Oxford Area School District Science Scope and Sequence – Quarter 1:

Grade 2

3.1

Organisms and Cells

- Identify similarities and differences in the life cycles of plants and animals.
- Explain how different parts of a plant work together to make the organism functions.

3.1.2.C

Evolution

- Explain that living things can only survive if their needs are being met.
- CONSISTENCY AND CHANGE-Describe some plants and animals that once lived on Earth, (e.g., dinosaurs) but cannot be found anymore. Compare them to now living things that resemble them in some way (e.g., lizards and birds)

Oxford Area School Science Scope and Sequence – Quarter 2:

Grade 2

3.2.2.B Physics	• Explore and describe how different forms of energy cause changes. (e.g., sunlight, heat, wind) • ENERGY Recognize that light from the sun is an important source of energy for living and nonliving systems and some source of energy is needed for all organisms to stay alive and grow.
3.3.2.B Origin and Evolution of the Universe	• Observe and record-Location of the Sun and the Moon in the sky over a day. • Changes in the appearance of the Moon over a month. Observe, describe, and predict seasonal patterns of sunrise and sunset.
3.2.2.A Chemistry	• Demonstrate how heating and cooling may cause changes in the properties of materials. • Experiment and explain what happens when two or more substances are combined (e.g. mixing, dissolving, and separated (e.g. filtering, evaporation). • CONSTANCY AND CHANGE Recognize that everything is made of matter
3.3.2.A Earth Structure, Processes and Cycles	• Explore and describe that water exists in solid (ice) and liquid (water) form. Explain and illustrate evaporation and condensation

Oxford Area School District Science Scope and Sequence – Quarter 3

Grade 2

4.3.2 Natural Resources

- Describe the jobs/hobbies people have in the community that relate to natural resources.
- Identify products and by-products derived from renewable resources.

4.4.2 Agriculture and Society

- Identify agriculture as a living system and that food and fiber originate from plants and animals
- Explain how agriculture supports jobs in Pennsylvania

4.5.2 Humans and the Environment

- Identify the natural resources used to make various products.
- Describe how people can help the environment by reducing, reusing, recycling and composting.

Oxford Area School District Science Scope and Sequence – Quarter 4

Grade 2

4.2.2 Watersheds and Wetlands

- Identify and describe the basic needs of plants and animals in an aquatic ecosystem

4.1.2 Ecology

- Describe how a plant or an animal is dependent on living and nonliving things in an aquatic habitat.
- Identify sources of energy in an aquatic habitat
- Identify differences in living things (color, shape, size, etc.) and describe how adaptations are important for survival.
- Identify how living things can survive changes in their environment.

4.4.2 Agriculture and Society

- Examine life cycles of plants and animals in an aquatic habitat.

Science as Inquiry

- Distinguish between scientific fact and opinion.
- Ask questions about objects, organisms and events.
- Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known.
- Plan and conduct a simple investigation and understand that different questions require different kinds of investigations.
- Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information.
- Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge.
- Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced and review and ask questions about the work of other scientists.

Science Curriculum - Grade 2			
Big Idea Living things depend on their habitat to meet their basic needs.			
Essential Question What is the role of the habitat in providing the basic needs of an organism?		**Standards** 3.1.2.A 3.1.2.C 3.2.2.B	
Concepts	**Competencies**	**Resources**	**Assessments**
All living things have basic needs: food, space, shelter and water in an arrangement suitable for survival.	Identify the basic needs of living things in a habitat.	**Science Fusion 2017**	
Living things find their basic needs in their habitat.	Given a plant or animal, identify its preferred food, water source, shelter, space and how its habitat provides these needs in a suitable arrangement	**Science Fusion 2017**	
Living things are associated with specific habitats. (i.e. rabbits live in fields but could not survive in an ocean)	Describe one major habitat in PA (e.g. wetland, forest, field, river/lake/creek, urban/suburban) and identify many of the associated living and non-living components.		
There are many different species of organisms that live and interact within a habitat.	Describe one major habitat in PA (e.g. wetland, forest, field, river/lake/creek, urban/suburban) and identify many of the associated living and non-living components.		

Living livings depend on other living and non-living components within a habitat.	Given a plant or animal, identify its preferred food, water source, shelter, space and how its habitat provides these needs in a suitable arrangement	**Science Fusion**	
Vocabulary aquatic, terrestrial, human-made ecosystems, geographic			

Science Curriculum - Grade 2			
Big Idea: Aquatic, terrestrial, and human-made ecosystems consist of diverse living and non-living components that change over time and among geographic areas.			
Essential Question: What are the living and non-living parts of ecosystems that exist within our community (or our school?) and what can cause them to change over time?		**Standards** 3.1.2.A 3.3.2.B 3.3.2.A 4.4.2	
Concepts	**Competencies**	**Resources**	**Assessments**
PA experiences four seasonal climate changes: spring, summer, fall, winter.	Identify an animal or plant and list the effects of seasonal change on that organism.	**Science Fusion 2017**	
Organisms (plants and animals) respond to seasonal changes (i.e. growth patterns, dormancy and hibernation, migration).	Identify an animal or plant and list the effects of seasonal change on that organism.	**Science Fusion 2017**	
Plants and animals develop according to the species' life cycle.	Describe the life cycle of a given plant and a given animal.	**Science Fusion 2017**	

After a living organism dies it decomposes and becomes a nutrient source or natural resource.	Describe the life cycle of a given plant and a given animal.	**Science Fusion 2017**	
After a living organism dies it decomposes and becomes a nutrient source or natural resource.	Create a graphic representation of a food chain in a local ecosystem.	**Science Fusion 2017**	
Water can be flowing or still within an ecosystem.	Locate three bodies of water within your community, categorize each as flowing or still, and identify the purpose of each within the ecosystem.		
Water moves through an ecosystem in a dynamic manner (i.e. water cycle).	Describe the three phases of water and give an example of each within a local ecosystem.	**Science Fusion 2017**	
Living and non-living components of an ecosystem are interdependent.	Locate three bodies of water within your community, categorize each as flowing or still, and identify the purpose of each within the ecosystem.	**Science Fusion 2017**	
Living and non-living components of an ecosystem are interdependent.	Create a graphic representation of a food chain in a local ecosystem.	**Science Fusion 2017**	

Living and non-living components of an ecosystem are interdependent.	Create a graphic representation of how an organism depends on living and non-living components in its environment.	**Science Fusion 2017**	
Change in an ecosystem may cause organisms to become extinct when one or more of their needs can no longer be met.	Create a graphic representation of a food chain in a local ecosystem.	**Science Fusion 2017**	
Vocabulary adaptation			

Science Curriculum - Grade 2			
Big Idea The survival of living things is dependent upon their adaptations and ability to respond to natural changes in and human influences on the environment.			
Essential Question **How does an adaptation help an organism to survive and what happens when it cannot adapt to changes in its environment?**		**Standards** 3.1.2.C 4.1.2	
Concepts	**Competencies**	**Resources**	**Assessments**
Animals and plants have physical adaptations that enable them to survive in their habitat (e.g., physical: shape of beak, position of eyes on head, thickness offur or fat, flat leaf vs. needle).	Explain how the adaptations of three different animal and/or plant species help the organisms to survive in their habitat(s) (e.g. fur, feathers, web feet; butterfly proboscis; camouflage; seed dispersal).	**Science Fusion 2017**	

When habitat changes it affects living things.	Describe how living things are affected when their habitat changes. (e.g., changes occur in food, water, shelter, space).	**Science Fusion 2017**	
Vocabulary			

Science Curriculum - Grade 2			
Big Idea Humans depend upon the management and practices of agricultural systems.			
Essential Question How does agriculture play a role in our everyday lives?		**Standards** 4.3.2 4.4.2	
Concepts	**Competencies**	**Resources**	**Assessments**
Agriculture provides for many of the basic needs of humans and animals.	Identify the basic needs of humans and animals that are met by agricultural industry.		
Agriculture provides for many of the basic needs of humans and animals.	Compare and contrast how agriculture influences the food, clothing, shelter and customs of two different cultures.		
Agriculture provides for many of the basic needs of humans and animals.	Where does your lunch come from? Trace it back to its origins.		

Agriculture provides for many of the basic needs of humans and animals.	Are you wearing clothing from a plant and/or animal source? Trace it back to its origins.		
Without sound agricultural practices, we would not be able to feed people.	Identify methods farmers may use to protect waterways and land.		
Without sound agricultural practices, we would not be able to feed people.	Compare and contrast how agriculture influences the food, clothing, shelter and customs of two different cultures.		
Without sound agricultural practices, we would not be able to feed people.	What makes a pest a pest? Explain three different ways to control plant and animal pests.		
Food, clothing and some shelter are provided through agricultural practices.	Identify the basic needs of humans and animals that are met by agricultural industry.		
Food, clothing and some shelter are provided through agricultural practices.	Identify common farm crops (e.g. sweet and field corn, soybeans, wheat, mushrooms, grapes), farm animals (e.g., dairy and beef cows; sheep; swine; poultry), and common items grown in gardens for food (e.g. tomatoes, squash,		

	peppers) in Pennsylvania.		
Food, clothing and some shelter are provided through agricultural practices.	Compare and contrast how agriculture influences the food, clothing, shelter and customs of two different cultures.		
Food, clothing and some shelter are provided through agricultural practices.	Where does your lunch come from? Trace it back to its origins.		
Food, clothing and some shelter are provided through agricultural practices.	Are you wearing clothing from a plant and/or animal source? Trace it back to its origins.		
Pennsylvania farmers raise and grow specific animals and plants in order to meet our basic needs and wants.	Identify the basic needs of humans and animals that are met by agricultural industry.		
Pennsylvania farmers raise and grow specific animals and plants in order to meet our basic needs and wants.	Identify common farm crops (e.g. sweet and field corn, soybeans, wheat, mushrooms, grapes), farm animals (e.g., dairy and beef cows; sheep; swine; poultry), and common items grown in gardens for food (e.g. tomatoes, squash,		

	peppers) in Pennsylvania.		
Pennsylvania farmers raise and grow specific animals and plants in order to meet our basic needs and wants.	Compare and contrast how agriculture influences the food, clothing, shelter and customs of two different cultures.		
Pennsylvania farmers raise and grow specific animals and plants in order to meet our basic needs and wants.	Where does your lunch come from? Trace it back to its origins.		
Pennsylvania farmers raise and grow specific animals and plants in order to meet our basic needs and wants.	Are you wearing clothing from a plant and/or animal source? Trace it back to its origins.		
Animals can provide both food and clothing.	Identify the basic needs of humans and animals that are met by agricultural industry.		
Animals can provide both food and clothing.	Identify common farm crops (e.g. sweet and field corn, soybeans, wheat, mushrooms, grapes), farm animals (e.g., dairy and beef cows; sheep; swine; poultry), and common items grown in gardens for food (e.g. tomatoes, squash,		

	peppers) in Pennsylvania.		
Animals can provide both food and clothing.	Compare and contrast how agriculture influences the food, clothing, shelter and customs of two different cultures.		
Animals can provide both food and clothing.	Where does your lunch come from? Trace it back to its origins.		
Animals can provide both food and clothing.	Are you wearing clothing from a plant and/or animal source? Trace it back to its origins.		
Agriculture-related businesses and individuals implement practices that care for the land and the water.	Identify methods farmers may use to protect waterways and land.		
The agricultural industry is more than farming, and provides a lot of jobs in Pennsylvania.	Where does your lunch come from? Trace it back to its origins.		

The agricultural industry is more than farming, and provides a lot of jobs in Pennsylvania.	Are you wearing clothing from a plant and/or animal source? Trace it back to its origins.		
Animals can provide both food and clothing.	Are you wearing clothing from a plant and/or animal source? Trace it back to its origins.		
Homeowners and farmers can control pests while being environmentally friendly (integrated pest management).	Identify methods farmers may use to protect waterways and land.		
Homeowners and farmers can control pests while being environmentally friendly (integrated pest management).	What makes a pest a pest? Explain three different ways to control plant and animal pests.		
Vocabulary			

Science Curriculum - Grade 2			
Big Idea: Sustainable use of natural resources is essential to provide for the needs and wants of all living things now and in the future.			
Essential Question: Why is it important to conserve both renewable and non-renewable resources?		**Standards** 4.5.2 3.1.2.C	
Concepts	**Competencies**	**Resources**	**Assessments**

All living things rely on natural resources for survival (including people)	Explain how plants, animals use natural resources for their survival.	**Science Fusion 2017**	
All living things rely on natural resources for survival (including people)	Explain how you and others in your class use natural resources in your daily lives.	**Science Fusion 2017**	
All living things rely on natural resources for survival (including people)	Explain why it is important to conserve natural resources.	**Science Fusion 2017**	
All living things survive by meeting their needs: needs are necessary for survival; wants are not.	Explain how plants, animals use natural resources for their survival.	**Science Fusion 2017**	
All living things survive by meeting their needs: needs are necessary for survival; wants are not.	Explain how you and others in your class use natural resources in your daily lives.	**Science Fusion 2017**	
All living things survive by meeting their needs: needs are necessary for survival; wants are not.	21. Explain the difference between needs and wants and give examples of each.	**Science Fusion 2017**	

All living things survive by meeting their needs: needs are necessary for survival; wants are not.	Explain why it is important to conserve natural resources.	**Science Fusion 2017**	
Humans use and consume the Earth's natural resources daily.	Explain how plants, animals use natural resources for their survival.	**Science Fusion 2017**	
Humans use and consume the Earth's natural resources daily.	Explain how you and others in your class use natural resources in your daily lives.	**Science Fusion 2017**	
Humans use and consume the Earth's natural resources daily.	Explain why it is important to conserve natural resources.	**Science Fusion 2017**	
Humans use and consume the Earth's natural resources daily.	List ways that you and others can conserve natural resources.	**Science Fusion 2017**	
Humans can conserve some natural resources, so that these resources can be sustained for the future.	Explain why it is important to conserve natural resources.	**Science Fusion 2017**	

There are laws that help to conserve natural resources.	Explain why it is important to conserve natural resources.		
There are laws that help to conserve natural resources.	List ways that you and others can conserve natural resources.		
Vocabulary			

Science Curriculum - Grade 2			
Big Idea The health of all living things is directly related to the quality of the environment.			
Essential Question **How does the quality of the environment affect the health of living things?**		**Standards** 3.1.2.C	
Concepts	**Competencies**	**Resources**	**Assessments**
Plants, animals and humans need air and water to survive.	Explain how living and non-living things affect one another.	**Science Fusion 2017**	
Plants, animals and humans need air and water to survive.	Describe how water, air and soil affect living things.	**Science Fusion 2017**	

Living and non-living components of the ecosystem affect each other.	Explain how living and non-living things affect one another.	**Science Fusion 2017**	
Living and non-living components of the ecosystem affect each other.	Describe how water, air and soil affect living things.	**Science Fusion 2017**	
Health can be affected by things in air, water or soil.	Explain how living and non-living things affect one another.	**Science Fusion 2017**	
Health can be affected by things in air, water or soil.	Describe how water, air and soil affect living things.	**Science Fusion 2017**	
Health can be affected by things in air, water or soil.	Describe how the health of living things is affected by the quality of water, air and soil.		
Humans may have a positive or negative impact on environmental health (e.g. pollution; cleanup programs).	Describe how the health of living things is affected by the quality of water, air and soil.		

Humans may have a positive or negative impact on environmental health (e.g. pollution; cleanup programs).	Describe positive and negative impacts of humans on the ecosystem.		
Vocabulary			

Science Curriculum - Grade 2			
Big Idea: People acting individually and/ or as groups influence the environment.			
Essential Question: How do humans actions affect the health of air, water, and land?		**Standards** 4.5.2	
Concepts	**Competencies**	**Resources**	**Assessments**
Human activities affect the environment on a daily basis.	List examples of everyday human activities and describe how they affect the environment (positively or negatively).		
Human activities affect the environment on a daily basis.	Describe ways that people pollute the environment. What are some of the consequences of pollution?		
Human activities affect the environment on a daily basis.	Identify items that can be reduced, recycled, reused and refused in the local community, the school and the classroom.		

Human activities affect the environment on a daily basis.	Identify actions that can be taken by you, and others, to help the environment.		
These effects can be positive or negative	List examples of everyday human activities and describe how they affect the environment (positively or negatively).		
These effects can be positive or negative	Describe ways that people pollute the environment. What are some of the consequences of pollution?		
These effects can be positive or negative	Identify items that can be reduced, recycled, reused and refused in the local community, the school and the classroom.		
These effects can be positive or negative	Identify actions that can be taken by you, and others, to help the environment.		
Individuals and groups can choose actions that positively influence the environment (pollution, recycling, reduce, reuse).	List examples of everyday human activities and describe how they affect the environment (positively or negatively).		

Individuals and groups can choose actions that positively influence the environment (pollution, recycling, reduce, reuse).	Describe ways that people pollute the environment. What are some of the consequences of pollution?		
Individuals and groups can choose actions that positively influence the environment (pollution, recycling, reduce, reuse).	Identify items that can be reduced, recycled, reused and refused in the local community, the school and the classroom.		
Individuals and groups can choose actions that positively influence the environment (pollution, recycling, reduce, reuse).	Identify actions that can be taken by you, and others, to help the environment.		
Vocabulary			

Science Curriculum - Grade 2			
Big Idea Environmental laws and regulations impact humans, the environment, and the economy in both positive and negative ways.			
Essential Question **Why do people create laws, and how do they impact the way we interact with the environment?**		**Standards** 4.5.2	
Concepts	**Competencies**	**Resources**	**Assessments**

Environmental laws and regulations exist (e.g., recycling, endangered species, etc.)	Give examples of local, state or federal laws that protect living and/or non-living things in the environment.		
Environmental laws and regulations exist (e.g., recycling, endangered species, etc.)	Explain why people create laws.		
Environmental laws and regulations exist (e.g., recycling, endangered species, etc.)	Explain how a specific environmental law (e.g. littering law; recycling) affects your everyday life.		
People create laws and regulations to protect the living components (i.e. wildlife, plants) and non-living components (e.g., water, soil) of the environment.	Give examples of local, state or federal laws that protect living and/or non-living things in the environment.		
People create laws and regulations to protect the living components (i.e. wildlife, plants) and non-living components (e.g., water, soil) of the environment.	Explain why people create laws.		
These laws and regulations affect how we live our everyday lives.	Give examples of local, state or federal laws that protect living and/or non-living things in the environment.		

These laws and regulations affect how we live our everyday lives.	Explain why people create laws.		
These laws and regulations affect how we live our everyday lives.	Explain how a specific environmental law (e.g. littering law; recycling) affects your everyday life.		
Vocabulary			

Science Curriculum - Grade 2			
Big Idea **The properties of matter can undergo changes.**			
Essential Question **What are the properties of matter and how do they change?**		**Standards** **3.2.2.A**	
Concepts	**Competencies**	**Resources**	**Assessments**
All matter has properties that can change.	Describe basic changes to properties of matter.	**Science Fusion 2017**	
All matter has properties that can change.	Distinguish between reversible and nonreversible changes that matter can undergo.	**Science Fusion 2017**	
Vocabulary			