

Wilson Area School District Planned Course Guide

Title of planned course: Science Grade 2

Subject Area: Science

Grade Level: 2

Course Description: The science curriculum will allow students to be young scientists and explore their world through a variety of guided inquiry activities. Students will gain an understanding of change along with determining similarities and difference through the study of solids, liquids, air, weather, plants and insects.

Time/Credit for this Course: One Academic Year

Curriculum Writing Committee: Teresa Soden, Robin Lanni

Curriculum Map

Solids and Liquids:	6 – 8 Weeks
Air and Weather:	8 – 10 Weeks
Insects and Plants:	13 – 15 Weeks

Wilson Area School District Planned Course Materials

Course Title: Science Grade 2

Textbook: Foss Science Stories

- Solids and Liquids
- Air and Weather
- Insects and Plants

Delta Education

Supplemental Books:

Teacher Resources:

- Foss Teaching Kit
- Foss Supplemental Books
- Foss Teaching Module Notes
- Foss Teaching Preparation Videos
- www.Fossweb.com

Curriculum Scope & Sequence

Planned Course: Science Grade 2

Unit: Solids and Liquids

Time frame: 5-6 weeks

State Standards: S4.A.1.1, S4.A.2.1, S4.C.1.1

Anchor(s) or adopted anchor: S4.A.1, S4.A.2, S4.C.1

Essential content/objectives: The **Solids and Liquids Module** provides experiences that strengthen students' awareness of the physical world. Matter with which we interact exists in three fundamental states: solid, liquid, and gas. In this module second graders have introductory experiences with two of these states of matter, solid and liquid. At end of the unit, students will be able to:

- Develop a curiosity and interest in the objects that make up their world.
- Investigate materials constructively during free exploration and in a guided discovery mode.
- Recognize differences between solids and liquids.
- Explore a number of liquids.
- Observe and describe the properties of solids and liquids.
- Sort materials according to properties.
- Combine and separate solids of different particle sizes.
- Observe and describe what happens when solids are mixed with water.
- Observe and describe what happens when other liquids are mixed with water.
- Use information gathered to conduct an investigation on an unknown material.
- Acquire the vocabulary associated with the properties of solids and liquids.
- Develop a curiosity and interest in the objects that make up their world.

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

- Solids—Play I Spy a Solid!
- Liquids—Describe a household liquid!
- Bits and Pieces—Drop liquids and small solids on different surfaces!
- Investigation 4: Solids and Liquids with Water—Make scientific salad dressing!

Extensions:

- Solids
 - Look for spheres, cylinders, pyramids, and rectangular solids
 - Follow oral logic problems to build towers
 - Make “My Book of Solids.”
 - Play “I Spy” with properties
 - Make sorting labels, solid collages

- Liquids
 - Graph the amount of water different containers can hold
 - Add up the cost of solids and liquids at a store
 - Write about being a chemist
 - Make a picture collage of liquids
- Bits and Pieces
 - Make a graph of trail-mix ingredients.
 - Estimate and test the number of beans you can hold.
 - Measure and balance small solids.
 - Compare/contrast solids and liquids
- Solids and Liquids with Water
 - Time the melting of ice
 - Multiply a recipe by 4
 - Describe oobleck
 - Mix colors
 - Change states of matter

Remediation:

- Reteach concepts
- Simplify steps
- Provide more concrete examples
- Think-pair-share
- Provide additional activities

Instructional Methods:

- Whole group instruction
- Free exploration
- Direct instruction
- Individual/small group investigation

Materials & Resources:

- Teacher Manual – Solids and Liquids
- Kits
- Student Books
- Science Stories
- Foss website

Assessments:

- Teacher observation
- Student journals
- Student sheets
- Performance assessments
- Unit tests

Curriculum Scope & Sequence

Planned Course: Science Grade 2

Unit: Air and Weather

Time frame: 8 – 10 weeks

State Standards: S4.D.2.1, S4.A.2.1, S4.A.1.1

Anchor(s) or adopted anchor: S4.D.2, S4.A.2, S4.A.1

Essential content/objectives: The Air and Weather unit consists of four sequential investigations, each designed to introduce concepts in earth science. The investigations provide opportunities for students to explore the world by using simple tools to observe and monitor change. At end of the unit, students will be able to:

- Develop an interest in air and weather.
- Experience air as a material that takes up space and can be compressed into a smaller space.
- Observe the force of air pressure pushing on objects and materials.
- Observe and describe changes that occur in weather over time.
- Become familiar with instruments used by meteorologists to monitor air and weather conditions.
- Compare monthly and seasonal weather conditions using bar graphs.
- Observe the location of the Sun and the Moon in the sky over a day and the change in the appearance of the Moon over a month.
- Organize and communicate observations through drawing and writing.
- Acquire vocabulary associated with properties of air and weather conditions.

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

- Exploring Air—Describe or invent a toy that uses air!
- Observing Weather—Make a cloud window!
- Wind Explorations—Make a whirligig!
- Looking for Change—Finish the story of Harry's All-Weather Wardrobe!

Extensions:

- Exploring Air
 - Make number sentences from a graph of air toys.
 - Determine how many students can share materials at the science center.
- Observing Weather
 - Count by twos on a thermometer.
 - Count by twos or multiply to estimate the rainfalls in a year.

- Wind Explorations
 - Graph the speed of wind and animals, then make comparisons.
 - Have a kite-making party! How many materials will you need?
- Looking for Change
 - Add up the rainfall in three towns and compare.
 - Graph temperatures recorded in 2 weeks, then determine which were recorded in winter and which in summer

Remediation:

- Reteach concepts
- Simplify steps
- Provide more concrete examples
- Think-pair-share
- Provide additional activities

Instructional Methods:

- Whole group instruction
- Free exploration
- Direct instruction
- Individual/small group investigation

Materials & Resources:

- Teacher Manual – Air and Weather
- Kits
- Student Books
- Science Stories
- Foss website

Assessments:

- Teacher observation
- Student journals
- Student sheets
- Performance assessments
- Unit tests

Curriculum Scope & Sequence

Planned Course: Science Grade 2

Unit: Insects and Plants

Time frame: 13 – 15 Weeks

State Standards S4.A.1.1, S4.A.2.1, S4.B.1.1, S4.B.2.1, S4.B.3.2

Anchor(s) or adopted anchor: S4.A.1, S4.A.2, S4.B.2, S4.B.3

Essential content/objectives: The **Insects and Plants Unit** provides experiences that heighten students' awareness of the living world. They come to know firsthand the life cycles of a number of insects. Four investigations introduce an insect and students observe structures and behaviors, discuss their findings, and record observations over time. Students see the life cycle of insects unfold and compare the stages of metamorphosis exhibited by each species. At the same time, students grow a plant from seeds and observe brassica go through its life cycle to produce new seeds. Students relate these firsthand experiences to information they gather from reading about life cycles of other plants and animals. At end of the unit, students will be able to:

- Develop a curiosity and interest in insects and flowering plants and an appreciation for them as living things.
- Provide for the needs of insects and plants and observe them over time.
- Observe the similarities and differences of the life sequences that different types of insects exhibit (simple and complete metamorphosis).
- Compare the life cycles of different kinds of animals and learn that organisms reproduce offspring of their own kind.
- Learn that some characteristics of organisms are inherited from parents and others are caused by the environment.
- Observe variations within a group of insects.
- Organize and communicate observations through drawing and writing and use bar graphs to record data.
- Follow oral instructions for life science investigations.
- Write or draw a sequence of steps for an event.
- Use magnifiers to observe and draw organisms.
- Acquire the vocabulary associated with the structures and life cycles of animals and flowering plants.

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

- Mealworms—Write a news flash to tell about your new insect!
- Brassica Seeds—Find brassica relatives at the grocery store!
- Milkweed Bugs—How to collect and release insects.
- Silkworms—Look for evidence of insects and other animals.
- Butterflies—Create an imaginary insect!

Extensions:

- Make 3-D beetles, make an insect collage, math extension sheets
- Look for roadside brassica, math extension sheets
- Color pictures of bugs, seek and find insects, math extension sheets, look for milkweed bugs in the wild
- Math extension sheets, look inside a cocoon, invent an insect
- Math extension sheets, reconstruct the butterfly, draw life cycle pictures, hold a butterfly, diagramming lifecycles

Remediation:

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- Provide additional activities

Instructional Methods:

- Whole group instruction
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- Direct instruction
- Individual/small group investigation

Materials & Resources:

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Assessments:

- Teacher observation
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- Unit tests