

SCIENCE ALIGNED STANDARDS OF LEARNING

GRADE 3

Reporting Category: Scientific Investigation [Reasoning and Logic]

3S-SI 1 The student will demonstrate an understanding of scientific reasoning, logic, and (SOL 2.1) the nature of science by planning and conducting investigations in which

- observations and predictions are made and questions formed;
- observations are differentiated from personal interpretation;
- observations are repeated to ensure accuracy;
- two or more characteristics or properties are used to classify items;
- length, volume, mass, and temperature are measured in metric units and standard English units using the proper tools;
- time is measured using the proper tools;
- conditions that influence a change are identified and inferences are made;
- data are collected and recorded, and bar graphs are constructed using numbered axes;
- data are analyzed, and unexpected or unusual quantitative data are recognized;
- conclusions are drawn;
- observations and data are communicated;
- simple physical models are designed and constructed to clarify explanations and show relationships.

3S-SI 2 The student will demonstrate an understanding of scientific reasoning, logic (SOL 3.1) and the nature of science by planning and conducting investigations in which

- observations are made and repeated to ensure accuracy;
- predictions are formulated using a variety of sources of information;
- objects with similar characteristics or properties are classified into at least two sets and two subsets;
- natural events are sequenced chronologically;
- length, volume, mass, and temperature are estimated and measured in metric and standard English units using proper tools and techniques;
- time is measured to the nearest minute using proper tools and techniques;
- questions are developed to formulate hypotheses;
- data are gathered, charted, graphed, and analyzed;
- unexpected or unusual quantitative data are recognized;
- inferences are made and conclusions are drawn;
- data are communicated;
- models are designed and built.

Reporting Category: Force, Motion, Energy, and Matter

3S-FME 1 The student will investigate and understand that natural and artificial magnets have (SOL 2.2) certain characteristics and attract specific types of metals. Key concepts include

- magnetism, iron, magnetic/nonmagnetic, poles, attract/repel;
- important applications of magnetism.

3S-FME 2 The student will investigate and understand basic properties of solids, liquids, and (SOL 2.3) gases. Key concepts include

- identification of distinguishing characteristics of solids, liquids, and gases;
- measurement of the mass and volume of solids and liquids;
- changes in phases of matter with the addition or removal of energy.

3S-FME 3 The student will investigate and understand simple machines and their uses. Key (SOL 3.2) concepts include

- a) purpose and function of simple machines;
- b) types of simple machines;
- c) compound machines;
- d) examples of simple and compound machines found in the school, home, and work environments.

3S-FME 4 The student will investigate and understand that objects are made of materials that (SOL 3.3) can be described by their physical properties. Key concepts include

- a) objects are made of one or more materials;
- b) physical properties remain the same as the material is changed in visible size;
- c) visible physical changes are identified.

Reporting Category: Life Processes and Living Systems

3S-LPS 1 The student will investigate and understand that plants and animals undergo a (SOL 2.4) series of orderly changes as they mature and grow. Key concepts include

- a) animal life cycles;
- b) plant life cycles.

3S-LPS 2 The student will investigate and understand that living things are part of a system. (SOL 2.5) Key concepts include

- a) living organisms are interdependent with their living and nonliving surroundings;
- b) an animal's habitat includes adequate food, water, shelter or cover, and space;
- c) habitats change over time due to many influences;
- d) fossils provide information about living systems that were on Earth years ago.

3S-LPS 3 The student will investigate and understand that weather and seasonal changes (SOL 2.7) affect plants, animals, and their surroundings. Key concepts include

- a) effects of weather and seasonal changes on the growth and behavior of living things;

3S-LPS 4 The student will investigate and understand that plants produce oxygen and food, (SOL 2.8) are a source of useful products, and provide benefits in nature. Key concepts include

- a) important plant products are identified and classified;
- b) the availability of plant products affects the development of a geographic area;
- c) plants provide oxygen, homes, and food for many animals;
- d) plants can help reduce erosion.

3S-LPS 5 The student will investigate and understand that adaptations allow animals to (SOL 3.4) satisfy life needs and respond to the environment. Key concepts include

- a) behavioral adaptations;
- b) physical adaptations.

3S-LPS 6 The student will investigate and understand relationships among organisms in (SOL 3.5) aquatic and terrestrial food chains. Key concepts include

- a) producer, consumer, decomposer;
- b) herbivore, carnivore, omnivore;
- c) predator and prey.

3S-LPS 7 The student will investigate and understand that ecosystems support a diversity of (SOL 3.6) plants and animals that share limited resources. Key concepts include

- a) aquatic ecosystems;
- b) terrestrial ecosystems;
- c) populations and communities;
- d) the human role in conserving limited resources.

3S-LPS 8 The student will investigate and understand that natural events and human (SOL 3.10) influences can affect the survival of species. Key concepts include

- a) the interdependency of plants and animals.

Reporting Category: Earth/Space Systems and Cycles

3S-ESS 1 The student will investigate and understand basic types, changes, and patterns of (SOL 2.6) weather. Key concepts include

- a) identification of common storms and other weather phenomena;
- b) the uses and importance of measuring, recording, and interpreting weather data;
- c) the uses and importance of tracking weather data over time.

3S-ESS 2 The student will investigate and understand that weather and seasonal changes (SOL 2.7) affect plants, animals, and their surroundings. Key concepts include

- b) weathering and erosion of land surfaces.

3S-ESS 3 The student will investigate and understand the major components of soil, its (SOL 3.7) origin, and its importance to plants and animals including humans. Key concepts include

- a) soil provides the support and nutrients necessary for plant growth;
- b) topsoil is a natural product of subsoil and bedrock;
- c) rock, clay, silt, sand, and humus are components of soils;
- d) soil is a natural resource and should be conserved.

3S-ESS 4 The student will investigate and understand basic patterns and cycles occurring in (SOL 3.8) nature. Key concepts include

- a) patterns of natural events such as day and night, seasonal changes, simple phases of the moon, and tides;
- b) animal life cycles;
- c) plant life cycles.

3S-ESS 5 The student will investigate and understand the water cycle and its relationship (SOL 3.9) to life on Earth. Key concepts include

- a) there are many sources of water on Earth;
- b) the energy from the sun drives the water cycle;
- c) the water cycle involves several processes;
- d) water is essential for living things;
- e) water on Earth is limited and needs to be conserved.

3S-ESS 6 The student will investigate and understand that natural events and human (SOL 3.10) influences can affect the survival of species. Key concepts include

- b) the effects of human activity on the quality of air, water, and habitat;
- c) the effects of fire, flood, disease, and erosion on organisms;
- d) conservation and resource renewal.

3S-ESS 7 The student will investigate and understand different sources of energy. Key (SOL 3.11) concepts include

- a) energy from the sun;
- b) sources of renewable energy;
- c) sources of nonrenewable energy.