Benchmark Results

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Benchmark#	Description	Remarks/Example
SC.8.E.5.1	Recognize that there are enormous distances between objects in space and apply our knowledge of light and space travel to understand this distance.	
SC.8.E.5.10	Assess how technology is essential to science for such purposes as access to outer space and other remote locations, sample collection, measurement, data collection and storage, computation, and communication of information.	Florida Standards Connections: MAFS.K12.MP.5: Use appropriate tools strategically; and, MAFS.K12.MP.6: Attend to precision.
SC.8.E.5.11	Identify and compare characteristics of the electromagnetic spectrum such as wavelength, frequency, use, and hazards and recognize its application to an understanding of planetary images and satellite photographs.	
SC.8.E.5.12	Summarize the effects of space exploration on the economy and culture of Florida.	
SC.8.E.5.2	Recognize that the universe contains many billions of galaxies and that each galaxy contains many billions of stars.	
SC.8.E.5.3	Distinguish the hierarchical relationships between planets and other astronomical bodies relative to solar system, galaxy, and universe, including distance, size, and composition.	
SC.8.E.5.4	Explore the Law of Universal Gravitation by explaining the role that gravity plays in the formation of planets, stars, and solar systems and in determining their motions.	

SC.8.E.5.5	Describe and classify specific physical properties of stars: apparent magnitude (brightness), temperature (color), size, and luminosity (absolute brightness).	
SC.8.E.5.6	Create models of solar properties including: rotation, structure of the Sun, convection, sunspots, solar flares, and prominences.	Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics; and MAFS.K12.MP.7: Look for and make use of structure.
SC.8.E.5.7	Compare and contrast the properties of objects in the Solar System including the Sun, planets, and moons to those of Earth, such as gravitational force, distance from the Sun, speed, movement, temperature, and atmospheric conditions.	
SC.8.E.5.8	Compare various historical models of the Solar System, including geocentric and heliocentric.	Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.
SC.8.E.5.9	Explain the impact of objects in space on each other including: 1. the Sun on the Earth including seasons and gravitational attraction 2. the Moon on the Earth, including phases, tides, and eclipses, and the relative position of each body.	
SC.8.L.18.1	Describe and investigate the process of photosynthesis, such as the roles of light, carbon dioxide, water and chlorophyll production of food release of oxygen.	
SC.8.L.18.2	Describe and investigate how cellular respiration breaks down food to provide energy and releases carbon dioxide.	

SC.8.L.18.3	Construct a scientific model of the carbon cycle to show how matter and energy are continuously transferred within and between organisms and their physical environment.	Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.
SC.8.L.18.4	Cite evidence that living systems follow the Laws of Conservation of Mass and Energy.	
SC.8.N.1.1	Define a problem from the eighth grade curriculum using appropriate reference materials to support scientific understanding, plan and carry out scientific investigations of various types, such as systematic observations or experiments, identify variables, collect and organize data, interpret data in charts, tables, and graphics, analyze information, make predictions, and defend conclusions.	
SC.8.N.1.2	Design and conduct a study using repeated trials and replication.	
SC.8.N.1.3	Use phrases such as "results support" or "fail to support" in science, understanding that science does not offer conclusive 'proof' of a knowledge claim.	
SC.8.N.1.4	Explain how hypotheses are valuable if they lead to further investigations, even if they turn out not to be supported by the data.	
SC.8.N.1.5	Analyze the methods used to develop a scientific explanation as seen in different fields of science.	
SC.8.N.1.6	Understand that scientific investigations involve the collection of relevant empirical evidence, the use of logical reasoning, and the application of imagination in devising hypotheses, predictions, explanations and models to make sense of the collected evidence.	Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.

SC.8.N.2.1	Distinguish between scientific and pseudoscientific ideas.	Science is testable, pseudo-science is not; science seeks falsifications, pseudo-science seeks confirmations (e.g. astrology is pseudoscience).
SC.8.N.2.2	Discuss what characterizes science and its methods.	Science is the systematic, organized inquiry that is derived from observations and experimentation that can be verified through testing to explain natural phenomena.
SC.8.N.3.1	Select models useful in relating the results of their own investigations.	Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.
SC.8.N.3.2	Explain why theories may be modified but are rarely discarded.	
SC.8.N.4.1	Explain that science is one of the processes that can be used to inform decision making at the community, state, national, and international levels.	
SC.8.N.4.2	Explain how political, social, and economic concerns can affect science, and vice versa.	

SC.8.P.8.1	Explore the scientific theory of atoms (also known as atomic theory) by using models to explain the motion of particles in solids, liquids, and gases.	Recognize that matter is composed of discrete units called atoms and atoms are composed of sub-atomic particles called protons, neutrons, and electrons. Solid is the state in which intermolecular attractions keep the molecules in fixed spatial relationships. Liquid is the state in which intermolecular attractions keep molecules in proximity, but not in fixed relationships. Gas is the state in which Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.
SC.8.P.8.2	Differentiate between weight and mass recognizing that weight is the amount of gravitational pull on an object and is distinct from, though proportional to, mass.	
SC.8.P.8.3	Explore and describe the densities of various materials through measurement of their masses and volumes.	Florida Standards Connections: MAFS.K12.MP.5: Use appropriate tools strategically; and, MAFS.K12.MP.6: Attend to precision.
SC.8.P.8.4	Classify and compare substances on the basis of characteristic physical properties that can be demonstrated or measured for example, density, thermal or electrical conductivity, solubility, magnetic properties, melting and boiling points, and know that these properties are independent of the amount of the sample.	Florida Standards Connections: MAFS.K12.MP.5: Use appropriate tools strategically; and, MAFS.K12.MP.6: Attend to precision.

SC.8.P.8.5	Recognize that there are a finite number of elements and that their atoms combine in a multitude of ways to produce compounds that make up all of the living and nonliving things that we encounter.	Demonstrate with atomic models how atoms can combine in many ways. Explain why there are many, but limited, combinations. Use models to demonstrate the conservation of mass in modeled chemical reactions.
SC.8.P.8.6	Recognize that elements are grouped in the periodic table according to similarities of their properties.	
SC.8.P.8.7	Explore the scientific theory of atoms (also known as atomic theory) by recognizing that atoms are the smallest unit of an element and are composed of sub-atomic particles (electrons surrounding a nucleus containing protons and neutrons).	Florida Standards Connections: MAFS.K12.MP.4: Model with mathematics.
SC.8.P.8.8	Identify basic examples of and compare and classify the properties of compounds, including acids, bases, and salts.	
SC.8.P.8.9	Distinguish among mixtures (including solutions) and pure substances.	Pure substances include elements and compounds. Mixtures are classified as heterogeneous (mixtures) or homogeneous (solutions). Methods for separating mixtures include: distillation, chromatography, reverse osmosis, diffusion through semi-permeable membranes.
SC.8.P.9.1	Explore the Law of Conservation of Mass by demonstrating and concluding that mass is conserved when substances undergo physical and chemical changes.	
SC.8.P.9.2	Differentiate between physical changes and chemical changes.	

SC.8.P.9.3	Investigate and describe how temperature influences chemical changes.	

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Idea/Standard	Body Of Knowledge/ Strand	Cognitive Complexity Rating
Earth in Space and Time	Earth and Space Science	Level 2: Basic Application of Skills & Concepts
Earth in Space and Time	Earth and Space Science	Level 3: Strategic Thinking & Complex Reasoning
Earth in Space and Time	Earth and Space Science	Level 3: Strategic Thinking & Complex Reasoning
Earth in Space and Time	Earth and Space Science	Level 2: Basic Application of Skills & Concepts
Earth in Space and Time	Earth and Space Science	Level 1: Recall
Earth in Space and Time	Earth and Space Science	Level 3: Strategic Thinking & Complex Reasoning
Earth in Space and Time	Earth and Space Science	Level 3: Strategic Thinking & Complex Reasoning

Earth in Space and Time	Earth and Space Science	Level 2: Basic Application of Skills & Concepts
Earth in Space and Time	Earth and Space Science	Level 1: Recall
Earth in Space and Time	Earth and Space Science	Level 2: Basic Application of Skills & Concepts
Earth in Space and Time	Earth and Space Science	Level 2: Basic Application of Skills & Concepts
Earth in Space and Time	Earth and Space Science	Level 3: Strategic Thinking & Complex Reasoning
Matter and Energy Transformations	Life Science	Level 3: Strategic Thinking & Complex Reasoning
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The Practice of Science	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning
The Practice of Science	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning
The Practice of Science	Nature of Science	Level 2: Basic Application of Skills & Concepts
The Practice of Science	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning
The Practice of Science	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning
The Practice of Science	Nature of Science	Level 2: Basic Application of Skills & Concepts

The Characteristics of Scientific Knowledge	Nature of Science	Level 2: Basic Application of Skills & Concepts
The Characteristics of Scientific Knowledge	Nature of Science	Level 2: Basic Application of Skills & Concepts
The Role of Theories, Laws, Hypotheses, and Models	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning
The Role of Theories, Laws, Hypotheses, and Models	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning
Science and Society	Nature of Science	Level 2: Basic Application of Skills & Concepts
Science and Society	Nature of Science	Level 3: Strategic Thinking & Complex Reasoning

Properties of Matter	Physical Science	Level 2: Basic Application of Skills & Concepts
Properties of Matter	Physical Science	Level 2: Basic Application of Skills & Concepts
Properties of Matter	Physical Science	Level 2: Basic Application of Skills & Concepts
Properties of Matter	Physical Science	Level 2: Basic Application of Skills & Concepts

Properties of Matter	Physical Science	Level 1: Recall
Properties of Matter	Physical Science	Level 1: Recall
Properties of Matter	Physical Science	Level 1: Recall
Properties of Matter	Physical Science	Level 2: Basic Application of Skills & Concepts
Properties of Matter	Physical Science	Level 2: Basic Application of Skills & Concepts
Changes in Matter	Physical Science	Level 3: Strategic Thinking & Complex Reasoning
Changes in Matter	Physical Science	Level 2: Basic Application of Skills & Concepts

Changes in Matter	Physical Science	Level 3: Strategic Thinking & Complex Reasoning

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