

## **WOW! (Wonders of Wetlands) – Environmental Literacy Correlations**

### **A Drop in the Bucket (Grades 6-8)**

- Grades K-2 Option
  - 1.A.1 – Explain that some natural resources are limited and need to be used wisely.
  - 5.A.1; 5.A.2; 6.B.1; 7.A.1; 7.B.1; 7.E.1; 8.D.1; 8.E.1 – Recognize that caring for the environment is an important human activity.
- Grades 6-8
  - 1.A.1 – Identify and describe problems associated with obtaining, using, and distributing natural resources.
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.

### **Do You Dig Wetland Soil? (Grades K-12)**

- Grades PK-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.3 – Describe things as accurately as possible and compare observations with those of others.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which includes...observing what things are like.
  - 1.A.5 – Develop explanations using knowledge possessed and evidence from observations.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.

### **Get Involved! (Grades K-12)**

- Grades K-2
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations
  - 1.A.1; 1.B.2; 1.B.3; 5.A.1; 5.A.2; 7.A.1 – Recognize and describe that the activities of individuals or groups of individuals can affect the environment.
  - 5.A.1; 5.A.2; 6.B.1; 7.A.1; 7.B.1; 7.E.1; 8.D.1; 8.E.1 – Recognize that caring for the environment is an important human activity.
  - 1.B.1; 1.B.2 – Plan and engage in school or community events.
  - 7.A.1; 7.B.1 – Identify concerns in the community, such as pollution problems and ways to resolve these concerns.
- Grades 3-5
  - 1.B.1- Explain how human activities may have positive consequences on the natural environment.
  - 1.B.1; 1.B.2 – Engage in civic participation and public discourse.
  - 1.B.3 – Analyze the effectiveness of the action plan in terms of achieving the desired outcomes.
  - 7.B.1 – Analyze ways people can participate in the political process including voting, petitioning elected officials, and volunteering.
- Grades 6-8
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 1.B.1 – Engage in civic participation and public discourse.
  - 7.B.1 – Evaluate ways people can participate in the political process including voting, analyzing the media, petitioning elected officials, and volunteering.

### **Hear Ye! Hear Ye!** (Grades 3-12)

- Grades 3-5
  - 1.A.3 – Identify and describe that an environmental issue affects individual people and groups of people differently.
  - 5.A.1; 5.B.1; 7.A.1; 7.B.1 – Explain why and how people adapt to and modify the natural environment and the impact of these modifications.
  - 6.B.1 – Describe how people in a community modify their environment to meet changing needs for...shelter.
  - 6.C.1 – Explain how the growth of communities and suburbs have had consequences on the environment and pollution.
  - 7.B.1 – Explain the decision making process used to accomplish a community goal or solve a community problem.
  - 7.B.1 – Analyze ways people can participate in the political process including... petitioning elected officials.
  - 8.A.1 – Describe how land use and urban growth are influenced by governmental decisions.
- Grades 6-8
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 6.B.1 – Describe ways people modify their environment to meet their needs, such as cultivating land, building roads, etc.
  - 7.B.1 – Evaluate ways people can participate in the political process including...petitioning elected officials.
  - 7.D.1 – Evaluate ways citizens use, monitor, and influence the formation and implementation of public policy.
  - 7.D.1 – Explain how regional population patterns, trends, and projections affect the environment and influence government policies.
  - 8.A.1 – Identify and explain land use issues that illustrate the conflict between economic growth and using the environment.
- Grades 9-12
  - 1.A.1; 1.B.2; 1.B.3; 7.A.1; 7.B.1 – The student will recognize that real problems have more than one solution and decisions to accept one solution over another are made on the basis of many issues.
  - 1.A.1; 6.B.1; 7.B.1; 7.E.1 – Evaluate how the principles of economic costs, benefits, and opportunity cost are used to address public policy issues, such as environmental concerns.
  - 1.A.1; 4.C.1; 7.B.1; 8.C.1 – The student will evaluate the role of government in addressing land use and other environmental issues.

### **Helping Wetland Habitats** (Grades K-12)

- Grades K-2
  - 1.A.3 – Identify a problem or situation that requires study.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 1.B.1; 1.B.2 – Plan and engage in school or community events.
  - 1.B.3 – Recognize and describe that the acts of individuals or groups of individuals can affect the environment.
- Grades 3-5
  - 1.A.2 – Identify a problem/situation that requires further study.
  - 1.B.1- Explain how human activities may have positive consequences on the natural environment.
  - 1.B.3 – Analyze the effectiveness of the action plan in terms of achieving the desired outcomes.
- Grades 6-8
  - 1.A.1 – Identify and describe a local...environmental issue.

- 1.A.3 – Identify a problem/situation that requires further study.
- 1.B.1 – Use recommendations to develop and implement an action plan.
- 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
- 1.B.3 – Analyze the effectiveness of the action plan in terms of achieving the desired outcomes.
- Grades 9-12
  - 1.B.1 – Use recommendations to develop and implement an action plan.
  - 1.B.3 – Analyze the effectiveness of the action plan in terms of achieving the desired outcomes.

### **How Thirsty Is the Ground?** (Grades 3-12)

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which includes...observing what things are like and doing experiments.
  - 1.A.5 – Develop explanations using knowledge possessed and evidence from observations.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 1.A.5 – The student will analyze data to make predictions, decisions, or draw conclusions.
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.

### **Hydropoly** (Grades 4-12)

- Grades 3-5
  - 1.A.1; 1.B.3; 5.A.2; 7.A.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and describe that people...depend on, change, and are affected by the environment.
  - 1.A.1 – Describe the responsibilities of being an effective citizen, such as cleaning up your neighborhood, being informed, obeying rules and laws, etc.
  - 1.A.3 – Identify and describe that an environmental issue affects individual people and groups of people differently.
- Grades 6-8
  - 1.A.1 – Identify and describe a local, regional, or global environmental issue.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 1.B.1; 1.B.2 – Propose and justify solutions to social studies problems.
  - 8.A.1 – Understand and apply the basic concept of sustainability to natural and human communities.
- Grades 9-12
  - 1.A.1; 1.B.2; 1.B.3; 7.A.1; 7.B.1 – The student will recognize that real problems have more than one solution and decisions to accept one solution over another are made on the basis of many issues.

### **Introducing Wetlands** (Grades K-12)

- Grades PK-2
  - 1.A.1; 1.A.2 – Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.3 – Describe things as accurately as possible and compare observations with those of others.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.

- 1.A.5 – Have opportunities to work with a team, share findings with others...
- 3.C.1 – Investigate a variety of familiar places where plants and animals live to describe the place and the living things found there.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which includes...observing what things are like.
  - 1.A.1; 3.C.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.

**Let the Cattail Out of the Bag! (Grades K-6)**

- Grades PK-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.3 – Describe things as accurately as possible and compare observations with those of others.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 1.A.5 – Have opportunities to work with a team, share findings with others...
  - 3.C.1 – Investigate a variety of familiar places where plants and animals live to describe the place and the living things found there.
- Grades 3-5
  - 1.A.1; 3.C.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
- Grades 6-8
  - 2.B.2; 4.D.1 – Analyze the value and the limitations of different types of models in explaining real things...

**Life in the Fast Lane (Grades 3-8)**

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.2 – Explain ways that individuals and groups of individuals interact with each other and their environment.
  - 4.B.1; 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
- Grades 6-8
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
  - 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Give reasons supporting the fact that the number of organisms an environment can support depends on the physical conditions...
  - 4.A.1 – Explain that the transfer and transformation of matter and energy links organisms to one another and to their physical setting.
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.

**Marsh Market (Grades 2-8)**

- Grades PK-2
  - 1.A.1; 5.B.1; 7.D.1; 8.A.1; 8.B.1; 8.C.1; 8.D.1 – Recognize and explain how Earth’s natural resources from the natural environment are used to meet human needs.
  - 1.A.1; 1.B.3; 5.A.1; 5.A.2; 7.A.1; 7.B.1; 7.D.1; 7.E.1; 8.A.1; 8.B.1; 8.C.1; 8.D.1 – Recognize and describe that the activities of individuals or groups of individuals can affect the environment.
  - 5.B.1 – Recognize that natural resources, such as water, trees, and plants are used to make products.

- Grades 3-5
  - 1.A.1; 5.A.2; 6.B.1; 7.D.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and explain that decisions influencing the use of natural resources may have benefits, drawbacks, unexpected consequences, and tradeoffs
  - 1.A.1; 7.D.1; 8.A.1; 8.B.1; 8.C.1 - Recognize and explain how renewable and nonrenewable natural resources are used by humans to meet basic needs.
  - 3.A.1; 4.A.1 – Recognize food as the source of materials that all living things need to grow and survive.
  - 1.B.2; 1.B.3; 5.A.1; 6.B.1; 7.E.1 – Recognize and describe that consequences may occur when Earth’s natural resources are used.
- Grades 6-8
  - 1.A.1 – Identify and describe problems associated with obtaining, using, and distributing natural resources.
  - 1.B.2; 1.B.3; 5.A.1; 5.A.2; 6.B.1 – Recognize and explain that human-caused changes have consequences for Maryland’s environment as well as for other places and future times.

### **Marsh Munchies (Grades 5-8)**

- Grades 3-5
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.2 – Explain ways that individuals and groups of individuals interact with each other and their environment.
  - 1.A.1; 5.A.2; 6.B.1; 7.D.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and explain that decisions influencing the use of natural resources may have benefits, drawbacks, unexpected consequences, and tradeoffs.
  - 3.A.1; 4.A.1 – Recognize food as the source of materials that all living things need to grow and survive.
- Grades 6-8
  - 1.A.1 – Identify and describe problems associated with obtaining, using, and distributing natural resources.
  - 3.A.1 – Explain that the transfer and transformation of matter and energy links organisms to one another and to their physical setting.

### **Marsh Mystery (Grades 5-12)**

- Grades 3-5
  - 1.A.1 – 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which includes reviewing appropriate print resources.
  - 1.A.1; 3.C.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
  - 1.A.1 – Recognize and explain how renewable and nonrenewable natural resources are used by humans... to meet basic needs.
  - 1.A.1; 5.A.2; 6.B.1; 7.D.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and explain that decisions influencing the use of natural resources may have benefits, drawbacks, unexpected consequences, and tradeoffs.
  - 1.A.1; 1.A.3; 1.B.2; 1.B.3; 5.A.1; 6.B.1; 7.E.1 – Recognize and describe that consequences may occur when Earth’s natural resources are used.
  - 1.A.3 – Identify and describe that an environmental issue affects individual people and groups of people differently.
  - 1.A.5 – Develop explanations using knowledge possessed and evidence from...reliable print resources.
  - 3.A.1; 4.A.1 – Recognize that materials continue to exist even though they change from one form to another.
  - 3.A.1; 4.A.1 – Recognize food as the source of materials that all living things need to grow and survive.

- Grades 6-8
  - 1.A.1 – Identify and describe problems associated with obtaining, using, and distributing natural resources.
  - 1.A.1 – Identify and describe a...regional environmental issue.
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 3.A.1; 4.A.1 – Explain that the transfer and transformation of matter and energy links organisms to one another and to their physical environment.
- Grades 9-12
  - 1.A.1; 1.B.2; 1.B.3; 7.A.1; 7.B.1 – The student will recognize that real problems have more than one solution and decisions to accept one solution over another are made on the basis of many issues.
  - 1.A.1; 6.B.1; 7.B.1; 7.E.1 – Evaluate how the principles of economic costs, benefits, and opportunity cost are used to address public policy issues, such as... environmental concerns.
  - 3.A.1; 3.C.1; 4.A.1 – Demonstrate that matter cycles through and between living systems and the physical environment...
  - 3.C.1; 4.B.1; 5.A.1; 6.A.1; 7.A.1 – The student will investigate how natural and man-made changes in environmental conditions will affect individual organisms...

**Nature's Filter** (Grades K-3 as demonstration; Grades 4-12)

- Grades PK-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 1.B.2; 5.A.1; 5.A.2 – Recognize and describe that the activities of individuals or groups of individuals can affect the environment.
  - 2.B.2; 4.D.2 – Examine a variety of physical models and describe what they teach about the real things they are meant to resemble.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 2.A.1 – Describe ways that the following process contributes to changes always occurring to the Earth's surface – erosion
  - 7.A.1; 7.B.1 – Explain why and how people adapt to and modify the natural environment and the impact of these modifications.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.

**Nature's Recyclers** (Grades K-6)

- Grades PK-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.3 – Describe things as accurately as possible and compare observations with those of others.

- 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
- 1.A.4 – Use tools such as thermometers, magnifiers, rulers, or balances to extend their senses and gather data.
- 2.A.1 – Use examples of observations from places around the school and neighborhood to describe ways Earth’s materials can change.
- 2.B.1 – Provide evidence from investigations to identify processes that can be used to change physical properties of materials.
- 3.A.1; 4.A.1 - Develop an awareness of the relationship of features of living things and their ability to satisfy basic needs that support their growth and survival.
- 3.C.1 – Investigate a variety of familiar places where plants and animals live to describe the place and the living things found there.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which includes...observing what things are like.
  - 1.A.1; 3.A.1; 4.A.1 – Recognize that materials continue to exist even though they change from one form to another.
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.2 – Explain ways that individuals and groups of individuals interact with each other and their environment.
  - 3.A.1; 4.A.1 – Recognize that some source of energy is needed for all organisms to grow and survive.
- Grades 6-8
  - 4.A.1 – Explain that the transfer and transformation of matter and energy links organisms to one another and to their physical setting.

### **Nutrients: Nutrition or Nuisance?**

#### Part 1: Musical Nutrients (Grades 1-4)

- Grades PK-2
  - 3.A.1; 4.A.1 – Develop an awareness of the relationship of features of living things and their ability to satisfy basic needs that support their growth and survival.
  - 3.A.1; 4.A.1; 4.C.1 – Describe some of the ways animals depend on plants and on each other.
  - 2.B.2; 4.D.2 – Examine a variety of physical models and describe what they teach about the real things they are meant to resemble.
- Grades 3-5
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.

#### Part 2: Wetlands – the Nutrient Trap (Grades 2-8)

- Grades PK-2
  - 2.B.2 – Examine a variety of physical models and describe what they teach about the real things they are meant to resemble.
- Grades 3-5
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
- Grades 6-8
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.

### **Over Hill and Dale** (Grades 3-12; K-2 Option)

#### K-2 Option

- Grades PK-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.4; 1.A.5 – Seek information through...exploration, and investigations.

## Part 1: Watershed Model

- Grades 3-5
  - 1.A.1; 1.B.3; 5.A.2; 7.A.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and describe that people in Maryland depend on, change, and are affected by the environment.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 4.C.1; 5.A.1; 5.A.2; 7.A.1; 7.B.1 – Describe how people adapt to, modify, and impact the natural environment.
- Grades 6-8
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
  - 8.A.1 – Identify and explain land use issues that illustrate the conflict between economic growth and using the environment.
- Grades 9-12
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.

## Part 2: Topographic Map

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like.
  - 1.A.1; 1.B.3; 5.A.2; 7.A.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and describe that people in Maryland depend on, change, and are affected by the environment.
  - 1.A.3 – Identify a problem/situation that requires further study. (Wrap Up)
  - 2.A.1 – Describe ways that the following processes contribute to changes always occurring on the Earth’s surface: weathering, erosion, deposition.
  - 4.C.1; 5.A.1; 5.A.2; 7.A.1; 7.B.1 – Describe how people adapt to, modify, and impact the natural environment.
  - 6.A.1 – Recognize and explain how physical weathering and erosion cause changes to the Earth’s surface.
- Grades 6-8
  - 1.A.1 – Identify and describe a local...environmental issue.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 1.B.2; 1.B.3; 5.A.1; 5.A.2; 5.B.1; 6.B.1; 8.A.18.B.1 – Recognize and explain that human-caused changes have consequences for Maryland’s environment as well as for other places and future times.
  - 8.A.1 – Identify and explain land use issues that illustrate the conflict between economic growth and using the environment.
- Grades 9-12
  - 1.A.1; 1.A.2 – Identify an environmental issue and formulate related research questions.
  - 1.A.3 – Analyze geographic issues and problems using geographic concepts.
  - 1.B.1; 1.B.3 – The student will apply the skills, processes, and concepts of...earth science to societal issues.
    - 1.B.1 – Apply the conclusions to develop and implement an action plan.
    - 1.B.3 – Analyze the effectiveness of the action project in terms of achieving the desired outcomes.
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.

## People of the Bog (Grades 6-12)

- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.



- Grades 9-12
  - 1.A.2 – The student will identify meaningful, answerable scientific questions.
  - 1.A.4 – The student will identify the appropriate methods for conducting an investigation (independent and dependent variables, proper controls, etc.)
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.
  - 3.A.1; 3.C.1; 4.A.1 – Demonstrate that matter cycles through and between living systems and the physical environment, constantly being recombined in different ways.\

### **Recipe for Trouble (Grades 4-12)**

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
  - 7.A.1; 7.B.1 – Explain why and how people adapt to and modify the natural environment and the impact of these modifications.
- Grades 6-8
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.
- Grades 9-12
  - 1.A.4 – The student will identify the appropriate methods for conducting an investigation (independent and dependent variables, proper controls, etc.)
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.
  - 3.C.1; 4.B.1; 5.A.1; 6.A.1; 7.A.1 – The student will investigate how natural and man-made changes in environmental conditions will affect individual organisms...
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.

### **Regulation Rummy (Grades 9-12)**

- Grades 9-12
  - 1.A.1; 5.A.1; 5.A.2; 5.B.1; 6.B.1; 7.B.1; 8.C.1 – The student will evaluate the role of government in addressing land use and other environmental issues.
  - 7.B.1; 7.D.1 – The student will examine regulatory agencies and their social, economic, and political impact on the country, a region, or within a state.
  - 7.C.1; 8.A.1; 8.B.1; 8.E.1 – Evaluate the way national, state, and local governments develop policy to address land use and environmental issues.
  - 7.D.1 – Examine the impact of government decisions on individuals and groups, such as...environmental standards set by the Environmental Protection Agency (EPA), regulations set by the MD Department of the Environment.
  - 7.F.1 – Describe the purpose, roles, and responsibilities of regulatory agencies: Environmental Protection Agency (EPA).

## **A Rottin' Experiment** (Grades 2-12)

### Part 1: Model Composter

- Grades K-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 1.A.5 – Develop reasonable explanations for observations made, investigations completed, and information gained...
  - 2.B.1 – Provide evidence from investigations to identify processes that can be used to change the physical properties of materials.
  - 2.B.2 – Examine a variety of physical models and describe what they teach about the real things they are meant to resemble.
  - 3.A.1 – Provide evidence from investigations that things can be done to materials to change some of their properties.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 1.A.1; 3.A.1; 4.A.1 – Recognize that materials continue to exist even though they change from one form to another.
  - 1.A.5 – Develop explanations using knowledge possessed and evidence from observations and...investigations.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.
- Grades 9-12
  - 1.A.4 – The student will identify the appropriate methods for conducting an investigation (independent and dependent variables, proper controls, etc.)
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.

### Part 2: Plant Experiment

- Grades K-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 1.A.5 – Develop reasonable explanations for observations made, investigations completed, and information gained...
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 1.A.5 – Develop explanations using knowledge possessed and evidence from observations and...investigations.
  - 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.

Grades 6-8

- 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
- 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.
- Grades 9-12
  - 1.A.4 – The student will identify the appropriate methods for conducting an investigation (independent and dependent variables, proper controls, etc.)

**Run for the Border** (Grades 5-12)

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which includes...observing what things are like.
  - 1.A.1; 1.B.3; 5.A.2; 7.A.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and describe that people in Maryland ... change... the environment.
  - 4.A.1 – Recognize food as the source of materials that all living things need to grow and survive.
  - 4.C.1; 5.A.1; 5.A.2; 7.A.1; 7.B.1 – Describe how people adapt to, modify, and impact the natural environment.
  - 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
- Grades 6-8
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
- Grades 9-12
  - 1.A.5 – The student will analyze data to make predictions, decisions, or draw conclusions.
  - 3.C.1; 4.B.1; 5.A.1; 6.A.1; 7.A.1 – The student will investigate how natural and man-made changes in environmental conditions will affect individual organisms...

**Run Off Race** (Grades 2-12)

- Grades K-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 2.B.2; 4.D.2 – Examine a variety of physical models and describe what they teach about the real things they are meant to resemble.
  - 5.A.1 – Recognize and describe that the activities of individuals or groups of individuals can affect the environment.
- Grades 3-5
  - 2.A.1; 2.B.1 – Cite and describe processes that cause rapid or slow changes in Earth’s surface.
  - 2.A.1 – Describe ways that the following processes contribute to changes always occurring to the Earth’s surface – weathering and erosion
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 4.C.1; 5.A.1; 5.A.2; 7.A.1; 7.B.1 – Describe how people adapt to, modify, and impact the natural environment.
- Grades 6-8
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.

- 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.

### **Salt Marsh Players (Grades 3-6)**

- Grades 3-5
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1; 4.D.2 – Explain ways that individuals and groups of individuals interact with each other and their environment.
  - 4.A.1 – Recognize that some source of energy is needed for all organisms to grow and survive.
  - 4.A.1 – Recognize food as the source of materials that all living things need to grow and survive.
  - 4.B.1; 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
- Grades 6-8
  - 2.A.1; 3.B.2 – Cite evidence to explain the relationship between the hydrosphere and atmosphere.
  - 3.A.1; 4.A.1 – Explain that the transfer of matter and energy links organisms to one another and to their physical environment.
  - 3.C.1; 4.B.1; 4.C.1; 4.D.1; 4.D.2 – Give reasons supporting the fact that the number of organisms an environment can support depends on the physical conditions...
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.

### **Soak It Up! (Grades 3-9)**

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.

### **Treatment Plants (Grades 2-12)**

- Grades K-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.

### **Tracking Plants and Keeping Track (Grades 5-12)**

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which includes...observing what things are like.
  - 1.A.1 – Explain ways that individuals and groups of organisms interact with each other and with their environment.
  - 4.B.1; 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.
- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained...

### **Water Purifiers (Grades 6-12)**

#### Part 1: The Mechanical Method

- Grades 6-8
  - 1.A.1 – Identify and describe problems associated with obtaining, using, and distributing natural resources.
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
  - 5.B.1 – Recognize and explain the impact of a changing human population or the use of natural resources and environmental quality.
  - 7.F.1 – Recognize that design usually requires taking constraints into account.
- Grades 9-12
  - 1.A.5; 1.B.1; 6.B.1; 8.C.1; 8.F.1 – The student will analyze the consequences and/or trade-offs between technological changes and their effect on the individual, society, and the environment.
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality...

#### Part 2: Wetlands: Nature's Filter

- Grades 6-8
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality...

### **Water Under Foot (Grades 4-12)**

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 1.A.1; 1.B.3; 5.A.2; 7.A.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and describe that people in Maryland depend on, change, and are affected by the environment.
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 5.A.1; 5.A.2; 5.B.1; 7.A.1 – Describe how people adapt to, modify, and impact the natural environment.

- Grades 6-8
  - 1.A.4 – Design, analyze, or carry out simple investigations and formulate appropriate conclusions based on data obtained or provided.
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 1.A.1; 1.B.2; 1.B.3; 7.A.1; 7.B.1 – The student will recognize that real problems have more than one solution and decisions to accept one solution over another are made on the basis of many issues.
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.

**Water We Have Here?** (Grades 5-12; 2-4 with help)

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 - Gather and question data from many different forms of scientific investigations, which include...observing what things are like and doing experiments.
  - 1.A.1; 1.B.3; 5.A.2; 7.A.1; 8.B.1; 8.C.1; 8.D.1; 8.E.1 – Recognize and describe that people in Maryland depend on, change, and are affected by the environment.
  - 5.A.1; 5.A.2; 5.B.1; 7.A.1 – Describe how people adapt to, modify, and impact the natural environment.
- Grades 6-8
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.

**Wetland Address** (Grades 5-10)

- Grades 3-5
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.2 – Explain ways that individuals and groups of individuals interact with each other and their environment.
  - 4.B.1 – Explain that individuals of the same kind differ in their characteristics, and sometimes the differences give individuals an advantage in surviving and reproducing.
  - 4.B.1; 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
- Grades 6-8
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.

**Wetland Metaphors** (Grades 1-12)

- Grades PK-2
  - 2.B.2 – Examine a variety of physical models and describe what they teach about the real things they are meant to resemble.
- Grades 3-5
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
- Grades 6-8
  - 2.B.2; 4.D.1 – Analyze the value and the limitations of different types of models in explaining real things...

**Wetland in a Pan** (Grades 3-12)

- Grades 3-5
  - 2.B.2; 4.D.1 – Examine and modify models and discuss their limitations.
  - 4.C.1; 5.A.1; 5.A.2; 7.A.1; 7.B.1 – Describe how people adapt to, modify, and impact the natural environment.

- Grades 6-8
  - 1.A.1; 5.A.1; 5.B.1; 6.C.1; 7.A.1; 7.B.1 – Analyze why and how people modify their natural environment and the impact of those modifications.
  - 1.B.1 – Identify and describe that ecosystems can be impacted by human activities.
  - 2.B.2; 4.D.1; 4.D.2 – Analyze the value and the limitations of different types of models in explaining real things and processes.
- Grades 9-12
  - 2.B.2 – The student will use models...to extend his/her understanding of scientific concepts.
  - 5.A.2; 5.B.1; 6.B.1; 7.A.1; 7.F.1; 8.A.1; 8.D.1 – The student will evaluate the interrelationship between humans and water quality and quantity.

#### **Wetland Tradeoffs (Grades 9-12)**

- Grades 9-12
  - 1.A.1; 1.B.2; 1.B.3; 7.A.1; 7.B.1 – The student will recognize that real problems have more than one solution and decisions to accept one solution over another are made on the basis of many issues.
  - 1.A.1; 6.B.1; 7.B.1; 7.E.1 – Evaluate how the principles of economic costs, benefits, and opportunity cost are used to address public policy issues, such as environmental concerns.

#### **Wetland Weirdos (Grades 4-12)**

- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which include reviewing appropriate print resources and observing what things are like.
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
  - 4.B.1; 4.E.1 – Explain the idea that in any particular environment, some kinds of plants and animals survive well, some less well, and some cannot survive at all.
- Grades 6-8
  - 3.A.1; 4.A.1 – Explain that the transfer and transformation of matter and energy links organisms to one another and to their physical environment.
- Grades 9-12
  - 3.C.1; 4.A.1 – The student will demonstrate that matter cycles through and between living systems and the physical environment.
  - 4.E.1 – The student will provide examples and evidence showing that natural selection leads to organisms that are well suited for survival in particular environments.

#### **Wetlands in the Classroom – Part 2 (Grades K-8)**

- Grades PK-2
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which includes...observing what things are like.
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.

#### **Wet ‘n’ Wild (Grades K-12)**

- Grades PK-2
  - 1.A.1; 1.A.2 – Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.3 – Describe things as accurately as possible and compare observations with those of others.
  - 1.A.4 – Use tools such as thermometers, magnifiers, rulers...to extend their senses.

- 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
- 1.A.5 – Have opportunities to work with a team, share findings with others...
- 3.C.1 – Investigate a variety of familiar places where plants and animals live to describe the place and the living things found there.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which include...observing what things are like.
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
- Grades 6-8
  - 4.E.1 – Explain that in any particular environment, the growth and survival of organisms and species depend on the physical conditions.

**What a Boat! (Grades 1-5)**

- Grades K-2
  - 7.C.1 – Observe and describe ways that people of different cultural backgrounds meet human needs and contribute to the community.
- Grades 3-5
  - 7.C.1 – Describe how environment and location influenced cultures and lifestyle.

**Whose Clues? (Grades K-12)**

- Grades PK-2
  - 1.A.1; 1.A.2 - Raise questions about the world around them and be willing to seek answers to some of them by making careful observations and trying things out.
  - 1.A.3 – Describe things as accurately as possible and compare observations with those of others.
  - 1.A.4 – Use tools such as thermometers, magnifiers, rulers...to extend their senses.
  - 1.A.4; 1.A.5 – Seek information through reading, observation, exploration, and investigations.
  - 1.A.5 – Have opportunities to work with a team, share findings with others...
  - 3.A.1 – Describe some of the ways animals depend on plants.
  - 3.C.1 – Investigate a variety of familiar places where plants and animals live to describe the place and the living things found there.
- Grades 3-5
  - 1.A.1; 1.A.2; 1.A.4 – Gather and question data from many different forms of scientific investigations which include...observing what things are like.
  - 1.A.1; 3.C.1; 4.B.1; 4.C.1; 4.D.1 – Explain ways that individuals and groups of organisms interact with each other and their environment.
  - 3.A.1; 4.A.1 – Recognize that materials continue to exist even though they change from one form to another.
- Grades 6-8
  - 3.A.1; 4.A.1 – Explain that the transfer of matter and energy links organisms to one another and to their physical environment.