather and climate.*
- E.8.A.3 Students know the properties that make water an essential component of the earth system. (Sun's Energy)

## The Incredible Journey

p.161 (UE, MS)

**Summary** – With a roll of the die, students simulate the movement of water with the water cycle.

**Objectives** – Students will: describe the movements of water within the water cycle; and identify the states of water as it moves through the water cycle.

### *Grades 3–5*

## English Language Arts

5.4.3 Write a narrative or story that moves through a logical sequence of events and includes details to develop the plot, characters, and setting.

## Science: Nature of Science: Inquiry

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

## Science: Physical: Matter

P.5.A *Students understand properties of objects and materials.*

P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)

P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

## Science: Earth and Space: Atmospheric Processes and the Water Cycle

E.5.A *Student understand the water cycle's relationships to weather.*

E.5.A.2 Students know the processes of the water cycle, including the role of the Sun. (Sun's Energy)

E.5.A.4 Students know the role of water in many phenomena related to weather (e.g., thunderstorms, snowstorms, flooding and drought). (Weather)

## Grades 6–8

### English Language Arts

5.8.1 Write informative papers that develop a topic with introductory and concluding statements and supporting ideas, examples, and details from a variety of sources.

### Science: Physical: Matter

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

### Science: Earth & Space: Atmospheric Processes and the Water Cycle

E.8.A *Students understand the relationship between the Earth's atmosphere, topography, weather and climate.*

E.8.A.5 Students know the difference between local weather and regional climate. (Weather)

## Just Passing Through

p.166 (UE, MS)

**Summary** – In a whole-body activity, students investigate how vegetation affects the movement of water over land surfaces.

**Objectives** – Students will: compare the rate at which water flows down slopes with and without plant cover; and identify Best Management Practices that can be used to reduce erosion.

## Grades 3–5

### Science: Life: Organisms and Their Environment

L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*

L.5.C.2 Students know organisms interact with each other and with the non-living parts of their

ecosystems. (Ecosystems)

**Science: Earth and Space: Atmospheric Processes and the Water Cycle**

E.5.A *Students understand the water cycle's relationships to weather.*

E.5.A.4 Students know the role of water in many phenomena related to weather (e.g., thunderstorms, snowstorms, flooding and drought). (Weather)

*Grades 6–8*

**Science: Life: Organisms and Their Environment**

L.8.C *Students understand how living and non-living components of an ecosystem interact.*

L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)

**Old Water**

p.171 (UE, MS)

**Summary** – Students construct a time line to illustrate and interpret water's history.

**Objectives** – Students will: appreciate the age of water; and compare the proportion of time that water and life processes have existed on Earth.

*Grades 3–5*

**History**

1.3.2 Read a time line.

1.5.2 Record events on a **graphic organizer**, such as a calendar or **time line**.

*Grades 6–8*

**History**

1.8.2 Create a tiered time line.

**Piece It Together**

p.174 (UE, MS)

**Summary** – Students analyze and plot global temperature and precipitation distributions to determine climate patterns and how they influence human lifestyles.

**Objectives** – Students will: locate global climates based on their interpretation of data (annual temperature and precipitation); provide reasons for the locations of climates; and identify how humans adjust to a diversity of climates.

*Grades 3–5*

**Science: Earth and Space: Atmospheric Processes and the Water Cycle**

E.5.A *Students understand the water cycle's relationships to weather.*

E.5.A.1 Students know the Sun is the main source of energy for planet Earth. (Sun's Energy)

**Geography**

1.3.6 Identify and explain spatial patterns on a map.

1.5.1 Use maps and map features, including directional orientation, map symbols, and **grid** system, to identify and locate major geographic features in Nevada, the U.S., and the world.

2.4.7 Recognize differences between physical and cultural regions.

3.4.4 Explain the location and distribution of a specific ecosystem throughout the world.

4.4.1 Define basic demographic terms (e.g. dense, sparse).

4.4.2 List reasons why people move to or from a particular place.

- 4.4.6 Identify and discuss how economic issues are affected by geography.
- 5.3.2 Identify opportunities that different physical environments provide for human activities.
- 5.5.2 Discuss the constraints physical environments place on human activities.

### Grades 6–8

#### Science: Earth & Space: Atmospheric Processes and the Water Cycle

- E.8.A *Students understand the relationship between the Earth’s atmosphere, topography, weather and climate.*
  - E.8.A.1 Students know seasons are caused by variations in the amounts of the Sun’s energy reaching the surface due to Earth’s axial tilt. (Sun’s Energy)
  - E.8.A.2 Students know how the processes involved in the water cycle affect climatic patterns. (Sun’s Energy)
  - E.8.A.3 Students know the properties that make water an essential component of the earth system. (Sun’s Energy)
  - E.8.A.4 Students understand the composition of Earth’s atmosphere, emphasizing the role of climate in Earth’s weather and climate. (Weather)
  - E.8.A.5 Students know the difference between local weather and regional climate. (Weather)

#### Geography

- 1.6.1 Identify and locate Earth’s major parallels and meridians
- 1.8.1 Use map elements including scale, latitude and longitude, and projection, to identify and locate physical and human features in Nevada, the U.S., and regions of the world.
- 2.8.2 Relate how places and regions are important to the expression of cultural identity.
- 4.8.5 Describe the factors that influence the location and distribution of economic activities.
- 5.8.2 Compare and contrast the opportunities and constraints that the physical environment places on human activity.

## Poetic Precipitation

p.182 (Ie, UE, MS)

**Summary** – While learning about the conditions that produce condensation, students create poems that express thoughts and feelings about the rain, snow or other forms of precipitation.

**Objectives** – Students will: describe how clouds are formed; and recognize that thoughts and feelings are influenced by weather conditions.

### Grades 3–5

#### English Language Arts

- 3.5.5 Locate and interpret figurative language, including **simile**, metaphor, and **personification** in text.
- 4.4.5 Identify authors’ purposes for writing.
- 5.3.4 Write responses to literature, drawing upon experiences.
- 9.3.4 Read aloud and recite prose and poetry with fluency, rhythm, pace, appropriate intonation, and vocal patterns.

#### Science: Physical: Matter

- P.5.A *Students understand properties of objects and materials.*
  - P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)
  - P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

#### Science: Earth and Space: Atmospheric Processes and the Water Cycle

- E.5.A *Students understand the water cycle's relationships to weather.*
- E.5.A.5 Students know air is a substance that surrounds us, takes up space, and moves around us as wind. (Weather)

### Grades 6–8

#### English Language Arts

- 1.6.5 Identify differences between literal and figurative language in text.
- 3.6.6 Describe how an author creates mood by choosing words with specific **connotations**.
- 3.7.5 Interpret examples of imagery and explain their sensory impact.
- 6.6.7 Share final drafts with a designated audience.
- 6.8.6 Produce writing with a voice that is expressive and appropriate to audience and purpose.
- 9.8.4 Read aloud or recite literary, dramatic, and original works.

#### Science: Physical: Matter

- P.8.A *Students understand the properties and changes in the properties of matter.*
- P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

#### Science: Earth & Space: Atmospheric Processes and the Water Cycle

- E.8.A *Students understand the relationship between the Earth's atmosphere, topography, weather and climate.*
- E.8.A.3 Students know the properties that make water an essential component of the earth system. (Sun's Energy)
- E.8.A.4 Students understand the composition of Earth's atmosphere, emphasizing the role of climate in Earth's weather and climate. (Weather)

## Rainy Day Hike

p.186 (Ie, UE, MS)

**Summary** – Students are introduced to the concept of watersheds by collecting data about water flowing over the school grounds.

**Objectives** – Students will: identify the watershed in which their school is located; and explain the role the schoolyard plays in the watershed.

### Grades 3–5

#### Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)
- N.5.A.4 Students know graphic representations of recorded data can be used to make predictions. (Accuracy)
- N.5.A.7 Students know observable patterns can be used to organize items and ideas. (Models)

#### Science: Earth and Space: Atmospheric Processes and the Water Cycle

- E.5.A *Students understand the water cycle's relationships to weather.*
- E.5.A.4 Students know the role of water in many phenomena related to weather (e.g., thunderstorms, snowstorms, flooding and drought). (Weather)

#### Geography

- 1.3.1 Identify and use the **cardinal directions** (N,S,E,W) on a **compass rose** to locate places on a map.
- 1.3.4 Construct a simple map, including title, symbols, and directions.

- 1.5.4 Construct maps and charts to display information about human and physical features.
- 1.5.6 Answer **spatial** questions using basic geographic vocabulary.
- 5.5.4 Explain how human modification of the physical environment in one place can lead to changes in other places.

### Grades 6–8

#### Science: Nature of Science: Inquiry

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)
- N.8.A.7 Students know there are multiple methods for organizing items and information. (Models)

#### Science: Earth & Space: Atmospheric Processes and the Water Cycle

- E.8.A *Students understand the relationship between the Earth’s atmosphere, topography, weather and climate.*
- E.8.A.5 Students know the difference between local weather and regional climate. (Weather)

#### Geography

- 1.7.4 Use data and a variety of symbols and colors to create a thematic map (e.g. population, rain fall).
- 1.6.6 Use a map of the community to discuss a local geographic issue (e.g. location of school, park, and highway).
- 2.6.6 Describe the impact that change in your community or state have had on its environment or population.
- 5.7.4 Identify patterns in the physical environment caused by human activity.

#### Mathematics: Content: Spatial Relationships, Geometry, and Logic

- 4.6.5 Model slope (pitch, angle of inclination) using concrete objects and practical examples. (Algebraic Connections)

## Stream Sense

p.191 (LE, UE, ms)

**Summary** – Students use their senses to observe a stream, learning there is more to flowing water than meets the eye.

**Objectives** – Students will: recognize how their senses provide them with details about stream ecosystems.

### Grades K–2

#### Science: Nature of Science: Inquiry

- N.2.A *Students understand that science is an active process of systematically examining the natural world.*
- N.2.A.1 Students know how to make observations and give descriptions using words, numbers and drawings. (Using Data, Record-keeping, Accuracy)

### Grades 3–5

#### English Language Arts

- 11.3.4 Organize and record information from print and non-print resources.
- 11.4.4 Organize and record information using note-taking from print and non-print resources.
- 11.5.4 Record information using given note-taking and organizational formats.

**Science: Nature of Science: Inquiry**

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)
- N.5.A.7 Students know observable patterns can be used to organize items and ideas. (Models)

**The Thunderstorm**

p.196 (LE, UE, ms, hs)

Summary – Students simulate the sound of a thunderstorm through an aerobics activity and generate precipitation maps through a mock monitoring network.

Objectives – Students will: work cooperatively to mimic the sounds of a thunderstorm; become more aware of the various sounds of a thunderstorm; and monitor and record “precipitation.”

*Grades K–2*

**English Language Arts**

- 8.1.4 Follow simple oral directions to complete a task.
- 10.K.3 Share ideas and information.

**Science: Nature of Science: Inquiry**

- N.2.A *Students understand that science is an active process of systematically examining the natural world.*
- N.2.A.1 Students know how to make observations and give descriptions using words, numbers and drawings. (Using Data, Record-keeping, Accuracy)
- N.2.A.3 Students know observable patterns can be used to predict events or sort items. (Models)

**Science: Physical: Energy**

- P.2.C *Students know heat, light, and sound can be produced.*
- P.2.C.1 Students know sound is produced by vibrating objects. (Waves)

**Science: Earth and Space: Atmospheric Processes and the Water Cycle**

- E.2.A *Students understand that changes in weather often involve water changing from one state to another.*
- E.2.A.3 Students know weather changes from day to day and seasonally. (Weather)
- E.2.A.4 Students know weather can be described by measurable quantities such as temperature, wind direction and speed, and precipitation. (Weather)

**Mathematics: Content: Measurement**

- 3.2.2 Compare objects to standard whole units to find objects that are greater than, less than, and/or equal to a given unit. (Precision in Measurements)

*Grades 3–5*

**English Language Arts**

- 8.4.4 Follow oral directions to complete a complex task.
- 10.4.3 Share ideas, opinions, and information clearly and effectively.

**Science: Nature of Science: Inquiry**

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)
- N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

N.5.A.7 Students know observable patterns can be used to organize items and ideas. (Models)

**Science:** Earth and Space: Atmospheric Processes and the Water Cycle

E.5.A *Students understand the water cycle's relationships to weather.*

E.5.A.4 Students know the role of water in many phenomena related to weather (e.g., thunderstorms, snowstorms, flooding and drought). (Weather)

**Mathematics:** Content: Measurement

3.3.2 Select and use appropriate units of measurement; measure to a required degree of accuracy, and record results. (Precision in Measurements)

**Mathematics:** Content: Data Analysis

5.4.1 Pose questions that can be used to guide the collection of categorical and numerical data. Organize and represent data using a variety of graphical representations including frequency tables and line plots. (Data Collection and Organization)

5.5.1 Pose questions that can be used to guide the collection of categorical and numerical data. Organize and represent data using a variety of graphical representations including stem and leaf plots and histograms. (Data Collection and Organization)

## Water Models

p.201 (UE, MS)

**Summary** – Students construct models of the water cycle to illustrate its major components and processes, and adapt the models to show how they think water would cycle in various ecosystems.

**Objectives** – Students will: recognize the roles of condensation and evaporation in the water cycle; and relate the water cycle to different climates and ecosystems around the world.

### Grades 3–5

**Science:** Nature of Science: Inquiry

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)

N.5.A.5 Students know how to plan and conduct a safe experiment. (Safe Experimentation)

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

**Science:** Physical: Matter

P.5.A *Students understand properties of objects and materials.*

P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)

P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

P.5.A.5 Students know the mass of a material remains constant whether it is together, in parts, or in a different state. (Mixtures and Compounds)

**Science:** Earth and Space: Atmospheric Processes and the Water Cycle

E.5.A *Students understand the water cycle's relationships to weather.*

E.5.A.1 Students know the Sun is the main source of energy for planet Earth. (Sun's Energy)

E.5.A.2 Students know the processes of the water cycle, including the role of the Sun. (Sun's Energy)

### Grades 6-8

**Science:** Nature of Science: Inquiry

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)

N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)

### **Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.1 Students know particles are arranged differently in solids, liquids, and gases of the same substance. (Properties of Matter)

## **Wet Vacation**

p.206 (MS, HS)

**Summary** – After plotting annual precipitation and average temperatures, and researching climatic conditions of places around the country, students design attractive travel brochures.

**Objectives** – Students will: identify factors that affect temperature and precipitation patterns; and analyze how weather conditions influence tourism.

### *Grades 6–8*

#### **Visual Arts**

3.8.2 Plan and produce works of art that use a range of subject matter, symbols, and ideas from varied times and places to communicate meaning.

5.8.2 Differentiate among degrees of merit in various works of art.

#### **English Language Arts**

5.8.6 Write persuasive editorials or essays that state a thesis and arrange supporting details, reasons, and examples, effectively anticipating and answering reader concerns and counter-arguments.

6.8.6 Produce writing with a voice that is expressive and appropriate to audience and purpose.

11.8.1 Formulate questions and develop a clear statement of purpose that lead to inquiry, investigation, and research of cross-curricular topics.

#### **Science: Earth & Space: Atmospheric Processes and the Water Cycle**

E.8.A *Students understand the relationship between the Earth’s atmosphere, topography, weather and climate.*

E.8.A.2 Students know how the processes involved in the water cycle affect climatic patterns. (Sun’s Energy)

E.8.A.3 Students know the properties that make water an essential component of the earth system. (Sun’s Energy)

E.8.A.5 Students know the difference between local weather and regional climate. (Weather)

#### **Geography**

1.8.1 Use map elements including scale, **latitude** and **longitude**, and projection, to identify and locate physical and human features in Nevada, the U.S., and regions of the world.

3.8.4 Compare and contrast the biodiversity and productivity of various ecosystems on Earth.

5.8.2 Compare and contrast the opportunities and constraints that the physical environment places on human activity.

### *Grades 9–12*

#### **Visual Arts**

3.12.2 Plan and produce a work of art that displays the ability to choose subject matter, symbols,

and ideas to communicate intended meaning.

5.12.2 Establish **criteria** and use them to assess merits of artwork.

### English Language Arts

5.12.6 Write persuasive texts that evaluate, interpret, or speculate using specific rhetorical devices to support assertions; clarify and defend positions with precise and relevant evidence.

11.12.1 Formulate cross-curricular research questions and use an appropriate research design to gather information.

### Geography

1.12.1 Use a variety of complex maps to acquire geographic information (e.g. topographic, population, and land use).

3.12.4 Analyze the biodiversity, distribution, and productivity of ecosystems across Earth's surface.

5.12.1 Compare and contrast how changes in the physical environment can increase or diminish its capacity to support human activity.

## Wetland Soils in Living Color

p.212 (ue, **MS**, hs)

**Summary** – Students learn about the properties of wetland soils and classify soil types using a simple color key.

**Objectives** – Students will: classify soils according to color to confirm that an area is a wetland; and describe conditions that create the color characteristics of wetland soils.

### Grades 6–8

#### Science: Nature of Science: Inquiry

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)

N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)

N.8.A.7 Students know there are multiple methods for organizing items and information. (Models)

#### Science: Earth and Space: Earth's Composition and Structure

E.8.C *Students understand that landforms result from a combination of constructive and destructive processes.*

E.8.C.8 Students know soils have properties, such as color, texture, and water retention, and provide nutrients for life according to how they form. (Earth's Composition and Resources)

Concept 4: Water is a natural resource: All living things use water. The available freshwater supply on Earth is limited and must sustain multiple users. Multiple uses of water can lead to water resource issues.

## A-maze-ing Water

p.219 (LE, UE, MS)

**Summary** – Students guide a drop of water through a maze of “drainage pipes” to learn how actions in the home and yard affect water quality.

**Objectives** – Students will: describe urban forms of pollution; provide reasons why people should monitor what they put on their lawns or in streams; and identify ways to treat urban runoff.

### *Grades 3–5*

#### **Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

#### **Science: Nature of Science: Science, Technology and Society**

N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*

N.5.B.2 Students know technologies impact society, both positively and negatively. (Ethical Behavior)

### *Grades 6–8*

#### **Science: Nature of Science: Science, Technology and Society**

N.8.B *Students understand the interactions of science and society in an ever-changing world.*

N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

#### **English Language Arts**

5.7.2 Convert text into visual formats, such as charts and graphs for a specific audience and purpose.

5.8.6 Write persuasive editorials or essays that state a thesis and arrange supporting details, reasons, and examples, effectively anticipating and answering reader concerns and counter-arguments.

## Color Me a Watershed

p.223 (HS)

**Summary** – Through interpretation of maps, students observe how development can affect a watershed.

**Objectives** – Students will: recognize that population growth and settlement causes changes in land use; and analyze how land use variations in a watershed can affect the runoff of water.

## Grades 9–12

### Mathematics: Content: Measurement

- 3.12.5 Determine the measure of unknown dimensions, angles, areas, and volumes using relationships and formulas to solve problems. (Ratios and Proportions)

### Mathematics: Process: Problem Solving

Apply combinations of proven strategies and previous knowledge to solve non-routine problems.

### Science: Nature of Science: Scientific Inquiry

- N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*
- N.12.A.5 Students know models and modeling can be used to identify and predict cause-effect relationships. (Models)

### Science: Nature of Science: Science, Technology and Society

- N.12.B *Students understand the impacts of science and technology in terms of costs and benefits to society.*
- N.12.B.2 Student know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts. (Ethical Behavior)

### Science: Life: Organisms and Their Environment

- L.12.C *Students understand that ecosystems display patterns of organization, change, and stability as a result of the interactions and interdependencies among the living and non-living components of the Earth.*
- L.12.C.1 Students know relationships of organisms and their physical environment. (Cycles)

### Geography

- 1.12.3 Use appropriate geographic tools and technologies to analyze and interpret Earth's physical and human systems.
- 2.12.5 Analyze selected historical issues and questions using the geographic concept of regions.
- 2.12.6 Analyze why places and regions once characterized by one set of criteria may be defined by a different set of criteria today, and evaluate these changes.
- 3.12.3 Analyze the effects of physical and human forces on interdependence within ecosystems.
- 5.12.2 Evaluate strategies to respond to constraints placed on human systems by the physical environment.
- 5.12.3 Describe the ways in which technology has affected the human capacity to modify the physical environment and evaluate the possible regional or global impact.

## Common Water

p.232 (le, ue, MS)

**Summary** – Students analyze the results of a simulation to understand that water is a shared resource and is managed.

**Objectives** – Students will: illustrate how multiple users of water resource can affect water quality and quantity; and examine the complexities of providing water for all water users.

## Grades 6–8

### Science: Nature of Science: Science, Technology and Society

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

## History

- 7.8.5 Describe the western frontier, including: communication, pony express, telegraph, farming and water issues, mining, ranching, transportation.

## Geography

- 2.6.6 Describe the impact that changes in your community or state have had on its environment or population.
- 5.7.2 Explain a specific constraint on a physical environment that impacts human activity.

## A Drop in the Bucket

p.238 (Ie, MS)

**Summary** – By estimating and calculating the percent of available fresh water on Earth, students understand that this resource is limited and must be concerned.

**Objectives** – Students will: calculate the percentage of fresh water available for human use; and explain why water is a limited resource.

*Grades 6–8*

**Mathematics: Content: Patterns, Functions, and Algebra**

- 2.7.1 Use and create tables, charts, and graphs to extend a pattern in order to describe a linear rule, including integer values.

**Mathematics: Content: Measurement**

- 3.7.5 Write and apply proportions to solve mathematical and practical problems involving measurement and monetary conversions. (Ratios and Proportions)

## Geography

- 5.7.2 Explain a specific constraint on a physical environment that impacts human activity.

## Energetic Water

p.242 (Ie, UE, MS)

**Summary** – Students invent devices or create activities that demonstrate how moving water can accomplish work.

**Objectives** – Students will: identify the forms of energy in water; and demonstrate how water can be used to do work.

*Grades 3–5*

**Science: Nature of Science: Inquiry**

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

- N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

**Science: Nature of Science: Science, Technology and Society**

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*

- N.5.B.3 Students know the benefits of working with a team and sharing findings. (Ethical Behavior, Collaboration)

**Science: Physical: Energy**

- P.5.C *Students understand that energy exists in different forms.*

- P.5.C.3 Students know heat is often produced as a byproduct when one form of energy is converted to another form (e.g., when machines and living organisms convert stored

energy to motion). (Forms and Uses of Energy)

## History

1.3.2 Read a time line.

### Grades 6–8

#### Science: Nature of Science: Science, Technology and Society

N.8.B *Students understand the interactions of science and society in an ever-changing world.*

N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

#### Science: Physical: Energy

P.8.C *Students understand transfer of energy.*

P.8.C.3 Students know physical, chemical, and nuclear changes involve a transfer of energy. (Forms and Uses of Energy)

## Great Water Journeys

p.246 (MS, HS)

**Summary** – Using a global map and a set of clue cards, students locate some significant water journeys.

**Objectives** – Students will: locate a few of the diverse pathways water travels around the globe; and describe how water provides an important mode of transportation for plant and animals.

### Grades 6–8

#### History

5.8.7 Describe motivations for Scandinavian and European explorations, including: all-water routes to Asia.

6.8.17 Describe **Manifest Destiny** and the expansion of the United States, including: Lewis and Clark and the Louisiana Purchase.

#### Geography

6.7.1 Identify and discuss strategic geographic locations which have played a **pivotal** role in historic events.

### Grades 9–12

#### History

6.12.17 Explain the issue of **Manifest Destiny** and the events related to the expansion of the United States, including: Louisiana Purchase.

#### Geography

2.12.5 Analyze selected historical issues and questions using the geographic concept of regions.

6.12.1 Analyze the ways in which physical features and human characteristics of places and regions have influenced the evolution of significant historical events.

## Irrigation Interpretation

p.254 (Ie, UE, MS)

**Summary** – By conducting simulations, building models, and solving a mini-mystery, student compare the economic and ecological costs of different irrigation systems.

**Objectives** – Students will: identify reasons people irrigate; construct a classroom irrigation system and monitor crop growth; describe different irrigation methods and evaluate the costs and benefits of each; and propose explanations for an ancient culture abandoning its homeland.

### *Grades 3–5*

#### **Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

#### **Science: Life: Structure of Life**

L.5.B *Students understand that living things have specialized structures that perform a variety of life functions.*

L.5.B.1 Students know plants and animals have structures that enable them to grow, reproduce, and survive. (Cells)

#### **Science: Life: Organisms and Their Environment**

L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*

L.5.C.2 Students know organisms interact with each other and with the non-living parts of their ecosystems. (Ecosystems)

L.5.C.4 Students know all organisms, including humans, can cause changes in their environments. (Ecosystems)

#### **Geography**

2.5.4 Identify the effects of the use of technology in the community.

5.3.1 Identify ways people depend on their physical environments.

5.3.4 Compare different ways in which people alter the physical environment.

5.4.7 List examples of how people use and manage natural resources within the state.

5.5.2 Discuss the constraints physical environments place on human activities.

5.5.3 Give examples of how the physical environment has been changed by technology.

### *Grades 6–8*

#### **Science: Life: Organisms and Their Environment**

L.8.C *Students understand how living and non-living components of an ecosystem interact.*

L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)

#### **Geography**

2.8.4 Describe ways in which technology affects how cultural groups use places and regions.

3.8.3 Describe the interdependence among soil, climate, plant life, and animal life within ecosystems.

4.7.5 Explain how the physical and human geography of regions influences their economic activities.

5.8.3 Explain the role of technology in the human modification of the physical environment.

5.8.4 Describe the patterns of change caused by human modification of the physical environments.

6.6.1 Identify **resources** that have played a role in historical events or movements.

## The Long Haul

p.260 (Ie, UE, MS, HS)

**Summary** – Students work in teams to compete in a water-hauling game.

**Objectives** – Students will: develop an awareness of various volumes of water; appreciate today’s readily available water supplies; and relate how easy access to water can encourage people to use large amounts of water.

### Grades 3–5

#### Mathematics: Content: Numbers, Number Sense, and Computation

1.5.8 Generate and solve addition, subtraction, multiplication, and division problems using whole numbers and decimals in practical situations.

#### Mathematics: Content: Measurement

3.5.1 Estimate and convert units of measure for weight and volume/capacity within the same measurement system (customary and metric). (Comparison, Estimation, and Conversion)

3.5.2 Measure volume and weight to a required degree of accuracy in the customary and metric systems. (Precision in Measurements)

#### Mathematics: Process: Mathematical Connections

Identify, explain, and use mathematics in everyday life.

## Nature Rules!

p.262 (MS, HS)

**Summary** – Students use visual evidence of water-related natural disasters to inspire newspaper reports.

**Objectives** – Students will: compose news stories; describe ways in which “Nature Rules!”; and critique newspaper reports generated by their peers.

### Grades 6–8

#### English Language Arts

5.8.1 Write informative papers that develop a topic with introductory and concluding statements and supporting ideas, examples, and details from a variety of sources.

6.7.3 Write compositions that focus on a main topic supported by relevant examples, anecdotes, and/or details.

6.8.4 Revise writing, using given criteria, such as rubrics or feedback from others, to improve word choice, organization, and point of view.

#### Science: Life: Organisms and Their Environment

L.8.C *Students understand how living and non-living components of an ecosystem interact.*

L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)

#### Science: Earth & Space: Atmospheric Processes and the Water Cycle

E.8.A *Students understand the relationship between the Earth’s atmosphere, topography, weather and climate.*

E.8.A.5 Students know the difference between local weather and regional climate. (Weather)

#### Geography

2.8.4 Describe ways in which technology affects how cultural groups use places and regions.

3.7.2 Give an example of a place that has been altered by a natural hazard.

3.8.2 Explain how natural hazards alter Earth’s environments.

### Grades 9–12

## English Language Arts

- 6.12.3 Write compositions that present complex ideas in a sustained and compelling manner.  
6.12.4 Revise writing to improve word choice, organization, and point of view, using given criteria such as rubrics or feedback from others.

## Geography

- 2.12.4 Determine how technology affects the way cultural groups perceive and use places and regions.  
3.12.2 Describe the causes and consequences of natural hazards that shape features and patterns on the Earth.

## Sum of the Parts

p.267 (UE, MS)

**Summary** – Students demonstrate how everyone contributes to the pollution of river as it flows through a watershed and recognize that everyone’s “contribution” can be reduced.

**Objectives** – Students will: distinguish between point and nonpoint source pollution; recognize that everyone contributes to and is responsible for a river or lake’s water quality; and identify Best Management Practices to reduce pollution.

### Grades 3–5

#### Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*  
N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

#### Science: Nature of Science: Science, Technology and Society

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*  
N.5.B.2 Students know technologies impact society, both positively and negatively. (Ethical Behavior)

#### Science: Life: Organisms and Their Environment

- L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact within their ecosystems.*  
L.5.C.2 Students know organisms interact with each other and with the non-living parts of their ecosystems. (Ecosystems)  
L.5.C.3 Students know changes to an environment can be beneficial or detrimental to different organisms. (Ecosystems)  
L.5.C.4 Students know all organisms, including humans, can cause changes in their environments. (Ecosystems)

### Grades 6–8

#### Science: Nature of Science: Science, Technology and Society

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*  
N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

#### Science: Life: Organisms and Their Environment

- L.8.C *Students understand how living and non-living components of an ecosystem interact.*

- L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful.  
(Ecosystems)

## Water Meter

p.271 (UE, MS)

**Summary** – Students construct a “Water Meter” to keep track of their water use.

**Objectives** – Students will: become aware of their daily use of water.

### Grades 3–5

#### Mathematics: Content: Numbers, Number Sense, and Computation

- 1.4.6 Estimate to determine the reasonableness of an answer in mathematical and practical situations. (Estimating and Estimation Strategies)

#### Mathematics: Process: Mathematical Connections

Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science.

#### Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)
- N.5.A.4 Students know graphic representations of recorded data can be used to make predictions. (Accuracy)

### Grades 6–8

#### Mathematics: Content: Numbers, Number Sense, and Computation

- 1.8.6 Use estimation strategies to determine the reasonableness of an answer in mathematical and practical situations. (Estimating and Estimation Strategies)

#### Mathematics: Process: Mathematical Connections

Apply mathematical thinking and modeling to solve problems that arise in other disciplines, such as rhythm in music and motion in science.

## Water Works

p.274 (UE, MS)

**Summary** – Student create a “water web” to illustrate the interdependence among water users and producers.

**Objectives** – Students will: distinguish between direct and indirect uses of water; illustrate the interconnectedness of water users in a community; and demonstrate the complexity of resolving water shortages among interdependent community water users.

### Grades 3–5

#### Geography

- 2.5.4 Identify the effects of the use of technology in the community.
- 5.3.1 Identify ways people depend on their physical environments.
- 5.5.2 Discuss the constraints physical environments place on human activities.

### Grades 6–8

#### Geography

- 5.7.1 Investigate changes in the physical environment that could have an impact on humans.
- 5.7.3 Give examples of how an improved technology has accelerated change in the physical environment.
- 5.8.3 Explain the role of technology in the human modification of the physical environment.

## Where Are the Frogs?

p.279 (MS)

**Summary** – Through experimentation and a simulation, students learn how acidic water has endangered the quality of aquatic life in some parts of the country.

**Objectives** – Students will: illustrate the meaning of pH; analyze the effects of acidic water on plant and animal life; and describe how acid rain can affect ecosystems.

*Grades 6–8*

### Language Arts

11.7.2 Locate and use primary and secondary sources to investigate a research question.

### Science: Physical: Matter

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.4 Students know atoms often combine to form molecules, and that compounds form when two or more different kinds of atoms chemically bond. (Mixtures and Compounds)

P.8.A.7 Students know the characteristics of electrons, protons and neutrons. (Atomic Structure)

### Science: Life: Organisms and Their Environment

L.8.C *Students understand how living and non-living components of an ecosystem interact.*

L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)

L.8.C.4 Students know inter-related factors affect the number and type of organisms and ecosystem can support. (Ecosystems)

**Concept 5: Water resources are managed:** Multiple uses of water resources leads to diverse and sometimes conflicts demands, which require water resource management practices. Management decisions involve distribution of water resources and protection of acceptable water quality and quantity.

## AfterMath

p.289 (ue, MS)

**Summary** – By calculating economic loss that results from flooding in a specific area, students investigate how people are affected by floods and other weather events.

**Objectives** – Students will: interpret how economic damage reports present individual and community losses from a natural disaster; differentiate between emotional and economical loss from a natural disaster; and recognize why some natural events are classified as disasters.

### Grades 6–8

#### Mathematics: Content: Numbers, Number Sense, and Computation

1.8.6 Use estimation strategies to determine the reasonableness of an answer in mathematical and practical situations. (Estimating and Estimation Strategies)

#### Geography

5.7.1 Investigate changes in the physical environment that could have an impact on humans.

5.8.4 Describe the patterns of change caused by human modification of the physical environments.

## Back to the Future

p.293 (ue, MS, HS)

**Summary** – Students analyze streamflow monitoring data to determine the safest location for a future community.

**Objectives** – Students will: analyze and interpret streamflow data; and identify the risk and benefits of development in a floodplain.

### Grades 6–8

#### Mathematics: Content: Patterns, Functions, and Algebra

2.6.1 Use and create tables and charts to extend a pattern in order to describe a rule for input/output tables and to find missing terms in a sequence. (Patterns)

#### Mathematics: Content: Data Analysis

5.8.1 Formulate questions and design a study that guides the collection of data. Organize, display, and read data including box and whisker plots (with and without technology). (Data Collection and Organization)

#### Science: Nature of Science: Inquiry

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)

N.8.A.2 Students know how to critically evaluate information to distinguish between fact and opinion. (Record-keeping)

#### Science: Earth & Space: Atmospheric Processes and the Water Cycle

E.8.A *Students understand the relationship between the Earth's atmosphere, topography,*

*weather and climate.*

E.8.A.5 Students know the difference between local weather and regional climate. (Weather)

### Geography

3.6.5 Describe the changes take place in an ecosystem over time (e.g. due to plant succession, fire, pollution).

### Grades 9–12

#### Mathematics: Content: Patterns, Functions, and Algebra

2.12.1 Use algebraic expressions to identify and describe the  $n^{\text{th}}$  term of a sequence. (Patterns)

#### Mathematics: Content: Data Analysis

5.12.1 Organize statistical data through the use of tables, graphs, and matrices (with and without technology). (Data Collection and Organization)

#### Science: Nature of Science: Scientific Inquiry

N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*

N.12.A.1 Students know tables, charts, illustrations and graphs can be used in making arguments and claims in oral and written presentations. (Using Data)

### Geography

3.12.5 Propose solutions to environmental problems using the concept of ecosystems.

## The CEO

p.300 (HS)

**Summary** – Students assume the role of CEOs and analyze the relationship between economic profits and environmental quality.

**Objectives** – Students will: identify components of an environmental management program; analyze the relationships between economic benefits and environmental quality; apply environmental management strategies in the production of a product.

### Grades 9–12

#### Geography

2.12.1 Determine how relationships between humans and the physical environment lead to the development of and connections among places and regions.

3.12.3 Analyze the effects of physical and human forces on interdependence within ecosystems.

3.12.5 Propose solutions to environmental problems using the concept of ecosystems.

5.12.7 Develop policies for the use and management of Earth’s resources that consider the various interests involved.

#### English Language Arts

5.12.3 Write **reflective texts** that draw comparisons between specific incidents and broader themes.

#### Science: Nature of Science: Science, Technology and Society

N.12.B *Students understand the impacts of science and technology in terms of costs and benefits to society.*

N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways. (Risks and Benefits)

N.12.B.2 Student know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts. (Ethical Behavior)

N.12.B.3 Students know the influence of ethics on scientific enterprise. (Ethical Behavior)

## Dust Bowls and Failed Levees

p.303 (HS)

**Summary** – Through literature study, research, and writing, students gain a greater understanding of the effects of drought, flood, and other water-related events on the people.

**Objectives** – Students will: appreciate that literature reflects people’s feelings about water-related events; and illustrate the effects of drought, flood, and other water-related disasters on human lives, through creative writing.

*Grades 9–12*

### English Language Arts

- 3.12.1 Analyze characters, plots, setting, themes, and points of view in any given piece of literature.
- 5.12.3 Write **reflective texts** that draw comparisons between specific incidents and broader themes.
- 5.12.4 Write responses to literature that analyze and critique the use of imagery, language, themes, stylistic devices, and tone.
- 6.12.4 Revise writing to improve word choice, organization, and point of view, using given criteria such as rubrics or feedback from others.

## Every Drop Counts

p.307 (UE, MS)

**Summary** – Students identify and implement water conservation habits to learn how this essential resource can be shared with other water users of today and tomorrow.

**Objectives** – Students will: determine how water conservation practices save water; identify water conservation habits they can change or adopt; and recognize that water conservation is important.

*Grades 3–5*

### English Language Arts

- 11.5.2 Select information from multiple resources to answer questions.

### Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
  - N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)

### Science: Nature of Science: Science, Technology and Society

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*
  - N.5.B.2 Students know technologies impact society, both positively and negatively. (Ethical Behavior)

*Grades 6–8*

### English Language Arts

- 11.7.2 Locate and use primary and secondary sources to investigate a research question.

### Science: Nature of Science: Science, Technology and Society

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
  - N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and

**A Grave Mistake**

p.311 (MS, HS)

**Summary** – Students analyze data to solve a mystery and identify a potential polluter.

**Objectives** – Students will: analyze data to trace the flow of contaminants in ground water; and conclude that past solutions, developed with the best of intentions, may create contemporary problems.

*Grades 6–8***Geography**

2.6.6 Describe the impacts that changes in your community or state have had on its environment or population.

4.7.2 Describe changes that will occur in a place due to human settlement.

**Mathematics: Content: Data Analysis**

5.6.1 Pose questions that guide the collection of data. Organize and represent data using a variety of graphical representations including circle graphs and scatter plots. (Data Collection and Organization)

**Mathematics: Process: Problem Solving**

Determine an effective strategy, verify, interpret, and evaluate the results with respect to the original problem.

**Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)

N.8.A.2 Students know how to critically evaluate information to distinguish between fact and opinion. (Record-keeping)

N.8.A.3 Students know different explanations can be given for the same evidence. (Accuracy)

N.8.A.6 Students know scientific inquiry includes evaluating results of scientific investigations, experiments, observations, theoretical and mathematical models, and explanations proposed by other scientists. (Models)

**Health**

1.8.8 Identify personal actions that contribute to the deterioration of the environment.

*Grades 9–12***Health**

1.12.8 Analyze how the environment influences the health of the community.

**Humpty Dumpty**

p.316 (UE, MS)

**Summary** – Students relate the challenges of doing environmental restoration project to piecing together a simple puzzle.

**Objectives** – Students will: describe the challenges of restoring an altered natural environment; and develop a restoration plan for a local site.

*Grades 3–5*

## Geography

- 5.4.3 Locate several places whose physical environment has been altered by the same technology (e.g. clear-cutting of timber, mining, manufacturing).
- 5.4.6 Identify various natural resources found in their state or region.
- 6.4.4 Choose an environmental problem that affects their community and develop possible solutions.
- 5.5.1 Describe ways in which changes in the physical environment affect humans.

## Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

## Grades 6–8

### Geography

- 5.6.1 Use maps or photographs to document changes in the physical environment.
- 5.6.4 Explore the impact of human modification of the physical environment on the people who live there.
- 5.7.1 Investigate changes in the physical environment that could have an impact on humans.
- 5.7.4 Identify patterns in the physical environment caused by human activity.
- 5.8.4 Describe the patterns of change caused by human modification of the physical environments.
- 5.8.5 Describe how humans prepare for and react to natural hazards.
- 5.8.7 Select a resource and evaluate different viewpoints regarding its use.

## Macroinvertebrate Mayhem

p.322 (UE, MS)

**Summary** – Students play a game of tag to similar the effects of environmental stressors on macroinvertebrate population.

**Objectives** – Students will: illustrate how tolerance to water quality conditions varies among macroinvertebrate organisms; and explain how population diversity provides insight into the health of an ecosystem.

## Grades 3–5

### Geography

- 3.4.3 Generate examples of various ecosystems found in the U.S.
- 5.3.4 Compare different ways in which people alter the physical environment.

## Mathematics: Content: Data Analysis

- 5.4.1 Pose questions that can be used to guide the collection of categorical and numerical data. Organize and represent data using a variety of graphical representations including frequency tables and line plots. (Data Collection and Organization)

## Science: Life: Structure of Life

- L.5.B *Students understand that living things have specialized structures that perform of variety of life functions.*
- L.5.B.1 Students know plants and animals have structures that enable them to grow, reproduce, and survive. (Cells)

## Science: Life: Organisms and Their Environment

- L.5.C *Students understand that there is a variety of ecosystems on Earth and organisms interact*

*within their ecosystems.*

- L.5.C.2 Students know organisms interact with each other and with the non-living parts of their ecosystems. (Ecosystems)
- L.5.C.3 Students know changes to an environment can be beneficial or detrimental to different organisms. (Ecosystems)
- L.5.C.5 Students know plants and animals have adaptations allowing them to survive in specific ecosystems. (Ecosystems)

### *Grades 6–8*

#### **Geography**

- 5.7.1 Investigate changes in the physical environment that could have an impact on humans.
- 5.7.4 Identify patterns in the physical environment caused by human activity.
- 5.8.4 Describe the patterns of change caused by human modification of the physical environments.

#### **Science: Life: Organisms and Their Environment**

- L.8.C *Students understand how living and non-living components of an ecosystem interact.*
- L.8.C.3 Students will evaluate how changes in environments can be beneficial or harmful. (Ecosystems)
- L.8.C.4 Students know inter-related factors affect the number and type of organisms and ecosystem can support. (Ecosystems)

## **Money Down the Drain**

p.328 (UE, MS)

**Summary** – Through observation and simple calculations, students learn that a dripping faucet waste a valuable resource.

**Objectives** – Students will: calculate the amount of water wasted by a dripping faucet; and analyze the financial benefits of fixing leaking faucets.

### *Grades 3–5*

#### **Mathematics: Content: Numbers, Number Sense, and Computation**

- 1.5.8 Generate and solve addition, subtraction, multiplication, and division problems using whole numbers and decimals in practical situations. (Solving Problems and Number Theory)

#### **Mathematics: Content: Measurement**

- 3.3.1 Compare, order, and describe objects by various measurable attributes for area volume/capacity. (Comparison, Estimation, and Conversion)
- 3.4.2 Measure length, area, temperature, and weight to a required degree of accuracy in customary and metric systems. (Precision in Measurements)

#### **Mathematics: Content: Data Analysis**

- 5.4.5 Conduct simple probability experiments using concrete materials. Represent the results of simple probability experiments as fractions to make predictions about future events. (Experimental and Theoretical Probability)

#### **Mathematics: Process: Problem Solving**

Use technology, including calculators, to develop mathematical concepts.

#### **Mathematics: Process: Mathematical Communication**

Use a variety of methods to represent and communicate mathematical ideas through oral, verbal, and written formats. Use everyday language, both orally and in writing, to communicate strategies and solutions to mathematical problems.

### **Mathematics: Process: Mathematical Connections**

Use physical models to explain the relationship between concepts and procedures.

### **Science: Nature of Science: Inquiry**

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)
- N.5.A.3 Students know how to draw conclusions from scientific evidence. (Record-keeping)
- N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

### **Science: Nature of Science: Science, Technology and Society**

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*
- N.5.B.3 Students know the benefits of working with a team and sharing findings. (Ethical Behavior, Collaboration)

### *Grades 6–8*

### **Mathematics: Content: Numbers, Number Sense, and Computation**

- 1.7.5 Identify absolute values of integers. (Facts)
- 1.7.7 Calculate with integers and other rational numbers to solve mathematical and practical situations. Use order of operations to evaluate expressions and solve one-step equations (containing rational numbers). (Computation)

### **Mathematics: Content: Measurement**

- 3.6.1 Estimate and compare corresponding units of measure for temperature, length, and weight/mass between customary and metric system. (Comparison, Estimation, and Conversion)
- 3.6.5 Write and apply ratios in mathematical and practical problems involving measurement and monetary conversions. (Ratios and Proportions)
- 3.8.5 Apply ratios and proportions to calculate rates and solve mathematical and practical problems using indirect measure. (Ratios and Proportions)

### **Mathematics: Content: Data Analysis**

- 5.6.6 Analyze various representations of a set of data to draw conclusions and make predictions. Describe the limitations of various graphical representations. (Statistical Inferences)

### **Science: Nature of Science: Inquiry**

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)
- N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)
- N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)

### **Science: Nature of Science: Science, Technology and Society**

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and

**The Price Is Right**

p.333 (HS)

**Summary** – Students learn about economics and environmental planning as they calculate the cost of building a water development project.

**Objectives** – Students will: calculate the costs involved in supplying clean water to consumers and removing wastewater; and recognize that cost and environmental considerations influence the planning and construction of water projects.

*Grades 9–12***Mathematics: Content: Numbers, Number Sense, and Computation**

1.12.8 Identify and apply real number properties to solve problems. (Solving Problems and Number Theory)

**Economics**

- 1.8.3 Identify the additional **benefits** and the additional **costs** that result from choosing a little more or a little less.
- 3.8.2 Explain how **supply** and **demand** function to determine **market prices**.
- 5.8.1 Illustrate how prices stated in **money** terms help people compare the value of products.
- 6.12.1 Compare the benefits and costs of allocating **resources** through markets or government.
- 8.12.1 Explain why government provides **public goods** rather than allowing the market to provide them.

**The Pucker Effect**

p.338 (MS, HS)

**Summary** – Student observe how ground water transports pollutants and simulate ground water testing to discover the source of contamination.

**Objectives** – Students will: describe how underground point source pollutants move through ground water; and analyze data from test wells they have “drilled” to identify point source contamination.

*Grades 6–8***Health**

- 1.8.8 Identify personal actions that contribute to the deterioration of the environment.
- 4.8.2 Evaluate the impact of technology on health and disease prevention.

**Science: Nature of Science: Inquiry**

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.3 Students know different explanations can be given for the same evidence. (Accuracy)
- N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)
- N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)

*Grades 9–12***Health**

- 1.12.8 Analyze how the environment influences the health of the community.

**Science: Nature of Science: Inquiry**

- N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*
- N.12.A.3 Students know repeated experimentation allows for statistical analysis and unbiased conclusions. (Accuracy)
- N.12.A.4 Students know how to safely conduct an original scientific investigation using the appropriate tools and technology. (Safe Experimentation)

## Reaching Your Limits

p.344 (UE, MS)

**Summary** – Through a game of “limbo” students experience the effort involved in meeting drinking-water quality standards.

**Objectives** – Students will: describe the relationship between water quality and water treatment; and be aware of the ratio of one to a million.

### Grades 3–5

#### Mathematics: Content: Measurement

- 3.3.1 Compare, order, and describe objects by various measurable attributes for area volume/capacity. (Comparison, Estimation, and Conversion)
- 3.3.2 Select and use appropriate units of measure. Measure to a required degree of accuracy (to the nearest ½ unit). (Precision in Measurements)
- 3.4.2 Measure length, area, temperature, and weight to a required degree of accuracy in customary and metric systems. (Precision in Measurements)
- 3.5.3 Estimate measures of length, volume, capacity, quantity, and weight, communicating degree of accuracy needed and when a more precise measure is required. (Formulas)

#### Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

#### Science: Physical: Matter

- P.5.A *Students understand properties of objects and materials.*
- P.5.A.4 Students know that, by combining two or more materials, the properties of that material can be different from the original materials. (Mixtures and Compounds)

#### Geography

- 5.4.3 Locate several places whose physical environment has been altered by the same technology (e.g. clear-cutting of timber, mining, manufacturing).
- 5.4.4 Use maps or photographs to document human modification of the physical environment.
- 5.4.7 List examples of how people use and manage natural resources within the state.

### Grades 6–8

#### Mathematics: Content: Measurement

- 3.7.5 Write and apply proportions to solve mathematical and practical problems involving measurement and monetary conversions. (Ratios and Proportions)
- 3.8.3 Identify how changes in a dimension of a figure effect changes in its perimeter, area and volume. (Formulas)

**Sparkling Water**

p.348 (ue, MS, HS)

**Summary** – Students develop strategies to remove contaminants from “wastewater.”

**Objectives** – Students will: describe the process for treating wastewater; compare how water is cleaned in the water cycle to how it is cleaned in contemporary water treatment systems; and list nontoxic household cleaning methods.

*Grades 6–8***Science: Nature of Science: Inquiry**

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.4 Students know how to design and conduct a controlled experiment. (Safe Experimentation)

N.8.A.5 Students know how to use appropriate technology and laboratory procedures safely for observing, measuring, recording, and analyzing data. (Safe Experimentation)

**Science: Physical: Matter**

P.8.A *Students understand the properties and changes in the properties of matter.*

P.8.A.3 Students know methods for separating mixtures based on the properties of the components. (Mixtures and Compounds)

**Health**

1.8.7 Identify laws and regulations made to protect the health of the community.

1.8.8 Identify personal actions that contribute to the deterioration of the environment.

2.8.1 Differentiate health concerns as personal responsibility or professional responsibility.

2.8.2 Identify characteristics of scientifically valid health information.

*Grade 9–12***Science: Physical: Matter**

P.12.A *Students understand that atomic structure explains the properties and behavior of matter.*

P.12.A.3 Students know identifiable properties can be used to separate mixtures. (Mixtures and Compounds)

**Health**

1.12.8 Analyze how the environment influences the health of the community.

2.12.1 Analyze health promotion and disease prevention efforts.

**Super Bowl Surge**

p.353 (UE, MS, HS)

**Summary** – Students do in-depth research and present action plans to solve the problem of increased demands on a community’s wastewater treatment plant.

**Objectives** – Students will: illustrate how demands on some treatment plants cause overflow; explain problems with sewage overflow; propose solutions to a water management problem; and recognize how presentation strategies influence public policy.

*Grades 3–5***Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

## **Science: Nature of Science: Science, Technology and Society**

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*
- N.5.B.2 Students know technologies impact society, both positively and negatively. (Ethical Behavior)
- N.5.B.3 Students know the benefits of working with a team and sharing findings. (Ethical Behavior, Collaboration)

## **Geography**

- 1.5.2 Demonstrate an understanding that people may respond to the same incentive in different ways because they may have different preferences.
- 2.5.4 Identify the effects of the use of technology in the community.
- 5.6.4 Explore the impact of human modification of the physical environment on the people who live there.

## *Grades 6–8*

### **Science: Nature of Science: Science, Technology and Society**

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

## **Civics**

- 4.8.6 Provide examples of contemporary public issues that may require public solutions.

## **Health**

- 4.8.2 Evaluate the impact of technology on health and disease prevention.
- 7.8.1 Identify and research a community health issue and develop a plan of action.

## *Grades 9–12*

### **Science**

#### **Science: Nature of Science: Scientific Inquiry**

- N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*
- N.12.A.1 Students know tables, charts, illustrations and graphs can be used in making arguments
- N.12.A.5 Students know models and modeling can be used to identify and predict cause-effect relationships. (Models)

#### **Science: Nature of Science: Science, Technology and Society**

- N.12.B *Students understand the impacts of science and technology in terms of costs and benefits to society.*
- N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways. (Risks and Benefits)
- N.12.B.2 Student know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts. (Ethical Behavior)

### **Economics**

- 1.12.2 Recognizing that people act out of self-interest, predict how a change in the economic environment will affect the **choices** made by consumers, producers, and savers.

### **Geography**

- 3.12.5 Propose solutions to environmental problems using the concept of ecosystems.
- 5.12.2 Evaluate strategies to respond to constraints placed on human systems by the physical

environment.

- 5.12.6 Identify major conflicts in social, political, and economic life and analyze the role of compromise in the resolution of these issues.

### Health

- 1.12.8 Analyze how the environment influences the health of the community.  
4.12.1 Evaluate cultural similarities and differences and effects on health  
4.12.2 Explore how technology is used to enhance health.

## Wet Work Shuffle

p.360 (Ie, UE, MS, HS)

**Summary** – Students learn about different water resource occupations and place them in a sequence – from water’s source, to its delivery into homes, to its return to the source.

**Objectives** – Students will: sequence water-related occupations involved in transporting water to and from the home; and describe various water resource careers.

### Grades 3–5

#### Science: Nature of Science: Science, Technology and Society

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*  
N.5.B.2 Students know technologies impact society, both positively and negatively. (Ethical Behavior)

### Health

- 1.5.7 Identify programs designed to promote community health.  
1.5.8 Explain the relationship of the environment to positive health behaviors and the prevention of injury, illness, disease, and premature death.

### Grades 6–8

#### Science: Nature of Science: Science, Technology and Society

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*  
N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

### Health

- 4.8.2 Evaluate the impact of technology on health and disease prevention.

Concept 6: Water resources exist within social constructs: Over time, societies develop water management systems and practices to meet the needs of diverse water users. People’s values, attitudes, and beliefs shape political and economic systems that are dynamic.

## Choices and Preferences, Water Index

p.367 (Ie, MS, HS)

**Summary** – Students rank and compare different uses of water. The class develops a *water index*, and indication of the group’s feelings and values about water and its uses.

**Objectives** – Students will: analyze how people perceive the value of various water uses differently.

*Grades 6–8*

**Mathematics: Content: Patterns, Functions, and Algebra**

2.6.1 Use and create tables, charts, and graphs to extend a pattern in order to describe a rule for input/output tables and to find missing terms in a sequence. (Patterns)

2.7.1 Use and create tables, charts and graphs to extend a pattern in order to describe a linear rule, including integer values. (Patterns)

**Mathematics: Content: Patterns, Functions, and Algebra**

5.8.1 Formulate questions and design a study that guides the collection of data. Organize, display, and read data including box and whisker plots (with and without technology). (Data Collection and Organizaion)

## Cold Cash in the Icebox

p.373 (LE, UE)

**Summary** – Students design mini-insulations (iceboxes) in an attempt to keep ice from melting and discover the challenges of refrigeration of 100 years ago.

**Objectives** – Students will: compare the insulating properties of various materials.

*Grades K–2*

**Mathematics: Content: Data Analysis**

5.1.1 Collect, organize, and record data in response to questions posted by teacher and/or students. Use tally marks to represent data. (Data Collection and Organization)

**Science: Physical: Matter**

P.2.A *Students understand that matter has observable properties.*

P.2.A.1 Students know matter can exist as solids and liquids. (Properties of Matter)

P.2.A.2 Students know some properties of materials can be changed by heating, freezing, mixing, cutting, or bending. (Properties of Matter)

*Grades 3–5*

**Mathematics: Content: Measurement**

3.3.2 Select and use appropriate units of measure. Measure to a required degree of accuracy (to the nearest ½ unit). (Precision in Measurement)

**Science: Nature of Science: Inquiry**

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording

- data, and communicating the results in an accurate method. (Using Data)
- N.5.A.3 Students know how to draw conclusions from scientific evidence. (Record-keeping)
- N.5.A.5 Students know how to plan and conduct a safe experiment. (Safe Experimentation)
- N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

**Science: Physical: Matter**

- P.5.A *Students understand properties of objects and materials.*
- P.5.A.1 Students know that matter exists in different states (i.e., solid, liquid, gas) which have distinct physical properties. (Properties of Matter)
- P.5.A.2 Students know that heating or cooling can change some common materials, such as water, from one state to another. (Properties of Matter)

**Dilemma Derby**

p.377 (MS, HS)

**Summary** – Students debate the pros and cons of different solutions to water management issues.

**Objectives** – Students will: outline reasons why managing water resources can create dilemmas; and identify, analyze, and select actions related to a water resource dilemma.

*Grades 6–8*

**Science: Nature of Science: Inquiry**

- N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*
- N.8.A.3 Students know different explanations can be given for the same evidence. (Accuracy)

**Science: Nature of Science: Science, Technology and Society**

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)
- N.8.B.2 Students know scientific knowledge is revised through a process incorporating new evidence gained through on-going investigation and collaborative discussion. (Ethical Behavior, Collaboration)

**Economics**

- 1.8.1 Use the concept of **opportunity cost** to evaluate the tradeoffs when **choices** occur.

*Grades 9–12*

**Economics**

- 1.12.1 Explain why **choices** and their **costs** may differ across individuals and societies.

**Easy Street**

p.382 (ue, MS, hs)

**Summary** – Students compare the quantities of water used by a contemporary family to one in the late 1800s, and investigate changes in water use habits.

**Objectives** – Students will: compare and contrast contemporary and historical water use; and identify water conservation strategies.

*Grades 6–8*

## Mathematics: Content: Numbers, Number Sense, and Computation

1.6.7 Calculate using fractions, decimals, and percents in mathematical and practical situations. (Computation)

## Mathematics: Process: Mathematical Reasoning

Recognize and apply deductive and inductive reasoning.

## Mathematics: Process: Mathematical Connections

Identify, explain, and apply mathematics in everyday life.

## Geography

2.6.3 Discuss how the same issue is perceived by different cultural groups.

5.7.2 Explain a specific constraint on a physical environment that impacts human activity.

5.8.7 Select a resource and evaluate different viewpoints regarding its use.

## Science: Nature of Science: Inquiry

N.8.A *Students understand that scientific knowledge requires critical consideration of verifiable evidence obtained from inquiry and appropriate investigations.*

N.8.A.1 Students know how to identify and critically evaluate information in data, tables, and graphs. (Using Data)

## Science: Nature of Science: Science, Technology and Society

N.8.B *Students understand the interactions of science and society in an ever-changing world.*

N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

## Hot Water

p.388 (HS)

**Summary** – Using debate strategies, students learn how to present a valid argument regarding a water-related issue.

**Objectives** – Students will: apply basic principles and strategies in debating water resource issues; and recognize the effectiveness of reason-based versus emotion-based presentations.

### Grades 9–12

## English Language Arts

4.12.4 Critique the power, logic, reasonableness, and audience appeal of arguments advanced in texts.

8.12.1 Summarize and evaluate communications that inform, persuade, and entertain.

8.12.2 Create and apply criteria for evaluating content and delivery of oral and multi-media presentations.

9.12.2 Make formal oral or multi-media presentations, using vocabulary and public speaking techniques appropriate to audience and purpose.

10.12.4 Justify a position using logic and refuting opposing viewpoints.

## Science: Nature of Science: Science, Technology and Society

N.12.B *Students understand the impacts of science and technology in terms of costs and benefits to society.*

N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways. (Risks and Benefits)

**Pass the Jug**

p.392 (le, ue, MS, hs)

**Summary** – Students simulate and analyze different water rights policies to learn how water availability and people’s proximity to the resource influence how water is allocated.

**Objectives** – Students will: describe historical and current aspects of water rights; illustrate how water rights are used to allocate water; and evaluate water rights allocation systems.

*Grades 6–8***Geography**

- 2.6.6 Describe the impact that changes in your community or state have had on its environment or population.
- 5.7.2 Explain a specific constraint on a physical environment that impacts human activity.
- 5.8.7 Select a resource and evaluate different viewpoints regarding its use.

**Perspectives**

p.397 (MS, HS)

**Summary** – Students analyze public values toward water issues to help them evaluate approaches to managing water resources.

**Objectives** – Students will: recognize that people have differing values regarding water resource management issues; evaluate strengths and weaknesses of proposed solutions to water resource management issues; describe purpose of diverse advocacy groups and summarize their similarities and differences.

*Grades 9–12***Economics**

- 8.12.5 Explain why it is possible that a government decision may impose costs on many, but only benefit a few.

**Civics**

- 1.12.4 Analyze the role of **citizen** participation in U.S. civic life.
- 4.12.3 Evaluate the significance of **interest groups** in the political process of a democratic society.
- 5.12.6 Identify major conflicts in social, political, and economic life and analyze the role of compromise in the resolution of these issues.

**Water: Read All About It!**

p.400 (MS, HS)

**Summary** – Students assume the roles of various people on a newspaper’s staff and develop their own special edition on water.

**Objectives** – Students will: recognize that water is a frequent subject in the news; demonstrate skills needed to publish a newspaper special edition on water; and critique their Water Special Edition.

*Grades 6–8***English Language Arts**

- 6.8.1 Generate ideas for writing by using a variety of strategies such as interviewing; discussing with peers; or responding to literature, film, art, and other media.
- 6.8.3 Write coherent compositions with a controlling impression or **thesis statement**.
- 6.7.6 Produce writing with a voice that addresses an intended audience and purpose.
- 7.8.2 Use varied sentence structure, including complex sentences, to reinforce the presentation

of a personal writing style.

9.8.1 Use specific and varied vocabulary and apply standard English to communicate ideas.

11.8.3 Document research sources using a given format.

### Grades 9–12

#### English Language Arts

6.12.1 Generate ideas for writing by selecting appropriate pre-writing strategies with attention to audience, purpose, and personal style.

6.12.3 Write compositions that present complex ideas in a sustained and compelling manner.

6.12.4 Revise writing to improve word choice, organization, and point of view, using given criteria such as rubrics or feedback from others.

9.12.1 Use specific and varied vocabulary and apply standard English to communicate ideas.

11.12.3 Cite sources of information using a standard method of documentation.

## Water Bill of Rights

p.403 (ue, MS, HS)

**Summary** – Students speculate on their rights to sustainable water resources.

**Objectives** – Students will: appreciate the value of the United States Bill of Rights in their lives; and structure a Water Bill of Rights that ensures water quality and quantity for all people.

### Grades 6–8

#### Civics

1.8.4 Explain **popular sovereignty** and the need for **citizen** involvement at all levels of U.S. government.

1.8.5 Describe how the U.S. Constitution serves as a device for preserving national principles and as a vehicle for change, including knowledge of the formal process of amending the U.S. Constitution.

4.8.6 Provide examples of contemporary public issues that may require public solutions.

5.8.4 Explain the necessity of the Bill of Rights for a democratic society.

### Grades 9–12

#### Civics

1.12.4 Analyze the role of **citizen** participation in U.S. civic life.

1.12.5 Identify and explain changes in the interpretation and application of the U.S. Constitution.

4.12.6 Describe the process by which public policy is formed and carried out.

5.12.1 Examine the rights of citizens and how these rights may be restricted.

5.12.4 Describe the development of the Bill of Rights and provide a contemporary application.

## Water Concentration

p.407 (UE, ms)

**Summary** – Through the familiar game of Concentration, students make connections between modern and past water use practices and discuss how attitudes toward water changed as water practices evolved.

**Objectives** – Students will: analyze why water use practices have evolved over time; and compare efficiency of past and present water use practices.

*Grades 3–5*

**Science: Nature of Science: Science, Technology and Society**

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*
- N.5.B.2 Students know technologies impact society, both positively and negatively. (Ethical Behavior)

**Geography**

- 2.5.4 Identify the effects of the use of technology in the community.

**Water Court**

p.413 (HS)

**Summary** – Students learn how conflicts involving water quality and quantity (and other issues) can be resolved through mediation and litigation.

**Objectives** – Students will: demonstrate how disputes regarding water quality and quantity can be settled through mediation or litigation; develop and present an argument supporting their view relevant to a water-related issue; and evaluate arguments presented by people on opposing sides of an issue.

*Grades 9–12*

**Civics**

- 1.12.4 Analyze the role of **citizen** participation in U.S. civic life.
- 2.12.6 Explain the importance of the **jury** process in a democratic society.
- 5.12.2 Examine the responsibilities of U.S. citizens.
- 5.12.6 Identify major conflicts in social, political, and economic life and analyze the role of **compromise** in the resolution of these issues.

**Science: Nature of Science: Science, Technology and Society**

- N.12.B *Students understand the impacts of science and technology in terms of costs and benefits to society.*
- N.12.B.2 Student know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts. (Ethical Behavior)

**Water Crossings**

p.421 (UE, MS, HS)

**Summary** – Students participate in a water-crossing contest in which they must move their possessions (a hard-boiled egg) across a span of water (a cake pan).

**Objectives** – Students will: analyze the influence of river crossings on settlement patterns; describe the water-related transportation problems that faced early explorers and settlers; and design and build water-crossings conveyances.

*Grades 3–5*

**Geography**

- 4.4.2 List reasons why people move to or from a particular place.
- 4.5.3 List examples of historical movements of people, goods, and ideas.
- 5.5.2 Discuss the constraints physical environments place on human activities.
- 6.4.1 Describe the physical setting of an historical event.
- 6.5.1 Describe how people and places have influenced events in the past.

## Grades 6–8

### Geography

- 2.7.5 Locate and define boundaries of an historic movement.
- 4.6.3 Discuss changes in the historical movement of people and goods.
- 4.7.4 Compare the patterns of migration and settlement within the United States.
- 5.6.2 Describe a specific opportunity provided by a particular physical environment.
- 6.6.1 Identify **resources** that have played a role in historical events or movements.

## Grades 9–12

### Geography

- 4.12.3 Analyze how history has been affected by the movement of people, goods, and ideas.
- 4.12.4 Compare the characteristics and patterns of migration and settlement in developing and developed countries.
- 5.12.2 Evaluate strategies to respond to constraints placed on human systems by the physical environment.
- 6.12.1 Analyze the ways in which physical features and human characteristics of places and regions have influenced the evolution of significant historical events.

## What's Happening?

p.425 (Ie, UE, MS, HS)

**Summary** – Students conduct a survey to determine what the community thinks and feels about an important water resource issue.

**Objectives** – Students will: develop and conduct a survey; recognize that surveys can reveal current public understanding, knowledge, feelings, or involvement related to a water resource topic or issue; interpret results of a survey to provide information about a water-related topic or issue.

## Grades 3–5

### English Language Arts

- 5.5.1 Write informative papers that develop a clear topic with appropriate facts, details, and examples from a variety of sources.
- 10.4.2 Ask and answer questions with relevant details to clarify ideas.
- 10.5.2 Ask and answer questions to clarify or extend ideas.
- 11.3.5 Present research findings for different purposes and audiences.

### Science: Nature of Science: Inquiry

- N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*
- N.5.A.1 Students know scientific progress is made by conducting careful investigations, recording data, and communicating the results in an accurate method. (Using Data)

### Science: Nature of Science: Science, Technology and Society

- N.5.B *Students understand that many people, from all cultures and levels of ability, contribute to the fields of science and technology.*
- N.5.B.3 Students know the benefits of working with a team and sharing findings. (Ethical Behavior, Collaboration)

## Grades 6–8

### English Language Arts

- 2.6.4 Summarize information from several sources.
- 4.7.3 **Paraphrase** and **synthesize** information from several sources to demonstrate

- comprehension.
- 8.8.1 Identify and paraphrase a speaker’s main ideas and supporting evidence to draw meaning from and ask relevant questions about content and purpose of oral presentations.
- 11.8.4 Record information using a variety of note-taking and organizational strategies.

## Whose Problem Is It?

p.429 (MS, HS)

**Summary** – Students analyze the scope and duration of a variety of water-related issues to understand the relationship between local and global issues.

**Objectives** – Students will: analyze how water issues affect individuals as well as world populations, and how these issues can have short- and/or long-term consequences; and illustrate the scope and duration of water-related issues.

### *Grades 6–8*

#### **Science: Nature of Science: Scientific Inquiry**

- N.8.B *Students understand the interactions of science and society in an ever-changing world.*
- N.8.B.1 Students understand that consequences of technologies can cause resource depletion and environmental degradation, but technology can also increase resource availability, mitigate environmental degradation, and make new resources economical. (Risks and Benefits, Ethical Behavior)

#### **Geography**

- 5.7.3 Give examples of how an improved technology has accelerated change in the physical environment.
- 5.8.1 Describe and predict the regional or global impact of changes in the physical environment.
- 5.8.4 Describe the patterns of change caused by human modification of the physical environments.
- 5.8.7 Select a resource and evaluate different viewpoints regarding its use.

### *Grades 9–12*

#### **Science: Nature of Science: Scientific Inquiry**

- N.12.A *Students understand that a variety of communication methods can be used to share scientific information.*
- N.12.A.1 Students know tables, charts, illustrations and graphs can be used in making arguments and claims in oral and written presentations. (Using Data)

#### **Science: Nature of Science: Science, Technology and Society**

- N.12.B *Students understand the impacts of science and technology in terms of costs and benefits to society.*
- N.12.B.1 Students know science, technology, and society influenced one another in both positive and negative ways. (Risks and Benefits)
- N.12.B.2 Student know consumption patterns, conservation efforts, and cultural or social practices in countries have varying environmental impacts. (Ethical Behavior)

#### **Geography**

- 3.12.5 Propose solutions to environmental problems using the concept of ecosystems.
- 5.12.3 Describe the ways in which technology has affected the human capacity to modify the physical environment and evaluate the possible regional or global impact.

Concept 7: **Water resources exist within cultural constructs:** Cultures express connections to their unique water environments through art, music, language, and customs. Cultures around the world hold similar and contrasting view towards water.

## Raining Cats and Dogs

p.435 (UE, MS, hs)

**Summary** – Students analyze and interpret water sayings – through a card game, kits, pantomime, and creative writing – to compare figures of speech across the cultures and climate zones.

**Objectives** – Students will: distinguish between figurative and literal translations of various water sayings; analyze water-related sayings of diverse cultures.

### Grades 3–5

#### English Language Arts

- 3.5.5 Locate and interpret figurative language, including **simile**, metaphor, and **personification** in text.
- 8.4.3 Recognize that language and dialect usage vary in different contexts, regions, and cultures.
- 8.5.1 Interpret a speaker’s verbal and non-verbal messages, purposes, and viewpoint; distinguish fact from opinion.

### Grades 6-8

#### English Language Arts

- 1.8.5 Analyze **idioms**, analogies, metaphors, and similes to infer literal and figurative meaning.
- 3.7.5 Interpret examples of imagery and explain their sensory impact.
- 8.7.1 Interpret a speaker's verbal and non-verbal messages and identify the main ideas.

## The Rainstick

p.442 (UE, MS, HS)

**Summary** – Students build a rainstick out of materials in their own environment and, like people of ancient cultures, imitate the sound of rain.

**Objectives** – Students will: relate the sound produced by an instrument to the type and quantity of materials used in its construction; recognize how other cultures create rainsticks from materials found; and imitate the sound of rain with various materials.

### Grades 3–5

#### Visual Arts

- 4.3.2 Identify works of art as belonging to particular cultures, times, or places.
- 4.5.3 Create works of art that demonstrate historical and cultural influence.

## Water Celebration

p.446 (UE, MS)

**Summary** – Students plan a water celebration.

**Objectives** – Students will: communicate their knowledge of water through a water celebration; appreciate how some cultures celebrate water; plan and implement a school, community or state water celebration.

### Grades 3–5

#### Physical Education

3.3.5 Perform folk, and/or social dances from various cultures.

#### Music

9.5.1 Identify by style aural examples from various historical periods, American musical history, and world cultures.

### Grades 6–8

#### Music

6.8.2 Describe the uses of the elements of music in aural examples representing diverse genres and cultures.

## wAteR in motion

p.450 (le, UE, ms)

**Summary** – Students create artwork to help them appreciate the movement and sound of water in their environment.

**Objectives** – Students will: recognize reasons why people find the sound and movement of water pleasing; demonstrate how wind, pressure, and gravity move water; and design artwork that incorporates the movement and sounds of water.

### Grades 3-5

#### Science: Nature of Science: Inquiry

N.5.A *Students understand that science involves asking and answering questions and comparing the answers to what scientists know about the world.*

N.5.A.6 Students know models are tools for learning about the things that they are meant to resemble. (Models)

#### Music

9.3.2 Identify various uses for music in daily experience.

#### Visual Arts

2.5.3. Explain how visual characteristics, purposes, and/or functions of art may cause different responses.

## Water Messages in Stone

p.454 (LE, UE, MS)

**Summary** – Students replicate rock paintings and carvings to learn about ancient cultures' relation to water and to create their own water-related expressions.

**Objectives** – Students will: demonstrate how ancient cultures drew messages to express their relation to water; discern characteristics of pictographs and petroglyphs.

### Grades 3–5

#### Visual Arts

1.5.2 Examine how different media, techniques, and processes cause different responses (e.g. Look at **two-dimensional** vs. **three-dimensional** works of art).

1.5.3 Create artworks using various media, techniques, and processes to communicate ideas.

2.5.1 Describe various visual characteristics of art (e.g. sensory, formal, technical, and expressive).

3.5.2 Produce a work of art that demonstrates the ability to convey meaning by integrating

- subject matter and symbols with ideas.  
5.3.3 Discuss possible meanings of art.

### *Grades 6–8*

#### **Visual Arts**

- 1.8.3 Use and explain why various media, techniques, and processes are used to produce works of art that communicate ideas and experiences.  
2.8.1 **Analyze** and **evaluate** the effects of visual characteristics in works of art.  
3.8.2 Plan and produce works of art that use a range of subject matter, symbols, and ideas from varied times and places to communicate meaning.

## **Water Write**

p.457 (LE, UE, MS, HS)

**Summary** – Through a variety of writing and reading activities, students explore their feelings for and understanding of water-related topics.

**Objectives** – Students will: express, through writing, their knowledge of, feelings about, and values related to water; and evaluate literature based on the presentation of water-related concepts.

### *Grades K–2*

#### **English Language Arts**

- 3.K.7 Listen and respond to poetry and **prose**.  
4.1.1 Locate and use titles, pictures, charts, graphs, and names of author and illustrator to obtain information.  
5.K.3 Draw or write, with teacher assistance, stories about familiar experiences and events.

### *Grades 3–5*

#### **English Language Arts**

- 3.3.4 Identify and compare **themes** or messages in reading selections.  
4.4.2 Compare main ideas and important concepts of various texts.  
5.3.3 Write a narrative or story that moves through a logical sequence of events and includes details to develop the plot.  
5.4.4 Write responses to literary selections, using supporting details from the selection.

### *Grades 6–8*

#### **English Language Arts**

- 2.6.4 Summarize information from several sources.  
5.8.3 Write narratives or short stories that reveal the writer’s attitude toward the subject; relate a clear coherent incident, event, or situation with detail; and employ strategies such as relevant dialogue and physical description.  
5.8.4 Write responses to literary selections that demonstrate an understanding of the work, using supporting evidence from the texts and prior knowledge or experience.

### *Grades 9–12*

#### **English Language Arts**

- 3.12.1 Analyze characters, plots, setting, themes, and points of view in any given piece of literature.  
5.12.3 Write **reflective texts** that draw comparisons between specific incidents and broader themes.

**Wish Book**

p.460 (UE, MS, HS)

Summary – Using catalogue selections from the late 1800s and the present, students compare and contrast the role of water in the leisure time of people, past and present.

Objectives – Students will: compare and contrast the water-related sports and other recreational activities of the past and present; and become aware of sources of information for learning about the past.

*Grades 3–5*

**Geography**

2.4.3 Describe the characteristics of another culture from their own perspective.

4.3.5 Locate sources of goods and services found in the community.

*Grades 6–8*

**Geography**

2.7.4 Describe the impact of the Industrial Revolution on different regions within the U.S.

4.8.7 Compare the elements of economic development and quality of life between developing and developed countries.

## Appendix: Standards and Correlations

### Nevada State Standards

Nevada Mathematics Standards: Integrating Content and Process, Summer 2006.

Nevada Science Standards (Nature of Science, Physical Science, Life Science, Earth & Space Science), August 2005.

Nevada Information Literacy Standards, November 2002, October 2003 edition.

Nevada English Language Arts Standards, March 2001, February 2003 edition.

Nevada Social Studies Standards (Civics, Economics, Geography, History), June 2000; Integrated Social Studies Standards, 2nd grade, June 2006.

Nevada Arts Standards (Music, Theatre and Visual Arts), March 2000.

Nevada Computer and Technology Education Standards, March 2000.

Nevada Physical Education Standards, 2000; Nevada Health & Safety Standards.

The Nevada State Standards are available online at <http://www.doe.nv.gov/standards.html>.

### National Standards

National Science Education Standards, <http://www.nap.edu/catalog/4962.html>

Principles & Standards for School Mathematics, <http://standards.nctm.org/>

Expectations of Excellence: Curriculum Standards for Social Studies,

<http://www.socialstudies.org/standards/>

- National Standards for Civics and Government, <http://www.civiced.org/stds.html>
- Voluntary National Content Standards in Economics, <http://www.ncee.net/ea/program.php?pid=19>
- National Geography Standards, <http://www.nationalgeographic.com/xpeditions/standards/>
- National Standards for History, <http://www.sscnet.ucla.edu/nchs/standards/>

National Standards for Arts Education, <http://artsedge.kennedy-center.org/teach/standards.cfm>

National Standards for the English Language Arts, <http://www.ncte.org/about/over/standards>

National Standards for Physical Education,

<http://www.aahperd.org/NASPE/template.cfm?template=publications-nationalstandards.html>

National Health Education Standards, [http://www.aahperd.org/AAHE/pdf\\_files/Standards.pdf](http://www.aahperd.org/AAHE/pdf_files/Standards.pdf)

National Education Technology Standards, <http://osx.latech.edu/students/>

Excellence in Environmental Education Guidelines for Learning (Pre K-12),

<http://www.naaee.org/programs-and-initiatives/guidelines-for-excellence/materials-guidelines/learner-guidelines>

### Correlations

Correlation of the Project WET Curriculum & Activity Guide with national standards in science, social studies, language arts, and environmental education are available online at

<http://www.projectwetusa.org/edustandards.htm>. The correlation with environmental education is also in the Appendices of the *Project WET Curriculum & Activity Guide*.