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.

Subject Curriculum – Grade level 2nd **Interdependent Relationships in Ecosystems**

Big Idea –

Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.

Essential Question-

How do organisms interact with the living and nonliving environments to obtain matter and energy?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.1.2.A Plan and conduct an investigation to determine if plants need sunlight and water to grow.	• Events have causes that generate observable patterns. • Planning and Carrying Out Investigations • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. • Plants depend on water and light to grow.	**HMH Into Science**	-Unit Test

Vocabulary

Environment, survive, organism, species

Subject Curriculum – Grade level 2nd **Interdependent Relationships in Ecosystems**

Big Idea –Organisms grow, reproduce, and perpetuate their species by obtaining necessary resources through interdependent relationships with other organisms and the physical environment.

Essential Question-
How do organisms interact with the living and nonliving environments to obtain matter and energy?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.1.2.B Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	• The shape and stability of structures of natural and designed objects are related to their function(s). • Develop a simple model based on evidence to represent a proposed object or tool.	**HMH Into Science**	- Unit Test

	• Plants depend on animals for pollination or to move their seeds around.		
Vocabulary Minerals, soil, sunlight, water			

Subject Curriculum – Grade level 2nd Biodiversity and Humans			
Big Idea – Biodiversity—the multiplicity of genes, species, and ecosystems—provides humans with renewable resources, such as food, medicines, and clean water.			
Essential Question- What is biodiversity, how do humans affect it, and how does it affect humans?			
Concepts/Standards	**Science and Engineering Practices** **Disciplinary Core Ideas** **Cross Cutting Concepts**	**Resources**	**Assessments**

• 3.1.2.C Make observations of plants and animals to compare the diversity of life in different habitats.	• Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. • Make observations (firsthand or from media) to collect data which can be used to make comparisons. • There are many different kinds of living things in any area, and they exist in different places on land and in water.	**HMH Into Science**	Unit Tests
Vocabulary Biodiversity, microorganisms, needs, organism, survive, exist, habitats, land, living, things, water			

Subject Curriculum – Grade level 2nd Structure and Properties of Matter			
Big Idea – All forms of matter exist as a result of the combination or rearrangement of atoms.			
Essential Question- How do particles combine to form the variety of matter one observes?			
Concepts/Standards	**Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts**	**Resources**	**Assessments**

• 3.2.2.A Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	• Patterns in the natural and human designed world can be observed. • Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. • Plants depend on water and light to grow	**HMH Into Science**	Unit Tests
Vocabulary Classify, describe, gas, liquid, matter, patterns, solid, weight, color, flexibility, properties, texture, investigations			

Subject Curriculum – Grade level 2nd Structure and Properties of Matter			
Big Idea – All forms of matter exist as a result of the combination or rearrangement of atoms.			
Essential Question- How do particles combine to form the variety of matter one observes?			
Concepts/Standards	**Science and Engineering Practices** **Disciplinary Core Ideas** **Cross Cutting Concepts**	**Resources**	**Assessments**

• 3.2.2.B Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	• Simple tests can be designed to gather evidence to support or refute student ideas about causes. • Analyze data from tests of an object or tool to determine if it works as intended. • Different properties are suited to different purposes.	**HMH Into Science**	Unit Tests
Vocabulary Argument, boiling, cause and effect, evidence, freezing, melting, reverse, data, functions, test			

Subject Curriculum – Grade level 2nd Structure and Properties of Matter			
Big Idea – All forms of matter exist as a result of the combination or rearrangement of atoms.			
Essential Question- How do particles combine to form the variety of matter one observes?			
Concepts/Standards	**Science and Engineering Practices Disciplinary Core Ideas**	**Resources**	**Assessments**

	Cross Cutting Concepts		
• 3.2.2.C Make observations to construct an evidence based account of how an object made of a small set of pieces can be disassembled and made into a new object.	• Objects may break into smaller pieces and be put together into larger pieces or change shapes. • Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. • A great variety of objects can be built up from a small set of pieces.	**HMH Into Science**	Unit Tests
Vocabulary Construct, design, engineer, problem, solving, solutions			

Subject Curriculum – Grade level 2nd Chemical Reactions
Big Idea – The atoms of some substances combine or rearrange to form new substances that have different properties.
Essential Question-

How do substances combine or change (react) to make new substances? How does one characterize and explain these reactions and make predictions about them?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.2.2.D Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	• Events have causes that generate observable patterns. • Construct an argument with evidence to support a claim. • Heating or cooling a substance may cause changes that can be observed. Sometimes these changes are reversible, and sometimes they are not.	**HMH Into Science**	Unit Tests

Vocabulary
Construct, design, disassemble, engineer, problem solving, solutions

Subject Curriculum – Grade level 2nd The History of Planet Earth

Big Idea – Earth scientists use the structure, sequence, and properties of rocks, sediments, and fossils, as well as the locations of current and past ocean basins, lakes, and rivers, to reconstruct events in Earth's planetary history

Essential Question-
How do people reconstruct and date events in Earth's planetary history?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.3.2.A Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	• Things may change slowly or rapidly. • Make observations from several sources to construct an evidence-based account for natural phenomena. • Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.	**HMH Into Science**	Unit Tests

Vocabulary
Erosion, weathering, Earth, materials, landform, geographic, geologic, geological, map, Pennsylvania features

Subject Curriculum – Grade level 2nd **Earth Materials and Systems**
Big Idea – Earth is a complex system of interacting subsystems: the geosphere, hydrosphere, atmosphere, and biosphere.

Essential Question- How do Earth's major systems interact?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.3.2.B Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	• Stability and Change Things may change slowly or rapidly. • Compare multiple solutions to a problem. • Wind and water can change the shape of the land.	**HMH Into Science**	Unit Tests

Vocabulary

Accumulation, condensation, Earth, evaporation, groundwater, lake, landscape, liquid, moon, ocean, planet, pond, precipitation, river, solid/ice, types of clouds, vapor/gas,

Subject Curriculum – Grade level 2nd Plate Tectonics and Large-Scale System Interactions

Big Idea – Plate tectonics is the unifying theory that explains the past and current movements of the rocks at Earth's surface and provides a coherent account of its geological history.

Essential Question- Why do the continents move, and what causes earthquakes and volcanoes?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.3.2.C Develop a model to represent the shapes and kinds of land and bodies of water in an area.	• Patterns in the natural world can be observed. • Develop a model to represent patterns in the natural world. • Maps show where things are located. One can map the shapes and kinds of land and water in any area.	**HMH Into Science**	Unit Tests

Vocabulary
Community, energy, materials, resources, transportation

Subject Curriculum – Grade level 2nd The Roles of Water in Earth's Surface Processes

Big Idea – Earth is often called the water planet because of the abundance of liquid water on its surface and because water's unique combination of physical and chemical properties is central to Earth's dynamics.

Essential Question- How do the properties and movements of water shape Earth's surface and affect its systems?

Concepts/Standards	Science and Engineering Practices Disciplinary Core Ideas Cross Cutting Concepts	Resources	Assessments
• 3.3.2.D Obtain information to identify where water is found on Earth and that it can be solid or liquid.	• Patterns in the natural world can be observed. • Obtain information using various texts, text features (e.g., headings, tables of contents, glossaries, electronic menus, icons), and other media that will be useful in answering a scientific question. • Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.	**HMH Into Science**	Unit Tests

Vocabulary ocean, planet, pond, precipitation, River, solid/ice, types of clouds, vapor/gas