



LJ Group



Educational
Solutions

**Living with Science Supporting
Kansas Science Standards**

CM503/A

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Section 1.

Kansas Science Standards

By The End Of **SECOND GRADE**

STANDARD 1: SCIENCE AS INQUIRY

As a result of the activities in grades K-2, all students will experience science as full inquiry. In the elementary grades, students begin to develop the physical and intellectual abilities of scientific inquiry.

Benchmark 1: All students will be involved in activities that develop skills necessary to conduct scientific inquiries. These activities involve asking a simple question, completing an investigation, answering the question, and presenting the results to others. Not every activity will involve all of these stages nor must any particular sequence of these stages be followed.

Indicators: The students will:

- 4** 1. Identify characteristics of objects.
Example: State characteristics of leaves, shells, water, and air.
- 4** 2. Classify and arrange groups of objects by a variety of characteristics.
Example: Group seeds by color, texture, size; group objects by whether they float or sink; group rocks by texture, color, and hardness.
- 4** 3. Use appropriate materials and tools to collect information.
Example: Use magnifiers, balances, scales, thermometers, measuring cups, and spoons when engaged in investigations.
4. Ask and answer questions about objects, organisms, and events in their environment.
Example: Observe and ask questions about a variety of objects and discuss how they are alike and different.
5. Describe an observation orally or pictorially.
Example: Draw pictures of plant growth on a daily basis; note color, number of leaves.

Second Grade - Continued

STANDARD 2: PHYSICAL SCIENCE

As a result of the activities in grades K-2, all students will explore the world by observing and manipulating common objects and materials in their environment.

Benchmark 1: All students will develop skills to describe objects.

All students will have opportunities to compare, describe, and sort objects.

Indicators: The students will:

- 4** 1. Observe properties and measure those properties using age appropriate tools and materials.
Example: Compare size, weight, shape, color, and temperature of objects.
- 4** 2. Describe objects by the materials from which they are made.
Example: Compare objects made from wood, metal, and cloth.
- 4** 3. Separate or sort a group of objects or materials by properties.
Example: Compare and sort objects by shape, size, weight, and color.
- 4** 4. Compare solids and liquids.
Example: Compare the properties of water with the properties of ice.

Second Grade - Continued

STANDARD 3: LIFE SCIENCE

As a result of the activities for grades K-2, all students will begin to develop an understanding of biological concepts.

Benchmark 1: All students will develop an understanding of the characteristics of living things.

Through direct experiences, students will observe living things, their life cycles, and their habitats.

Indicators: The students will:

- 4** 1. Discuss that living things need air, water, and food.
- Example:** What children need...what plants need...what animals need.
2. Observe life cycles of different living things.
- Example:** Observe butterflies, mealworms, plants, and humans.
3. Observe living things in various environments.
- Example:** Observe classroom plants; take nature walks and field trips in their own area; observe terrariums and aquariums.
- 4** 4. Examine the structures of living things.
- Example:** Butterflies have wings. Plants have leaves and roots. People have skin and hair.

Second Grade - Continued

STANDARD 4: EARTH AND SPACE SCIENCE

As a result of the activities for grades K-2, all students will observe closely the objects and materials in their environment.

Benchmark 1: All students will describe properties of earth materials.

Earth materials may include rock, soil, air, and water.

Indicators: The students will:

- 4** 1. Observe, compare and sort earth materials.

Example: Describe and compare soils by color and texture; sort pebbles and rocks by size, shape, and color.

- 4** 2. Describe where earth materials are found.

Example: Observe earth materials around the playground, on a field trip, or in their own yard.

Benchmark 2: All students will observe and compare objects in the sky.

The sun, moon, stars, clouds, birds, and other objects such as airplanes have properties that can be observed and compared.

Indicators: The students will:

1. Distinguish between human-made and natural objects in the sky.

Example: Compare birds to airplanes.

2. Recognize sun, moon, and stars.

Example: Observe day and night sky regularly.

- 4** 3. Describe that the sun provides light and warmth.

Example: Feel heat from the sun on the face and skin. Observe shadows.

Second Grade - Continued
Standard 4 -
Continued

Benchmark 3: All students will describe changes in weather.

Weather includes snow, rain, sleet, wind, and violent storms.

Indicators: The students will:

1. Observe changes in the weather from day to day.

Example: Draw pictures.

2. Record weather changes daily.

Example: Use weather charts, calendars, and logs to record daily weather.

3. Discuss weather safety procedures.

Examples: Practice tornado drill procedures; talk about the dangers of lightning and flooding.

Second Grade - Continued

STANDARD 5: SCIENCE AND TECHNOLOGY

As a result of the activities for grades K-2, all students will have a variety of educational experiences that involve science and technology.

Benchmark 1: All students will use technology to learn about the world around them.

Students will use software and other technological resources to discover the world around them.

Indicators: The students will:

1. Explore the way things work.

Example: Observe the inner workings of non-working toys, clocks, telephones, toasters, music boxes.

4 2. Experience science through technology.

Example: Use science software programs, balances, thermometers, hand lenses, and bug viewers.

Second Grade - Continued

STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

As a result of the activities for grades K-2, all students will have a variety of experiences that provide understandings for various science-related personal and environmental challenges.

This standard should be integrated with physical science, life science, and earth and space science standards.

Benchmark 1: All students will demonstrate responsibility for their own health. Health encompasses safety, personal hygiene, exercise, and nutrition.

Indicators: The students will:

1. Engage in personal care.

Examples: Practice washing hands and brushing teeth. Discuss appropriate types of clothing to wear. Discuss personal hygiene.

2. Discuss healthy foods.

Example: Cut out pictures of foods and sort into healthy and not healthy groups.

3. Discuss that safety and security are basic human needs.

Examples: Discuss the need to obey traffic signals, the use of crosswalks, and the danger of talking to strangers.

Second Grade - Continued

STANDARD 7: HISTORY AND NATURE OF SCIENCE

As a result of the activities for grades K-2, all students will experience scientific inquiry and learn about people from history.

This standard should be integrated with physical science, life science, and earth and space science standards.

Benchmark 1: All students will know they practice science.

Indicators: The students will:

- 4** 1. Be involved in explorations that make them wonder and know that they are practicing science.

Examples: Observe what happens when you place a banana or an orange (with and without the skin), or a crayon in water. Observe what happens when you hold an M&M, a chocolate chip, or a raisin in your hand. Note the changes. Observe what happens when you rub your hands together very fast.

2. Use technology to learn about people in science.

Examples: Read short stories, and view films or videos. Invite parents who are involved in science as guest speakers.

By The End Of **FOURTH GRADE**

Overview of Science Standards K-4

STANDARD 1: SCIENCE AS INQUIRY

As a result of the activities in grades 3-4, all students will experience science as inquiry.

Benchmark 1: All students will develop the skills necessary to do full inquiry. Full inquiry involves asking a simple question, completing an investigation, answering the question, and sharing the results with others. Not every activity will involve all of these stages nor must any particular sequences of these stages be followed.

Indicators: The students will:

- 4***** 1. Ask questions that they can answer by investigating.

Example: Will the size of the opening on a container change the rate of evaporation of liquids? How much water will a sponge hold?
- 4***** 2. Plan and conduct a simple investigation.

Example: Design a test of the wet strength of paper towels; experiment with plant growth; experiment to find ways to prevent soil erosion.
- 4** 3. Employ appropriate equipment and tools to gather data.

Example: Use a balance to find the mass of the wet paper towel; use meter sticks to measure the flight distance of a paper air plane; use the same size containers to compare evaporation rates of different liquids.
- 4***** 4. Begin developing the abilities to communicate, critique, analyze their own investigations, and interpret the work of other students.

Example: Describe investigations with pictures, written language, oral presentations.

Fourth Grade - Continued

STANDARD 2: PHYSICAL SCIENCE

As a result of the activities in grades 3-4, students will increase their understanding of the properties of objects and materials that they encounter on a daily basis. Students will compare, describe, and sort these materials by observable properties.

Benchmark 1: All students will develop skills to describe objects.

Through observation, manipulation, and classification of common objects, children reflect on the similarities and differences of the objects.

Indicators: The students will:

- 4***** 1. Observe properties and measure those properties using appropriate tools.

Example: Observe and record the size, weight, shape, color, and temperature of objects using balances, thermometers, and other measurement tools.
- 4***** 2. Classify objects by the materials from which they are made.

Example: Group a set of objects by the materials from which they are made.
- 4***** 3. Describe and classify objects by more than one property.

Example: Observe that an object could be hard, round, and rough. Classify objects by two or more properties.
- 4***** 4. Observe and record how one object reacts with another object.

Example: Mix baking soda and vinegar and record observations.
- 4***** 5. Recognize and describe the differences between solids, liquids, and gases.

Example: Observe differences between a stick of butter and the butter melted, a chocolate bar and the chocolate melted, and ice and the ice melted. Observe that a solid has a shape of its own and a liquid takes the shape of its container. Observe differences between an inflated and a deflated balloon.

**Fourth Grade - Continued
Standard 2 - Continued**

Benchmark 2: All students will describe the movement of objects.

Students begin to observe the position and movement of objects when they manipulate objects by pushing, pulling, throwing, dropping, and rolling them.

Indicators: The students will:

1. Move objects by pushing, pulling, throwing, spinning, dropping, and rolling; describe the motion. Observe that a force (a push or a pull), is applied to make objects move.

Example: Spin or roll a variety of objects on various surfaces.

- 4***** 2. Describe locations of objects.

Example: Describe locations as up, down, in front, or behind.

Benchmark 3: All students will recognize and demonstrate what makes sounds.

The concept of sound is very abstract. However, by investigating a variety of sounds made by common objects, students can form a connection between sounds the objects make and the materials from which the objects are made. Plastic objects make a different sound than do wooden objects.

Indicators: The students will:

1. Discriminate between sounds made by different objects.

Example: Listen and compare the sounds made by drums and other musical instruments, such as cans, gourds, plastic spoons, pennies, and plastic disks. Sort a group of objects according to the sounds they make when they are dropped.

Benchmark 4: All students will experiment with electricity and magnetism.

Students will develop the concept that electrical circuits require a complete loop through which an electric current can pass. Magnets attract and repel each other and certain kinds of other materials.

Indicators: The students will:

- 4***** 1. Demonstrate that magnets attract and repel.

- 4***** 2. Design a simple experiment to determine whether various objects will be attracted to magnets.

Fourth Grade - Continued
Standard 2, Benchmark 4 - Continued

- 4***** 3. Construct a simple circuit.

Example: Use a battery, bulb, and wire to light a bulb, make a motor run, produce sound, or make an electromagnet.

STANDARD 3: LIFE SCIENCE

As a result of the activities for grades 3-4, all students will develop an understanding of biological concepts through direct experience with living things, their life cycles, and their habitats.

Benchmark 1: All students will develop a knowledge of organisms in their environment.

The study of organisms should include observations and interactions within the natural world of the child.

Indicators: The Students will:

- 4***** 1. Compare and contrast structural characteristics and functions of different organisms.
- Example:** Compare the structures for movement of a meal worm to the structures for movement of a guppy. Compare the leaf structures of a sprouted bean seed to the leaf structures of a corn seed.
- 4***** 2. Compare basic needs of different organisms in their environment.
- Example:** Compare the basic needs of an animal to the basic needs of a plant.
3. Discuss ways humans and other organisms use their senses in their environments.
- Example:** Compare how people and other living organisms get food, seek shelter, and defend themselves.

Benchmark 2: All students will observe and illustrate the life cycles of various organisms.

Plants and animals have life cycles that include being born, developing into adults, reproducing, and eventually dying. Young organisms develop into adults that are similar to their parents.

Indicators: The Students will:

- 4***** 1. Compare, contrast, and ask questions about life cycles of various organisms.
- Example:** Plant a seed; observe and record its growth. Observe and record the changes of an insect as it develops from birth to adult.

Fourth Grade - Continued

STANDARD 4: EARTH AND SPACE SCIENCE

As a result of the activities for grades 3-4, all students will observe objects, materials, and changes in their environment, note their properties, distinguish one from another, and develop their own explanations of how things become the way they are.

Benchmark 1: All students will develop an understanding of the properties of earth materials.

Earth materials may include rock, soil, air, and water. Playgrounds or parks are convenient study sites to observe.

Indicators: The students will:

1. Observe and classify a variety of earth materials in their environment.

Examples: Observe and classify rocks, soil, sand, and water.

- 4***** 2. Collect, observe, and become aware of properties of various earth materials.

Example: Students could bring in samples of earth materials from their surroundings to observe color, texture, and other physical properties.

- 4** 3. Experiment with a variety of soils.

Example: Plant seeds in a variety of soils to compare and collect data on the effect of different soils on plant growth. Experiment with soil samples and how they react to water, wind, compaction, etc.

- 4***** 4. Describe properties of many different kinds of rocks.

Example: Bring rocks from the playground, immerse in water, and observe color, texture, and reaction to liquids.

5. Observe fossils and discuss how fossils provide evidence of plants and animals that lived long ago. A fossil is a part of a once-living organism or a trace of an organism preserved in rock.

Example: Observe a variety of fossils.

**Fourth Grade - Continued
Standard 4 - Continued**

Benchmark 2: All students will observe and describe objects in the sky.
The sun, moon, stars, clouds, birds, and other objects such as airplanes have properties that can be observed and compared.

Indicators: The students will:

1. Observe the moon and stars.

Example: Sketch the position of the moon in relation to a tree, rooftop, or building.

2. Observe and compare the length of shadows.

Examples: Students can observe the movement of an object's shadow during the course of a day; construct simple sundials.

- 4***** 3. Discuss that the sun provides light and heat to maintain the temperature of the earth.

Example: Discuss why it seems cooler when the sun goes behind a cloud.

Benchmark 3: All students will develop skills necessary to describe changes in the earth and weather.

If the students revisit a study site regularly, they will develop an understanding that the earth's surface and weather are constantly changing.

Indicators: The students will:

- 4***** 1. Describe changes in the surface of the earth.

Example: Students will observe erosion and changes in plant growth at a study site.

- 4***** 2. Observe, describe, and record daily and seasonal weather changes.

Example: Record weather observations.

Fourth Grade - Continued

STANDARD 5: SCIENCE AND TECHNOLOGY

As a result of the activities for grades 3-4, all students will have a variety of educational experiences which involve science and technology. They will begin to understand the design process, which includes this general sequence: state the problem, the design, and the solution.

As with the Science as Inquiry Standard, not every activity will involve all stages. Students will develop the ability to solve simple design problems that are appropriate for their developmental level.

Benchmark 1: All students will work with a technology design.

Indicators: The students will:

- 4***** 1. Identify a simple design problem; design a plan, implement the plan, evaluate the results, and communicate the results.

Examples: Challenge the students to develop a better bubble-making solution using detergent, glycerin, and water; try different kinds of tools for making the biggest bubbles or the longest lasting bubbles.

Benchmark 2: All students will apply their understanding about science and technology.

Children's abilities in technological problem-solving can be developed by firsthand experiences in tackling tasks with a technological purpose. They can study technological products and systems in their world: zippers, coat hooks, can openers, bridges, paper clips.

Indicators: The students will:

- 4** 1. Discuss that science is a way of investigating questions about their world.

Examples: Why was a zipper designed? What problem did the zipper solve? How has the zipper improved our lives? How is velcro like a zipper? What problem does velcro solve? How has velcro improved our lives?

- 4***** 2. Invent a product to solve problems.

Examples: Invent a new use for old products: potato masher; strainer; carrot peeler; or 2 liter pop bottle. Use a juice can, 2 liter pop bottle or one-half gallon milk jug to invent something useful. Invent something to solve a problem.

**Fourth Grade - Continued
Standard 5, Benchmark 2 - Continued**

3. Work together to solve problems.

Examples: Solve a problem by working together, sharing ideas, and testing the solutions.

4. Develop an awareness that women and men of all ages, backgrounds, and ethnic groups engage in a variety of scientific and technological work.

Example: Interview parents and other community and school workers.

5. Investigate how scientists use tools to observe.

Examples: Engage in research on the Internet; interview the weatherman; conduct research in the library; call or visit a laboratory.

Benchmark 3: All students will distinguish between natural and human-made objects.

Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.

Indicators: The student will:

- 4***** 1. Compare, contrast, and sort human-made versus natural objects.

Example: Compare and contrast silk flowers to real flowers.

- 4** 2. Use appropriate tools when observing natural and human-made objects.

Example: Use a magnifier when observing objects.

3. Ask questions about natural or human-made objects and discuss the reasoning behind their answers.

Example: The teacher will ask, "Is this a human-made object? Why do you think so?" When observing a natural or human-made object, the child will be asked the reasoning behind his/her answer.

Fourth Grade - Continued

STANDARD 6: SCIENCE IN PERSONAL AND ENVIRONMENTAL PERSPECTIVES

As a result of the activities for grades 3-4, all students will demonstrate personal health and environmental practices.

A variety of experiences will be provided to understand various science-related personal and environmental challenges. This standard should be integrated with physical science, life science, and earth & space science standards.

Benchmark 1: All students will develop an understanding of personal health.

Personal health involves physical and mental well being, including hygienic practices, and self-respect.

Indicators: The students will:

- 4***** 1. Discuss that safety involves freedom from danger, risk, or injury.

Examples: Classroom discussions could include bike safety, water safety, weather safety, sun protection.

2. Assume some responsibility for their own health.

Examples: Practice good dental hygiene and cleanliness.
Discuss healthy exercise and sleep habits.

- 4***** 3. Discuss that various foods contribute to health.

Examples: Read and compare nutrition information found on labels; discuss healthy foods; make a healthy snack.

Benchmark 2: All students will demonstrate an awareness of changes in the environment.

Through classroom discussions, students can begin to recognize pollution as an environmental issue, scarcity as a resource issue, and crowded classrooms or schools as a population issue.

Indicators: The students will:

- 4** 1. Define pollution.

Example: Take a pollution walk, gathering examples of litter and trash.

**Fourth Grade - Continued
Standard 6, Benchmark 2 - Continued**

- 4***** 2. Develop personal actions to solve pollution problems in and around the neighborhood.

Example: After the pollution walk, children could work in groups to solve pollution problems they observed.

3. Practice reducing, reusing, and recycling.

Examples: Present the problem that paper is being wasted in the classroom. Students could meet and form a plan to resolve this problem.

Fourth Grade - Continued

STANDARD 7: HISTORY AND NATURE OF SCIENCE

As a result of the activities for grades 3-4, all students will experience some things about scientific inquiry and learn about people from history.

Experiences of investigating and thinking about explanations, not memorization, will provide fundamental ideas about the history and nature of science. Students will observe and compare, pose questions, gather data and report findings. Posing questions and reporting findings are human activities that all students are able to understand. This standard should be integrated with physical science, life science, and earth and space science standards.

Benchmark 1: All students will develop an awareness that people practice science.

Science and technology have been practiced by people for a long time. Children and adults can derive great pleasure from doing science. They can investigate, construct, and experience science. Individuals, as well as groups of students, can conduct investigations.

Indicators: The students will:

- 4** 1. Recognize that students participate in science inquiry by asking questions.

Examples: Design an investigation to determine how plants are affected by various amounts of light; to determine the “best” paper towel (define best); to determine which liquid causes substances such as a jawbreaker, chocolate candy, and Jell-O to dissolve quickest.

2. Observe, using various media, historical samples of people in science who have made contributions.

Examples: Read short stories; view films or videos; discuss contributions made by people in science.

Section 2.

LWS Correlation at a Glance

	LWS Resource			
	ST20 - Physical Science	ST21 - Life Science	ST22 - Earth Science	ST23 - Scientific Reasoning
Grade 2 Science Standard Element				
Science as Inquiry				
Physical Science				
Life Science				
Earth & Space Science				
Science & Technology				
Science in Personal and Environmental Perspectives				
History & Nature of Science				

	LWS Resource			
	ST20 - Physical Science	ST21 - Life Science	ST22 - Earth Science	ST23 - Scientific Reasoning
Grade 4 Science Standard Element				
Science as Inquiry				
Physical Science				
Life Science				
Earth & Space Science				
Science & Technology				
Science in Personal and Environmental Perspectives				
History & Nature of Science				

Section 3.

LWS Assignment Correlation

Grade 2 Science Standards Statement

Living with Science Resource							
Physical Science 1	Physical Science 2	Life Science 1	Life Science 2	Earth Science 1	Earth Science 2	Scientific Reasoning 1	Scientific Reasoning 2

Science as Inquiry

Identify characteristics of objects.			13		13	1,11		
Classify and arrange groups of objects by a variety of characteristics.				3,21	5			
Use appropriate materials and tools to collect information.	1						1,5,11, 13,21	21,22
Ask and answer questions about objects, organisms, and events in their environment.				22	21			
Describe an observation orally or pictorially.							20	

Physical Science

Observe properties and measure those properties using age appropriate tools and materials.	1,11						1,5,11	21
Describe objects by the materials from which they are made.							7,13	
Separate or sort a group of objects or materials by properties.		8					12	
Compare solids and liquids.						7	21	

Life Science

Discuss that living things need air, water, and food.					1			
Observe life cycles of different living things.			2,3,21	2				
Observe living things in various environments.						1,11		
Examine the structures of living things.			1,6,21	13				

Earth & Space Science

Observe, compare and sort earth materials.						4	13	
Describe where earth materials are found.						4,11	7	
Distinguish between human-made and natural objects in the sky.								
Recognize sun, moon, and stars.					6	2		
Describe that the sun provides light and warmth.						6,21		
Observe changes in the weather from day to day.					3,7,13			
Record weather changes daily.					3,7,13			
Discuss weather safety procedures.								

Science & Technology

Explore the way things work.			1,6				8	2,11
Experience science through technology.							8	

Science in Personal and Environmental Perspectives

Engage in personal care.	6	2	8	1		3		
Discuss healthy foods.			20	1,5				
Discuss that safety and security are basic human needs.								

History & Nature of Science

Be involved in explorations that make them wonder and know that they are practicing science.							22	22
Use technology to learn about people in science.								

Grade 4 Science Standards Statement

Living with Science Resource							
Physical Science 1	Physical Science 2	Life Science 1	Life Science 2	Earth Science 1	Earth Science 2	Scientific Reasoning 1	Scientific Reasoning 2

Science as Inquiry

Ask questions that they can answer by investigating.								22
Plan and conduct a simple investigation.							22	22
Employ appropriate equipment and tools to gather data.	1						1,5,21	1,21
Begin developing the abilities to communicate, critique, analyze their own investigations, and interpret the work of other students.	20	20	20	20	20	20	20	20

Physical Science

Observe properties and measure those properties using appropriate tools.	1,5,21	8					1,5	21
Classify objects by the materials from which they are made.							7,13	
Describe and classify objects by more than one property.	4,13,21	12					3	7
Observe and record how one object reacts with another object.	2,5	1					4	
Recognize and describe the differences between solids, liquids, and gases.						7	21	
Move objects by pushing, pulling, throwing, spinning, dropping, and rolling; describe the motion. Observe that a force (a push or a pull), is applied to make objects move.	1,5						21	
Describe locations of objects.								

Discriminate between sounds made by different objects.								
Demonstrate that magnets attract and repel.	2						13	
Design a simple experiment to determine whether various objects will be attracted to magnets.	2,21							
Construct a simple circuit.	6	6,21						

Life Science

Compare and contrast structural characteristics and functions of different organisms.			1,5	21				
Compare basic needs of different organisms in their environment.						1,21		
Discuss ways humans and other organisms use their senses in their environments.			7					
Compare, contrast, and ask questions about life cycles of various organisms.			2,3,21	2				

Earth & Space Science

Observe and classify a variety of earth materials in their environment.							7	
Collect, observe, and become aware of properties of various earth materials.						4		
Experiment with a variety of soils.								
Describe properties of many different kinds of rocks.						4		
Observe fossils and discuss how fossils provide evidence of plants and animals that lived long ago. A fossil is a part of a once-living organism or a trace of an organism preserved in rock.					8,21			
Observe the moon and stars.					6			
Observe and compare the length of shadows.	8				2			
Discuss that the sun provides light and heat to maintain the temperature of the earth.					3	6		
Describe changes in the surface of the earth.						21		
Observe, describe, and record daily and seasonal weather changes.					3,7	21		

Science & Technology

Identify a simple design problem; design a plan, implement the plan, evaluate the results, and communicate the results.							22	
Discuss that science is a way of investigating questions about their world.								
Invent a product to solve problems.							8	
Work together to solve problems.								
Develop an awareness that women and men of all ages, backgrounds, and ethnic groups engage in a variety of scientific and technological work.								
Investigate how scientists use tools to observe.								
Compare, contrast, and sort human-made versus natural objects.							7	
Use appropriate tools when observing natural and human-made objects.			6,13	2				
Ask questions about natural or human-made objects and discuss the reasoning behind their answers.								

Science in Personal and Environmental Perspectives

Discuss that safety involves freedom from danger, risk, or injury.							22	
Assume some responsibility for their own health.				5				
Discuss that various foods contribute to health.				5				
Define pollution.					1			
Develop personal actions to solve pollution problems in and around the neighborhood.								
Practice reducing, reusing, and recycling.						5		

History & Nature of Science

Recognize that students participate in science inquiry by asking questions.								
Observe, using various media, historical samples of people in science who have made contributions.								

Section 4.

LWS Objectives Correlation

Kansas @Gr2 Science Standards

1 Science as Inquiry

- 1 **Identify characteristics of objects.**
Discovers the characteristics of animals that allow them to survive in their natural habitats.
Describes characteristics of animals habitats.
Identifies characteristics of the Moon and its phases.
Identifies characteristics of the lungs, stomach and heart of the human body.
- 2 **Classify and arrange groups of objects by a variety of characteristics.**
Inserts questions into the correct places in a classification key so that it can be used to sort a series of dogs.
Creates questions in a classification key to sort a group of farmyard animals.
Uses classification keys to sort animals.
Uses a simple classification key to sort three different types of metal.
- 3 **Use appropriate materials and tools to collect information.**
Uses an analogue light meter to measure light levels in a room.
Uses a digital light meter to measure light levels in a room.
Identifies units of measurement that would be most suitable for measuring a series of different items.
Students identify tools that could be used in measurement of physical phenomena.
Identifies how the level of light can be measured.
Uses a ruler and a motion sensor to measure height.
Measures temperature using thermometers.
Uses a motion sensor to measure distances.
Measures pulling forces using a Newton meter.
Identifies different ways to measure things.
Uses non-standard measurements, such as paper clips and hands, to measure different objects.
- 4 **Ask and answer questions about objects, organisms, and events in their environment.**
Interprets text to identify things that harm, preserve or protect the environment.
Students identify how living organisms have adapted to become suited to the environment in which they grow.
- 5 **Describe an observation orally or pictorially.**
Critiques written and oral explanations of science.
Makes a presentation on science.
Creates a science poster.

- | | | | |
|----------|-------------------------|----------|--|
| 2 | Physical Science | 1 | <p>Observe properties and measure those properties using age appropriate tools and materials.
 <i>Uses a ruler and a motion sensor to measure height.
 Identifies that pushes and pulls are forces that can be measured in Newton's.
 Uses an analogue light meter to measure light levels in a room.
 Identifies different ways to measure things.
 Uses a digital light meter to measure light levels in a room.
 Students identify tools that could be used in measurement of physical phenomena.
 Identifies units of measurement that would be most suitable for measuring a series of different items.
 Uses a motion sensor to measure distances.
 Measures pulling forces using a Newton meter.</i></p> |
| | | 2 | <p>Describe objects by the materials from which they are made.
 <i>Identifies if materials come from the Earth, from plants or from animals.
 Identifies what natural materials have been used to make a series of sample objects.</i></p> |
| | | 3 | <p>Separate or sort a group of objects or materials by properties.
 <i>Measures and compares the heat insulation properties of different materials.
 Identifies flexible, inflexible and elastic material properties.</i></p> |
| | | 4 | <p>Compare solids and liquids.
 <i>Separates solids and liquids using filter paper.
 States if everyday items are solids, liquids or gases.</i></p> |
| 3 | Life Science | 1 | <p>Discuss that living things need air, water, and food.
 <i>Uses a checklist of the seven life processes to identify if things are living or not living.</i></p> |
| | | 2 | <p>Observe life cycles of different living things.
 <i>Compares the life cycles of plants and identifies similarities and differences between them.
 Discovers how insects aid pollination in the life cycle of a plant.
 Using software, discovers the different stages of the human life cycle.
 Compares the life cycles of animals and identifies similarities and differences between them.
 Uses a board-game to discover the stages in the life cycle of a plant.
 Using software, discovers the different stages in the life cycle of butterflies and frogs.</i></p> |
| | | 3 | <p>Observe living things in various environments.
 <i>Discovers the habitats of different animals.
 Describes characteristics of animals habitats.
 Discovers the characteristics of animals that allow them to survive in their natural habitats.</i></p> |

<p>4 Earth & Space Science</p>	<p>4</p>	<p>Examine the structures of living things. <i>Investigates the joints of the human body.</i> <i>Interprets text and diagrams to identify the structure of a plant leaf and how it is given its green color.</i> <i>Uses a microscope to view the cells of plants.</i> <i>Interprets text to identify the parts of a tooth and things that are considered as good or bad for teeth.</i> <i>Investigates the bones of the human body.</i> <i>Identifies the parts of plants that help them to make their own food.</i></p>
	<p>1</p>	<p>Observe, compare and sort earth materials. <i>Identifies if materials come from the Earth, from plants or from animals.</i> <i>Sorts rocks into sedimentary, metamorphic and igneous rock types.</i></p>
	<p>2</p>	<p>Describe where earth materials are found. <i>Identifies what natural materials have been used to make a series of sample objects.</i> <i>Identifies where different natural materials come from.</i> <i>Describes the different conditions for the formation of various rocks.</i> <i>Sorts rocks into sedimentary, metamorphic and igneous rock types.</i> <i>States how different rocks are formed.</i></p>
	<p>3</p>	<p>Distinguish between human-made and natural objects in the sky. <i>N/A</i></p>
	<p>4</p>	<p>Recognize sun, moon, and stars. <i>States the position of the planets in the solar system.</i> <i>Uses software to discover facts about the Moon and its relation to the Earth.</i> <i>Recognizes planets in the solar system.</i></p>
	<p>5</p>	<p>Describe that the sun provides light and warmth. <i>States the effects that the Sun has on the light levels on the planets of the solar system.</i> <i>Uses a model of the Earth to identify how the position of the Earth during different seasons effects the hours of daylight.</i></p>
	<p>6</p>	<p>Observe changes in the weather from day to day. <i>Discovers symbols that are used to represent the weather.</i> <i>Observes the weather during different seasons in a virtual representation of New York.</i> <i>Uses a virtual weather station to record temperature and rainfall.</i> <i>Identifies symbols and instruments which can be used to represent and measure the weather.</i></p>
<p>7</p>	<p>Record weather changes daily. <i>Uses a virtual weather station to record temperature and rainfall.</i> <i>Identifies symbols and instruments which can be used to represent and measure the weather.</i> <i>Discovers symbols that are used to represent the weather.</i> <i>Observes the weather during different seasons in a virtual representation of New York.</i></p>	

		8	Discuss weather safety procedures. <i>N/A</i>
5	Science & Technology	1	Explore the way things work. <i>Modifies a crawler so that it can store enough energy to reach the top of a slope.</i> <i>Modifies a crawler to change the direction it moves in.</i> <i>Identifies the parts and controls of a microscope.</i> <i>Changes the balance of a model airplane to see the effect on flight.</i> <i>Describes the function of lifting machines.</i> <i>Uses wing flaps and rudders to control the direction of airplanes in the air.</i> <i>Changes the size and shape of a wing of a model airplane to see the effect in the lift given.</i> <i>Investigates the joints of the human body.</i> <i>Investigates the bones of the human body.</i>
		2	Experience science through technology. <i>Finds the effects of giving a crawler more energy.</i> <i>Modifies a crawler so that it can store enough energy to reach the top of a slope.</i> <i>Modifies a crawler to change the direction it moves in.</i>
6	Science in Personal and Environmental Perspectives	1	Engage in personal care. <i>Determines if materials are electrical conductors or electrical insulators using a simple lamp circuit.</i> <i>Uses litmus paper to find out if samples are acidic, basic or neutral.</i> <i>Interprets electrical diagrams to predict the behavior of electrical components connected in series.</i> <i>Determines the effect of exercise on heart rate.</i> <i>Replicates and observes the stages of the water cycle.</i>
		2	Discuss healthy foods. <i>Discovers the food groups necessary for a healthy balanced diet.</i> <i>Identifies the nutrients contained in different foods.</i> <i>Determines the effect of exercise on heart rate.</i> <i>Discovers the relationship between heartbeat and pulse.</i> <i>Debates issues that relate to life science.</i>
		3	Discuss that safety and security are basic human needs. <i>N/A</i>
7	History and Nature of Science	1	Be involved in explorations that make them wonder and know that they are practicing science. <i>Students reorder data into logical sequences to identify patterns in results.</i> <i>Students analyze experimental data to identify if the hypothesis is disproved or supported.</i> <i>Students state whether an experiment tests a hypothesis.</i> <i>Students identify the typical stages in a scientific experiment.</i>
		2	Use technology to learn about people in science. <i>N/A</i>

Kansas @Gr4 Science Standards

- | | |
|-----------------------------|--|
| 1 Science as Inquiry | 1 Ask questions that they can answer by investigating.
<i>Students state whether an experiment tests a hypothesis.</i> |
| | 2 Plan and conduct a simple investigation.
<i>Students identify the typical stages in a scientific experiment.</i>
<i>Students analyze experimental data to identify if the hypothesis is disproved or supported.</i>
<i>Students reorder data into logical sequences to identify patterns in results.</i> |
| | 3 Employ appropriate equipment and tools to gather data.
<i>Uses a motion sensor to measure distances.</i>
<i>Uses a digital light meter to measure light levels in a room.</i>
<i>Uses a ruler and a motion sensor to measure height.</i>
<i>Identifies that pushes and pulls are forces that can be measured in Newton's.</i>
<i>Measures pulling forces using a Newton meter.</i>
<i>Identifies units of measurement that would be most suitable for measuring a series of different items.</i>
<i>Uses non-standard measurements, such as paper clips and hands, to measure different objects.</i>
<i>Students identify tools that could be used in measurement of physical phenomena.</i>
<i>Measures temperature using thermometers.</i>
<i>Uses an analogue light meter to measure light levels in a room.</i> |
| | 4 Begin developing the abilities to communicate, critique, analyze their own investigations, and interpret the work of other students.
<i>Debates issues that relate to science.</i>
<i>Makes a presentation on science.</i>
<i>Writes a report on science.</i>
<i>Critiques written and oral explanations of science.</i> |

- 2 Physical Science**
- 1 Observe properties and measure those properties using appropriate tools.**
 - Measures the effect that the force of gravity has on a mass placed on an inclined plane.*
 - Identifies that pushes and pulls are forces that can be measured in Newton's.*
 - Uses a motion sensor to measure distances.*
 - Uses a ruler and a motion sensor to measure height.*
 - Measures temperature using thermometers.*
 - Students identify tools that could be used in measurement of physical phenomena.*
 - Identifies units of measurement that would be most suitable for measuring a series of different items.*
 - Uses an analogue light meter to measure light levels in a room.*
 - Uses a digital light meter to measure light levels in a room.*
 - Measures pulling forces using a Newton meter.*
 - Identifies the weight of objects in units of Newton's and places them in order of their weight.*
 - Measures and compares the heat insulation properties of different materials.*
 - 2 Classify objects by the materials from which they are made.**
 - Identifies what natural materials have been used to make a series of sample objects.*
 - Identifies if materials come from the Earth, from plants or from animals.*
 - 3 Describe and classify objects by more than one property.**
 - Relates the weight, shape and size of a material to its density.*
 - Predicts how the pitch of sound produced by a vibrating object changes with object size.*
 - Tests a series of different objects to find if they are flexible, inflexible or elastic.*
 - Identifies if objects are electrical conductors or electrical insulators.*
 - Determines if objects are transparent or opaque using a light ray box.*
 - Identifies objects around the classroom that are light sources.*
 - Identifies the weight of objects in units of Newton's and places them in order of their weight.*
 - 4 Observe and record how one object reacts with another object.**
 - Compares the force of friction between different materials.*
 - Discovers the effect of forces on a lever.*
 - Squashes a ball and stretches a spring to observe the effects of pushing and pulling forces.*
 - Observes the magnetic attraction and repulsion forces between the poles of magnets.*
 - 5 Recognize and describe the differences between solids, liquids, and gases.**
 - Separates solids and liquids using filter paper.*
 - States if everyday items are solids, liquids or gases.*

- | | | |
|---|--------------|---|
| 3 | Life Science | <p>6 Move objects by pushing, pulling, throwing, spinning, dropping, and rolling; describe the motion. Observe that a force (a push or a pull), is applied to make objects move.
<i>Observes how a varying incline effects the speed of a model car. Squashes a ball and stretches a spring to observe the effects of pushing and pulling forces. States if illustrated movements are pushes or pulls. Measures the effect that the force of gravity has on a mass placed on an inclined plane. Interprets text and diagrams to identify if forces are balanced or unbalanced.</i></p> <p>7 Describe locations of objects.
<i>N/A</i></p> <p>8 Discriminate between sounds made by different objects.
<i>N/A</i></p> <p>9 Demonstrate that magnets attract and repel.
<i>Identifies the behavior of temporary and permanent magnets. Discovers that materials containing iron stick to magnets. Observes the magnetic attraction and repulsion forces between the poles of magnets.</i></p> <p>10 Design a simple experiment to determine whether various objects will be attracted to magnets.
<i>Identifies everyday items that would stick to a magnet. Discovers that materials containing iron stick to magnets. Determines which materials stick to a magnet.</i></p> <p>11 Construct a simple circuit.
<i>Interprets circuit diagram symbols to identify the differences and similarities between series circuits. Interprets electrical diagrams to predict the behavior of electrical components connected in parallel. Discovers that electricity cannot flow unless a circuit is complete.</i></p> |
| 1 | | <p>1 Compare and contrast structural characteristics and functions of different organisms.
<i>Investigates the joints of the human body. Investigates the heart of the human body. Investigates the stomach of the human body. Investigates the bones of the human body. Investigates the lungs of the human body. Interprets text and diagrams to identify the structure of a plant leaf and how it is given its green color.</i></p> <p>2 Compare basic needs of different organisms in their environment.
<i>Interprets text and diagrams to identify the habitats of different plants. Discovers the characteristics of animals that allow them to survive in their natural habitats. Discovers the habitats of different animals.</i></p> |

4 Earth & Space Science

- 3 Discuss ways humans and other organisms use their senses in their environments.**
*Specifies what senses can be used to identify different things.
Uses software to find what parts of the human body give each of the five senses.*
- 4 Compare, contrast, and ask questions about life cycles of various organisms.**
*Compares the life cycles of animals and identifies similarities and differences between them.
Compares the life cycles of plants and identifies similarities and differences between them.
Uses a board-game to discover the stages in the life cycle of a plant.
Using software, discovers the different stages of the human life cycle.
Using software, discovers the different stages in the life cycle of butterflies and frogs.
Discovers how insects aid pollination in the life cycle of a plant.*
- 1 Observe and classify a variety of earth materials in their environment.**
Identifies where different natural materials come from.
- 2 Collect, observe, and become aware of properties of various earth materials.**
Sorts rocks into sedimentary, metamorphic and igneous rock types.
- 3 Experiment with a variety of soils.**
N/A
- 4 Describe properties of many different kinds of rocks.**
Sorts rocks into sedimentary, metamorphic and igneous rock types.
- 5 Observe fossils and discuss how fossils provide evidence of plants and animals that lived long ago. A fossil is a part of a once-living organism or a trace of an organism preserved in rock.**
*Uses a virtual excavation to find different fossils.
Uses symbols to represent different types of fossil.
Uses software to find out how different types of fossils are formed.*
- 6 Observe the moon and stars.**
Uses software to discover facts about the Moon and its relation to the Earth.
- 7 Observe and compare the length of shadows.**
*Identifies how shadows are formed and how they change depending on their distance from a light source.
Uses a shadow trainer to find out why shadows change shape during the day.*

5 Science & Technology

- 8 Discuss that the sun provides light and heat to maintain the temperature of the earth.**
States the effects that the Sun has on the light levels on the planets of the solar system.
Uses a software simulation to find out how seasons are linked to the position of the Earth in relation to the Sun.
- 9 Describe changes in the surface of the earth.**
Interprets text and diagrams to identify physical, chemical and biological forms of weathering.
- 10 Observe, describe, and record daily and seasonal weather changes.**
Uses a virtual weather station to record temperature and rainfall.
Discovers symbols that are used to represent the weather.
Observes the weather during different seasons in a virtual representation of New York.
Interprets text and diagrams to identify physical, chemical and biological forms of weathering.
- 1 Identify a simple design problem; design a plan, implement the plan, evaluate the results, and communicate the results.**
Students state whether an experiment tests a hypothesis.
Students identify the typical stages in a scientific experiment.
Students reorder data into logical sequences to identify patterns in results.
Students analyze experimental data to identify if the hypothesis is disproved or supported.
- 2 Discuss that science is a way of investigating questions about their world.**
N/A
- 3 Invent a product to solve problems.**
Finds the effects of giving a crawler more energy.
Modifies a crawler so that it can store enough energy to reach the top of a slope.
Modifies a crawler to change the direction it moves in.
- 4 Work together to solve problems.**
N/A
- 5 Develop an awareness that women and men of all ages, backgrounds, and ethnic groups engage in a variety of scientific and technological work.**
N/A
- 6 Investigate how scientists use tools to observe.**
Students identify tools that could be used in measurement of physical phenomena.

		7	<p>Compare, contrast, and sort human-made versus natural objects. <i>Identifies where different natural materials come from.</i> <i>Identifies what natural materials have been used to make a series of sample objects.</i></p>
		8	<p>Use appropriate tools when observing natural and human-made objects. <i>Identifies the parts and controls of a microscope.</i> <i>Observes flower pollen magnified by a microscope.</i> <i>Uses a microscope to view the cells of plants.</i> <i>States the uses of a microscope.</i></p>
		9	<p>Ask questions about natural or human-made objects and discuss the reasoning behind their answers. <i>N/A</i></p>
6	Science in Personal and Environmental Perspectives	1	<p>Discuss that safety involves freedom from danger, risk, or injury. <i>Students identify safety signs that could be used in a science lab.</i></p>
		2	<p>Assume some responsibility for their own health. <i>Discovers the food groups necessary for a healthy balanced diet.</i> <i>Identifies the nutrients contained in different foods.</i></p>
		3	<p>Discuss that various foods contribute to health. <i>Identifies the nutrients contained in different foods.</i> <i>Discovers the food groups necessary for a healthy balanced diet.</i></p>
		4	<p>Define pollution. <i>Identifies what effect pollution can have on rivers and ponds.</i></p>
		5	<p>Develop personal actions to solve pollution problems in and around the neighborhood. <i>N/A</i></p>
		6	<p>Practice reducing, reusing, and recycling. <i>Identifies how different materials can be recycled.</i></p>
7	History and Nature of Science	1	<p>Recognize that students participate in science inquiry by asking questions. <i>N/A</i></p>
		2	<p>Observe, using various media, historical samples of people in science who have made contributions. <i>N/A</i></p>

Section 5.

LWS Objective Lists

ST20-1 Living with Physical Science Level-1

1 Pushes and Pulls

- 1 States if illustrated movements are pushes or pulls.
- 2 Measures pulling forces using a Newton meter.

2 Magnets

- 1 Determines which materials stick to a magnet.
- 2 Discovers that materials containing iron stick to magnets.
- 3 Observes the magnetic attraction and repulsion forces between the poles of magnets.

3 Sound Travel

- 1 Identifies that sound travels as a vibration by speaking into a balloon.
- 2 Identifies that sound travels through string as a vibration by using a string telephone.

4 Light Sources

- 1 Identifies objects around the classroom that are light sources.
- 2 Determines if objects are transparent or opaque using a light ray box.

5 Effects of Force

- 1 Squashes a ball and stretches a spring to observe the effects of pushing and pulling forces.
- 2 Observes how a varying incline effects the speed of a model car.
- 3 Measures the effect that the force of gravity has on a mass placed on an inclined plane.

6 Electrical Conductors

- 1 Determines if materials are electrical conductors or electrical insulators using a simple lamp circuit.
- 2 Discovers that electricity cannot flow unless a circuit is complete.

7 Types of Energy

- 1 Discovers where kinetic, potential, chemical, light, heat and sound energy can occur.
- 2 Uses a model car on a track to find when the car has enough energy to travel over a hill.

8 Reflections and Shadows

- 1 Observes that images are reversed when reflected in a mirror.
- 2 Identifies how shadows are formed and how they change depending on their distance from a light source.

11 Pre Test Quiz 1

- 1 Identifies that pushes and pulls are forces that can be measured in Newton's.
- 2 Identifies the attraction and repulsion between magnets and other objects.
- 3 Identifies that sound travels as a vibration and so can travel through solids.
- 4 Identifies if objects are light sources and if they are transparent or opaque.

12 Post Test Quiz 1

- 1 Identifies that pushes and pulls are forces that can be measured in Newton's.
- 2 Identifies the attraction and repulsion between magnets and other objects.
- 3 Identifies that sound travels as a vibration and so can travel through solids.
- 4 Identifies if objects are light sources and if they are transparent or opaque.

13 Pre Test Quiz 2

- 1 Describes the effect of pushing and pulling forces.
- 2 Identifies if objects are electrical conductors or electrical insulators.
- 3 Identifies different types of energy.
- 4 Describes the appearance of reflections and shadows.

14 Post Test Quiz 2

- 1 Describes the effect of pushing and pulling forces.
- 2 Identifies if objects are electrical conductors or electrical insulators.
- 3 Identifies different types of energy.
- 4 Describes the appearance of reflections and shadows.

ST20-2 Living with Physical Science Level-2

1 Friction

- 1 Observes the force of friction.
- 2 Compares the force of friction between different materials.

2 Series Circuits

- 1 Uses components, like lamps and buzzers, to discover that electrical energy can be changed into different energies.
- 2 Interprets electrical diagrams to predict the behavior of electrical components connected in series.

3 Musical Sounds

- 1 Observes the relationship between length of rubber band and pitch of sound made by a stringed instrument.
- 2 Observes the relationship between length of tube and pitch of sound made by a wind instrument.
- 3 Observes the relationship between volume of air and pitch of sound made by a percussion instrument.

4 Light Rays

- 1 Uses lenses to bend light rays.
- 2 Observes the mixing of colored light to make other colors, including the making of white light.

5 Springs

- 1 Discovers the elastic properties of metal springs.
- 2 Discovers that the stretch of spring is proportional to the weight placed on it.

6 Parallel Circuits

- 1 Discovers how electricity flows in series and parallel circuits.
- 2 Interprets electrical diagrams to predict the behavior of electrical components connected in parallel.
- 3 States the use of parallel and series electrical circuits in the home.

7 Energy Conversion

- 1 Uses flow diagrams to track the conversion of energy.
- 2 Observes the change from kinetic energy into heat and sound energy when rubbing hands together.
- 3 Discovers that a dynamo can be used to convert kinetic energy into electrical energy.

8 Cooling

- 1 Compares the heat loss in different materials using graphs.
- 2 Measures and compares the heat insulation properties of different materials.
- 3 Identifies the use of insulating domestic water pipes against cold.

11 Pre Test Quiz 3

- 1 Describes the friction force that occurs between two surfaces.
- 2 Describes how electrical components work in series circuits.
- 3 Predicts how the pitch of sound produced by a vibrating object changes with object size.
- 4 Recognizes the lenses that bend light rays.

12 Post Test Quiz 3

- 1 Describes the friction force that occurs between two surfaces.
- 2 Predicts how the pitch of sound produced by a vibrating object changes with object size.
- 3 Describes how electrical components work in series circuits.
- 4 Describes the behavior of light.

13 Pre Test Quiz 4

- 1 Predicts that the stretch of a spring is proportional to the weight placed on it.
- 2 Describes how electrical components work in parallel circuits.
- 3 Recognizes different forms of energy.
- 4 Describes how heat insulators and heat conductors lose heat.

14 Post Test Quiz 4

- 1 Predicts that the stretch of a spring is proportional to the weight placed on it.
- 2 Describes how electrical components work in parallel circuits.
- 3 Recognizes different forms of energy.
- 4 Describes how heat insulators and heat conductors lose heat.

ST21-1 Living with Life Science Level-1

1 Bones

- 1 Investigates the bones of the human body.
- 2 Investigates the joints of the human body.

2 Plant Life Cycles

- 1 Uses a board-game to discover the stages in the life cycle of a plant.
- 2 Uses software to discover methods of seeds dispersal from different plants.

3 Animal Life Cycles

- 1 Using software, discovers the different stages of the human life cycle.
- 2 Using software, discovers the different stages in the life cycle of butterflies and frogs.

4 Food Providers

- 1 Uses a matching game to find what foods humans can obtain from animals.
- 2 Uses a matching game to find what foods humans can obtain from plants.

5 The Body

- 1 Investigates the lungs of the human body.
- 2 Investigates the stomach of the human body.
- 3 Investigates the heart of the human body.

6 Using a Microscope

- 1 Identifies the parts and controls of a microscope.
- 2 Uses a microscope to view the cells of plants.

7 Senses

- 1 Uses software to find what parts of the human body give each of the five senses.
- 2 Specifies what senses can be used to identify different things.

8 Acids and Bases

- 1 Uses litmus paper to find out if samples are acidic, basic or neutral.
- 2 Investigates the pH levels of virtual fields to find which field is most suitable to grow crops.

11 Pre Test Quiz 1

- 1 Identifies bones and joints of the human body.
- 2 Identifies the stages in the life cycle of a plant.
- 3 Identifies stages in the life cycle of animals.
- 4 Identifies foods that come from plants and animals.

12 Post Test Quiz 1

- 1 Identifies bones and joints of the human body.
- 2 Identifies the stages in the life cycle of a plant.
- 3 Identifies stages in the life cycle of animals.
- 4 Identifies foods that come from plants and animals.

13 Pre Test Quiz 2

- 1 Identifies characteristics of the lungs, stomach and heart of the human body.
- 2 States the uses of a microscope.
- 3 Identifies senses of the human body.
- 4 Identifies the pH levels of acids and bases.

14 Post Test Quiz 2

- 1 Identifies characteristics of the lungs, stomach and heart of the human body.
- 2 States the uses of a microscope.
- 3 Identifies senses of the human body.
- 4 Identifies the pH levels of acids and bases.

ST21-2 Living with Life Science Level-2

1 Exercise

- 1 Discovers the relationship between heartbeat and pulse.
- 2 Determines the effect of exercise on heart rate.

2 Pollination

- 1 Observes flower pollen magnified by a microscope.
- 2 Discovers how insects aid pollination in the life cycle of a plant.

3 Sorting Animals

- 1 Uses classification keys to sort animals.
- 2 Creates questions in a classification key to sort a group of farmyard animals.

4 Climate Control

- 1 Observes the growth of a plant when grown under different watering conditions.
- 2 Observes the growth of a plant when grown under different temperature conditions.
- 3 Describes different forms of climate control used to grow plants.

5 Diet

- 1 Identifies the nutrients contained in different foods.
- 2 Discovers the food groups necessary for a healthy balanced diet.

6 Plant Food

- 1 Recognizes the purpose of photosynthesis in plants.
- 2 Discovers the effects that sunlight and water have on the growth of plants.
- 3 Discovers that plants require carbon dioxide and produce oxygen as a waste product.

7 Food Chains

- 1 States the energy transfer that occurs between plants to animals and animals to animals in food chains.
- 2 Identifies the producers primary consumers and secondary consumers in food chains.
- 3 Classifies animals as carnivores, herbivores or omnivores.

8 Nutrients

- 1 Determines the nutrients that plants need to grow.
- 2 Observes the effects of tap water, salt water and fertilizer on the growth of plants in a nine day period.

11 Pre Test Quiz 3

- 1 Describes the pulse as a method of detecting blood flow around the body.
- 2 Describes the relationship between a honeybee and a flower for pollination to occur.
- 3 Identifies questions that can be asked to sort different animals.
- 4 Relates plant growth with climate.

12 Post Test Quiz 3

- 1 Identifies questions that can be asked to sort different animals.
- 2 Describes the relationship between a honeybee and a flower for pollination to occur.
- 3 States the appropriate climate to grow different plants.
- 4 Describes the pulse as a method of detecting blood flow around the body.

13 Pre Test Quiz 4

- 1 Associates various nutrients with food groups.
- 2 Identifies the parts of plants that help them to make their own food.
- 3 Determines the placement of animals and plants in food chains.
- 4 Identifies the nutrients plants use for growth.

14 Post Test Quiz 4

- 1 Associates various nutrients with food groups.
- 2 Identifies the parts of plants that help them to make their own food.
- 3 Identifies the various nutrients plants use for growth.
- 4 Distinguishes between a herbivore and a carnivore.

ST22-1 Living with Earth Science Level-1

1 Rivers and Ponds

- 1 Uses a checklist of the seven life processes to identify if things are living or not living.
- 2 Identifies what effect pollution can have on rivers and ponds.

2 Day and Night

- 1 Uses software to find out why there is day and night.
- 2 Uses a shadow trainer to find out why shadows change shape during the day.

3 The Seasons

- 1 Observes the weather during different seasons in a virtual representation of New York.
- 2 Uses a software simulation to find out how seasons are linked to the position of the Earth in relation to the Sun.

4 Fossil Fuels

- 1 Identifies how fossil fuels are made and where they come from.
- 2 Identifies what fossil fuels can be used for.

5 Recycling

- 1 Identifies how different materials can be recycled.
- 2 Uses a simple classification key to sort three different types of metal.

6 The Moon

- 1 Uses software to discover facts about the Moon and its relation to the Earth.
- 2 Uses software to discover the different phases of the Moon.

7 Weather Records

- 1 Discovers symbols that are used to represent the weather.
- 2 Uses a virtual weather station to record temperature and rainfall.

8 Fossils

- 1 Uses a virtual excavation to find different fossils.
- 2 Uses software to find out how different types of fossils are formed.

11 Pre Test Quiz 1

- 1 Identifies if things are alive or not alive and how they can be affected by pollution.
- 2 Describes what causes day and night and what happens to shadows during the day.
- 3 Identifies the seasons at different places on the Earth.
- 4 Identifies fossil fuels and how they are made.

12 Post Test Quiz 1

- 1 Identifies if things are alive or not alive and how they can be affected by pollution.
- 2 Describes what causes day and night and what happens to shadows during the day.
- 3 Identifies the seasons at different places on the Earth.
- 4 Identifies fossil fuels and how they are made.

13 Pre Test Quiz 2

- 1 Identifies processes by which different materials can be recycled.
- 2 Identifies characteristics of the Moon and its phases.
- 3 Identifies symbols and instruments which can be used to represent and measure the weather.
- 4 Describes how fossils are formed.

14 Post Test Quiz 2

- 1 Identifies processes by which different materials can be recycled.
- 2 Identifies characteristics of the Moon and its phases.
- 3 Identifies symbols and instruments which can be used to represent and measure the weather.
- 4 Describes how fossils are formed.

ST22-2 Living with Earth Science Level-2

1 Habitats

- 1 Discovers the characteristics of animals that allow them to survive in their natural habitats.
- 2 Discovers the habitats of different animals.

2 The Planets

- 1 States the position of the planets in the solar system.
- 2 Recognizes planets in the solar system.

3 Rain and Clouds

- 1 States the necessary conditions for the formation of clouds and precipitation.
- 2 Replicates and observes the stages of the water cycle.
- 3 States the different forms of water in the water cycle.

4 Rocks

- 1 Describes the different conditions for the formation of various rocks.
- 2 Sorts rocks into sedimentary, metamorphic and igneous rock types.

5 Global Warming

- 1 Discovers some of the causes of global warming.
- 2 Explores the effects of global warming and alternative energy sources.

6 The Sun

- 1 States the effects that the Sun has on the light levels on the planets of the solar system.
- 2 Observes the effect that distance has on light levels.

7 Separating Mixtures

- 1 Separates mixtures using a sieve.
- 2 Separates solids and liquids using filter paper.

8 Solubility

- 1 Tests if materials are soluble or insoluble.
- 2 Observes the effect of adding an insoluble material to a liquid.

11 Pre Test Quiz 3

- 1 Describes characteristics of animals habitats.
- 2 Identifies planets in the solar system.
- 3 Describes the states and processes of the water cycle.
- 4 States how different rocks are formed.

12 Post Test Quiz 3

- 1 Describes characteristics of animals habitats.
- 2 States how different rocks are formed.
- 3 Identifies planets in the solar system.
- 4 Describes the states and processes of the water cycle.

13 Pre Test Quiz 4

- 1 Identifies some causes and effects of global warming.
- 2 Relates the position of a planet in the solar system to the amount of light it receives.
- 3 Identifies how mixtures can be separated using different filters.
- 4 Describes what happens to soluble and insoluble materials when they are added to a liquid.

14 Post Test Quiz 4

- 1 Describes what happens to soluble and insoluble materials when they are added to a liquid.
- 2 Identifies how mixtures can be separated using filters.
- 3 Relates the position of a planet in the solar system to the amount of light it receives.
- 4 Identifies some causes and effects of global warming.

ST23-1 Living with Scientific Reasoning Level-1

1 Measuring Distance

- 1 Uses a motion sensor to measure distances.
- 2 Uses a ruler and a motion sensor to measure height.

2 Alternative Energy

- 1 Identifies renewable and non-renewable energy sources.
- 2 Uses a solar panel to generate electricity in a circuit.

3 Elasticity

- 1 Tests a series of different objects to find if they are flexible, inflexible or elastic.
- 2 Identifies if different objects should be flexible, inflexible or elastic in order to do their jobs.

4 Balance

- 1 Discovers the effect of forces on a lever.
- 2 Uses a lever to balance weights.

5 Light Levels

- 1 Uses an analogue light meter to measure light levels in a room.
- 2 Uses a digital light meter to measure light levels in a room.

6 Electromagnets

- 1 Uses a bar magnet and an electromagnet to find the differences and similarities between them.
- 2 Increases the strength of an electromagnet.

7 Natural Materials

- 1 Identifies where different natural materials come from.
- 2 Identifies what natural materials have been used to make a series of sample objects.

8 Crawler

- 1 Finds the effects of giving a crawler more energy.
- 2 Modifies a crawler so that it can store enough energy to reach the top of a slope.
- 3 Modifies a crawler to change the direction it moves in.

11 Pre Test Quiz 1

- 1 Identifies different ways to measure things.
- 2 Identifies renewable and non-renewable energy sources.
- 3 Identifies flexible, inflexible and elastic material properties.
- 4 Indicates how levers can be used to balance weights.

12 Post Test Quiz 1

- 1 Identifies different ways to measure things.
- 2 Identifies renewable and non-renewable energy sources.
- 3 Identifies flexible, inflexible and elastic material properties.
- 4 Indicates how levers can be used to balance weights.

13 Pre Test Quiz 2

- 1 Identifies how the level of light can be measured.
- 2 Identifies the behavior of temporary and permanent magnets.
- 3 Identifies if materials come from the Earth, from plants or from animals.
- 4 Identifies how a device called a crawler works on different surfaces when given varying amounts of energy.

14 Post Test Quiz 2

- 1 Identifies how the level of light can be measured.
- 2 Identifies the behavior of temporary and permanent magnets.
- 3 Identifies if materials come from the Earth, from plants or from animals.
- 4 Identifies how a device called a crawler works on different surfaces when given varying amounts of energy.

ST23-2 Living with Scientific Reasoning Level-2

1 Temperature

- 1 Measures temperature using thermometers.
- 2 Uses graphs to plot the change of temperature over periods of time.

2 Flight

- 1 Uses wing flaps and rudders to control the direction of airplanes in the air.
- 2 Changes the size and shape of a wing of a model airplane to see the effect in the lift given.
- 3 Changes the balance of a model airplane to see the effect on flight.

3 Changes

- 1 Describes the changes that occur in different materials when they are heated.
- 2 Describes the changes that occur in different materials when they are cooled.
- 3 States if changes in different materials, caused by heating and cooling, can be reversed.

4 Lifting Machines

- 1 Discovers the uses of a windlass.
- 2 Constructs a windlass to observe that a gear will increase the amount of lift for each turn of its handle.

5 Pendulum

- 1 Observes the effect of the changing the weight of a pendulum on the time of its swing.
- 2 Observes the effect of changing the length of a pendulum on the time of its swing.
- 3 Constructs a pendulum to observe the relationship between pendulum weight and length with its swing time.

6 Sending Signals

- 1 Sends messages using radio waves.
- 2 Sends messages using light signals.
- 3 Sends messages using coded signals.

7 Density

- 1 Describes how density of an object can effect if it floats or sinks in water.
- 2 Relates the weight, shape and size of a material to its density.

8 Bridges

- 1 Uses different supports to make a bridge stronger.
- 2 Constructs a bridge to span a gap.
- 3 Observes the weakness of a beam bridge.

11 Pre Test Quiz 3

- 1 States how temperature can be measured and identifies the temperature of the human body.
- 2 States how wings can be used in flight.
- 3 Identifies the changes that happen to materials when they are heated and cooled.
- 4 Describes the function of lifting machines.

12 Post Test Quiz 3

- 1 States how temperature can be measured and states the temperature of the human body.
- 2 Identifies the change that happens to materials when they are heated and cooled.
- 3 States how wings can be used in flight.
- 4 Describes the function of a lifting machine.

13 Pre Test Quiz 4

- 1 Relates the swing time of a pendulum with its length.
- 2 States different ways that signals can be sent.
- 3 States the relationship between weight, size and density of a material.
- 4 Identifies different types of bridges.

14 Post Test Quiz 4

- 1 States the relationship between weight, size and density of a material.
- 2 States different ways that signals can be sent.
- 3 Identifies different types of bridges.
- 4 Relates the swing time of a pendulum with its length.

Section 6.

ClassAct Student Report

Kansas Grade 4 Science Standards Report

Student Name: Juan D'Silva

Student ID: JD19657

Class: Grade 4 Science

Scores – A*, A, B, C, D, F

A – Science as Inquiry

- A** **Ask questions that they can answer by investigating.**
Students state whether an experiment tests a hypothesis.
- A*** **Plan and conduct a simple investigation.**
Students reorder data into logical sequences to identify patterns in results.
Students analyze experimental data to identify if the hypothesis is disproved or supported.
Students identify the typical stages in a scientific experiment.
- A** **Employ appropriate equipment and tools to gather data.**
Uses a digital light meter to measure light levels in a room.
Measures temperature using thermometers.
Uses non-standard measurements, such as paper clips and hands, to measure different objects.
Identifies units of measurement that would be most suitable for measuring a series of different items.
Uses an analogue light meter to measure light levels in a room.
Uses a ruler and a motion sensor to measure height.
Uses a motion sensor to measure distances.
Identifies that pushes and pulls are forces that can be measured in Newton's.
Measures pulling forces using a Newton meter.
Students identify tools that could be used in measurement of physical phenomena.
- B** **Begin developing the abilities to communicate, critiques, analyzes their own investigations, and interprets the work of other students.**
Critiques written and oral explanations of science.
Makes a presentation on science.
Debates issues that relate to science.
Writes a report on science.

B – Physical Science

B Observe properties and measure those properties using appropriate tools.

*Uses a ruler and a motion sensor to measure height.
Measures and compares the heat insulation properties of different materials.
Uses a motion sensor to measure distances.
Uses an analogue light meter to measure light levels in a room.
Uses a digital light meter to measure light levels in a room.
Identifies units of measurement that would be most suitable for measuring a series of different items.
Measures pulling forces using a Newton meter.
Identifies the weight of objects in units of Newton's and places them in order of their weight.
Students identify tools that could be used in measurement of physical phenomena.
Identifies that pushes and pulls are forces that can be measured in Newton's.
Measures temperature using thermometers.
Measures the effect that the force of gravity has on a mass placed on an inclined plane.*

C Classify objects by the materials from which they are made.

*Identifies what natural materials have been used to make a series of sample objects.
Identifies if materials come from the Earth, from plants or from animals.*

B Describe and classify objects by more than one property.

Relates the weight, shape and size of a material to its density.

B Observe and record how one object reacts with another object.

*Squashes a ball and stretches a spring to observe the effects of pushing and pulling forces.
Compares the force of friction between different materials.
Observes the magnetic attraction and repulsion forces between the poles of magnets.
Discovers the effect of forces on a lever.*

A Recognize and describe the differences between solids, liquids, and gases.

*States if everyday items are solids, liquids or gases.
Separates solids and liquids using filter paper.*

B Move objects by pushing, pulling, throwing, spinning, dropping, and rolling; describe the motion. Observe that a force (a push or a pull) is applied to make objects move.

*States if illustrated movements are pushes or pulls.
Interprets text and diagrams to identify if forces are balanced or unbalanced.
Measures the effect that the force of gravity has on a mass placed on an inclined plane.
Observes how a varying incline effects the speed of a model car.
Squashes a ball and stretches a spring to observe the effects of pushing and pulling forces.*

Describe locations of objects.

N/A

Discriminate between sounds made by different objects.

N/A

B Demonstrate that magnets attract and repel.

Observes the magnetic attraction and repulsion forces between the poles of magnets.

Identifies the behavior of temporary and permanent magnets.

Discovers that materials containing iron stick to magnets.

A Design a simple experiment to determine whether various objects will be attracted to magnets.

Determines which materials stick to a magnet.

Discovers that materials containing iron stick to magnets.

Identifies everyday items that would stick to a magnet.

C Construct a simple circuit.

Interprets circuit diagram symbols to identify the differences and similarities between series circuits.

Discovers that electricity cannot flow unless a circuit is complete.

Interprets electrical diagrams to predict the behavior of electrical components connected in parallel.

A – Life Science

B Compare and contrast structural characteristics and functions of different organisms.

Investigates the lungs of the human body.

Investigates the stomach of the human body.

Investigates the joints of the human body.

Investigates the bones of the human body.

Investigates the heart of the human body.

Interprets text and diagrams to identify the structure of a plant leaf and how it is given its green color.

A* Compare basic needs of different organisms in their environment.

Interprets text and diagrams to identify the habitats of different plants.

Discovers the habitats of different animals.

Discovers the characteristics of animals that allow them to survive in their natural habitats.

A Discuss ways humans and other organisms use their senses in their environments.

Uses software to find what parts of the human body give each of the five senses.

Specifies what senses can be used to identify different things.

A Compare, contrast, and ask questions about life cycles of various organisms.

Using software, discovers the different stages of the human life cycle.

Uses a board-game to discover the stages in the life cycle of a plant.

Discovers how insects aid pollination in the life cycle of a plant.

Compares the life cycles of animals and identifies similarities and differences between them.

Using software, discovers the different stages in the life cycle of butterflies and frogs.

Compares the life cycles of plants and identifies similarities and differences between them.

B – Earth & Space Science

A Observe and classify a variety of earth materials in their environment.
Identifies where different natural materials come from.

B Collect, observe, and become aware of properties of various earth materials.
Sorts rocks into sedimentary, metamorphic and igneous rock types.

Experiment with a variety of soils.

N/A

C Describe properties of many different kinds of rocks.
Sorts rocks into sedimentary, metamorphic and igneous rock types.

A Observe fossils and discuss how fossils provide evidence of plants and animals that lived long ago. A fossil is a part of a once-living organism or a trace of an organism preserved in rock.
Uses a virtual excavation to find different fossils.
Uses software to find out how different types of fossils are formed.
Uses symbols to represent different types of fossil.

C Observe the moon and stars.
Uses software to discover facts about the Moon and its relation to the Earth.

B Observe and compare the length of shadows.
Identifies how shadows are formed and how they change depending on their distance from a light source.
Uses a shadow trainer to find out why shadows change shape during the day.

B Discuss that the sun provides light and heat to maintain the temperature of the earth.
States the effects that the Sun has on the light levels on the planets of the solar system.
Uses a software simulation to find out how seasons are linked to the position of the Earth in relation to the Sun.

A Describe changes in the surface of the earth.
Interprets text and diagrams to identify physical, chemical and biological forms of weathering.

- B** **Observe, describe, and record daily and seasonal weather changes.**
Observes the weather during different seasons in a virtual representation of New York.
Interprets text and diagrams to identify physical, chemical and biological forms of weathering.
Discovers symbols that are used to represent the weather.
Uses a virtual weather station to record temperature and rainfall.

A – Science & Technology

A Identify a simple design problem; design a plan, implement the plan, evaluate the results, and communicate the results.

Students state whether an experiment tests a hypothesis.

Students identify the typical stages in a scientific experiment.

Students analyze experimental data to identify if the hypothesis is disproved or supported.

Students reorder data into logical sequences to identify patterns in results.

Discuss that science is a way of investigating questions about their world.

N/A

A Invent a product to solve problems.

Finds the effects of giving a crawler more energy.

Modifies a crawler so that it can store enough energy to reach the top of a slope.

Modifies a crawler to change the direction it moves in.

Work together to solve problems.

N/A

Develop an awareness that women and men of all ages, backgrounds, and ethnic groups engage in a variety of scientific and technological work.

N/A

A Investigate how scientists use tools to observe.

Students identify tools that could be used in measurement of physical phenomena.

A* Compare, contrast, and sort human-made versus natural objects.

Identifies what natural materials have been used to make a series of sample objects.

Identifies where different natural materials come from.

B Use appropriate tools when observing natural and human-made objects.

Identifies the parts and controls of a microscope.

Observes flower pollen magnified by a microscope.

Uses a microscope to view the cells of plants.

States the uses of a microscope.

Ask questions about natural or human-made objects and discuss the reasoning behind their answers.

N/A

B – Science in Personal and Environmental Perspectives

B Discuss that safety involves freedom from danger, risk, or injury.

Students identify safety signs that could be used in a science lab.

A Assume some responsibility for their own health.

Identifies the nutrients contained in different foods.

Discovers the food groups necessary for a healthy balanced diet.

- A** Discuss that various foods contribute to health.
Identifies the nutrients contained in different foods.
Discovers the food groups necessary for a healthy balanced diet.
- C** Define pollution.
Identifies what effect pollution can have on rivers and ponds.
- Develop personal actions to solve pollution problems in and around the neighborhood.
N/A
- B** Practice reducing, reusing, and recycling.
Identifies how different materials can be recycled.

- History and Nature of Science

- 7 Recognize that students participate in science inquiry by asking questions.
N/A
- Observe, using various media, historical samples of people in science that has made contributions.
N/A