October 2024

Wilson Area School District
Planned Course Guide

Title of planned course: Second Grade Science

Subject Area: Science

Grade Level: Second Grade

Course Description: The science curriculum will allow students to connect what they know to their own personal experiences, investigate new concepts and ideas, explain their understanding using evidence, and demonstrate and transfer their knowledge to new situations. Students will explore physical science, including properties of matter and changing matter. Students will also explore Earth science, including Earth's water, land, and processes. In addition, students will explore life science, including plants, animals, and habitats.

Time/Credit for this Course: One Full Academic Year

Curriculum Writing Committee: Kim Hannis, Renee Hampton, and Heather Dachiu (STEELS Standards Update)

October 2024

Curriculum Map

August/September: Topic 1- Properties of Matter (18 days)

October: Finish Topic 1; Topic 2- Changing Matter (14 days)

November: Finish Topic 2

December/January: Topic 3- Earth's Water and Land (14 days)

February: Topic 4- Earth's Processes (14 days)

March: Topic 5- Plants and Animals (20 days)

April: Topic 6 - Habitats (16 days)

May/June: Extension/Review as needed

October 2024

Wilson Area School District
Planned Course Materials

Course Title: Second Grade Science

Textbook: Pearson Elevate Science Grade 2

Teacher Resources:

- Teacher Manual
- Student Edition Textbooks
- Lab Kits
- SAVVAS Website
- Videos
- Online Resources
- Digital Activities
- Science Songs
- Games
- Assessments
- Enrichment Activities
- K-12 STEELS Standards

October 2024

Curriculum Scope & Sequence

Planned Course: Second Grade Science

Unit: Physical Science: Topic 1- Properties of Matter

Time frame: 18 days

STEELS Standards:

- Physical Science
  - 3.2.2.A: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties
  - 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
  - 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
- Technology & Engineering
  - 3.5.K-2.B: Describe qualities of everyday products
  - 3.5.K-2.C: Explain ways that technology helps with everyday tasks
  - 3.5.K-2.G: Explain the tools and techniques that people use to help them do things
  - 3.5.K-2.I: Compare simple technologies to evaluate their impacts
  - 3.5.K-2.J: Design new technologies that could improve their daily lives
  - 3.5.K-2.K: Safely use tools to complete tasks
  - 3.5.K-2.M: Demonstrate essential skills of the engineering design process
  - 3.5.K-2.N: Analyze how things work
  - 3.5.K-2.O: Illustrate that there are different solutions to a design and that none are perfect
  - 3.5.K-2.P: Discuss that all designs have different characteristics that can be described
  - 3.5.K-2.Q: Apply skills necessary for making in design
  - 3.5.K-2.S: Apply design concepts, principles, and processes through play and exploration
  - 3.5.K-2.T: Demonstrate that designs have requirements
  - 3.5.K-2.U: Explain that design is a response to wants and needs
  - 3.5.K-2.V: Explain that materials are selected for use because they possess desirable properties and characteristics
  - 3.5.K-2.AA: Demonstrate that creating can be done by anyone
  - 3.5.K-2.DD: Collaborate effectively as a member of a team

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

- Tell the difference between a solid, a liquid, and a gas
- Describe matter by its properties
- Investigate how properties of some solids make them useful
- Investigate how properties of some liquids and gasses make them useful

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

- Jumpstart Discovery Activity
- Quest Activities- Toy Building Kit
- uConnect Lab
- Introduce Vocabulary
- uInvestigate Labs: *What is different?; What can beavers teach engineers?; Which package fits the blocks?; How can you make a bigger bubble?*

- Read and discuss lessons in textbook
- Complete questions, drawings, diagrams, and charts in textbook
- Watch lesson videos
- Complete digital activities- solids, liquids, and gasses

Extensions:

- Enrichment Activities
- uEngineer It Activities - Design a Nutcracker
- STEM activities
- Career Connection - Toy Engineer
- Teacher-created projects or activities
- Differentiated Instruction/Support Advanced Learners (in Teacher Manual)

Remediation:

- Reteach concepts
- Provide more concrete examples
- Differentiated Instruction/Support Struggling Students (in Teacher Manual)

Instructional Methods:

- Whole group instruction
- Partner Work
- Discussions
- Think-pair-share
- Hands-On Labs
- Online Videos/Resources

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental Worksheets
- SAVVAS website

Assessments:

- Class Discussions
- Teacher Observations
- Online Lesson Quizzes
- Topic Assessment
- Performance-Based Assessment - uDemonstrate Lab

October 2024

Curriculum Scope & Sequence

Planned Course: Second Grade Science

Unit: Physical Science: Topic 2- Changing Matter

Time frame: 14 days

STEELS Standards:

- Physical Science
  - 3.2.2.A: Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.
  - 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.
  - 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.
  - 3.2.2.D: Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.
- Technology & Engineering
  - 3.5.K-2.B: Describe qualities of everyday products.
  - 3.5.K-2.G: Explain the tools and techniques that people use to help them do things.
  - 3.5.K-2.K: Safely use tools to complete tasks.
  - 3.5.K-2.N: Analyze how things work.
  - 3.5.K-2.W: Apply concepts and skills from technology and engineering activities that reinforce concepts and skills across multiple areas.
  - 3.5.K-2.AA: Demonstrate that creating can be done by anyone.
  - 3.5.K-2.CC: Discuss the roles of scientists, engineers, technologists, and others who work with technology.
  - 3.5.K-2.DD: Collaborate effectively as a member of a team.

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

- Explore different ways matter can change
- Explain whether a change caused by heating or cooling matter is reversible
- Explain whether a change caused by heating or cooling matter is not reversible
- Explain that objects can be built using smaller materials
- Explain that objects are built using materials that have certain properties

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

- Jumpstart Discovery Activity
- Quest Activities - Building Bridges
- uConnect Lab
- Introduce Vocabulary
- uInvestigate Labs: *How can you change objects?; How does heating and cooling change matter?; What can you build?*
- Read and discuss lessons in textbook
- Complete questions, drawings, diagrams, and charts in textbook
- Watch lesson videos
- Complete digital activities in each lesson

Extensions:

- Enrichment Activities
- uEngineer It Activities - Improve a Sipping Cup
- STEM activities
- Career Connection - Structural Engineer
- Teacher-created projects or activities
- Use Differentiated Instruction/Support Advanced Learners (in Teacher Manual)

Remediation:

- Reteach concepts
- Provide more concrete examples
- Differentiated Instruction/Support Struggling Students (in Teacher Manual)

Instructional Methods:

- Whole group instruction
- Partner Work
- Discussions
- Think-pair-share
- Hands-On Labs
- Online Videos/Resources

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental Worksheets
- SAVVAS website

Assessments:

- Class Discussions
- Teacher Observations
- Online Lesson Quizzes
- Topic Assessment
- Performance-Based Assessment - uDemonstrate Lab

October 2024

Curriculum Scope & Sequence

Planned Course: Second Grade Science

Unit: Earth Science: Topic 3: Earth's Water and Land

Time frame: 14 days

STEELS Standards:
- Earth & Space Science
  - 3.3.2.C: Develop a model to represent the shapes and kinds of land and bodies of water in an area
  - 3.3.2.D: Obtain information to identify where water is found on Earth and that it can be solid or liquid
- Environmental Literacy & Sustainability
  - 3.4.K-2.C: Explain ways that places differ in their physical characteristics, their meaning, and their value and/or importance
- Technology & Engineering
  - 3.5.K-2.A: Identify and use everyday symbols (signs, icons, maps)
  - 3.5.K-2.C: Explain ways that technology helps with everyday tasks
  - 3.5.K-2.K: Safely use tools to complete tasks
  - 3.5.K-2.M: Demonstrate essential skills of the engineering design process
  - 3.5.K-2.O: Illustrate there are different solutions to a design and that none are perfect
  - 3.5.K-2.U: Explain that design is a response to wants and needs
  - 3.5.K-2.DD: Collaborate effectively as a member of a team

Essential content/objectives: At end of the unit, students will be able to:
- Identify different landforms on Earth's surface
- Identify different bodies of water
- Tell whether a body of water is a solid or liquid
- Use maps to show where land and water are on Earth

Core Activities: Students will complete/participate in the following:
- Jumpstart Discovery Activity
- Quest Activities - Map Your Hike
- uConnect Lab
- Introduce Vocabulary
- uInvestigate Labs: *How can you make a map of a special place?, Where is the best place to cross the water?, Why do mapmakers use different maps?*
- Read and discuss lessons in textbook
- Complete questions, drawings, diagrams, and charts in textbook
- Watch lesson videos
- Complete digital activities

Extensions:
- Enrichment Activities
- uEngineer It Activities - Improve a Dam
- STEM activities
- Career Connection - Map Maker
- Teacher-created projects or activities
- Differentiated Instruction/Support Advanced Learners (in Teacher Manual)

Remediation:

- Reteach concepts
- Provide more concrete examples
- Differentiated Instruction/Support Struggling Students (in Teacher Manual)

Instructional Methods:

- Whole group instruction
- Partner Work
- Discussions
- Think-pair-share
- Hands-On Labs
- Online Videos/Resources

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental Worksheets
- SAVVAS website

Assessments:

- Class Discussions
- Teacher Observations
- Online Lesson Quizzes
- Topic Assessment
- Performance-Based Assessment - uDemonstrate Lab

October 2024

Curriculum Scope & Sequence

Planned Course: Second Grade Science

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

Time frame: 14 days

STEELS Standards:

- Earth & Space Science
  - 3.3.2.A: Use information from several sources to provide evidence that Earth events can occur quickly or slowly
  - 3.3.2.B: Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land
- Environmental Literacy & Sustainability
  - 3.4.K-2.A: Categorize ways people harvest, redistribute, and use natural resources
  - 3.4.K-2.B: Examine how people from different cultures and communities, including one's own, interact and express their beliefs about nature
  - 3.4.K-2.D: Plan and carry out an investigation to address an issue in the local environment and community
- Technology & Engineering
  - 3.5.K-2.C: Explain ways that technology helps with everyday tasks
  - 3.5.K-2.D: Select ways to reduce, reuse, and recycle resources in daily life
  - 3.5K-2.E:Illustrate helpful and harmful effects of technology
  - 3.5.K-2.F: Investigate the use of technologies in the home and community
  - 3.5.K-2.L: Explore how technologies are developed to meet individual and societal needs and wants
  - 3.5.K-2.Q: Apply skills necessary for making in design
  - 3.5.K-2.R: Draw connections between technology and human experience
  - 3.5.K-2.Y: Discuss how the way people live and work has changed throughout history because of technology
  - 3.5.K-2.CC: Discuss the roles of scientists, engineers, technologists, and others who work with technology
  - 3.5.K-2.DD: Collaborate effectively as a member of a team

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

- Provide evidence that fast changes happen on Earth
- Investigate slow changes that happen on Earth
- Explain how wind and water can change the shape of the land
- Describe how people change the surface of the Earth

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

- Jumpstart Discovery Activity
- Quest Activities - Save a Town
- uConnect Lab
- Introduce Vocabulary
- uInvestigate Labs: *How do volcanoes change Earth?, How do mountains change?, How do plants protect fields from wind?*
- Read and discuss lessons in textbook
- Complete questions, drawings, diagrams, and charts in textbook
- Watch lesson videos
- Complete digital activities

Extensions:

- Enrichment Activities
- uEngineer It Activities - Stop Wind Erosion
- STEM activities
- Career Connection - Environmental Engineer
- Teacher-created projects or activities
- Differentiated Instruction/Support Advanced Learners (in Teacher Manual)

Remediation:

- Reteach concepts
- Provide more concrete examples
- Differentiated Instruction/Support Struggling Students (in Teacher Manual)

Instructional Methods:

- Whole group instruction
- Partner Work
- Discussions
- Think-pair-share
- Hands-On Labs
- Online Videos/Resources

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental Worksheets
- SAVVAS website

Assessments:

- Class Discussions
- Teacher Observations
- Online Lesson Quizzes
- Topic Assessment
- Performance-Based Assessment - uDemonstrate Lab

October 2024

Curriculum Scope & Sequence

Planned Course: Second Grade Science

Unit: Life Science: Topic 5- Plants and Animals

Time frame: 20 days

STEELS Standards:

- Life Science
  - 3.1.2.A: Plan and conduct an investigation to determine if plants need sunlight and water to grow
  - 3.1.2.B: Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants
  - 3.1.2.C: Make observations of plants and animals to compare the diversity of life in different habitats
- Environmental Literacy & Sustainability
  - 3.4.K-2.A: Categorize ways people harvest, redistribute, and use natural resources
- Technology & Engineering
  - 3.5.K-2.W: Apply concepts and skills from technology and engineering activities that reinforce concepts and skills across multiple areas
  - 3.5.K-2.Y: Discuss how the way people live and work has changed throughout history because of technology
  - 3.5.K-2.Z: Illustrate how systems have parts or components that work together to accomplish a goal
  - 3.5.K-2.CC: Discuss the roles of scientists, engineers, technologists, and others who work with technology
  - 3.5.K-2.DD: Collaborate effectively as a member of a team

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

- Describe some plant and animal life cycles
- Explain that plants need sunlight, air, water, space, and nutrients
- Explain that animals need food, oxygen, water, and shelter
- Identify ways some animals can help plants reproduce

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

- Jumpstart Discovery Activity
- Quest Activities- Help Save the Giant Flower
- uConnect Lab
- Introduce Vocabulary
- uInvestigate Labs: *What is inside a seed or a bulb?; What do plants need to grow?; What do animals need?; How can you model how animals spread seeds?*
- Read and discuss lessons in textbook
- Complete questions, drawings, diagrams, and charts in textbook
- Watch lesson videos
- Complete digital activities

Extensions:

- Enrichment Activities
- uEngineer It Activities- Here's the Buzz
- STEM activities

- Career Connection- Botanist
- Teacher-created projects or activities
- Plant a seed
- Butterfly life cycle kit for the classroom
- Differentiated Instruction/Support Advanced Learners (in Teacher Manual)

Remediation:

- Reteach concepts
- Provide more concrete examples
- Differentiated Instruction/Support Struggling Students (in Teacher Manual)

Instructional Methods:

- Whole group instruction
- Partner Work
- Discussions
- Think-pair-share
- Hands-On Labs
- Online Videos/Resources

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental Worksheets
- SAVVAS website

Assessments:

- Class Discussions
- Teacher Observations
- Online Lesson Quizzes
- Topic Assessment
- Performance-Based Assessment- uDemonstrate Lab

October 2024

Curriculum Scope & Sequence

Planned Course: Second Grade Science

Unit: Life Science: Topic 6- Habitats

Time frame: 16 days

STEELS Standards:

- Life Science
  - 3.1.2.C: Make observations of plants and animals to compare the diversity of life in different habitats
- Environmental Literacy & Sustainability
  - 3.4.K-2.B: Examine how people from different cultures and communities, including one's own, interact and express their beliefs about nature
  - 3.4.K-2.C: Explain ways that places differ in their physical characteristics, their meaning, and their value and/or importance
- Technology & Engineering
  - 3.5.K-2.C: Explain ways that technology helps with everyday tasks.3.5.K-2.H
  - 3.5.K-2.H: Explain the needs and wants of individuals and societies
  - 3.5.K-2.R: Draw connections between technology and human experience
  - 3.5.K-2.X Develop a plan in order to complete a task
  - 3.5.K-2.Z: Illustrate how systems have parts or components that work together to accomplish a goal
  - 3.5.K-2.BB: Compare the natural world and human-made world
  - 3.5.K-2.DD: Collaborate effectively as a member of a team

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

- Explain that plants and animals get what they need from their habitats
- Identify different habitats
- Identify where plants and animals live on land
- Identify where plants and animals live in water

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

- Jumpstart Discovery Activity
- Quest Activities - Protect a Habitat
- uConnect Lab
- Introduce Vocabulary
- uInvestigate Labs: *Who lives in a grassland?; What do land plants need?; How do plants survive in water?*
- Read and discuss lessons in textbook
- Complete questions, drawings, diagrams, and charts in textbook
- Watch lesson videos
- Complete digital activities

Extensions:

- Enrichment Activities
- uEngineer It Activities - Plan a Habitat on Mars
- STEM activities
- Career Connection- Ecologist
- Teacher-created projects or activities

- Create a habitat diorama
- Research project on habitats
- Research project on an animal of choice
- Differentiated Instruction/Support Advanced Learners (in Teacher Manual)

Remediation:

- Reteach concepts
- Provide more concrete examples
- Differentiated Instruction/Support Struggling Students (in Teacher Manual)

Instructional Methods:

- Whole group instruction
- Partner Work
- Discussions
- Think-pair-share
- Hands-On Labs
- Online Videos/Resources

Materials & Resources:

- Teacher Manual
- Student textbook
- Chromebooks
- Materials for labs
- Supplemental Worksheets
- SAVVAS website

Assessments:

- Class Discussions
- Teacher Observations
- Online Lesson Quizzes
- Topic Assessment
- Performance-Based Assessment- uDemonstrate Lab