

Wilson Area School District Planned Course Guide

Title of planned course: Fourth Grade Science

Subject Area: Science

Grade Level: Fourth Grade

Course Description: This science curriculum will provide students with opportunities to become more self-directed, curious, and accountable. Students will synthesize ideas, use evidence, and demonstrate their understanding of key concepts and skills. Students will explore physical science, including energy and motion, human uses of energy, and waves and information. Students will explore Earth science including Earth's features, Earth's natural hazards, and the history of planet Earth. Students will explore life science including structures and functions, and human body systems.

Time/Credit for this Course: One Full Academic Year

Curriculum Writing Committee: Rayanne Parry and Lisa Herman

Curriculum Map

August/September:

- Topic 1 Energy and Motion (14 days)
- Topic 2 Human Uses of Energy (13 days)

October:

- Finish Topic 2
- Topic 3 Waves and Information (13 days)

November: Topic 4 Earth's Features (13 days)

December/January:

- Topic 5 Earth's Natural Hazards (11 days)
- Topic 6 The History of Planet Earth (8 days)

February: Topic 7 Structures and Functions (17 days)

March:

- Topic 8 Human Body Systems (13 days)
- Begin PSSA prep (23 days)

April: Finish PSSA prep

May/June: PSSA testing and cumulative review

Wilson Area School District Planned Course Materials

Course Title: Fourth Grade Science

Textbook: Elevate Science; Savvas 2019

Teacher Resources:

- Teacher Manual
- Student Edition Textbooks
- Lab Kits
- Videos
- SAVVAS Website
 - Online/Digital Resources
 - Professional Development Videos
 - Student eText
 - Synthesize Activities
 - Engineering Activities
 - Virtual Labs
 - Mini Games
 - Topic Tests
- Assessments
- Enrichment Activities

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Physical Science: Topic 1 - Energy and Motion

Time frame: 14 days

State Standards:

- 4-PS3-1: Use evidence to construct an explanation relating the speed of an object to the energy of that object
- 4-PS3-2: Make and communicate observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents
- 4-PS3-3: Ask questions and predict outcomes about the changes in energy that occur when objects collide

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.C.1.1: Describe observable physical properties of matter. Reference: 3.4.4.A, 3.2.4.B
- S4.C.2.1: Recognize basic energy types and sources, or describe how energy can be changed from one form to another. Reference: 3.4.4.B, 3.4.4.C
- S4.C.3.1: Identify and describe different types of force and motion resulting from these forces, or the effect of the interaction between force and motion. Reference: 3.4.4.C, 3.6.4.C, 3.2.4.B

Essential content/objectives: At end of Topic 1, students will be able to:

- Explain what energy is and describe some forms of energy
- Explain how a moving object's speed and energy are related
- Predict changes in energy that occur when objects collide
- Give examples of energy being transferred from place to place
- Explain that heat flows from hot objects to cold ones
- Demonstrate that some materials are good conductors of heat and others are not
- Use models to describe how electric currents flow through circuits

Core Activities: Students will complete/participate in the following:

- uConnect Lab; *How can you compare the energy of objects?*
- Lesson 1: *Energy Speed and Moving Objects*
 - including ulnvestigate Lab: *How does starting height affect an object's energy?*
- Lesson 2: *Collisions*
 - including ulnvestigate Lab: *How does energy transfer between objects?*
- Lesson 3: *Energy Transfer*
 - including ulnvestigate Lab: *How does heat move?*
- Lesson 4: *Electric Currents*
 - including ulnvestigate Lab: *How does electric energy flow in circuits?*

Extensions:

- Quest - Energy Changes in Collisions
- uEngineer It- Toys on the Move
- Virtual Labs
- Online mini games

- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Physical Science: Topic 2- Human Uses of Energy

Time frame: 13 days

State Standards:

- 4-ESS3-1: Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment
- 4-PS3-4: Apply scientific ideas to design, test, and refine a device that converts energy from one form to another

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.3.2: Use models to illustrate simple concepts and compare the models to what they represent.
Reference: 3.1.4.B, 4.3.4.C
- S4.C.2.1: Recognize basic energy types and sources, or describe how energy can be changed from one form to another. Reference: 3.4.4.B, 3.4.4.C
- S4.D.1.2: Identify the types and uses of Earth's resources. Reference: 3.5.4.B, 3.5.4.D, 4.2.4.B, 4.8.4.D

Essential content/objectives: At end of Topic 2, students will be able to:

- Describe how natural resources are converted to energy and fuel.
- Investigate how people extract energy and use natural resources.
- Give examples of nonrenewable energy sources.
- Identify sources of nonrenewable energy.
- Distinguish between renewable and nonrenewable energy sources.
- Give examples of renewable energy sources.
- Describe how the use of different natural energy sources affects the local and global environments.
- Evaluate how technology can improve the environmental effects of using a given resource.

Core Activities: Students will complete/participate in the following:

- uConnect Lab; *How are energy resources used?*
- Lesson 1: *Energy Conversions*
 - including ulnvestigate Lab: *How can a potato provide energy to a lightbulb?*
- Lesson 2: *Nonrenewable Energy Sources*
 - including ulnvestigate Lab: *How do we find oil?*
- Lesson 3: *Renewable Energy Sources*
 - including ulnvestigate Lab: *How does a windmill capture wind energy?*
- Lesson 4: *Environmental Impacts of Energy Use*
 - including ulnvestigate Lab: *Why is oil cleanup so hard?*

Extensions:

- Quest - Power from the People
- uEngineer It- Hold That Phone
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Physical Science: Topic 3- Waves and Information

Time frame: 13 days

State Standards:

- 4-PS4-1: Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move
- 4-PS4-2: Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen
- 4-PS4-3: Generate and compare multiple solutions that use patterns to transfer information

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.3.2: Use models to illustrate simple concepts and compare the models to what they represent. Reference: 3.1.4.B, 4.3.4.C
- S4.A.3.3: Identify and make observations about patterns that regularly occur and reoccur in nature. Reference: 3.1.4.C, 3.2.4.B
- S4.C.3.1: Identify and describe different types of force and motion resulting from these forces, or the effect of the interaction between force and motion. Reference: 3.4.4.C, 3.6.4.C, 3.2.4.B

Essential content/objectives: At end of Topic 3, students will be able to:

- Describe the basic properties of waves, including how they move and transfer energy
- Describe how waves can cause objects to move
- Study patterns in wave characteristics
- Differentiate between circular and plane waves
- Model waves using patterns in wave properties
- Study the electromagnetic spectrum and the properties of light waves
- Observe how the eyes see color
- Model how light reflection allows objects to be seen
- Study radio waves and their characteristics
- Observe how waves are transmitted through devices and radio wave systems
- Demonstrate how high-tech devices use waves to send and receive information

Core Activities: Students will complete/participate in the following:

- uConnect Lab; *How do we describe waves?*
- Lesson 1: *Properties of Waves*
 - including ulnvestigate Lab: *How does a wave carry energy?*
- Lesson 2: *Patterns of Waves*
 - including ulnvestigate Lab: *What patterns can waves make?*
- Lesson 3: *Waves and the Electromagnetic Spectrum*
 - including ulnvestigate Lab: *How is light reflected?*
- Lesson 4: *Waves and Information*
 - including ulnvestigate Lab: *How can information from waves be translated?*

Extensions:

- Quest - Be a Message Master
- uEngineer It- Crack that Code
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Science, Grade 4

Unit: Earth Science: Topic 4- Earth's Features

Time frame: 13 days

State Standards:

- 4-ESS2-1: Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
- 4-ESS2-2: Analyze and interpret data from maps to describe patterns of Earth's features.

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.1.3: Recognize and describe change in natural or human-made systems and the possible effects of those changes. Reference: 3.1.4.C, 4.7.4.B, 4.8.4.A, 4.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.3.1: Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle). Reference: 3.1.4.A, 4.4.4.C, 4.6.4.A, 4.6.4.B, 3.6.4.A, 3.6.4.B, 3.6.4.C
- S4.A.3.3: Identify and make observations about patterns that regularly occur and reoccur in nature. Reference: 3.1.4.C, 3.2.4.B
- S4.D.1.1: Describe basic landforms in Pennsylvania. Reference: 3.5.4.A

Essential content/objectives: At end of Topic 4, students will be able to:

- Explore different types of maps, use them to find information, and determine which map tools are the most helpful
- Read maps to identify and compare the Earth's surface features
- Use maps and models to explore how Earth's features are formed
- Identify patterns in Earth's surface features
- Identify characteristics of rocks and examine how they form
- Explore and discover how rocks, minerals, and soil are related
- Describe how rocks and soil form
- Identify the properties of minerals
- Explore chemical and physical weathering
- Evaluate the relationship between weathering and erosion
- Use evidence to show how weathering and erosion change the Earth's surface

Core Activities: Students will complete/participate in the following:

- uConnect Lab; *How can rain affect land?*
- Lesson 1: *Maps and Data*
 - including ulnvestigate Lab: *How do tools help us?*
- Lesson 2: *Patterns of Earth's Features*
 - including ulnvestigate Lab: *Where are major landforms?*
- Lesson 3: *Rocks, Minerals, and Soil*
 - including ulnvestigate Lab: *How can you classify minerals?*
- Lesson 4: *Weathering and Erosion*
 - including ulnvestigate Lab: *How can a rock wear away?*

Extensions:

- Quest - Does X Mark the Spot? That's up to you!
- uEngineer It- Take a Hike!
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: "Support Advanced Learners" in teacher's manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: "Support Struggling Students" in teacher's manual
- Scaffolded Questions in teacher's manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Earth Science: Topic 5 - Earth's Natural Hazards

Time frame: 11 days

State Standards:

- 4-ESS3-2: Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.1.3: Recognize and describe change in natural or human-made systems and the possible effects of those changes. Reference: 3.1.4.C, 4.7.4.B, 4.8.4.A, 4.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.B.3.2: Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment. Reference: 4.2.4.C, 4.3.4.C, 4.6.4.C
- S4.B.3.3: Identify and describe human reliance on the environment at the individual or the community level. Reference: 4.3.4.B, 4.4.4.B, 4.5.4.C, 3.8.4.C

Essential content/objectives: At end of Topic 5, students will be able to:

- Explore the causes and effects of tectonic hazards including earthquakes, volcanoes, and tsunamis
- Describe how volcanic eruptions, earthquakes, and tsunamis can impact people
- Study the causes and effects of weather-related hazards including blizzards, tornadoes, hurricanes, avalanches, landslides, floods, and drought
- Describe how weather hazards can affect humans
- Investigate and design possible solutions to minimize the impact of natural hazards
- Explain how natural hazards can negatively affect humans
- Describe some solutions that reduce the impact of natural hazards

Core Activities: Students will complete/participate in the following:

- uConnect Lab; *How can you reduce the impact of rapidly sliding soil?*
- Lesson 1: *Tectonic Hazards*
 - including ulnvestigate Lab: *How can a large wave affect land?*
- Lesson 2: *Weather Hazards*
 - including ulnvestigate Lab: *How does snow sliding quickly down a mountain impact people?*
- Lesson 3: *Impacts of Natural Hazards*
 - including ulnvestigate Lab: *Where should you build an earthquake-safe structure?*

Extensions:

- Quest - Protect the City! Hazard incoming!
- uEngineer It- Warning!
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities

- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Earth Science: Topic 6 - The History of Planet Earth

Time frame: 8 days

State Standards:

- 4-ESS1-1: Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.1.3: Recognize and describe change in natural or human-made systems and the possible effects of those changes. Reference: 3.1.4.C, 4.7.4.B, 4.8.4.A, 4.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.3.3: Identify and make observations about patterns that regularly occur and reoccur in nature. Reference: 3.1.4.C, 3.2.4.B

Essential content/objectives: At end of Topic 6, students will be able to:

- Explore evidence of fossil patterns in layers of rock
- Identify patterns in fossils and rock formations
- Relate fossil patterns to environmental change and rock formations
- Understand the forces that change layers of rock
- Use patterns in fossils and rock formations to explain how a landscape has changed over time

Core Activities: Students will complete/participate in the following:

- uConnect Lab: *Where are fossils found in rock layers?*
- Lesson 1: *Patterns in Fossils and Rock Formations*
 - including ulnvestigate Lab: *What patterns do fossils follow?*
- Lesson 2: *Evidence of Change from Fossils and Rock Formations*
 - including ulnvestigate Lab: *How can rock layers show change?*

Extensions:

- Quest - Dig for the Truth
- uEngineer It- Making a Good Impression
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Life Science: Topic 7 - Structures and Functions

Time frame: 17 days

State Standards:

- 4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction
- 4-LS1-2: Use a model to describe animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.1.3: Recognize and describe change in natural or human-made systems and the possible effects of those changes. Reference: 3.1.4.C, 4.7.4.B, 4.8.4.A, 4.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.3.1: Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle). Reference: 3.1.4.A, 4.4.4.C, 4.6.4.A, 4.6.4.B, 3.6.4.A, 3.6.4.B, 3.6.4.C
- S4.A.3.2: Use models to illustrate simple concepts and compare the models to what they represent. Reference: 3.1.4.B, 4.3.4.C
- S4.B.1.1: Identify and describe similarities and differences between living things and their life processes. Reference: 3.3.4.A, 3.3.4.B, 4.3.4.A, 4.3.4.C, 4.6.4.A
- S4.B.2.1: Identify and explain how adaptations help organisms to survive. Reference: 4.7.4.B
- S4.B.3.1: Identify and describe living and nonliving things in the environment and their interaction. Reference: 4.6.4.A
- S4.B.3.2: Describe, explain, and predict change in natural or human-made systems and the possible effects of those changes on the environment. Reference: 4.2.4.C, 4.3.4.C, 4.6.4.C
- S4.B.3.3: Identify and describe human reliance on the environment at the individual or the community level. Reference: 4.3.4.B, 4.4.4.B, 4.5.4.C, 3.8.4.C

Essential content/objectives: At end of Topic 7, students will be able to:

- Describe some internal plant structures that help plants survive and reproduce
- Describe some external plant structures that help plants survive and reproduce
- Describe some internal animal structures that help animals survive
- Describe some external animal structures, such as skin and exoskeletons, that help animals survive and reproduce
- Explore how organisms respond to the environment
- Explain how animals use sensory information to respond to their environments
- Describe how plants and animals can survive in different environments because of adaptations

Core Activities: Students will complete/participate in the following:

- uConnect Lab: *How do your eyes respond to differences in lighting?*
- Lesson 1: *Internal Structures and Functions of Plants*
 - including ulnvestigate Lab: *What parts are inside a flower?*
- Lesson 2: *External Structures and Functions of Plants*
 - including ulnvestigate Lab: *How are leaf coverings different?*

- Lesson 3: *Internal Structures and Functions of Animals*
 - including ulnvestigate Lab: *How can you compare the stomachs of cows and dogs?*
- Lesson 4: *External Structures and Functions of Animals*
 - including ulnvestigate Lab: *How can you design a protective insect shell?*
- Lesson 5: *Plant and Animal Responses to the Environment*
 - including ulnvestigate Lab: *How can you locate an object using only sound?*

Extensions:

- Quest - Let Plants and Animals Inspire You!
- uEngineer It- Eye See You!
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
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- Chromebooks
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- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: Life Science: Topic 8 - Human Body Systems

Time frame: 13 days

State Standards:

- 4-LS1-1: Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction
- 4-LS1-2: Use a model to describe animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.3.1: Identify systems and describe relationships among parts of a familiar system (e.g., digestive system, simple machines, water cycle). Reference: 3.1.4.A, 4.4.4.C, 4.6.4.A, 4.6.4.B, 3.6.4.A, 3.6.4.B, 3.6.4.C
- S4.B.1.1: Identify and describe similarities and differences between living things and their life processes. Reference: 3.3.4.A, 3.3.4.B, 4.3.4.A, 4.3.4.C, 4.6.4.A
- S4.B.2.2: Identify that characteristics are inherited and, thus, offspring closely resemble their parents. Reference: 3.3.4.C, 4.7.4.A, 4.7.4.C

Essential content/objectives: At end of Topic 8, students will be able to:

- Explore how human body systems are organized by cells, tissues, and organs
- Explain how the heart helps move blood through the body
- Explain how the circulatory and respiratory systems interact to move oxygen through the body
- Understand the importance of the skeletal system for support and protection
- Identify how the skin protects the body
- Describe the functions of the skeleton, muscle, and skin
- Explain how the skeletal and muscular systems interact to allow movement
- Describe the functions of the brain and nervous system
- Identify sensory organs and describe their functions
- Relate the structures in the digestive, reproductive, and other systems to their functions

Core Activities: Students will complete/participate in the following:

- uConnect Lab: *Which body parts work together to do a task?*
- Lesson 1: *Circulatory and Respiratory Systems*
 - including ulnvestigate Lab: *How can you model how you breathe?*
- Lesson 2: *Skeleton, Muscles, and Skin*
 - including ulnvestigate Lab: *How can you test the strength of a bone?*
- Lesson 3: *Nervous System*
 - including ulnvestigate Lab: *Which parts of the body are more sensitive?*
- Lesson 4: *Digestive, Reproductive, and Other Systems*
 - including ulnvestigate Lab: *How are intestines arranged inside your body?*

Extensions:

- Quest - Make a Human Body Road Map
- uEngineer It- Pump It Up!
- Virtual Labs
- Online mini games
- Career Connection
- STEM activities
- Enrichment activities
- Teacher-created projects/ activities
- Differentiated Instruction strategies: “Support Advanced Learners” in teacher’s manual

Remediation:

- Reteach core concepts
- Differentiated Instruction strategies: “Support Struggling Students” in teacher’s manual
- Scaffolded Questions in teacher’s manual
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Read and discuss lessons in the textbook
- Complete questions, drawings, diagrams, and charts in the textbook
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website

Assessments:

- Class discussions
- Teacher observations
- Online Lesson Quizzes
- Lesson Checks in student textbook
- Topic Assessment (online and/or student textbook)
- Performance-Based Assessment: uDemonstrate Lab
- Teacher-created assessments

Curriculum Scope & Sequence

Planned Course: Fourth Grade Science

Unit: PSSA Prep

Time frame: 23 days

State Standards: Review of all Pennsylvania state science standards

Anchor(s) or adopted anchor:

- S4.A.1.1: Identify and explain the application of scientific, environmental, or technological knowledge to possible solutions to problems. Reference: 3.2.4.A, 3.2.4.C, 3.8.4.C
- S4.A.2.1: Apply skills necessary to conduct an experiment or design a solution to solve a problem. Reference: 3.2.4.C, 3.2.4.D
- S4.A.2.2: Identify appropriate instruments for a specific task and describe the information the instrument can provide. Reference: 3.7.4.A, 3.7.4.B
- S4.B.2.2: Identify that characteristics are inherited and, thus, offspring closely resemble their parents. Reference: 3.3.4.C, 4.7.4.A, 4.7.4.C
- S4.D.1.1: Describe basic landforms in Pennsylvania. Reference: 3.5.4.A
- S4.D.1.2: Identify the types and uses of Earth's resources. Reference: 3.5.4.B, 3.5.4.D, 4.2.4.B, 4.8.4.D
- S4.D.1.3: Describe Earth's different sources of water or describe changes in the form of water. Reference: 3.5.4.D, 4.1.4.A, 4.1.4.D, 4.1.4.E
- S4.D.2.1: Identify basic weather conditions and how they are measured. Reference: 3.5.4.C, 3.7.4.B, 3.2.4.B
- S4.D.3.1: Describe Earth's relationship to the Sun and the Moon. Reference: 3.4.4.D

Essential content/objectives: At end of the unit, students will be able to:

- Identify appropriate tools or instruments for specific tasks and describe the information they can provide (e.g., measuring: length - ruler, mass - balance scale, volume - beaker, temperature - thermometer; making observations: hand lens, binoculars, telescope).
- Identify physical characteristics (e.g., height, hair color, eye color, attached earlobes, ability to roll tongue) that appear in both parents and could be passed onto offspring.
- Identify various Pennsylvania landforms (e.g., mountains, watersheds, peninsulas, lakes, rivers, valleys) through the use of models.
- Identify the types and uses of Earth materials for renewable, nonrenewable, and reusable products (e.g., human-made products: concrete, paper, plastics, fabrics).
- Explain how water goes through phase changes (i.e., evaporation, condensation, freezing, and melting).
- Describe or compare lentic systems (i.e., ponds, lakes, and bays) and lotic systems (i.e., streams, creeks, and rivers).
- Explain the role and relationship of a watershed or a wetland on water sources (e.g., water storage, groundwater recharge, water filtration, water source, water cycle).
- Identify basic cloud types (i.e., cirrus, cumulus, stratus, and cumulonimbus) and make connections to basic elements of weather (e.g., changes in temperature, precipitation).
- Identify appropriate instruments (i.e., thermometer, rain gauge, weather vane, anemometer, and barometer) to study weather and what they measure.
- Describe motions of the Sun - Earth - Moon system.
- Explain how the motion of the Sun - Earth - Moon system relates to time (e.g., days, months, years).

- Describe the causes of seasonal change as they relate to the revolution of Earth and the tilt of Earth's axis.

Core Activities: Students will complete/participate in the following:

- Scientific instruments (tools)
- Inherited characteristics
- Landforms in Pennsylvania (content available in Social Studies textbook)
- Earth's resources (content available in Social Studies textbook)
- Earth's water and water cycle
- Describing and measuring weather
- Earth, Sun, and Moon
- Review of all fourth grade eligible content

Extensions:

- STEM activities
- Enrichment activities
- Teacher-created projects/ activities

Remediation:

- Reteach core concepts
- Remediation worksheets

Instructional Methods:

- Explicit Instruction
- Introduce vocabulary
- Hands-on activities and labs
- Whole group instruction
- Partner work
- Think-pair-share
- Online videos, resources, and learning games

Suggested Materials & Resources:

- Social Studies textbook: Our Pennsylvania published by Macmillan/McGraw Hill
- Pennsylvania PSSA Coach book
- PSSA Science Item and Scoring Samplers
- Chromebooks
- Materials for labs
- Supplemental materials and worksheets
- SAVVAS website
- Online science videos
- Websites: Study Island, Moby Max, etc.

Assessments:

- Class discussions
- Teacher observations
- Teacher-created assessments
- PSSA testing