

Throughout the School Year

COURSE: Science Grade 2
UNIT: The Scientific Method
CONTACT: athompson@bridgeportedu.net
TIME FRAME: Throughout the School Year

CODE:
MAP LEVEL: 4
GRADE: 2

PERFORMANCE STANDARDS

SCIENCE - SCIENTIFIC INQUIRY (I)

- A.INQ.1 Students will make observations and ask questions about objects, organisms and the environment.
 - A.INQ.2 Students will use senses and simple measuring tools to collect data.
 - A.INQ.3 Students will make predictions based on observed patterns.
 - A.INQ.4 Students will read, write, listen and speak about observations of the natural world.
 - A.INQ.5 Students will seek information in books, magazines and pictures.
 - A.INQ.6 Students will present information in words and drawings.
-

ESS/FOCUS QUESTIONS

Why does a scientist make observations?

What are some of the simple tools used in an investigation?

How do scientists create scientific investigations?

CONTENT

Scientific Inquiry

-Search out, describe, explain and predict natural phenomena.

Scientific Process Skills

-Questions, hypothesis, predictions, planning, observations, interpretations, communicate

Scientific Literacy

-Speaking, listening, presenting, interpreting, reading and writing about science.

SKILLS

Raise questions which can be investigated.

Hypothesize to provide an explanation based upon the evidence.

Predict using evidence from previous experiences.

Plan and conduct a scientific investigation.

Observe differences/similarities by making use of the senses.

Interpret and develop conclusions which summarizes the evidence.

Communicate findings and present results in tables, graphs, or charts.

ASSURED EXPERIENCES

Activity #1:

Along with science journals, all second grade students should be introduced to the process of scientific inquiry and develop an understanding of all process skills.

Activity #2:

Participation in the school science fair is required; individual, group, or class projects are acceptable.

ASSESSMENTS

KWL

Class created science rubrics

Science journal/notebook

Teacher observation

Graph creation and interpretation

Note taking skills as a result of observations

OPTIONAL ACTIVITIES

Activity #1: Erupting Volcano

Predictions and observations recorded on a T-chart, experiment done all together or in groups. Then students discuss and describe what they see, and draw a picture or write a summary of the experiment. Volcano materials include clay, soda bottle, baking soda, and vinegar.

Activity #2: Colored Flowers

Food coloring and water should be mixed in cups. Place one flower in each cup. The students should predict what could happen to the flowers sitting in the colored water. One carnation could be placed in non-colored water to show that the food coloring is the variable. The students can complete the experiment independently and should record in their science journals with pictures and summaries at the beginning, middle, and end. This investigation may take up to three days to complete.

RESOURCES

Harcourt Textbook

United Streaming:

'Be an Inventor'

'Science Facts and Fun: Making Sense of It'

'Air: A First Look'

'Math Monsters: Estimation'

'Tick Tock: About the Clock'

Websites:

www.harcourtschool.com

www.discoveryschool.com

www.spartechsoftware.com/reeko

www.col-ed.org/cur/science.html

www.nsta.org/ostbc

www.enchantedlearning.com

ADDITIONAL NOTES

All students should maintain a science journal/notebook to record their data which may include observations, questions, summaries, charts, drawings.

Create a science word wall to house science vocabulary as the terms are introduced throughout the unit of study.

VOCABULARY

Bar Graphs	Hypothesis	Picture graphs
Classify	Infer	Results
Color	Investigations	Shape
Conclusions	Line Graph	Simple tools
Data	Models	Size
Draw	Observations	Texture
Experiments	Predict	Weight

Properties of Matter



2nd Marking Period

COURSE: Science Grade 2
UNIT: Properties of Matter
CONTACT: athompson@bridgeportedu.net
TIME FRAME: 2nd Marking Period

CODE:
MAP LEVEL: 4
GRADE: 2

PERFORMANCE STANDARDS

SCIENCE - SCIENTIFIC INQUIRY (I)

- A.INQ.1 Students will make observations and ask questions about objects, organisms and the environment.
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SCIENCE - PHYSICAL SCIENCE (II, III, IV)

- A.18 Students will describe differences in the physical properties of solids and liquids.
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ESS/FOCUS QUESTIONS

What is matter?

How can matter be changed?

What tools can we use to measure matter?

What are the physical properties of matter?

CONTENT

Content Standard: 2.1

Materials can be classified as solid, liquid or gas based on their observable properties. Solids tend to maintain their own shapes, while liquids tend to assume the shapes of their containers, and gases fill their containers fully.

SKILLS

Classify materials as to whether they are solids, liquids, or gases.

Identify and use simple tools to measure the mass of solids and the volume of liquids

Describe and identify examples of condensation, evaporation, melting, and freezing

Measure the mass of various solids and the volume of various liquids

Examine and describe the transformation of matter from one state to another, i.e., solid water (ice) to liquid (water) to gas (steam)

ASSURED EXPERIENCES

Activity #1: Ice Drawings

Prepare an ice tray with different colored ice cubes using food coloring. The teacher will stick a Popsicle stick in each ice cube. The students will use their science notebook to record/predict what they think will happen as they use a colored ice cube to draw a picture. Have the students to discuss their observations (the friction is melting the ice, and matter is changing states from a solid to a liquid).

Activity #2: Precipitation and Evaporation

Place a coffee can outside on a rainy day. Have the students predict how much rain they think will fall into the can. Ask the children what they think will happen if the can is left on the window sill for a month, and record their predictions in their science notebook. Once the rain has ceased, bring the can inside and assign each student the job of measuring the rain in the can daily by using the appropriate measuring tools (graduated cylinder, beaker, ruler). Maintain a rain log next to the coffee can to kept record of the measurements. When the rain is completely gone, have them discuss the disappearance of the rain (evaporation).

ASSESSMENTS

Harcourt Text

KWL

Science journal/notebook

Teacher observation

OPTIONAL ACTIVITIES

Activity #1:

Ask students to bring in different types of containers from home. Discuss and demonstrate whether the containers are appropriate to hold solids and liquids, e.g., an unwaxed cardboard box will absorb water and eventually disintegrate, while a glass bottle will not.

RESOURCES

Harcourt Text

United Streaming:

'Air: A First Look'

'Matter and Its Properties: Exploring Phases of Matter'

'Properties of Matter, Part I'

'Properties of Matter, Part II: Liquids, Solids, and Gases'

Solids, Liquids, and Gases: A First Look'

Websites:

www.harcourtschool.com

www.discoveryschool.com

www.nsta.org/ostbc

www.enchantedlearning.com

Science Literature:

Floating and Sinking, by Honey Anderson

Everything is Matter, by David Bauer

Ice, by Helen Frost

Water as a Gas, by Helen Frost

Water as a Liquid, by Helen Frost

Water as a Solid, by Helen Frost

ADDITIONAL NOTES

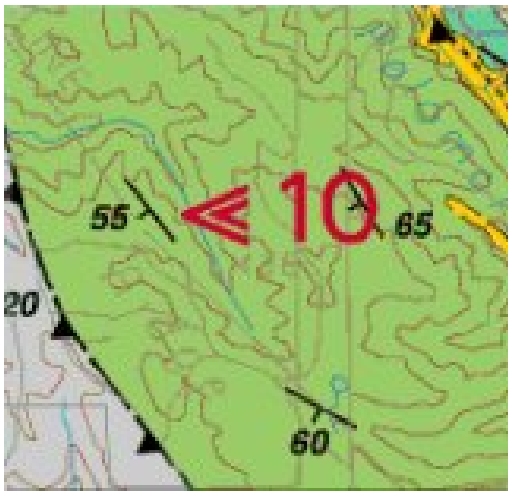
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VOCABULARY

Classify	Gas	Phases
Communicate	Investigate	Precipitation
Condensation	Liquid	Predict
Container	Matter	Properties
Evaporation	Mass	Shapes
Experiment	Melting	Solid
Freezing	Observation	Volume

Properties of Soil



3rd Marking Period

COURSE: Science Grade 2
UNIT: Properties of Soil
CONTACT: athompson@bridgeportedu.net
TIME FRAME: 3rd Marking Period

CODE:
MAP LEVEL: 4
GRADE: 2

PERFORMANCE STANDARDS

SCIENCE - SCIENTIFIC INQUIRY (I)

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SCIENCE - EARTH SCIENCE (VIII, IX, X)

- A.21 Students will sort different soils by properties such as particle size, color and composition.
 - A.22 Students will relate the properties of different soil types to their ability to retain water and support the growth of certain plants.
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ESS/FOCUS QUESTIONS

What are the properties of soil?

Where does soil come from?

What are the different kinds of soil?

How are soils different?

Where does each soil belong in the layering process?

What are the different textures you feel when one type of soil has moisture and the other does not?

Which layer of soil holds more or less water?

CONTENT

Content Standard: 2.3

Earth materials have varied physical properties which make them useful in different ways. Soils can be described by their color, texture, and capacity to retain water. Soils support the growth of many kinds of plants, including those in our food supply.

SKILLS

Observe and recognize that soil, as a natural resource, provides the support and nutrients necessary for plant growth

Explain how soil forms over time

Analyze and describe the different components of soil including rock fragments, clay, silt, sand, and humus

Construct and illustrate a basic diagram showing major soil layers including bedrock, subsoil, and topsoil

ASSURED EXPERIENCES

Lesson: John Muir's Soil

ASSESSMENTS

Teacher observation

Science notebook/journal

OPTIONAL ACTIVITIES

Activity #1: Classifying Soils

Allow students to work in pairs and obtain a sample of sandy soil, silty soil and clay soil. Break and rub each soil sample between your thumb and Finger. Describe how each soil feels. How does each sample feel different? Look at each soil sample under a magnifying glass. Which soil sample has the largest particles? Add water to each soil sample until it sticks together and you can make a ball. Then try to roll each sample into a cigar shape. Can this test be used to classify sandy, silty and clay soils? How? If the sample will roll into a cigar shape, let the "cigar" dry overnight. After the sample dries, does it still hold its shape?

RESOURCES

Harcourt Text

United Video:

'Dr. Dad's PH3: Episode Eleven: Soil and Agriculture'

'Getting to Know Soil'

'A Geologist Notebook: How to Make a Mud Pie'

Websites:

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ADDITIONAL NOTES

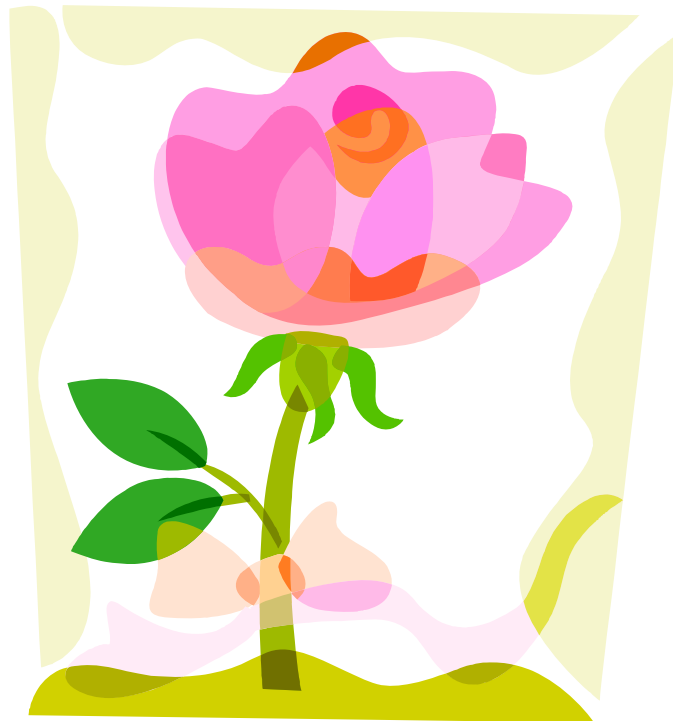
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VOCABULARY

Bedrock	Nutrients	Silt
Clay	Profile	Soil
Color	Retain	Subsoil
Composition	Rock	Texture
Humus	Rock fragments	Topsoil

Lifecycle of a plant



4th Marking Period

COURSE: Science Grade 2
UNIT: Life Cycles of Plants
CONTACT: athompson@bridgeportedu.net
TIME FRAME: 4th Marking Period

CODE:
MAP LEVEL: 4
GRADE: 2

PERFORMANCE STANDARDS

SCIENCE - SCIENTIFIC INQUIRY (I)

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SCIENCE - LIFE SCIENCE (V, VI, VII)

- A.19 Students will describe the life cycles of flowering plants as they grow from seeds, proceed through maturation and produce new seeds.
- A.20 Students will explore and describe the effects of light and water on seed germination and plant growth.

SCIENCE - SCI & TECH IN SOCIETY (XI)

- A.23 Students will identify the sources of common foods and classify them by their basic food groups.
- A.24 Students will describe how people in different cultures use different food sources to meet their nutritional needs.

ESS/FOCUS QUESTIONS

How do plants change throughout their life cycle?

What do plants and people need to survive?

What happens when growing conditions of a plant are altered?

How are bees and flowers interdependent?

What are the basic food groups?

CONTENT

Content Standard: 2.2

Plants change their forms as part of their life cycles. The life cycles of flowering plants include seed germination, growth, flowering, pollination and seed dispersal.

Content Standard: 2.4

Human beings, like all other living things, have special nutritional needs for survival. The essential components of a balanced nutrition can be obtained from plant and animal sources. People eat different foods in order to satisfy nutritional needs for carbohydrates, proteins, and fats.

SKILLS

Identify and describe changes in a plant from flower to fruit.

Investigate the needs of plants.

Construct and interpret models/diagrams of the plant life cycle.

Explore and describe the effect of light and water on seed growth.

List the basic food groups and explain why they are important nutritional needs.

ASSURED EXPERIENCES

Activity #1:

Each second grade student should observe germination, growth, and the development of specialized parts of a plant. Quantify observations by taking frequent measurements and recording these on a growth graph. Record observations in writing and pictorially.

Activity #2:

Each second grade student should design and conduct investigations in which growing conditions are altered (for example light, fertilizer, water, etc.)

ASSESSMENTS

Science journal/notebook

Teacher observations

Graphing skills

OPTIONAL ACTIVITIES

Activity #1:

Collect plants and create a detailed drawing of the plant in the science journal/notebook. Identify and label its major structures, i.e. leaves, flowers, stems, roots, seeds. Describe the function of each structure.

RESOURCES

Harcourt Text

United Streaming:

'Almonds Growing and Harvest'

'Apples'

'Chocolate'

'Debbie Greenthumb: How Plants Grow'

'Debbie Greenthumb: Plants Can Be Found Everywhere'

Websites:

www.harcourtschool.com

www.discoveryschool.com

www.nsta.org/ostbc

Science Literature:

The Poppy Seeds, by Robert Clyde Bulla

Miss Rumphius, by Barbara Cooney

Seed to Plant, by Gail Gibbons

ADDITIONAL NOTES

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VOCABULARY

Blossom	Food groups	Plant
Bud	Fruit	Pollination
Cycle	Germination	Root
Dispersal	Growth	Seed
Fertilize	Needs	Sprout
Flower	Nutritional	Stem

