



Alignment Document
State of Florida and Aventa Learning

Science 7

Strand	Common Curriculum Goal	Standard	Lesson Name
SC.A The Nature of Matter	SC.A.1.3.1 The student identifies various ways in which substances differ (e.g., mass, volume, shape, density, texture, and reaction to temperature and light).	SC.A.1.3.1.1 uses a variety of measurements to describe the physical properties of matter (for example, volume and mass).	
	SC.A.1.3.2 The student understands the difference between weight and mass.	SC.A.1.3.2.1 understands that weight is the result of gravitational pull on an object.	
	SC.A.1.3.3 The student knows that temperature measures the average energy of motion of the particles that make up the substance.	SC.A.1.3.3.1 knows the difference between heat and temperature.	
		SC.A.1.3.3.2 knows that relative changes of position and motion of atoms in a solid, liquid, and gas are the result of an increase or decrease in temperature.	
	SC.A.1.3.4 The student knows that atoms in solids are close together and do not move around easily; in liquids, atoms tend to move farther apart; in gas, atoms are quite far apart and move around freely.	SC.A.1.3.4.1 knows the direction of energy flow when a change in the phase of matter occurs.	

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	SC.A.1.3.5 The student knows the difference between a physical change in a substance (e.g., altering the shape, form, volume, or density) and a chemical change (i.e., producing new substances with different characteristics).	SC.A.1.3.5.1 knows that physical changes do not result in new substances.	Lesson 11: Chemistry and the Periodic Table
		SC.A.1.3.5.2 knows that chemical changes result in new substances with different characteristics.	Lesson 11: Chemistry and the Periodic Table
		SC.A.1.3.5.3 knows chemical and physical changes that occur in nature.	
	SC.A.1.3.6 The student knows that equal volumes of different substances may have different masses.	SC.A.1.3.6.1 determines the volumes of different substances that have equal masses.	
	SC.A.2.3.1 The student describes and compares the properties of particles and waves.	SC.A.2.3.1.1 knows that charged particles and objects will attract or repel each other.	Lesson 10: Energy: Electricity and Magnetism
		SC.A.2.3.1.2 knows the relationship between frequency and wavelength (the greater the frequency of the wave, the smaller the wavelength of the wave).	Lesson 9: Energy: Sound and Light
	SC.A.2.3.2 The student knows the general properties of the atom (a massive nucleus of neutral neutrons and positive protons surrounded by a cloud of negative electrons) and accepts that single atoms are not visible.	SC.A.2.3.2.1 understands that protons and neutrons are located in the nucleus of the atom while electrons exist in areas of probability outside of the nucleus.	Lesson 11: Chemistry and the Periodic Table

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		SC.A.2.3.2.2 understands that the mass of an atom is concentrated in the nucleus where the protons and neutrons are located.	Lesson 11: Chemistry and the Periodic Table
		SC.A.2.3.2.3 determines the mass number and atomic number of an atom from the number of protons and neutrons.	Lesson 11: Chemistry and the Periodic Table
		SC.A.2.3.2.4 understands that most of the atom is empty space.	Lesson 11: Chemistry and the Periodic Table
	SC.A.2.3.3 The student knows that radiation, light, and heat are forms of energy used to cook food, treat diseases, and provide energy.	SC.A.2.3.3.1 knows uses of radiation, light, and thermal energy to improve the quality of life for human beings (for example, cooking food, treating disease).	
SC.B Energy	SC.B.1.3.1 The student identifies forms of energy and explains that they can be measured and compared.	SC.B.1.3.1.1 knows examples of uses of energy in the home and ways to measure its use.	
	SC.B.1.3.2 The student knows that energy cannot be created or destroyed, but only changed from one form to another.	SC.B.1.3.2.1 knows the difference between potential and kinetic energy.	
		SC.B.1.3.2.2 knows ways to change energy from potential to kinetic.	
	SC.B.1.3.3 The student knows the various forms in which energy comes to Earth from the Sun (e.g., visible light, infrared, and microwave).	SC.B.1.3.3.1 knows the characteristics, effects, and common uses of ultraviolet, visible and infrared light.	Lesson 9: Energy: Sound and Light

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	SC.B.1.3.4 The student knows that energy conversions are never 100% efficient (e.g., some energy is transformed to heat and is unavailable for further useful work).	SC.B.1.3.4.1 knows that useful energy is lost as heat energy in every energy conversion.	
	SC.B.2.3.1 The student knows that most events in the universe (e.g., weather changes, moving cars, and the transfer of a nervous impulse in the human body) involve some form of energy transfer and that these changes almost always increase the total disorder of the system and its surroundings, reducing the amount of useful energy.	SC.B.2.3.1.1 knows that as the amount of useful energy of a system decreases, the total disorder in the system increases.	
	SC.B.2.3.2 The student knows that most of the energy used today is derived from burning stored energy collected by organisms millions of years ago (e.g., nonrenewable fossil fuels).	SC.B.2.3.2.1 knows that fossil fuels are found in the Earth, they are nonrenewable, and the advantages and disadvantages of their use.	Lesson 23: Nonrenewable natural resources
SC.C Force and Motion	SC.C.1.3.1 The student knows that the motion of an object can be described by its position, direction of motion, and speed.	SC.C.1.3.1.1 knows that the motion of an object can be described by its position, direction of motion, and speed.	
	SC.C.1.3.2 The student knows that vibrations in materials set up wave disturbances that spread away from the source (e.g., sound and earthquake waves).	SC.C.1.3.2.1 knows factors that influence the amount of damage vibrations can cause.	
		SC.C.1.3.2.2 knows intensity of some common waves.	
		SC.C.1.3.2.3 knows some causes and effects of waves.	Lesson 9: Energy: Sound and Light

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	SC.C.2.3.1 The student knows that many forces (e.g., gravitational, electrical, and magnetic) act at a distance (e.g., without contact).	SC.C.2.3.1.1 knows the properties of forces.	Lesson 7: Forces and the force of gravity
		SC.C.2.3.1.2 knows that like poles of the magnet (two north poles or two south poles) will repel and opposite poles (north and south) will attract.	Lesson 10: Energy: Electricity and Magnetism
		SC.C.2.3.1.3 knows that a simple electromagnet uses both electrical force and a magnetic force.	Lesson 10: Energy: Electricity and Magnetism
		SC.C.2.3.1.4 knows the difference between parallel and series circuits.	Lesson 10: Energy: Electricity and Magnetism
	SC.C.2.3.3 The student knows that if more than one force acts on an object, then the forces can reinforce or cancel each other, depending on their direction and magnitude.	SC.C.2.3.3.1 knows that objects in a vacuum accelerate at a constant rate.	
		SC.C.2.3.3.2 understands that as objects fall to Earth, speed increases until they reach terminal velocity.	
	SC.C.2.3.4 The student knows that simple machines can be used to change the direction or size of a force.	SC.C.2.3.4.1 understands uses and combinations of simple machines in complicated machines.	Lesson 8: Simple machines

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	SC.C.2.3.7 The student knows that gravity is a universal force that every mass exerts on every other mass.	SC.C.2.3.7.1 understands that gravity is a force exerted on a mass that causes an object to have weight.	Lesson 7: Forces and the force of gravity
		SC.C.2.3.7.2 knows that gravity is a force that holds the Solar System together.	Lesson 7: Forces and the force of gravity
SC.D Processes that Shape the Earth	SC.D.1.3.1 The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them in other areas, sometimes in seasonal layers.	SC.D.1.3.1.1 knows the relationship between run-off and the development of a river system.	
		SC.D.1.3.1.2 understands the action of ground water to form aquifers, caverns, and sinkholes.	
		SC.D.1.3.1.3 knows the ways in which the Earth's surface is eroded and reshaped (for example, weathering, erosion, deposition).	Lesson 20: Geologic Processes
	SC.D.1.3.2 The student knows that over the whole Earth, organisms are growing, dying, and decaying as new organisms are produced by the old ones.	SC.D.1.3.2.1 understands that fossils are used to predict and explain the similarities and differences of organisms that lived in the past and compare them with those living today.	Lesson 18: History of life on Earth
	SC.D.1.3.3 The student knows how conditions that exist in one system influence the conditions that exist in other systems.	SC.D.1.3.3.1 understands that changes on the surface of the Earth affect living systems.	Lesson 27: Ecosystem Changes

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	SC.D.1.3.4 The student knows the ways in which plants and animals reshape the landscape (e.g., bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).	SC.D.1.3.4.1 knows the ways in which living things reshape the landscape (for example, bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion).	Lesson 27: Ecosystem Changes
	SC.D.1.3.5 The student understands concepts of time and size relating to the interaction of Earth's processes (e.g., lightning striking in a split second as opposed to the shifting of the Earth's plates altering the landscape, distance between atoms measured in Angstrom units as opposed to distance between stars measured in light-years).	SC.D.1.3.5.1 uses a geologic timeline to illustrate the occurrence of processes on Earth.	
	SC.D.2.3.1 The student understands that quality of life is relevant to personal experience.	SC.D.2.3.1.1 knows ways to conserve and recycle resources (for example, develops and uses a personal action plan to use recyclable materials whenever possible).	Lesson 33: Resource Conservation Lesson 36: Environmental Laws and Course Project
	SC.D.2.3.2 The student knows the positive and negative consequences of human action on the Earth's systems.	SC.D.2.3.2.1 knows roles of various public and private environmental agencies (for example, Florida Water Management Districts, Environmental Protection Agency).	Lesson 36: Environmental Laws and Course Project

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SC.E Earth and Space	SC.E.1.3.1 The student understands the vast size of our Solar System and the relationship of the planets and their satellites.	SC.E.1.3.1.1 knows the relative sizes of planets.	
		SC.E.1.3.1.2 understands the distances of the planets and the asteroid belt from the Sun are vast.	
		SC.E.1.3.1.3 understands the relationship between the phases of the Moon and the positions of the Moon, Earth, and Sun as the Moon revolves around the Earth.	Lesson 19: Planet Earth
		SC.E.1.3.1.4 understands the revolution and rotation of the Moon relative to the Earth, and knows that the same side of the Moon always faces the Earth.	Lesson 19: Planet Earth
		SC.E.1.3.1.5 understands that the tilt of the Earth on its axis as it rotates causes seasonal changes.	Lesson 19: Planet Earth
	SC.E.1.3.2 The student knows that available data from various satellite probes show the similarities and differences among planets and their moons in the Solar System.	SC.E.1.3.2.1 knows characteristics of the inner planets and outer planets.	
		SC.E.1.3.2.2 knows basic features of the Moon and the moons of other planets.	
	SC.E.1.3.3 The student understands that our Sun is one of many stars in our galaxy.	SC.E.1.3.3.1 knows some of the constellations of stars in the sky.	
		SC.E.1.3.3.2 knows why stars appear to move across the sky.	Lesson 19: Planet Earth

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	SC.E.1.3.4 The student knows that stars appear to be made of similar chemical elements, although they differ in age, size, temperature, and distance.	SC.E.1.3.4.1 knows the life cycle of a star.	
		SC.E.1.3.4.2 knows the process used to determine the age of a star.	
SC.F Processes of Life	SC.F.1.3.1 The student understands that living things are composed of major systems that function in reproduction, growth, maintenance, and regulation.	SC.F.1.3.1.1 understands that the systems within living things respond to changes in the environment (for example, allergens and carcinogens).	Lesson 13: Nervous and Endocrine systems Lesson 15: Skeletal and Muscular systems
	SC.F.1.3.2 The student knows that the structural basis of most organisms is the cell and most organisms are single cells, while some, including humans, are multicellular.	SC.F.1.3.2.1 understands the concept of multicellular organisms.	
	SC.F.1.3.6 The student knows that the cells with similar functions have similar structures, whereas those with different structures have different functions.	SC.F.1.3.6.1 understands that there are many similarities among the great diversity of living things.	
	SC.F.1.3.7 The student knows that behavior is a response to the environment and influences growth, development, maintenance, and reproduction.	SC.F.1.3.7.1 determines the behavioral responses of different organisms to common stimuli (for example, temperature, light, pressure, moisture).	Lesson 17: Species and their environment

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	SC.F.2.3.1 The student knows the patterns and advantages of sexual and asexual reproduction in plants and animals.	SC.F.2.3.1.1 knows the differences between and advantages of sexual and asexual reproduction.	Lesson 16: The reproductive system
		SC.F.2.3.1.2 knows common types of asexual reproduction.	
	SC.F.2.3.3 The student knows that generally organisms in a population live long enough to reproduce because they have survival characteristics.	SC.F.2.3.3.1 knows the life cycles of a variety of organisms, including non-flowering and flowering plants, insects, amphibians, reptiles, birds, and mammals.	
SC.G How Living Things Interact with Their Environment	SC.G.1.3.1 The student knows that viruses depend on other living things.	SC.G.1.3.1.1 knows the unique characteristics of a virus that cause them to be considered living at some times and nonliving at others.	
		SC.G.1.3.1.2 knows ways that viruses depend on other living things.	
		SC.G.1.3.1.3 knows that viruses may cause diseases in other living things.	
	SC.G.1.3.2 The student knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment.	SC.G.1.3.2.1 knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment.	
	SC.G.1.3.3 The student understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships.	SC.G.1.3.3.1 knows how to design and use a dichotomous guide to identify organisms based on structural characteristics.	

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	SC.G.1.3.4 The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system.	SC.G.1.3.4.1 understands how the carbon dioxide-oxygen cycle, water cycle, and nitrogen cycle are important for the survival of organisms.	PARTIAL: Lesson 22: Earth's Water (others covered in Science 6)
		SC.G.1.3.4.2 knows the interrelationships in a local ecosystem.	Lesson 17: Species and their environment Lesson 30: Threatened and endangered species
	SC.G.1.3.5 The student knows that life is maintained by a continuous input of energy from the sun and by the recycling of the atoms that make up the molecules of living organisms.	SC.G.1.3.5.1 understands ways matter is recycled (for example, water cycle, carbon cycle).	PARTIAL: Lesson 22: Earth's Water (others covered in Science 6)
		SC.G.1.3.5.2 knows that life on earth is dependent upon a continuous supply of energy from the sun.	Lesson 9: Energy: Sound and Light
		SC.G.1.3.5.3 understands that individual food chains occur within a food web and that both show the flow of energy.	

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	SC.G.2.3.1 The student knows that some resources are renewable and others are nonrenewable.	SC.G.2.3.1.1 understands the importance of informed use of natural resources.	Lesson 22: Earth's Water Lesson 23: Nonrenewable natural resources Lesson 27: Ecosystem changes
	SC.G.2.3.2 The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system.	SC.G.2.3.2.1 knows biotic and abiotic components in a small, local area and ways they interact (for example, field, pond).	Lesson 25: Wetlands Lesson 26: Oceans and Shorelines
		SC.G.2.3.2.2 understands the consequences that might result when changes occur in populations.	Lesson 27: Ecosystem Changes Lesson 30: Threatened and Endangered Species
		SC.G.2.3.2.3 understands that changes in one part of the ecosystem will affect other parts of the ecosystem.	Lesson 27: Ecosystem Changes

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	SC.G.2.3.3 The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth.	SC.G.2.3.3.1 knows possible causes for a species to become threatened, endangered, or extinct.	Lesson 30: Threatened and endangered species
	SC.G.2.3.4 The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems.	SC.G.2.3.4.1 knows ways that human activities may deliberately or inadvertently alter the equilibrium in the ecosystem.	Lesson 27: Ecosystem changes
SC.H The Nature of Science	SC.H.1.3.1 The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way.	SC.H.1.3.1.1 understands that new scientific knowledge is often used to reevaluate existing theories.	Lesson 4: Science and Society Lesson 5: Technology
	SC.H.1.3.2 The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects.	SC.H.1.3.2.1 uses systematic, scientific processes to solve problems and reach conclusions.	Lesson 2: Variables in Scientific Investigations
	SC.H.1.3.3 The student knows that science disciplines differ from one another in topic, techniques, and outcomes, but that they share a common purpose, philosophy, and enterprise.	SC.H.1.3.3.1 knows that science disciplines differ from one another in topic, techniques, and outcomes but that they share a common purpose, philosophy, and enterprise.	

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	SC.H.1.3.4 The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society.	SC.H.1.3.4.1 extends and refines use of accurate records, openness, and replication of experiments to ensure credibility.	Lesson 3: Organizing data in tables and graphs Lesson 4: Science and Society
	SC.H.1.3.5 The student knows that a change in one or more variables may alter the outcome of an investigation.	SC.H.1.3.5.1 extends and refines knowledge of how to identify the independent and dependent variables in an experiment.	Lesson 2: Variables in Scientific Investigations
		SC.H.1.3.5.2 extends and refines use of appropriate experimental design, with consideration for rules, time, and materials required to solve a problem.	Lesson 1: Tools of Science Lesson 6: Technological Design
		SC.H.1.3.5.3 uses rules, time, and materials in ways that ensure the identification and separation of variables in an experiment to solve a problem.	Lesson 1: Tools of Science Lesson 2: Variables in Scientific Investigations
	SC.H.1.3.6 The student recognizes the scientific contributions that are made by individuals of diverse backgrounds, interests, talents, and motivations.	SC.H.1.3.6.1 extends and refines knowledge of selected scientists and their accomplishments and recognizes their varied backgrounds, talents, interests, and goals.	

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	SC.H.1.3.7 The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study.	SC.H.1.3.7.1 uses criteria necessary to determine the validity of a scientific experiment.	
	SC.H.2.3.1 The student recognizes that patterns exist within and across systems.	SC.H.2.3.1.1 knows that natural events (for example, seasons, hurricanes) occur in patterns.	
	SC.H.3.3.1 The student knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	SC.H.3.3.1.1 knows that science ethics demand that scientists must not knowingly subject coworkers, students, the neighborhood, or the community to health or property risks.	Lesson 4: Science and Society
		SC.H.3.3.1.2 uses appropriate procedures for safety in the classroom, home, and community.	Lesson 1: Tools of Science
	SC.H.3.3.2 The student knows that special care must be taken in using animals in scientific research.	SC.H.3.3.2.1 knows the care, safe practices, and ethical treatment that are appropriate when using animals in field and laboratory research.	
	SC.H.3.3.3 The student knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.	SC.H.3.3.3.1 knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate.	
	SC.H.3.3.4 The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values.	SC.H.3.3.4.1 knows that the designs used for technological improvements should consider the values of society (economic, political, social, ethical, aesthetic).	Lesson 5: Technology Lesson 6: Technological Design

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		SC.H.3.3.4.2 uses knowledge of political, social, and economic ramifications of certain scientific research to evaluate its role in society.	Lesson 4: Science and Society
	SC.H.3.3.5 The student understands that contributions to the advancement of science, mathematics, and technology have been made by different kinds of people, in different cultures, at different times and are an intrinsic part of the development of human culture.	SC.H.3.3.5.1 knows that scientific and technological contributions are made by individuals of different ethnic, economic, and cultural backgrounds.	
	SC.H.3.3.6 The student knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone.	SC.H.3.3.6.1 knows that scientific contributions may result in diverse technological products.	Lesson 5: Technology
	SC.H.3.3.7 The student knows that computers speed up and extend people's ability to collect, sort, and analyze data; prepare research reports; and share data and ideas with others.	SC.H.3.3.7.1 extends and refines use of a computer to collect, analyze, and report scientific findings.	Lesson 1: Tools of Science Lesson 3: Organizes data into tables and graphs