Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Kindergarten ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Physical Science (PS) **Unit 1: Forces And Interactions Pushes and Pulls** **Essential Questions:** How do pushes and pulls affect the motion of an object? How do objects move and what happens when they interact? **Performance Expectations:** ● K-PS2-1 ● K-PS2-2 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Force Olympics: Forces, Machines, and Engineering** **Profound Perspective:** This unit will help students develop their first concept of "force", and the idea that by playing with forces and thinking about them, we can accomplish surprisingly big things.	***Life Science (LS)*** **Unit 2: Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment** **Essential Questions:** What do plants and animals need to meet their needs and survive within environments? What is the relationship between the needs of different plants and animals and the places they live? **Performance Expectations:** ● K-LS1-1 ● K-ESS2-2 ● K-ESS3-1 ● K-ESS3-3 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Plant and Animal Secrets: Plant and Animal Needs** **Profound Perspective:** Animals and plants need things in order to survive, and their lives are all about meeting those needs...it's the secret to why they do the many strange and wonderful things that they do! Knowing how they meet their needs can even help you find plants and animals near where you live.	***Earth & Space Science (ESS)*** **Unit 3: Weather & Climate** **Essential Questions:** Can changes in weather patterns be observed over the course of the year? Can weather influence the ability of plants and animals to meet their needs in their environment? What can we observe about sunlight? **Performance Expectations:** ● K-PS3-1 ● K-PS3-2 ● K-ESS2-1 ● K-ESS3-2 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Weather Watching: Weather Conditions, Instruments, and Seasons** **Profound Perspective:** This unit will help students develop the habit of becoming weather watchers who take pleasure in noticing weather patterns and predicting changes.

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

First Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Physical Science (PS) **Unit 1: Waves: Light and Sound ~ Light, Sound, Space and Communication** **Essential Question:** How can light or sound be used to send messages over a distance? **Supporting Questions:** Why can we see objects and hear sounds? Where do sounds come from? Can objects be seen if light is available to illuminate them or if they give off their own light? How do people and animals use sound to communicate? How can heat be transferred to another object? How do we measure heat, light and sound? **Performance Expectations:** ● 1-PS4-1 ● 1-PS4-2 ● 1-PS4-3 ● 1-PS4-4 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Lights and Sounds: Properties of Lights and Sounds** **Profound Perspective:** This unit will develop the idea that by exploring the properties of light and sound and heat, human beings create fun and useful things.	***Life Science (LS)*** **Unit 2: Structure, Function, and Information Processing ~ Structure and Behaviors in Organisms** **Essential Questions:** How can we solve problems related to organisms and sunlight? How do patterns relate to sunlight throughout the year as well as to relationships between parents and offspring? **Supporting Question:** What structures and behaviors help plants and animals survive? How are young plants and animals like, but not exactly like, their parents? **Performance Expectations:** ● 1-LS1-1 ● 1-LS1-2 ● 1-LS3-1 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Plant & Animal Superpowers: Parts, Survival, and Growth** **Profound Perspective:** This unit will help students develop the idea that, like a superhero has special powers, every animal and plant has special parts and behaviors that help them to grow and meet their needs.	***Earth & Space Science (ESS)*** **Unit 3: Space Systems: Patterns and Cycles ~ Light and Solar Patterns** **Essential Question:** Can patterns of the sun, moon, and stars be used to make predictions of future observations? **Supporting Questions:** Why are we able to see objects? Why do the stars come out at night? Why does daylight change throughout the year? What causes shadows? How do shadows affect the way that we see the moon? **Performance Expectations:** ● 1-ESS1-1 ● 1-ESS1-2 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Spinning Sky: Sun, Moon, and Stars** **Profound Perspective:** This unit will help students develop the idea that the sun, moon, and stars change position in the sky in ways that are fun to watch and predict.

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Second Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Physical Science (PS) **Unit 1: Structure and Properties of Matter** **Essential Question:** How do we design better products? **Performance Expectations:** ● 2-PS1-1 ● 2-PS1-2 ● 2-PS1-3 ● 2-PS1-4 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Material Magic ~ Properties & Phases of Matter** **Profound Perspective:** This unit develops the idea that by taking advantage of the properties of materials, we can solve many problems in our lives. Students will develop an appreciation for the manmade materials of everyday objects, and learn to recognize that those materials are chosen based on their properties. Through hands-on investigation, students will explore the material properties involved in meeting basic needs (such as clothing and cooking.) They'll consider the solid and liquid states of matter to understand why plastic was invented. The unit ends with a brainstorming activity about futuristic inventions that might be possible using new materials.	***Earth & Space Science (ESS)*** **Unit 2: Earth Systems: Processes that Shape the Earth** **Essential Question:** How do we prevent wind or water from changing the land? What patterns related to water exist in the natural world? Why does the land change over time? **Performance Expectations:** ● 2-ESS1-1 ● 2-ESS2-1 ● 2-ESS2-2 ● 2-ESS2-3 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Work of Water: Earth's Surface Processes** **Profound Perspective:** This unit helps students develop the idea that water is a powerful force that reshapes the earth's surface. Students see that water isn't just something we drink. It carries sand to create beaches, carves out canyons and valleys, and, as ice, scrapes entire areas flat.	***Life Science (LS)*** **Unit 3: Interdependent Relationship in Ecosystems** **Essential Question:** What do plants need? What kinds of solutions can help plants meet their needs? How many different kinds of animals are there? How can we categorize animals by their patterns/characteristics? How do animals survive in our natural world? **Performance Expectations:** ● 2-LS2-1 ● 2-LS4-2 ● 2-LS4-1 ● K-2-ETS1-1 ● K-2-ETS1-2 ● K-2-ETS1-3 **Mystery Science Connection:** **Plant Adventures: Structure, Functions, and Adaptations** **Profound Perspective:** This unit develops the idea that plants are truly alive and face challenges every bit as dramatic as those of animals. Students will learn that plants have needs, and will reason from evidence to understand how plants meet their needs. **Mystery Science Connection:** **Animal Adventures: Biodiversity** **Profound Perspective:** This unit helps students develop a sense of wonder for biodiversity: the sheer range and variety of animals found on earth. Students gain practical experience in identifying animals and sorting them into scientific groups, and apply their knowledge in an engineering design challenge. This unit introduces two critically important concepts in biology: "habitat" and "species," foundational concepts which will be revisited and refined at higher grade levels.

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Third Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Physical Science (PS) **Unit 1: Forces and Interactions** **Essential Question:** What happens when different objects interact? How do objects affect the motion of other objects? **Performance Expectations:** • 3-PS2-1 • 3-PS2-2 • 3-PS2-3 • 3-PS2-4 • 3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3 **Mystery Science Connection:** **Invisible Forces: Forces and Motion, Magnetism** **Profound Perspective:** This introductory forces unit will give students a new understanding of the invisible pushes and pulls that operate in the world around them. They will realize that understanding forces will let them do surprising things — from building a sturdy bridge from paper to using the pull of a rubber band to send a cardboard "hopper" flying. What students learn in this unit will connect to the world around them, leading them to think about such things as the force of friction as they slide down a playground slide or the the invisible force that makes magnets cling to the refrigerator. Hands-on activities focus on engineering, investigation, and discovery.	**Earth & Space Science (ESS)** **Unit 2: Weather and Climate** **Essential Question:** How do we know the environment use to be different? How does the climate affect organisms? **Performance Expectations:** • 3-ESS2-1 • 3-ESS2-2 • 3-ESS3-1 • 3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3 **Mystery Science Connection:** **Stormy Skies: Weather, Climate, and Water Cycle** **Profound Perspective:** This unit develops the idea that by paying careful attention to clouds, wind, and other weather clues around us, we can predict the daily weather and make sense of why places on earth look and feel the way they do.	**Life Science (LS)** **Unit 3: Interdependent Relationships in Ecosystems** **Essential Question:** How does the environment affect organisms? What affects organisms' survival? **Performance Expectations:** • 3-LS2-1 • 3-LS4-1 • 3-LS4-3 • 3-LS4-4 • 3-5-ETS1-1 • 3-5-ETS1-2 • 3-5-ETS1-3 **Mystery Science Connection:** **Animals Through Time: Habitats, Heredity, and Change Over Time** **Profound Perspective:** In this unit students will develop an appreciation for how animals and the places they live (their habitats) are not constant—they have changed over time. Fossils give us a window to the animals and habitats of the past. Selective breeding shows us not only how some animals of the past became domesticated, but allows us to imagine how they might look in the future.

Third Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
		Unit 4: Inheritance and Variation of Traits: Life Cycles and Traits **Essential Question:** Why are organisms different from one another? What causes the differences between organisms? **Performance Expectations:** ● 3-LS1-1 ● 3-LS3-1 ● 3-LS3-2 ● 3-LS4-2 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Power of Flowers: Life Cycle, Traits, and Heredity** **Profound Perspective:** This unit develops the idea that by studying how plants reproduce and pass on their traits, we human beings have figured out how to make food plants even more useful to us. Students first discover how plants reproduce by exploring the process of pollination and fruiting. Then students are introduced to the process of plant domestication (selection of traits based on inheritance and variation).

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Fourth Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Physical Science (PS) **Unit 1: Energy** **Essential Question:** How do we move energy and information from place to place? **Performance Expectations:** ● 4-PS-3-1 ● 4-PS3-2 ● 4-PS3-3 ● 4-PS3-4 ● 4-ESS3-1 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Energizing Everything: Energy and Motion** **Profound Perspective:** "Energy" is a real thing-- not just some vague term-- almost like a power or substance that causes objects to move, speed up, or slow down. This power or substance can be transferred between objects when they collide. Thinking about the world in terms of energy helps us make sense of how and why things speed up and slow down.	***Life Science (LS)*** **Unit 3: Structure, Function, and Information Processing** **Essential Question:** What evidence of patterns and systems do we see in organism structure and how those structures function in information transfer? How do organisms receive and process information? **Performance Expectations:** ● 4-PS4-2 ● 4-LS1-1 ● 4-LS1-2 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Human Machine: Body, Senses, and the Brain** **Profound Perspective:** Your body is like a machine or robot. It has parts for moving around, sensors, a built-in-computer (and it even runs on power-- but that's a topic for a later time).	**Earth & Space Science (ESS)** **Unit 4: Earth's Systems: Process that Shape the Earth** **Essential Question:** What evidence of patterns and systems do we see in motion, weathering, fossils, and rock formation? What happens when objects collide? What effect can water have on land? How can we reduce negative impacts of natural hazards and of resource use? **Performance Expectations:** ● 4-ESS1-1 ● 4-ESS2-1 ● 4-ESS2-2 ● 4-ESS3-2 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Birth of Rocks: Rock Cycle, Erosion, and Natural Hazards** **Perforund Perspective:** Every rock has a story that it tells, if you know how to "read" it, i.e. by identifying patterns and knowing the causes of how the various rocks are formed. Take any place that seems mundane to people now--like a parking lot--and a rock will tell you something extraordinary about what that place use to be like; it may well have been the site of a volcano. You will soon discover that nowhere on earth has been mundane forever. One of the most seemingly dull things you can imagine-- a simple rock-- is actually the relic of something astounding.

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Fourth Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Unit 2: Waves: Waves and Information **Essential Question:** What evidence of patterns and sounds do we see in erosion, waves, and Earth features? **Performance Expectations:** ● 4-PS4-2 ● 4-PS4-3 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Waves of Sound: Sound, Waves, and Communication** **Profound Perspective:** Even though "sound' might seem like a short - lived phenomenon without any real form, it is very much a physical thing, a wave of vibrations traveling through the air. Sounds has properties; it takes time to travel, it can be transmitted over a string, manipulated to become high or low, turned into music, even captured and frozen in time. Equipped with this understanding students can begin to make sense of how sounds and music work.		

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Fifth Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
Physical Science (PS) **Unit 1: Structure and Properties of Matter** **Essential Questions:** How can one explain the structure, properties, and interactions of matter? **Performance Expectations:** ● 5-PS1-1 ● 5-PS1-2 ● 5-PS1-3 ● 5-PS1-4 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Chemical Magic: Chemical Reactions and Properties of Matter** **Profound Perspective:** This unit helps students develop the concepts of "substances" and "chemical reactions." Students see that chemical reactions enable us to make new materials by transforming the ones we have. The results of these reactions are interesting and sometimes profoundly useful.	***Life Science (LS)*** **Unit 2: Matter and Energy in Organisms and Ecosystems** **Essential Questions:** How do organisms live, grow, respond to their environment, and reproduce? How and why do organisms interact with their environment and what are the effects of these interactions? How is energy transferred and conserved? How are waves used to transfer energy and information? **Performance Expectations:** ● 5-PS3-1 ● 5-LS1-1 ● 5-LS2-1 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Web of Life: Ecosystems and the Food Chain** **Profound Perspective:** The food materials and energy that our bodies use for growth ultimately come from plants. Plants in turn derive their materials from air, water, and soil and their energy from the sun. Thus in a very real way, our bodies come from the earth and the sun. And when we die, decomposers return our materials and energy to the earth, to be used again by future organisms. The whole of nature forms a great system--the ecosystem.	***Earth & Space Science (ESS)*** **Unit 4: Space Systems: Stars and the Solar System** **Essential Questions**: What is the universe, and what is Earth's place in it? How and why is Earth constantly changing? **Performance Expectations:** ● 5-PS2-1 ● 5-ESS1-1 ● 5-ESS1-2 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Spaceship Earth: Sun, Moon, Stars, and Planets** **Profound Perspective:** This astronomy unit helps students develop a new perspective on the world they're standing on. They will be given evidence that the Earth beneath our feet is actually moving through space, both spinning on its axis, and traveling in a great orbit around the Sun. They will see how these movements account for the patterns we see in our sky (the paths of our Sun across the sky, the changing seasons, and the changing constellations). Accompanying us on this journey are the Moon and planets, which the students will observe have their own patterns of movement in the sky.

Fifth Grade ~ Science Scope & Sequence		
Trimester 1	**Trimester 2**	**Trimester 3**
	Earth & Space Science (ESS) **Unit 3: Earth's Systems** **Essential Question:** How can one explain and predict interactions between objects within systems?How is energy transferred and conserved? **Performance Expectations:** ● 5-ESS2-1 ● 5-ESS2-2 ● 5-ESS3-1 ● 3-5-ETS1-1 ● 3-5-ETS1-2 ● 3-5-ETS1-3 **Mystery Science Connection:** **Watery Planet: Water Cycle, Resources, and Systems** **Profound Perspective:** This unit helps students develop the idea that water is a profoundly important natural resource, but one which requires surprising ingenuity to find and maintain. Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.	

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Sixth Grade ~ Science Scope & Sequence Earth and Space Sciences (ESS)		
Trimester 1	**Trimester 2**	**Trimester 3**
Unit 1: Earth & Human Activity / Human Activity **Essential Questions:** How do the Earth's surface processes and human activities affect each other? How do humans depend on Earth's resources? How do natural hazards affect individuals and societies? How do humans change the planet? How do people model and predict the effects of human activities on Earth's climate? **Performance Expectations:** • MS-ESS3-2 • MS-ESS3-3 • MS-ESS3-4 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 2: Scientific Method / Inquiry Science** **Essential Questions:** How do you properly apply lab safety in junior high school? How do you use the metric system? What is the Scientific Method? How do you apply the inquiry process to junior high school/real world problems? **Performance Expectations:** • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 3: History of the Earth** **Essential Question:** How do people reconstruct and date events in Earth's planetary history? **Performance Expectations:** • MS-ESS1-4 • MS-ESS2-2 • MS-ESS2-3 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3	**Unit 4: Earth's Systems** **Essential Questions**: How and why is Earth constantly changing? How do Earth's major systems interact? Why do the continents move, and what causes earthquakes and volcanoes? How do the properties and movements of water shape Earth's surface and affect its systems? How do living organisms alter Earth's processes and structures? **Performance Expectations:** • MS-ESS2-1 • MS-ESS2-4 • MS-ESS3-1 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 5: Weather and Climate** **Essential Question:** What regulates weather and climate? **Performance Expectations:** • MS-ESS2-5 • MS-ESS2-6 • MS-ESS3-5 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3	**Unit 6: Space Systems** **Essential Questions:** What is the universe, and what is Earth's place in it? What is the universe, and what goes on in the stars? What are the predictable patterns caused by Earth's movement in the solar system? **Performance Expectations:** • MS-ESS1-1 • MS-ESS1-2 • MS-ESS1-3 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3

Voluntown K-8 Next Generation Science Scope & Sequence (NGSS)

Seventh Grade ~ Science Scope & Sequence Physical Science (PS)		
Trimester 1	**Trimester 2**	**Trimester 3**
Unit 1: Lab Safety and Scientific Inquiry Process **Essential Questions:** How do you properly apply lab safety in junior high school? How do you use the metric system? How do you apply the inquiry process to junior high school/real world problems? **Performance Expectations:** • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 2: Matter (Structure and Properties of Matter)** **Essential Question:** What is everything made of and how does it change? **Performance Expectations:** • MS-PS1-2 • MS-PS1-3 • MS-PS1-4 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3	**Unit 3: Chemistry (Chemical Reactions)** **Essential Question:** How do elements interact? **Performance Expectations:** • MS-PS1-2 • MS-PS1-5 • MS PS1-6 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 4: Forces (Forces and Interactions)** **Essential Question:** How are forces and motion related? **Performance Expectations:** • MS-PS2-1 • MS-PS2-2 • MS-PS2-3 • MS-PS2-4 • MS-PS2-5 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3	**Unit 5: Energy** **Essential Question:** What is the difference between potential and kinetic energy? How are they related? **Performance Expectations:** • MS-PS3-1 • MS-PS3-2 • MS-PS3-3 • MS-PS3-4 • MS-PS3-5 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 6: Waves and Electromagnetic Radiation** **Essential Question:** How are waves reflected, absorbed, or transmitted through various materials? **Performance Expectations:** • MS-PS4-1 • MS-PS4-2 • MS-PS4-3 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3

Eighth Grade ~ Science Scope & Sequence Life Science (LS)		
Trimester 1	**Trimester 2**	**Trimester 3**
Unit 1: Lab Safety and Scientific Inquiry Process **Essential Question:** How do you properly apply lab safety in junior high school? How do you use the metric system? How do you apply the inquiry process to junior high school/real world problems? **Performance Expectations:** • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 2: Cells (Structure, Function, and Information Processing)** **Essential Question:** What is necessary to something to be living? **Performance Expectations:** • MS-LS1-1 • MS-LS1-2 • MS-LS1-3 • MS-LS1-8 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3	**Unit 3: Growth, Development, Reproduction, and Genetics** **Essential Question:** How do living things reproduce (cellular to organismic)? **Performance Expectations:** • MS-LS1-4 • MS-LS1-5 • MS-LS3-1 • MS-LS3-2 • MS-LS4-5 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 4: Human Body** **Essential Question:** How do the body's systems interact to form an organ? How is the body a system of interacting subsystems? **Performance Expectations:** • MS-LS1-3 • MS-LS1-8 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3	**Unit 5: Natural Selection and Adaptations** **Essential Question:** How are natural selection and evolution related? **Performance Expectations:** • MS-LS4-1 • MS-LS4-2 • MS-LS4-3 • MS-LS4-4 • MS-LS4-6 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3 **Unit 6: Populations/Ecosystems (Matter and Energy in Organisms and Ecosystems)** **Essential Question:** How can you predict patterns of interactions between organisms across multiple ecosystems? **Performance Expectations:** • MS-LS2-1 • MS-LS2-7 • MS-LS2-1 • MS-LS2-2 • MS-LS2-3 • MS-LS2-4 • MS-LS2-5 • MS-ETS1-1 • MS-ETS1-2 • MS-ETS1-3