SPRING GROVE AREA SCHOOL DISTRICT

PLANNED COURSE OVERVIEW

Course Title: Science	**Length of Course:** 30 cycles
Grade Level(s): 1	**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

P:\DRBR\NEWCURR\SCIENCE\Science 2014\Grade 1\Planned Course Overview.doc

PLANNED COURSE: Science LEVEL: Grade 1

Science and Technology and Engineering Education

3.1 Biological Sciences **3.1.A Organisms and Cells**	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Common Characteristics of Life	3.1.1.A1. – Categorize living and nonliving things by external characteristics.
Energy Flow	3.1.1.A2. – Investigate the dependence of living things on the sun's energy, water, food/nutrients, air, living space, and shelter.
Form and Function	3.1.1.A5. – Identify and describe plant parts and their function.
Science as Inquiry	3.1.1.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**
Heredity	3.1.1.B1. - Grow plants from seed and describe how they grow and change. Compare to adult plants.
Science as Inquiry	3.1.1.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**
Unifying Themes	3.1.1.C3. - CONSTANCY AND CHANGE - Describe changes that occur as a result of habitat.
Science as Inquiry	3.1.1.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
Properties of Matter	3.2.1.A1. - Observe and describe the properties of liquids and solids. Investigate what happens when solids are mixed with water and other liquids are mixed with water.
Matter and Energy	3.2.1.A3. - Identify how heating, melting, cooling, etc., may cause changes in properties of materials.
Reactions	3.2.1.A4. - Observe and describe what happens when substances are heated or cooled. Distinguish between changes that are reversible (melting, freezing) and not reversible (e.g. baking a cake, burning fuel).
Unifying Themes	3.2.1.A5. - CONSTANCY AND CHANGE - Recognize that everything is made of matter.
Science as Inquiry	3.2.1.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**
Force & Motion of Particles and Rigid Bodies	3.2.1.B1. - Demonstrate various types of motion. Observe and describe how pushes and pulls change the motion of objects.
Heat/Heat Transfer	3.2.1.B3. - Observe and record daily temperatures. Draw conclusions from daily temperature records as related to heating and cooling.
Nature of Waves (Sound and Light Energy)	3.2.1.B5. - Compare and contrast how light travels through different materials. Explore how mirrors and prisms can be used to redirect a light beam.
Unifying Themes	3.2.1.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	3.2.1.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
Earth Features and the Processes that Change It	3.3.1.A1. - Observe, describe, and sort earth materials. Compare the composition of different soils.
Water	3.3.1.A4. - Identify and describe types of fresh and salt-water bodies (ocean, rivers, lakes, ponds).
Weather and Climate	3.3.1.A5. - Become familiar with weather instruments. Collect, describe, and record basic information about weather over time.
Science as Inquiry	3.3.1.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	3.3.1.B1. - Explain why shadows fall in different places at different times of the day.
Science as Inquiry	3.3.1.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	4.1.1.A. - Identify and describe the basic needs of living things in a **terrestrial habitat**.
Energy Flow	4.1.1.C. - Describe a simple **food chain** within a **terrestrial habitat**.
Biodiversity	4.1.1.D. - Identify living things that are threatened, endangered, or extinct.
Succession	4.1.1.E. - Describe the seasons and describe how the change of the season affects living things.
Science as Inquiry	4.1.1.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**
Watersheds	4.2.1.A. - Explain the path water takes as it moves through the **water cycle**.
Science as Inquiry	4.2.1.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	4.3.1.A. - Identify some **renewable resources** used in the community.
Availability of Natural Resources	4.3.1.B. - Recognize the difference between **renewable** and **nonrenewable resources**.
Science as Inquiry	4.3.1.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	4.4.1.A. - Describe the role of soil in agricultural systems.
Importance of Agriculture	4.4.1.B. - Identify **products** and **by-products** of the agricultural system.
Applying Sciences to Agriculture	4.4.1.C. - Describe the life cycles of different plants and animals in a **terrestrial habitat**.
Technology Influences on Agriculture	4.4.1.D. - Identify tools used by native Americans and early settlers in **agriculture**.
Science as Inquiry	4.4.1.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	4.5.1.A. - Identify resources humans use from the **environment**.
Integrated Pest Management	4.5.1.B. - Describe why people consider some insects, plants and other living things to be **pests**, and ways to control their population numbers.
Pollution	4.5.1.C. - Describe how **pollution** affects the health of a **habitat**.
Waste Management	4.5.1.D. - Identify where waste from the home, school and community goes for disposal.
Science as Inquiry	4.5.1.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.