Science
GRADE 2

Life Science	Physical Science	Earth and Space Science
Living Things: Habitats • Needs of living things • Animal adaptations help them survive in their habitats • Different kinds of habitats (e.g. canyons, ponds)	**Making Things Move:** Forces and Simple Machines • Levers, ramps • Forces and friction Magnetism and Forces • Explore magnets' forces • Magnetic field **Light and Sound:** Light • Sun and Night Sky • Path of light • Mirrors reflect light Sound • Sound is made by vibrations traveling through air/matter • Differences in sound	**The Earth's Water:** Sources of Water: Fresh and Salt Water Cycle Using Water • Water is used in many ways in daily living • Pollution's causes and solutions • Conserving water

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STANDARD 1
The student *understands and uses scientific concepts and principles.*

To meet this standard, the student will:

Benchmark 2.1.1: **Use properties to identify, describe, and categorize substances, materials, and objects**

Indicators:
Physical
   2.1.1.1 Describe and sort objects using sensory terms and properties including shape, size, color, texture, weight, and magnetic properties
   2.1.1.2 Identify materials using these properties
Earth
   2.1.1.3 Identify water sources as fresh water or salt water
   2.1.1.4 Identify distinguishing characteristics among habitats

Benchmark 2.1.2: **Identify, describe, and categorize living things based on their characteristics**

Indicator:
Life
   2.1.2.1 Distinguish between and categorize different organisms by using characteristics

Key: 1. Grade 1.1 Standard   1.1.1 Benchmark   1.1.1.1 Indicator

<u>**Benchmark 2.1.3:**</u> **Measure properties and characteristics**

Indicators:
      2.1.3.1 Measure time, temperature, length, and weight with instruments in English and metric units
      2.1.3.2 Use basic time scales to communicate information (minutes, hours, days, weeks, months, and years)
      2.1.3.3 Give examples of when standard measurements are useful

<u>**Benchmark 2.1.4:**</u> **Recognize the components, structure, and organization of systems and the interconnections within and among them**

Indicators:

Physical
      2.1.4.1 Observe objects through a magnifying glass
      2.1.4.2 Explain examples of the interdependence of structure and function in both living and non-living systems

Earth
      2.1.4.3 Describe our dependence on water and the way water affects us
      2.1.4.4 Construct a flow chart that demonstrates how plant, animals, and the environment interact to provide basic life requirements
      2.1.4.5 Identify causes of pollution
      2.1.4.6 Investigate ways in which water is used daily

Life
      2.1.4.4 Describe the idea that some plants and animals have become extinct
      2.1.4.5 Write/draw that plants and animals need food, water, and air to survive
      2.1.4.6 List special traits (adaptations) that organisms have which allow them to survive in particular environments
      2.1.4.7 Identify components of simple habitats (food, water, air requirements)

<u>**Benchmark 2.1.5:**</u> **Understand that interactions within and among systems cause changes in matter and energy**

Indicators:

Physical
      2.1.5.1 Identify the forms and uses of energy
      2.1.5.2 Demonstrate that light travels in a straight line from its source
      2.1.5.3 Demonstrate that vibrating objects produce sound
      2.1.5.4 Investigate and explain the forces that result from magnets
      2.1.5.5 Observe and define the various ways that light can interact with matter (transmission, absorption, scattering)
      2.1.5.6 State that sound can be described by loudness and pitch
      2.1.5.7 Describe the sounds produced by different types of vibrating objects
      2.1.5.8 Identify and explain how the sun affects objects on the surface of the earth
      2.1.5.9 Investigate how the sun affects various objects and materials

Earth
      2.1.5.10 Draw the water cycle
      2.1.5.11 Observe and describe the cyclical motions of the sun and moon and the patterns of day, night and the seasons

Life
      2.1.5.12 Act out how living things (including humans) can affect the environment
      2.1.5.13 Explain that the sun provides energy needed by plants and animals
      2.1.5.14 Identify events or factors that threaten animal survival

Benchmark 2.1.6:   **Construct and use models to predict, test, and understand scientific phenomena**

Indicators:
Physical
      2.1.6.1   Describe how models are similar to and different from the systems they represent
      2.1.6.2   Demonstrate the function of simple machines
      2.1.6.3   Observe and describe the force of gravity

Earth
      2.1.6.4   Construct a physical model related to the earth
Life
      2.1.6.5   Construct drawings of biological systems (habitats)

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STANDARD 2
The student *conducts scientific investigations to expand understanding of the natural world.*

To meet this standard, the student will:

Benchmark 2.2.1:   **Plan and implement scientific investigations**

Indicators:
    2.2.1.1 Make accurate observations
    2.2.1.2 Ask questions and define problems in response to observations
    2.2.1.3 Predict results based on prior knowledge
    2.2.1.4 Collect data using appropriate tools and research methods
    2.2.1.5 Individually and collaboratively conduct a safe, controlled experiment
    2.2.1.6 Accurately and appropriately record and report data and results
    2.2.1.7 Follow proper safety procedures

Benchmark 2.2.2:   **Think logically, analytically, and creatively**

Indicators:
    2.2.2.1 Approach questions and problems using several different strategies
    2.2.2.2 Examine evidence to verify a conclusion
    2.2.2.3 Recognize how a conclusion was reached
    2.2.2.4 Collect, organize, and evaluate scientific information

Benchmark 2.2.3:   **Practice the principles of scientific inquiry**

Indicators:
    2.2.3.1 Explain that science is one way of looking at the world
    2.2.3.2 Give examples of how data sometimes contradicts predictions
    2.2.3.3 Give proper credit for a discovery to the discoverer

Benchmark 2.2.4:   **Understand the relationship between evidence and scientific explanation**

Indicator:
    2.2.4.1 Explain that scientific knowledge is always changing but is based on evidence

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STANDARD 3
The student *applies science knowledge and skills to solve problems and meet challenges*.

To meet this standard, the student will:

Benchmark 2.3.1:   **Identify problems and challenges in which science knowledge and skills can be applied**

Indicators:
      2.3.1.1 Generate and list problems to investigate
      2.3.1.2 Develop ideas with various resources
      2.3.1.3 Identify a problem which science or technology might be used to solve
      2.3.1.4 Make predictions
      2.3.1.5 Develop a hypothesis

Benchmark 2.3.2:   **Research, design, and test a variety of ways to address problems and/or challenges**

Indicators:
      2.3.2.1 Develop a plan to test a hypothesis
      2.3.2.2 Gather necessary equipment and materials
      2.3.2.3 Work individually and collaboratively to research, design, test and determine a solution to a problem

Benchmark 2.3.3:   **Evaluate solutions and consequences**

Indicators:
      2.3.3.1 Discuss outcomes
      2.3.3.2 Organize and transfer results into narrative, pictorial, and/or graphic format

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STANDARD 4
The student *uses effective communication skills and tools to build and demonstrate understanding of science.*

To meet this standard, the student will:

Benchmark 2.4.1: **Use listening, observing, and reading skills to obtain scientific information**

Indicators:
    2.4.1.1 Listen to someone describe his/her own observations
    2.4.1.2 Ask appropriate questions
    2.4.1.3 Read and understand age-appropriate science information text

Benchmark 2.4.2: **Use writing and speaking skills to organize and express science ideas**

Indicators:
    2.4.2.1 Use drawings or writing to summarize and share data
    2.4.2.2 Present information orally to an audience
    2.4.2.3 Communicate understanding of simple data using age-appropriate vocabulary

Benchmark 2.4.3: **Use effective communication strategies and tools to prepare and present science information**

Indicators:
    2.4.3.1 Operate developmentally appropriate science software programs
    2.4.3.2 Present information clearly through drawings, models, role plays, lists, data tables, verbal explanations, and other media
    2.4.3.3 Present information using age appropriate software

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STANDARD 5
The student *understands how science knowledge and skills are connected to other subject areas and real-life situations.*

To meet this standard, the student will:

Benchmark 2.5.1:   Use mathematics to enhance scientific understanding

Indicators:
2.5.1.1   Describe the usefulness of patterns and numerical data in science
2.5.1.2   Make predictions using estimation skills
2.5.1.3   Find information using symbols, graphs, numbers, and tables
2.5.1.4   Analyze and apply data from graphs and charts to make predictions and draw conclusions

Benchmark 2.5.2:   Understand the relationship between science and technology

Indicators:
2.5.2.1   Access information through various technologies
2.5.2.2   Give examples of how tools and techniques have been used by scientists to solve problems

Benchmark 2.5.3:   Examine the relationship between science and history

Indicator:
2.5.3.1   Describe how individuals from the past have contributed to science

Benchmark 2.5.4:   Examine the relationship among science, society, and the workplace

Indicators:
2.5.4.1   Investigate examples of how science and technology influence everyday life
2.5.4.2   Describe how natural resources are used by people and how people can impact the environment
2.5.4.3   Write examples of how scientific and technological information can influence personal decisions
2.5.4.4   Draw/write how science and mathematics skills are used in familiar workplace occupations

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STANDARD 6
The student *understands how science knowledge carries with it responsibility for its application.*

To meet this standard, the student will:

Benchmark 2.6.1: **Understand how science contributes to the treatment of diseases in the maintenance of a healthy lifestyle (Personal and Community Health)**
Indicator:
    2.6.1.1 Explain that treatment of water makes it safe for drinking

Benchmark 2.6.2: **Understand how the use of resources affects population growth and the global environment (Population)**
Indicator:
    2.6.2.1 Discuss the importance of conserving water

Benchmark 2.6.3: **Understand the importance of maintaining resources and environmental quality (Environmental Quality/Resources)**
Indicators:
    2.6.3.1 Discuss the importance of protecting the Earth's animals and environment
    2.6.3.2 Brainstorm ways individuals can conserve resources

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STANDARD 7
The student *applies a Christian perspective to scientific concepts and principles*.

To meet this standard, the student will:

Benchmark 2.7.1:   **Understand that the Bible and the findings of science do not conflict**

Indicators:
Earth

2.7.1.1   Identify that the Bible tells us that God is the creator of our earth, including water sources

Life

2.7.1.2   Use words and drawings to explain that God created animals and different kinds of habitats for them to live in

Benchmark 2.7.2:   **The student will understand that the Bible teaches us that God is the creator of   everything**

Indicators:
Earth

2.7.2.1   Identify God as the creator of different kinds of water sources

Life

2.7.2.2   Explain how God created animals' complex bodies so that they can live in his world

Benchmark 2.7.3:   **Understand that God preserves and controls His creation, the world we study in science,   so that it continues to function as He planned**

Indicators:

2.7.3.1   Explain that the consistent pattern of plants, animals, and human interdependence show God's control and plan

Physical

2.7.3.2   Explain how the traits and characteristics of light, sound, and magnetism show God's orderliness

Life

2.7.3.3   Use words and drawings to explain that God created different animals and places in the world in an orderly fashion

2.7.3.4   Identify ways in which God created animals to need different things, and he created the world to provide those things for each one

Benchmark 2.7.4:   **Understand that God created for His own purpose, and creation is meant to praise and glorify God**

Indicators:
Physical

2.7.4.1   Identify how humans can create machines to help us work in ways that honor God

Earth

2.7.4.2   Develop and implement a list of ways in which we can care for our Earth

Life

2.7.4.3   Identify ways in which we can use our bodies to praise God

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Key: 1. Grade 1.1 Standard   1.1.1 Benchmark   1.1.1.1 Indicator

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Benchmark 2.7.5:   **Understand that God uses His creation to teach people eternal truth through the study of science**

Indicators:
>   2.7.5.1   Credit God with the wonder of life and the world around us
>   2.7.5.2   Identify examples of patterns and order in science that point to God as the creator