



FSD Science Curriculum

June 2012

K-12 Broad Goals of Science Education

1. Students will use inquiry strategies to investigate and understand the natural world.
2. Students will demonstrate an understanding of key concepts and principles central to the biological, physical, and earth sciences, and engineering, while recognizing the interrelationship of all the sciences.
3. Students will demonstrate an understanding of the basic laws which govern and explain phenomena observed in the natural world
4. Students will demonstrate an understanding of, and be able to practice, the basic processes which scientists use to obtain and continually revise knowledge about the natural world.
5. Students will perceive that scientific and technological knowledge is the result of the cumulative efforts of people, past and present, who have attempted to explain the world through an objective, peer-tested, rational approach to understanding natural phenomena and occurrences.
6. Students will display a sense of curiosity and wonder about the natural world, and demonstrate an increasing awareness of the interdependence between all living things and the environment.
7. Students will demonstrate their abilities to identify human needs and concerns and to engage in problem-solving processes to define the problem, research and generate solutions, and develop simulations and prototypes to test their ideas before implementation.
8. Students will be able to apply rational, creative-thinking, and investigative skills and use scientific and technical knowledge in their roles as citizens, workers, family members, and consumers in an increasingly technological society.
9. Students will use oral and written communication, mathematical representation, and physical and conceptual models to describe and explain scientific concepts and ideas, and will be able to apply scientific and technical knowledge.
10. Students will know and employ safe practices and techniques in the laboratory, in field work or any other scientific investigation, and when using scientific or technological materials at home or work.

ELEMENTARY – GRADES K to 4 USING SCIENCE TO EXPLORE THE WORLD

Children in grades K-4 observe, describe, and interact with the world around them. At this level effective learning environments provide opportunities for developing awareness of and involvement with the world around them through:

- Playing with, exploring, collecting, handling, sorting, and classifying objects.
- Using graphic organizers and other strategies to motivate, organize, and identify the questions children ask about the world.
[*Test Guess*]
- Using tools (for example: non standard measures, rulers, and magnifiers) to enhance observations, collect, represent and interpret data.
- Organizing and manipulating data in multiple ways, which may include tools of technology, e.g., calculators, and computers.
- Communicating (through reading, writing, speaking, listening, movement and viewing) to describe their observations of the world.

In summary, the K-4 classroom should provide students opportunities to engage with concrete manipulative activities that will lead children to construct the desired concepts through investigation and analysis of experience. At this level in particular, science should be integrated with other curricular areas (e.g., reading, writing, math, social studies, technology, art, music, or physical education).

K – 2

Process Skills

Scientific Inquiry and Critical Thinking Skills

MAKING OBSERVATIONS AND ASKING QUESTIONS		
S:SPS1:2:1.1 Make observations and explore materials using all of their senses (one sense at a time).		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Define senses. 2. Define observation. 3. Define inference. 4. Compare observations and inferences. 5. Use the senses to describe and identify the properties of objects 6. Use the senses to identify the materials that make up an object 7. Sort objects based on size, material, color, shape and mass 8. Identify every day sounds 9. Compare different sounds 10. Recognize the ear as the organ receiving sounds 11. Determine sour, sweet, bitter, and salty foods by taste. 12. Identify objects by feel (soft, smooth, rough, hard, cold, hot). 	Resources	Assessments
S:SPS1:2:1.2 Record observations using language, concrete objects, and symbolic representations.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Demonstrate appropriate use of tools. 2. Define symbolic representation. 3. Define concrete objects. 4. Write a sentence about observations. 5. Record observations using language. 	Resources	Assessments

6. Record observations using concrete objects.		
7. Record observations using symbolic representations.		
8. Record observations using language, concrete objects and symbolic representations.		
S:SPS1:2:1.3 Ask questions about objects, organisms and events in their immediate environment.		
Student Friendly/"I Can..." Statement	Resources	Assessments
1. Define organisms.		
2. Define Events.		
3. Define immediate environment.		
4. Observe objects, organisms, and events.		
5. Formulate questions.		
S:SPS1:2:1.5 Sort and classify object materials and events based on one or more attributes; and explain the methods used for sorting.		
Student Friendly/"I Can..." Statement	Resources	Assessments
1. Identify and define attributes of materials.		
2. Describe methods for sorting.		
3. Sort and classify materials and events.		
4. Explain method used to sort specific objects and events.		
DESIGNING SCIENTIFIC INVESTIGATIONS		
S:SPS1:2:2.1 Select tools and procedures, in a purposeful way, to explore objects and materials		
Student Friendly/"I Can..." Statement	Resources	Assessments
1. Identify tools used to explore objects and materials.		
2. Identify procedures used to explore objects and materials.		
S:SPS1:2:2.2 Suggest a plan and describe a sequence of events for conducting an exploration.		
Student Friendly/"I Can..." Statement	Resources	Assessments
1. Identify procedures used to explore objects and materials.		
2. Understand Scientific method.		
3. Determine sequence of events.		
4. Explain plan for carrying out exploration.		
S:SPS1:2:2.3 Predict how changing one part of an exploration will affect the outcome.		
Student Friendly/"I Can..." Statement	Resources	Assessments

1. Define parts of an exploration. 2. Make predictions. 3. Change variables. 4. Identify outcome. 5. Explain change in outcome.		
CONDUCTING SCIENTIFIC INVESTIGATIONS		
S:SPS1:2:3.1 Follow their own plan for conducting an investigation.		
Student Friendly/"I Can..." Statement 1. Identify materials needed. 2. Identify sequence of events. 3. Perform investigation.	Resources	Assessments
S:SPS1:2:3.2 Follow a simple step-by-step procedure.		
Student Friendly/"I Can..." Statement 1. Identify materials needed. 2. Read sequence of events. 3. Conduct investigation.	Resources	Assessments
REPRESENTING AND UNDERSTANDING RESULTS OF INVESTIGATIONS		
S:SPS1:2:4.1 Represent and interpret information and observations in many ways (such as in tally, pictographs, bar graphs, tables).		
Student Friendly/"I Can..." Statement 1. Represent observations as tallies. 2. Interpret information in tallies. 3. Represent observations as pictographs. 4. Interpret information in pictographs. 5. Represent observations as bar graphs. 6. Interpret information in bar graphs. 7. Represent observations in tables. 8. Interpret information in tables.	Resources	Assessments
S:SPS1:2:4.2 Identify and describe patterns and relationships in observed objects and events.		
Student Friendly/"I Can..." Statement 1. Identify patterns. 2. Recognize relationships between observed objects and events. 3. Explain patterns and relationships in given observations.	Resources	Assessments

Unifying Concepts of Science

NATURE OF SCIENCE (NOS)		
S:SPS2:2:1.1 Recognize that information can be obtained merely by careful observation, but sometimes even more data can be collected by conducting scientific investigations.		
Student Friendly/"I Can..." Statement 1. Make observations 2. Conduct investigation 3. Compare data from observation and investigations.	Resources	Assessments
S:SPS2:2:1.2 Discover that when a scientific investigation is done the way it was done before, we expect to get a very similar result.		
Student Friendly/"I Can..." Statement 1. Follow procedures to perform scientific investigation two or more times. 2. Record results of investigation. 3. Compare results.	Resources	Assessments
S:SPS2:2:1.3 Explain that sometimes people aren't sure what will happen because they don't know all the factors that may have an effect on the outcome.		
Student Friendly/"I Can..." Statement 1. Conduct a scientific investigation. 2. Identify factors in an investigation. 3. Explain how factors can change outcomes.	Resources	Assessments
SYSTEMS AND ENERGY (SAE)		
S:SPS2:2:2.1 Show how most things are made of parts.		
Student Friendly/"I Can..." Statement 1. Define whole and parts. 2. Show how parts make up a whole. 3. Show how a whole is made up of parts.	Resources	Assessments
S:SPS2:2:2.2 Observe that when parts are put together, they can do things that they couldn't do by themselves.		
Student Friendly/"I Can..." Statement 1. Show how parts combined are greater than each individual part. 2. Show how combination of parts change the action of the whole.	Resources	Assessments
S:SPS2:2:2.3 Explain that something may not work if some of its parts are missing.		
Student Friendly/"I Can..." Statement	Resources	Assessments

1. Explain how parts are important to the whole.		
2. Explain which parts affect the whole.		
MODELS AND SCALE (MAS)		
S:SPS2:2:3.1 Describe how a model of something is different from the real thing but can be used to learn something about the real thing.		
Student Friendly/"I Can..." Statement 1. Define model. 2. Compare model and real life object. 3. Understand models represent real life object.	Resources	Assessments
S:SPS2:2:3.2 Explain how one way to describe something is to say how it is like something else.		
Student Friendly/"I Can..." Statement 1. Define analogy. 2. Describe how analogies help understanding.	Resources	Assessments
S:SPS2:2:3.3 Provide examples to explain that things in nature and things people make have very different sizes, weights, ages and speeds.		
Student Friendly/"I Can..." Statement 1. Identify how similar objects (trees, rocks, people, etc.) have different attributes. 2. Compare types of the same things.	Resources	Assessments
PATTERNS OF CHANGE (POC)		
S:SPS2:2:4.1 Discover that things change in some ways and stay the same in some ways.		
Student Friendly/"I Can..." Statement 1. Describe how things are the same. 2. Describe how things change.	Resources	Assessments
S:SPS2:2:4.2 Understand that people can keep track of some things by seeing where they come from and where they go.		
Student Friendly/"I Can..." Statement 1. Describe how tracking helps explain things.	Resources	Assessments
S:SPS2:2:4.3 Observe that things can change in different ways, such as in size, weight, color and movement.		
Student Friendly/"I Can..." Statement 1. Observe changes. 2. Describe changes.	Resources	Assessments

FORM AND FUNCTION (FAF)		
S:SPS2:2:5.1 Identify shape and use of objects.		
Student Friendly/"I Can..." Statement 1. Identify shapes of objects. 2. Identify use of objects.	Resources	Assessments
S:SPS2:2:5.2 Draw an object and the object in use.		
Student Friendly/"I Can..." Statement 1. Draw objects. 2. Depict objects in use.	Resources	Assessments

Personal, Social, and Technological Perspectives

COLLABORATION IN SCIENTIFIC ENDEAVORS		
S:SPS3:2:1.1 Work with a partner to accomplish a specific task.		
Student Friendly/"I Can..." Statement 1. Work with a partner to accomplish a task.	Resources	Assessments
S:SPS3:2:1.2 Take turns.		
Student Friendly/"I Can..." Statement 1. Take turns.	Resources	Assessments
S:SPS3:2:1.3 Ask questions of others about their work.		
Student Friendly/"I Can..." Statement 1. Ask questions of others' work.	Resources	Assessments
COMMON ENVIRONMENTAL ISSUES, NATURAL RESOURCES MANAGEMENT AND CONSERVATION		
:SPS3:2:2.1 Use observation skills to describe the area around their homes and school.		
Student Friendly/"I Can..." Statement 1. Define observations. 2. Use observation to describe area around home. 3. Use observations to describe area around school.	Resources	Assessments
SCIENCE AND TECHNOLOGY, TECHNOLOGICAL DESIGN AND APPLICATION		
S:SPS3:2:3.1 Demonstrate that all tools have a special purpose (e.g., to measure, to help in observations, to make things or to make things better).		
Student Friendly/"I Can..." Statement 1. Define tools. 2. Define purpose. 3. Describe how tools have a purpose.	Resources	Assessments
S:SPS3:2:3.2 Provide examples that highlight the importance of the planning phase of any project.		
Student Friendly/"I Can..." Statement 1. Define plan. 2. Describe how plans help build a project.	Resources	Assessments

S:SPS3:2:3.3 Identify multiple ways to solve a design problem.		
Student Friendly/"I Can..." Statement 1. Define design. 2. Explain how a problem can be solved in multiple ways.	Resources	Assessments
S:SPS3:2:3.4 Describe how most things are made up of multiple parts and explain that things may not work if some parts are missing.		
Student Friendly/"I Can..." Statement 1. Explain how most things are made up of multiple parts. 2. Describe how parts are important to whole.	Resources	Assessments
S:SPS3:2:3.5 Provide examples of how people throughout history have used legends and stories to explain how the world works.		
Student Friendly/"I Can..." Statement 1. Describe how legend and stories explain how the world works.	Resources	Assessments

Science Skills for Information, Communication and Media Literacy

INFORMATION AND MEDIA LITERACY		
S:SPS4:2:1.1 Have experience with a variety of media sources.		
Student Friendly/"I Can..." Statement 1. Describe different media sources. 2. Use various media sources.	Resources	Assessments
S:SPS4:2:1.2 Use tools		
Student Friendly/"I Can..." Statement 1. Describe various tools. 2. Use a variety of tools.	Resources	Assessments
S:SPS4:2:1.3 Use age-appropriate sources such as newspapers, books and websites.		
Student Friendly/"I Can..." Statement 1. Describe various information sources. 2. Use various information sources.	Resources	Assessments
COMMUNICATION SKILLS		
SPS4:2:2.1 Communicate ideas and observations through a variety of tools and formats (e.g., oral, journal, drawing, projects, multimedia).		
Student Friendly/"I Can..." Statement 1. Orally communicate ideas and observations. 2. Use a journal to communicate ideas and observations. 3. Use drawings to communicate ideas and observations. 4. Use projects to communicate ideas and observations. 5. Use multimedia to communicate ideas and observations.	Resources	Assessments
CRITICAL THINKING AND SYSTEMS THINKING		
S:SPS4:2:3.1 Make observations and tell ideas about real-life issues.		
Student Friendly/"I Can..." Statement 1. Make observations about real-life issues. 2. Communicate ideas about real life issues.	Resources	Assessments

SPS4:2:3.2 Use pictures or other means to organize ideas.		
Student Friendly/"I Can..." Statement 1. Use pictures to organize ideas.	Resources	Assessments
:SPS4:2:3.3 Make a graph to represent data.		
Student Friendly/"I Can..." Statement 1. Make a graph to organize and represent data.	Resources	Assessments
PROBLEM IDENTIFICATION, FORMULATION, AND SOLUTION		
S:SPS4:2:4.1 Ask questions and take part in investigations.		
Student Friendly/"I Can..." Statement 1. Ask questions in investigation.	Resources	Assessments
S:SPS4:2:4.2 Compile observations (one to one relationship) by making or using simple pictographs, tally charts or simple graphs.		
Student Friendly/"I Can..." Statement 1. Compile observations. 2. Make simple pictographs of observations. 3. Make tally charts of observations. 4. Make simple graphs of observations.	Resources	Assessments
S:SPS4:2:4.3 Look for evidence to support ideas.		
Student Friendly/"I Can..." Statement 1. Find evidence to support ideas.	Resources	Assessments
CREATIVITY AND INTELLECTUAL CURIOSITY		
S:SPS4:2:5.1 Use computer software and various technologies as appropriate to display and communicate information and ideas.		
Student Friendly/"I Can..." Statement 1. Use computer software to display information. 2. Use computer software to communicate information and ideas. 3. Use various technologies.	Resources	Assessments

INTERPERSONAL AND COLLABORATIVE SKILLS		
S:SPS4:2:6.1 Plan and carry out simple activities with a group.		
Student Friendly/"I Can..." Statement 1. Plan simple activities with a group. 2. Carry out activities with group.	Resources	Assessments
SELF DIRECTION		
S:SPS4:2:7.1 Keep a visual or written journal.		
Student Friendly/"I Can..." Statement 1. Keep visual or written journal.	Resources	Assessments
ACCOUNTABILITY AND ADAPTABILITY		
S:SPS4:2:8.1 Take part in sharing information with another classroom or school as a group.		
Student Friendly/"I Can..." Statement 1. Share information with another classroom. 2. Share information with another school.	Resources	Assessments
SOCIAL RESPONSIBILITY		
S:SPS4:2:9.1 Collaborate, as a group, with another classroom or school.		
Student Friendly/"I Can..." Statement 1. Collaborate with another classroom as a group. 2. Collaborate with another school as a group.	Resources	Assessments

Earth Space Science

ESS1– The Earth and Earth materials, as we know them today, have developed over long periods of time, through constant change processes.

ATMOSPHERE, CLIMATE, AND WEATHER		
S:ESS1:2:1.1 Recognize that weather conditions change frequently, and that weather patterns change over the seasons.		
Student Friendly/"I Can..." Statement 1. Identify weather conditions. 2. Track/record weather over a period of time. 3. Identify weather trends and patterns. 4. Summarize weather patterns in given season.	Resources	Assessments
S:ESS1:2:1.2 Describe and compare weather using observations and measurements of local weather conditions.		
Student Friendly/"I Can..." Statement 1. Observe weather conditions. 2. Analyze weather condition. 3. Compare weather conditions 4. Describe weather conditions at a given time.	Resources	Assessments
COMPOSITION AND FEATURES		
S:ESS1:2:2.1 Recognize that solid rocks, soils, and water in its liquid and solid states can be found on the Earth's surface.		
Student Friendly/"I Can..." Statement 1. Identify rocks. 2. Identify soil. 3. Identify water. 4. Recognize where rocks can be found 5. Recognize where soil can be found. 6. Recognize where water can be found.	Resources	Assessments
S:ESS1:2:2.2 Use observable properties, such as color and texture, to classify and organize rocks and minerals.		
Student Friendly/"I Can..." Statement 1. Define properties. 2. Identify properties of given rocks and minerals. 3. Observe properties of given rocks and	Resources	Assessments

minerals. 4. Classify rocks and minerals according to their properties.		
S:ESS1:2:2.3 Recognize that Earth materials have a variety of properties, including size, shape, color and texture.		
Student Friendly/"I Can..." Statement 1. Identify properties of items by size, shape, color, and texture. 2. Recognize that Earth materials have many properties.	Resources	Assessments
PROCESSES AND RATES OF CHANGE		
S:ESS1:2:5.1 Recognize that some changes are too slow or too fast to be easily observed.		
Student Friendly/"I Can..." Statement 1. Define change. 2. Observe changes. 3. Identify changes that happen too fast or too slow to see easily.	Resources	Assessments
ROCK CYCLE		
S:ESS1:2:6.1 Explain that large rocks can be broken down into smaller rocks.		
Student Friendly/"I Can..." Statement 1. Identify ways rocks can be broken down. 2. Explain how rocks can be broken down.	Resources	Assessments
S:ESS1:2:6.2 Describe rocks and soils in terms of their physical properties		
Student Friendly/"I Can..." Statement 1. Identify properties of rocks and solids. 2. Describe rocks and solids in terms of physical properties.	Resources	Assessments
WATER		
S:ESS1:2:7.1 Recognize that water can be a liquid or a solid; and explain that it can be made to change from one state to the other, but the amount (mass) of water always remains the same in either state.		
Student Friendly/"I Can..." Statement 1. Understand that water can be solid or liquid. 2. Recognize change in state. 3. Observe that water's mass doesn't change	Resources	Assessments

when it goes from solid to liquid. 4. Explain how the mass stays the same even when the states change.		
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ESS2– The Earth is part of a solar system, made up of distinct parts, which have temporal and spatial interrelationships.

EARTH, SUN, AND MOON		
S:ESS2:2:1.1 Recognize the basic patterns of the Sun, including its appearance during the daytime, and how its position in the sky changes through the seasons.		
Student Friendly/"I Can..." Statement 1. Observe patterns of the sun. 2. Document position of the sun throughout the day. 3. Document position of the sun throughout the seasons. 4. Identify basic patterns of the sun.	Resources	Assessments
S:ESS2:2:1.2 Recognize the basic patterns of the Moon, including its appearance sometimes at night and sometimes during the day; and how it appears to change shape through the month.		
Student Friendly/"I Can..." Statement 1. Observe patterns of the moon. 2. Document position of the moon throughout the day and night. 3. Document how the observations of the moon change over the month.	Resources	Assessments
ENERGY		
S:ESS2:2:2.1 Recognize that the light and heat the Sun provides to the Earth is necessary for life.		
Student Friendly/"I Can..." Statement 1. Recognize that the sun provides light. 2. Recognize that the sun provides heat. 3. Recognize that light and heat are necessary for life.	Resources	Assessments
VIEW FROM EARTH		
S:ESS2:2:4.1 Recognize that the Sun, Moon and stars all appear to move slowly across the sky.		
Student Friendly/"I Can..." Statement 1. Document position of sun throughout day. 2. Document position of moon throughout night. 3. Document position of stars throughout	Resources	Assessments

night. 4. Recognize that movement of sun, moon and stars appears to move slow.		
S:ESS2:2:4.2 Recognize that as the position of the Sun changes in relation to the Earth it creates shadows of varying length and direction.		
Student Friendly/"I Can..." Statement 1. Document position and length of shadow at different times during the day. 2. Recognize that shadows vary with the position of the sun.	Resources	Assessments
S:ESS2:2:4.3 Explain that people should not look directly at the Sun because it is dangerous and may cause injury to the eyes.		
Student Friendly/"I Can..." Statement 1. Research effect of directly looking at sun. 2. Report on effects of looking directly at the sun.	Resources	Assessments

ESS3– The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time.

STARS AND GALAXIES		
S:ESS3:2:2.1 Recognize there are too many stars to count, and that they are unequal in their brightness.		
Student Friendly/"I Can..." Statement	Resources	Assessments
<ol style="list-style-type: none"> 1. Observe the number of stars. 2. Observe the brightness of stars. 3. Recognize that there are too many stars to count. 4. Recognize that stars vary in brightness. 		

ESS4– The growth of scientific knowledge in Earth Space Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.

TOOLS		
S:ESS4:2:2.1 Recognize, and with assistance, safely demonstrate the use of tools to gather data and extend the senses, such as thermometers, hand lenses and balances.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Describe how tools help gather data. 2. Demonstrate the safe way to use thermometers. 3. Demonstrate the safe way to use handlenses. 4. Demonstrate the safe way to use balances. 	Resources	Assessments
LOCAL AND GLOBAL ENVIRONMENTAL ISSUES		
S:ESS4:2:3.1 Differentiate between natural and man-made materials.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Describe manmade materials. 2. Describe natural materials. 3. Compare and contrast between natural and manmade materials. 	Resources	Assessments
S:ESS4:2:3.2 Identify environments that are natural, such as a forest, meadow, or mountains and those that have been built or modified by people, including cities, roads, farms, and houses.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Describe natural environments. 2. Describe man-made or modified environments. 3. Compare and contrast natural environments with man-made environments. 	Resources	Assessments
S:ESS4:2:3.3 Describe actions that can help the environment, such as recycling and proper disposal of waste materials.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Describe actions that help the environment. 2. Define recycling. 	Resources	Assessments

3. Define proper waste disposal.		
CAREER TECHNICAL EDUCATION CONNECTIONS		
S:ESS4:2:4.1 Recognize that some jobs/careers require knowledge and use of Earth science content and/or skills.		
Student Friendly/"I Can..." Statement 1. Identify jobs/careers that use knowledge of Earth science. 2. Identify jobs/careers that use Earth science skills.	Resources	Assessments

Life Science

LS1– All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).

CLASSIFICATION		
S:LS1:2:1.1 Differentiate between living and nonliving things; and categorize objects in each group using the significant observable characteristics they share, such as color, shape and size.		
Student Friendly/"I Can..." Statement 1. Define living and nonliving. 2. Identify living things. 3. Identify nonliving things. 4. Categorize living things by color, shape and size. 5. Categorize nonliving things by color shape and size. 6. Compare and contrast the categories of living and nonliving items.	Resources	Assessments
S:LS1:2:1.2 Recognize plants and animals as living things and describe how they are alike and different.		
Student Friendly/"I Can..." Statement 1. Describe plants. 2. Describe animals. 3. Compare and contrast plants and animals.	Resources	Assessments
LIVING THINGS AND ORGANIZATION		
S:LS1:2:2.1 Recognize that plants and animals have features that help them survive in different environments.		
Student Friendly/"I Can..." Statement 1. Define features. 2. Define survival. 3. Tell how plants survive in different environments. 4. Tell how animals survive in different environments. 5. Compare and contrast plants and animals in the same environment.	Resources	Assessments
REPRODUCTION		
S:LS1:2:3.1 Recognize that parents and offspring of many species closely resemble one another; and describe the similarities in appearance of		

given plant and animal families.		
Student Friendly/"I Can..." Statement 1. Define parents. 2. Define offspring. 3. Observe how offspring resemble parents. 4. Observe that traits apply to both plant and animal families.	Resources	Assessments
S:LS1:2:3.2 Recognize that living things have a life cycle, during which they are born, grow, and die.		
Student Friendly/"I Can..." Statement 1. Define life cycle. 2. Describe life cycles of living things.	Resources	Assessments

LS2– Energy flows and matter recycles through an ecosystem.

ENVIRONMENT		
S:LS2:2:1.1 Recognize that living things can be found almost anyplace in the world; and that specific types of environments are required to support the many different species of plant and animal life.		
Student Friendly/"I Can..." Statement 1. Recognize that living things can be found almost anyplace in the world. 2. Identify specific types of environments. 3. Identify different species live in different environments.	Resources	Assessments
S:LS2:2:1.2 Recognize that animals, including humans, interact with their surroundings using their senses; and that different senses provide different kinds of information.		
Student Friendly/"I Can..." Statement 1. Recognize that animals react to environments with senses. 2. Identify the information each of the senses provide.	Resources	Assessments
S:LS2:2:1.3 Recognize that some plants and animals go through changes in appearance when the seasons change.		
Student Friendly/"I Can..." Statement 1. Identify how plants change with the seasons. 2. Identify how animals change with the seasons. 3. Identify some animals and plants do not change with the seasons.	Resources	Assessments
FLOW OF ENERGY		
S:LS2:2:2.1 Identify the resources plants and animals need for growth and energy, and describe how their habitat provides these basic needs.		
Student Friendly/"I Can..." Statement 1. Identify what plants need to grow. 2. Identify what animals need to grow. 3. Identify what plants need for energy. 4. Identify what animals need for energy. 5. Describe how habitats provide needs to plants and animals.	Resources	Assessments

LS3– Groups of organisms show evidence of change over time (e.g. evolution, natural selection, structures, behaviors, and biochemistry).

CHANGE		
S:LS3:2:1.1 Recognize that some living things, which lived on Earth long ago, are now extinct, such as dinosaurs, mammoths, giant tree ferns, and horsetail trees.		
Student Friendly/"I Can..." Statement 1. Define extinct. 2. Identify extinct living things. 3. Identify evidence of living things.	Resources	Assessments
EVIDENCE OF EVOLUTION		
S:LS3:2:2.1 Recognize that some plants and animals, which are alive today, are similar to living things which have become extinct, such as elephants and mammoths.		
Student Friendly/"I Can..." Statement 1. Compare and contrast extinct living things with current living things.	Resources	Assessments
NATURAL SELECTION		
S:LS3:2:3.1 Recognize and describe the similarities and differences in both behavior and appearance of plants and animals.		
Student Friendly/"I Can..." Statement 1. Define behavior. 2. Define appearance. 3. Describe behavior of plants. 4. Describe behaviors of animals. 5. Describe appearance of plants. 6. Describe appearance of animals. 7. Compare and contrast the behaviors of plants and animals. 8. Compare and contrast the appearance of plants and animals.	Resources	Assessments
S:LS3:2:3.2 Recognize that there are different species of living things in various places around the world.		
Student Friendly/"I Can..." Statement 1. Identify various places around the world. 2. Identify different species of living things around the world. 3. Describe how the various places are	Resources	Assessments

necessary for the different species.		
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LS4– Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.

BEHAVIOR		
S:LS4:2:1.1 Recognize and describe how living things respond when exposed to helpful and harmful situations.		
Student Friendly/"I Can..." Statement 1. Describe harmful situations. 2. Describe helpful situations. 3. Describe how living things respond to helpful situations. 4. Describe how living things respond to harmful situations.	Resources	Assessments
S:LS4:2:1.2 Recognize that humans learn from each other in many different ways, such as listening and speaking, watching and imitating.		
Student Friendly/"I Can..." Statement 1. Identify the ways humans learn from others.	Resources	Assessments
S:LS4:2:1.3 Recognize that humans can gather different kinds of information about an object by adjusting their proximity to it.		
Student Friendly/"I Can..." Statement 1. Record information about objects at varying distances from objects. 2. Compare information recorded at varying distances.	Resources	Assessments
S:LS4:2:1.4 Recognize that some of the things humans can do, such as playing games, reading, and writing, must be learned.		
Student Friendly/"I Can..." Statement 1. Describe things humans learn to do. 2. Describe things humans do without having to learn them (seeing, tasting, etc.)	Resources	Assessments
DISEASE		
S:LS4:2:2.1 Recognize that proper nutrition, exercise and rest are all important factors in maintaining good health.		
Student Friendly/"I Can..." Statement 1. Define nutrition. 2. Define exercise. 3. Define rest. 4. Describe how nutrition, exercise and rest are factors in maintaining health.	Resources	Assessments
S:LS4:2:2.2 Recognize that humans can spread germs that cause disease.		

<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Define germs. 2. Define disease. 3. Identify how humans spread germs and disease. 	Resources	Assessments
S:LS4:2.2.3 Identify and describe the basic personal hygiene habits for maintaining good health, such as washing one's hands with soap and water and brushing one's teeth.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Identify hygiene habits. 2. Describe how good hygiene is important for good health. 	Resources	Assessments
S:LS4:2.2.4 Recognize symptoms, such as fever, rashes, coughing and congestion for common illnesses.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Define fever. 2. Define rashes. 3. Define coughing. 4. Define congestion. 5. Identify common illnesses. 6. Identify symptoms of common illnesses. 	Resources	Assessments
HUMAN IDENTITY		
S:LS4:2.3.1 Recognize similarities and individual differences among people, and that children closely resemble their parents.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Compare and contrast individual differences. 2. Compare and contrast differences of parents and children. 	Resources	Assessments
S:LS4:2.3.2 Identify the sense organs, including eyes, ears, nose mouth, and skin; and describe how each can warn an individual about danger.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Identify sense organs. 2. Describe how information from sense organs warn of danger. 	Resources	Assessments
S:LS4:2.3.3 Recognize that two parents, both a father and mother, are required for human reproduction.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Recognize that both genders are necessary for human reproduction. 	Resources	Assessments

S:LS4:2:3.4 Recognize and describe the human life cycle from birth to old age.		
Student Friendly/"I Can..." Statement 1. Describe human life cycle.	Resources	Assessments
S:LS4:2:3.5 Recognize that humans need food, water, air, waste removal and a particular range of temperatures in their environment, just as other animals do.		
Student Friendly/"I Can..." Statement 1. Identify the things that animals need to survive. 2. Identify the things humans need to survive. 3. Compare and contrast the things animals need with the things humans need to survive. 4. Recognize that humans are just like other animals with what they need to survive.	Resources	Assessments

LS5– The growth of scientific knowledge in Life Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues

DESIGN TECHNOLOGY		
S:LS5:2:1.1 Recognize that new products can be made out of natural materials, such as paper from trees and cloth from various plants and animals.		
Student Friendly/"I Can..." Statement 1. Identify the products that can be made from natural materials.	Resources	Assessments
TOOLS		
S:LS5:2:2.1 Recognize that some tools, such as magnifiers, balances and thermometers, have special uses and can help gather information and extend the senses.		
Student Friendly/"I Can..." Statement 1. Identify tools that have special uses and help gather information. 2. Identify tools that have special uses and extend the senses. 3. Compare and contrast the tools that help gather information and the tools that extend the senses.	Resources	Assessments
SOCIAL ISSUES (LOCAL AND GLOBAL)		
MEDICAL TECHNOLOGY		
BIOTECHNOLOGY		
S:LS5:2:3.1 Recognize that technology is used in medicine to prevent and cure diseases through vaccinations and medications.		
Student Friendly/"I Can..." Statement 1. Identify the technology used in medicine to prevent diseases. 2. Identify the technologies used to cure diseases. 3. Identify the technologies used in vaccinations. 4. Identify the technologies used in	Resources	Assessments

medications.		
S:LS5:2:3.2 Provide examples from personal experience that illustrate how medicine helps humans recover from illness.		
Student Friendly/"I Can..." Statement	Resources	Assessments
1. Give example of how medicine helped personally in recovering from an illness.		
CAREER TECHNICAL EDUCATION CONNECTIONS		
S:LS5:2:4.1 Recognize that some jobs/careers require knowledge and use of life science content and/or skills.		
Student Friendly/"I Can..." Statement	Resources	Assessments
1. Identify jobs and careers that require knowledge of life science.		
2. Identify jobs and careers that require skills acquired through knowledge of life sciences.		

Physical Science

PS1– All living and nonliving things are composed of matter having characteristic properties that distinguish one substance from another (independent of size/amount of substance).

COMPOSITION		
S:PS1:2:1.1 Recognize that objects can be composed of different types of materials, such as wood, metal, and paper.		
Student Friendly/"I Can..." Statement 1. Identify objects made of wood. 2. Identify objects made of metal. 3. Identify objects made of paper.	Resources	Assessments
S:PS1:2:1.2 Recognize that objects can be made of one or more materials.		
Student Friendly/"I Can..." Statement 1. Identify objects made of more than one material.	Resources	Assessments
PROPERTIES		
S:PS1:2:2.1 Identify the observable properties of different objects, such as color, size, shape, weight and texture.		
Student Friendly/"I Can..." Statement 1. Define properties. 2. Define observations. 3. Identify objects based on color. 4. Identify objects based on size. 5. Identify objects based on shape. 6. Identify objects based on weight. 7. Identify objects based on texture. 8. Discuss how objects can have similar properties.	Resources	Assessments

PS2– Energy is necessary for change to occur in matter. Energy can be stored, transferred and transformed, but cannot be destroyed.

CHANGE		
S:PS2:2:1.1 Describe how the properties of certain materials can change when specific actions are applied to them, such as freezing, mixing, heating, cutting, dissolving and bending.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Define change. 2. Identify properties that change when material is frozen. 3. Identify properties of materials that change when material is mixed. 4. Identify properties of materials that change when material is heated. 5. Identify properties of materials that change when material is cut. 6. Identify properties of materials that change when material is dissolved. 7. Identify properties of materials that change when material is bent. 8. Describe what happens to properties when frozen. 9. Describe what happens to properties when mixed. 10. Describe what happens to properties when heated. 11. Describe what happens to properties when cut. 12. Describe what happens to properties when dissolved. 13. Describe what happens to properties when bent. 	Resources	Assessments
S:PS2:2:1.2 Recognize that not all materials react the same way when an action is applied to them.		
<p>Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Compare and contrast the materials that were frozen. 	Resources	Assessments

<ol style="list-style-type: none"> 2. Compare and contrast the materials that were mixed. 3. Compare and contrast the materials that were heated. 4. Compare and contrast the materials that were cut. 5. Compare and contrast the materials that were dissolved. 6. Compare and contrast the materials that were bent. 		
ENERGY		
S:PS2:2:3.1 Recognize that sound is produced by vibrating objects and that the pitch of the sound can be varied by changing the rate of vibration.		
<p style="text-align: center;">Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Define sound. 2. Define vibration. 3. Define pitch. 4. Define changing rate. 5. Identify objects that produce a sound when vibrated. 6. Identify that the pitch changes when the rate of vibration changes. 	Resources	Assessments
S:PS2:2:3.2 Explain that the Sun provides the Earth with heat and light.		
<p style="text-align: center;">Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Identify what the Sun provides the Earth. 	Resources	Assessments
S:PS2:2:3.3 Describe that heat can be produced in a variety of ways, such as burning, rubbing, and mixing substances together.		
<p style="text-align: center;">Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Identify the various ways heat can be produced. 2. Compare and contrast the various ways heat can be produced. 	Resources	Assessments
S:PS2:2:3.4 Recognize that energy comes from different sources, such as electricity and water, and is utilized in many common objects.		
<p style="text-align: center;">Student Friendly/"I Can..." Statement</p> <ol style="list-style-type: none"> 1. Identify the different sources from which energy is produced. 2. Identify the ways energy is used. 	Resources	Assessments

PS3– The motion of an object is affected by force.

FORCES		
S:PS3:2:1.1 Describe the properties of magnetism and demonstrate how magnets can be used to move some things without touching them.		
Student Friendly/"I Can..." Statement 1. Define magnetism. 2. Show how magnets can move things without touching them.	Resources	Assessments
S:PS3:2:1.2 Describe and demonstrate that things close to the Earth drop to the ground unless something supports them.		
Student Friendly/"I Can..." Statement 1. Define gravity. 2. Demonstrate how gravity works on objects.	Resources	Assessments
MOTION		
S:PS3:2:2.1 Describe the many different ways things can move, such as in a straight line, zigzag or circular motion, back and forth, and fast and slow.		
Student Friendly/"I Can..." Statement 1. Identify the ways in which things move.	Resources	Assessments
S:PS3:2:2.2 Describe and demonstrate how the position and motion of an object can be changed by applying force, such as pushing and pulling; and explain that the greater the force, the greater the change.		
Student Friendly/"I Can..." Statement 1. Define position. 2. Define motion. 3. Define force. 4. Identify the ways in which the movement of an object changes. 5. Identify the force that changed to movement of the object. 6. Describe the how the magnitude of the force changes the movement of the object.	Resources	Assessments
S:PS3:2:2.3 Describe the position of an object by referencing its location in relation to another object or background.		
Student Friendly/"I Can..." Statement 1. Define location. 2. Define reference.	Resources	Assessments

3. Define background. 4. Describe position of an object in reference to another object or background.		
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PS4– The growth of scientific knowledge in Physical Science has been advanced through the development of technology and is used (alone or in combination with other sciences) to identify, understand and solve local and global issues.

DESIGN TECHNOLOGY		
S:PS4:2:1.1 Recognize that new objects can be made out of physical materials, such as cloth and paper.		
Student Friendly/"I Can..." Statement 1. Identify new objects made from cloth. 2. Identify new objects made from paper.	Resources	Assessments
TOOLS		
S:PS4:2:2.1 Identify tools and simple machines, such as a wheel, and explain how they work.		
Student Friendly/"I Can..." Statement 1. Define tools. 2. Define simple machines. 3. Identify tools and simple machines. 4. Explain how tools and simple machines work.	Resources	Assessments
S:PS4:2:2.2 Demonstrate how to use tools, such as rulers, scales, balances, magnifiers and thermometers to measure properties of objects, such as size, weight, temperature.		
Student Friendly/"I Can..." Statement 1. Identify the appropriate tools to use to measure a specific property. 2. Describe how each tool measures a different property.	Resources	Assessments
SOCIAL ISSUES (LOCAL AND GLOBAL)		
ENERGY, POWER, AND TRANSPORTATION		
MANUFACTURING		
S:PS4:2:3.1 Provide examples of how man uses energy in everyday life, such as providing light, warmth in winter, cooling in summer, TVs, computers, telephones, transportation, factories.		
Student Friendly/"I Can..." Statement 1. Give examples on how man uses energy. 2. Describe the energy each example uses.	Resources	Assessments

S:PS4:2:3.2 Provide examples of items that are manufactured or produced.		
Student Friendly/"I Can..." Statement 1. Give examples of items that are manufactured. 2. Give examples of items that are produced. 3. Compare and contrast the examples manufactured with those produced.	Resources	Assessments
CAREER TECHNICAL EDUCATION CONNECTIONS		
S:PS4:2:4.1 Recognize that some jobs/careers require knowledge and use of physical science content and/or skills.		
Student Friendly/"I Can..." Statement 1. Identify jobs and careers that require knowledge of physical science. 2. Identify jobs and careers that require skills learned while engaged in physical science exploration.	Resources	Assessments

Measurement Specifics for Science

(Adapted from NECAP Mathematics Assessment GLEs grades 3-8)

The following is a list of the measurement benchmarks and equivalences that **can be used** in mathematics problems across the science domains at each specific grade. In addition to measurement benchmarks identified below students should be expected to use the appropriate units when solving problems involving area, volume, surface area, conversions, and rates (e.g., miles per hour, price per pound, and pounds per square inch) in science.

Connection to the Mathematics GLEs is **M:G&M:2.7 (Uses units of measures appropriately and consistently, and makes conversions within systems when solving problems across the content strands.)**

Measures	By Grade 2	By Grade 4	End of Grade 8
Length	<p>Unit (accuracy): Inch (to whole inch); Foot (to whole inch); Centimeter (to whole centimeter); Meter (to whole centimeter)</p> <p>Equivalencies: 12 inches in 1 foot; 100 centimeters in 1 meter</p>	<p>Unit (accuracy): Inch (to 1/4 inch); Foot; Centimeter (to 0.5 centimeter); Meter (to 0.5 centimeter); Yard; Mile (use in scale questions); Kilometer (use in scale questions)</p> <p>Equivalencies: 12 inches in 1 foot; 100 centimeters in 1 meter; 3 feet in 1 yard; 36 inches in 1 yard</p>	<p>Units (accuracy): Inch (to 1/16 inch); Foot; Centimeter (to 1/10 centimeter); Meter (to 1/100 meter); Yard; Mile (use in scale and rate questions); Kilometer (use in scale and rate questions)</p> <p>Equivalencies: 12 inches in 1 foot; 100 centimeters in 1 meter; 3 feet in 1 yard; 36 inches in 1 yard; 10 millimeters in 1 centimeter; 1000 millimeters in 1 meter</p>
Time	<p>Unit (accuracy): Hour (to 15 minute interval)</p> <p>Equivalencies: 60 minutes in 1 hour</p>	<p>Unit (accuracy): Hour (to 5 minute interval); Day; Year</p> <p>Equivalencies: 24 hours in 1 day; 7 days in 1 week; 365 days in 1 year; 60 seconds in 1 minute; 60 minutes in 1 hour</p>	<p>Unit (accuracy): Hour (to 1 minute); Day; Year</p> <p>Equivalencies: 24 hours in 1 day; 7 days in 1 week; 365 days in 1 year; 60 seconds in 1 minute; 60 minutes in 1 hour</p>
Temperature	<p>Unit (accuracy): Degree (to 1 degree)</p>	<p>Unit (accuracy): °C and °F (to 1 degree)</p>	<p>Unit (accuracy): °C and °F (to 1 degree)</p>
Capacity		<p>Unit (accuracy): Quart (to whole quart)</p>	<p>Unit (accuracy): Quarts (to 1 ounce); Gallon; Pint; Liter</p> <p>Equivalencies: 32 ounces in 1 quart; 4 quarts in 1 gallon; 2 pints in 1 quart; 1000 milliliters in 1 liter</p>
Mass		<p>Unit (accuracy): Kilogram (to whole kilogram); Gram (to whole gram)</p>	<p>Unit (accuracy): Kilogram; Gram (to 1/10 gram)</p>
Weight		<p>Unit (accuracy): Pound (to whole pound)</p>	<p>Unit (accuracy): Pound (to 1 ounce)</p> <p>Equivalencies:</p>

			16 ounces in 1 pound
Angles and Rotation			Unit (accuracy): Degree (to 2 degrees) Equivalencies: 360° in 1 circle; 90° in 1 right angle