SPRING GROVE AREA SCHOOL DISTRICT

PLANNED COURSE OVERVIEW

Course Title: Science	**Length of Course:** 30 cycles
Grade Level(s): 2	**Periods Per Cycle:** 3
Units of Credit: N/A	**Length of Period:** 30 minutes
Classification: Required	**Total Instructional Time:** 45 hours

Course Description

This course provides students with a foundation of skills in Life, Earth, and Physical Science.

Instructional Strategies, Learning Practices, Activities, and Experiences

- Anchor Charts
- Anticipatory Sets
- Bell Ringers
- Class Discussions
- Closure
- Critical Thinking
- Graphic Organizers
- Guided Reading
- Higher Level Questioning
- Homework
- Interaction Sequence
- Internet Research
- Journals
- Paper and Pencil Activities
- Posted Objectives
- Practice Exercises
- Presentations
- PSSA Released Materials
- Question-Answer Relationships
- Quizzes
- Reports and Speeches
- Research
- Small Group Interventions
- Teacher Demonstrations
- Teacher-Made Tests
- Technology Integration
- Videos/DVDs
- Wait-Time
- Wait-Time Extended

Assessments

- Homework
- Oral Projects
- Presentations
- Projects
- Reports
- Teacher Observations
- Teacher-Made Tests and Quizzes
- PSSA Practice Materials
- PSSA Item Samples

Materials/Resources

- FOSS (Full Option Science System)
- Guest Speakers
- Internet
- Leveled Readers
- Resource Books
- SAS (Standards Aligned System)
- Supplemental Readings
- Videos / DVDs

Adopted: 1/27/88
Revised: 9/3/91; 12/8/97; 11/15/01; 8/20/07; 5/19/14

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PLANNED COURSE: Science LEVEL: Grade 2

Science and Technology and Engineering Education

3.1 – Biological Sciences **3.1.A Organisms and Cells**	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Life Cycles	3.1.2.A3. – Identify similarities and differences in the life cycles of plans and animals.
Form and Function	3.1.2.A5. - Explain how different parts of a plant work together to make the organism function.
Science as Inquiry	3.1.2.A9. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

3.1.B. Genetics	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Science as Inquiry	3.1.2.B6. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

3.1.C. Evolution	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Adaptation	3.1.2.C2. - Explain that living things can only survive if their needs are being met.
Unifying Themes	3.1.2.C3. - CONSTANCY AND CHANGE - Describe some plants and animals that once lived on Earth, (e.g., dinosaurs) but cannot be found anymore. Compare them to now living things that resemble them in some way (e.g. lizards and birds).
Science as Inquiry	3.1.2.C4. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

3.2. Physical Sciences: Chemistry and Physics **3.2.A. Chemistry**	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Matter and Energy	3.2.2.A3 - Demonstrate how heating and cooling may cause changes in the properties of materials.
Reactions	3.2.2.A4. - Experiment and explain what happens when two or more substances are combined (e.g. mixing, dissolving, and separated (e.g. filtering, evaporation).
Unifying Themes	3.2.2.A5. - CONSTANCY AND CHANGE - Recognize that everything is made of matter.
Science as Inquiry	3.2.2.A6. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

3.2.B. Physics	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Energy Storage and Transformations: Conservation Laws	3.2.2.B2. - Explore and describe how different forms of energy cause changes. (e.g., sunlight, heat, wind)
Unifying Themes	3.2.2.B6. - ENERGY - Recognize that light from the sun is an important source of energy for living and nonliving systems and some source of energy is needed for all organisms to stay alive and grow.
Science as Inquiry	3.2.2.B7. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

3.3. Earth and Space Sciences
3.3.A. Earth Structure, Processes and Cycles

CONTENT/KEY CONCEPTS	OBJECTIVES/STANDARDS
Water	3.3.2.A4. - Explore and describe that water exists in solid (ice) and liquid (water) form. Explain and illustrate evaporation and condensation.
Science as Inquiry	3.3.2.A7. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

3.3.B. Origin and Evolution of the Universe	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Composition and Structure	3.3.2.B1. - Observe and record • location of the Sun and the Moon in the sky over a day. • changes in the appearance of the Moon over a month. Observe, describe, and predict seasonal patterns of sunrise and sunset.
Science as Inquiry	3.3.2.B3. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

Environment and Ecology

4.1 Ecology	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
The Environment	4.1.2.A. - Describe how a plant or an animal is dependent on living and nonliving things in an **aquatic habitat**.
Energy Flow	4.1.2.C. - Identify sources of energy in an **aquatic habitat**.
Biodiversity	4.1.2.D. - Identify differences in living things (color, shape, size, etc.) and describe how **adaptations** are important for **survival**.
Succession	4.1.2.E. - Identify how living things **survive** changes in their **environment**.
Science as Inquiry	4.1.2.F. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

4.2 Watersheds and Wetlands	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Aquatic Ecosystems	4.2.2.C. - Identify and describe the basic needs of plants and animals in an **aquatic ecosystem**.
Science as Inquiry	4.2.2.D. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

4.3 Natural Resources	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Use of Natural Resources	4.3.2.A. - Describe the jobs/hobbies people have in the community that relate to **natural resources**.
Availability of Natural Resources	4.3.2.B. - Identify **products** and **by-products** derived from **renewable resources**.
Science as Inquiry	4.3.2.C. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.

4.4 Agriculture and Society	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Food and Fiber Systems	4.4.2.A. - Identify **agriculture** as a living system and that food and **fiber** originate from plants and animals.
Importance of Agriculture	4.4.2.B. - Explain how **agriculture** supports jobs in Pennsylvania.
Applying Science to Agriculture	4.4.2.C. - Examine life cycles of plants and animals in an **aquatic habitat**.
Science as Inquiry	4.4.2.E. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists. -

4.5 Humans and the Environment	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Sustainability	4.5.2.A. - Identify the natural resources used to make various **products**.
Pollution	4.5.2.C. - Identify how people can reduce **pollution**.
Waste Management	4.5.2.D. - Describe how people can help the environment by **reducing**, **reusing**, **recycling** and **composting**.
Science as Inquiry	4.5.2.F. – • Distinguish between scientific fact and opinion. • Ask questions about objects, organisms, and events. • Understand that all scientific investigations involve asking and answering questions and comparing the answer with what is already known. • Plan and conduct a simple investigation and understand that different questions require different kinds of investigations. • Use simple equipment (tools and other technologies) to gather data and understand that this allows scientists to collect more information than relying only on their senses to gather information. • Use data/evidence to construct explanations and understand that scientists develop explanations based on their evidence and compare them with their current scientific knowledge. • Communicate procedures and explanations giving priority to evidence and understanding that scientists make their results public, describe their investigations so they can be reproduced, and review and ask questions about the work of other scientists.