Science

Grade 5

Advanced

Students scoring at the Advanced level in science generally exhibit the ability to:

- compare and contrast investigations by generating testable questions, identifying variables, and describing experimental designs;
- select appropriate tools and resources for data collection; analyze data; identify patterns; make inferences; and predict trends;
- communicate experimental procedures, data, and analyses in a variety of appropriate methods;
- explain how science is advanced through mathematics, technology, communication, and the work of others;
- compare/describe properties and phases of matter, the formation of substances, the structure of atoms, and types and sources of energy;
- compare motion and predict future positions of objects and explain how changes in a light source and an object alter shadows;
- describe the structural organization of organisms; classify common organisms; and relate cell components to their functions;
- compare adaptations, metamorphosis, photosynthesis, and respiration in organisms and describe different types of disease transmission;
- explain why it takes different amounts of time for natural events to occur and compare objects in the solar system;
- compare the atmosphere, hydrosphere, climate, and weather and explain the water cycle;
- distinguish between common soils, rocks, and minerals and the processes that prevent or cause erosion;
- describe different naturally occurring cycles and how changes affect organisms and compare communities within ecosystems; and
- identify and describe the impact of human activities and common pollutants on local and global ecosystems.

Mastery

Students scoring at the Mastery level in science generally exhibit the ability to:

- explain investigations by generating testable questions and identifying variables;
- select tools and resources for data collection; analyze data; identify patterns; and make inferences;
- communicate experimental procedures, data, and analyses;
- describe how science is advanced through mathematics, technology, communication, and the work of others;
- identify/describe properties and phases of matter, the formation of substances, the structure of atoms, and types and sources of energy;
- compare, calculate, and graph motion and describe how changes in a light source and an object alter shadows;
- describe the structural organization of organisms, classify common organisms, and describe cell components and their functions;
- describe adaptations, metamorphosis, photosynthesis, and respiration in organisms and identify different types of disease transmission;
- estimate the range of time in which natural events occur and describe the characteristics and movements of objects in the solar system;
- describe the atmosphere, hydrosphere, climate, weather, and the water cycle;
- identify rocks, minerals, and components of common soils and the processes that affect erosion;
- describe different naturally occurring cycles and where they are found in ecosystems and compare communities within ecosystems; and
- identify and describe the impact of human activities on local ecosystems and identify common pollutants found in water, air, and soil.

Basic

Students scoring at the Basic level in science generally exhibit the ability to:

- describe an investigation and identify its variables;
- select tools and resources correctly to collect data; analyze data; and recognize patterns;
- communicate experimental data and analyses;
- know and describe how science is continually tested and advanced and that it begins with a review of the work of others;
- identify/describe properties and phases of matter, the formation of substances, the parts of atoms, and types and sources of energy;
- calculate and graph motion and identify how changes in a light source and an object alter shadows;
- identify organizational levels of living things, classify common organisms, and describe cell components and their functions;
- identify stages of metamorphosis of amphibians, photosynthesis, respiration in plants, and that diseases are transmitted in different ways;
- identify short- and long-term natural events and identify objects in the solar system based on their characteristics and movements;
- identify components of the atmosphere and hydrosphere, examples of climate and weather patterns, and processes of the water cycle;
- identify common rocks and minerals and components of various soils and recognize processes that affect erosion;
- identify or describe different naturally occurring cycles, the needs of an organism, and organisms in different ecosystems; and
- identify and describe the impact of human activities on parts of an ecosystem and identify examples of water and air pollution.

Approaching Basic

Students scoring at the Approaching Basic level in science generally exhibit the ability to:

- describe an investigation;
- recognize tools and resources to collect data and know that patterns in data are affected by natural events;
- communicate experimental data and recognize statements that are not supported by evidence;
- describe that science is continually advancing and know that investigations generally include the work of others;
- identify properties and phases of matter, the formation of new substances, protons and electrons, and types of energy;
- calculate or graph motion and know that changes in a light source and an object alter the size and shape of shadows;
- recognize the structural organization of living things; use a simple dichotomous key; and describe cell components;
- recognize that metamorphosis occurs in amphibians; identify photosynthesis or respiration; and recognize that diseases are transmitted;
- identify objects in the solar system based on their characteristics and movements;
- identify the atmosphere and hydrosphere, examples of climate and weather patterns, and processes of the water cycle;
- identify common rocks and minerals; recognize that soil is comprised of different things; and recognize a process that affects erosion;
- identify different naturally occurring cycles; recognize the characteristics of an organism; and compare organisms in ecosystems; and
- identify human activities that impact the environment and list examples of various kinds of water and air pollution.

Unsatisfactory

Students scoring at the Unsatisfactory level in science have not demonstrated the fundamental knowledge and skills needed for the next level of schooling. Students at this level need to develop the ability to:

- describe an investigation;
- recognize tools and resources to collect data and know that patterns in data are affected by natural events;
- communicate experimental data and recognize statements that are not supported by evidence;
- describe that science is continually advancing and know that investigations generally include the work of others;
- identify properties and phases of matter, the formation of new substances, protons and electrons, and types of energy;
- calculate or graph motion and know that changes in a light source and an object alter the size and shape of shadows;
- recognize the structural organization of living things; use a simple dichotomous key; and describe cell components;
- recognize that metamorphosis occurs in amphibians; identify photosynthesis or respiration; and recognize that diseases are transmitted;
- identify objects in the solar system based on their characteristics and movements;
- identify the atmosphere and hydrosphere, examples of climate and weather patterns, and processes of the water cycle;
- identify common rocks and minerals; recognize that soil is comprised of different things; and recognize a process that affects erosion;
- identify different naturally occurring cycles; recognize the characteristics of an organism; and compare organisms in ecosystems; and
- identify human activities that impact the environment and list examples of various kinds of water and air pollution.