COMPONENT	OBJECTIVES	COMPETENCY
I The Nature of Science as Inquiry	1. Identify Questions That Can Be Answered Through Scientific Investigations. Students should develop the ability to refine and refocus broad and ill-defined questions. An important aspect of this ability consists of students' ability to clarify questions and inquiries and direct them toward objects and phenomena that can be described, explained, or predicted by scientific investigations. Students should develop the ability to identify their questions with scientific ideas, concepts, and quantitative relationships that guide investigation. **(SC.H.1.3.2)** 2. Design And Conduct A Scientific Investigation. Students should develop general abilities, such as systematic observation, making accurate measurements, and identifying and controlling variables. They should also develop the ability to clarify their ideas that are influencing and guiding the inquiry, and to understand how those ideas compare with current scientific knowledge. Students can learn to formulate questions, design investigations, execute investigations, interpret data, use evidence to generate explanations, propose alternative explanations, and critique explanations and procedures. 3. Use Appropriate Tools And Techniques To Gather, Analyze, And Interpret Data. The use of tools and techniques, including mathematics, will be guided by the question asked and the investigations students design. The use of computers for the collection, summary, and display of evidence is part of this standard. Students should be able to access, gather, store, retrieve, and organize data, using hardware and software designed for these purposes. 4. Develop Descriptions, Explanations, Predictions, And Models Using Evidence. Students should base their explanation on what they observed, and as they develop cognitive skills, they should be able to differentiate explanation from description - providing causes for effects and establishing relationships based on evidence and logical argument. This requires a subject matter knowledge base so the students can effectively conduct investigations, because developing explanations establishes connections between the content of science and the contexts within which students develop new knowledge. **(SC.A.1.3.0)**	A. Participate in a variety of activities that develop all students' abilities to: identify scientific questions; design and conduct investigations; use appropriate tools and techniques; compose descriptions, explanations, predictions, and models using evidence; think critically and logically to make the relationships between evidence and explanations; communicate scientific procedures and explanations; and use mathematics in all aspects of scientific inquiry. **(SC.H.1.3.5)**

COMPONENT	OBJECTIVES	COMPETENCY
	5. Think Critically And Logically To Make The Relationships Between Evidence And Explanations. Thinking critically about evidence includes deciding what evidence should be used and accounting for anomalous data. Specifically, students should be able to review data from a simple experiment, summarize the data, and form a logical argument about the cause-and-effect relationships in the experiment. Students should begin to state some explanations in terms of the relationship between two or more variables. **(SC.H.1.3.4)** 6. Recognize And Analyze Alternative Explanations And Predictions. Students should develop the ability to listen to and respect the explanations proposed by other students. They should remain open to and acknowledge different ideas and explanations, be able to accept the skepticism of others, and consider alternative explanations. **(SC.H.1.3.5)** 7. Communicate Scientific Procedures And Explanations. With practice, students should become competent at communicating experimental methods, following instructions, describing observations, summarizing the results of other groups, and telling other students about investigations and explanations. **(SC.H.1.3.4)** 8. Use Mathematics In All Aspects Of Scientific Inquiry. Mathematics is essential to asking and answering questions about the natural world. Mathematics can be used to ask questions; to gather, organize, and present data; and to structure convincing explanations. 9. Recognize that different kinds of questions suggest different kinds of scientific investigations. Some investigations involve observing and describing objects, organisms, or events; some involve collecting specimens; some involve experiments; some involve seeking more information; some involve discovery of new objects and phenomena; and some involve making models. **(SC.H.1.3.1)**	

COMPONENT	OBJECTIVES	COMPETENCY
	10. Recognize that current scientific knowledge and understanding guide scientific investigations. Different scientific domains employ different methods, core theories, and standards to advance scientific knowledge and understanding. **(SC.H.1.3.2)**	
	1. Recognize that mathematics is important in all aspects of scientific inquiry. 2. Recognize that technology used to gather data enhances accuracy and allows scientists to analyze and quantify results of investigations, and that this knowledge and technology can eventually become available to everyone. **(SC.H.3.3.6)** 3. Recognize that scientific explanations emphasize evidence, have logically consistent arguments, and use scientific principles, models, and theories. The scientific community accepts and uses such explanations until displaced by better scientific ones. When such displacement occurs, science advances. **(SC.H.1.3.1)** 4. Recognize that science advances through legitimate skepticism. Asking questions and querying other scientists' explanations is part of scientific inquiry. Scientists evaluate the explanations proposed by other scientists by examining evidence, comparing evidence, identifying faulty reasoning, pointing out statements that go beyond the evidence, and suggesting alternative explanations for the same observations. 5. Recognize that scientific investigations sometimes result in new ideas and phenomena for study, generate new methods or procedures for an investigation, or develop new technologies to improve the collection of data. All of these results can lead to new investigations.	B. Participate in a variety of activities that develop all students' understandings of the nature of scientific inquiry.

COMPONENT	OBJECTIVES	COMPETENCY
	1. Recognize that women and men of various social and ethnic backgrounds - and with diverse interests, talents, qualities, and motivations - engage in the activities of science, engineering, and related fields such as the health professions. Some scientists work in teams, and some work alone, but all communicate extensively with others. 2. Recognize that science requires different abilities, depending on such factors as the field of study and type of inquiry. Science is very much a human endeavor, and the work of science relies on basic human qualities, such as reasoning, insight, energy, skill, and creativity - as well as on scientific habits of mind, such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas. 3. Recognize that scientists formulate and test their explanations of nature using observation, experiments, and theoretical and mathematical models. Although all scientific ideas are tentative and subject to change and improvement in principle, for most major ideas in science, there is much experimental and observational confirmation. Those ideas are not likely to change greatly in the future. Scientists do and have changed their ideas about nature when they encounter new experimental evidence that does not match their existing explanations. 4. Recognize that in areas where active research is being pursued and in which there is not a great deal of experimental or observational evidence and understanding, it is normal for scientists to differ with one another about the interpretation of the evidence or theory being considered. Different scientists might publish conflicting experimental results or might draw different conclusions from the same data. Ideally, scientists acknowledge such conflict and work towards finding evidence that will resolve their disagreement.	C. As a result of activities, all students should develop understanding of science as a human endeavor and the nature and history of science.

COMPONENT	OBJECTIVES	COMPETENCY
	5. Recognize that it is part of scientific inquiry to evaluate the results of scientific investigations, experiments, observations, theoretical models, and the explanations proposed by other scientists. Evaluation includes reviewing the experimental procedures, examining the evidence, identifying faulty reasoning, pointing out statements that go beyond the evidence, and suggesting alternative explanations for the same observations. Although scientists may disagree about explanations of phenomena, about interpretations of data, or about the value of rival theories, they do agree that questioning, response to criticism, and open communication are integral to the process of science. As scientific knowledge evolves, major disagreements are eventually resolved through such interactions between scientists. 6. Research individuals who have contributed to the traditions of science to provide further understanding of scientific inquiry, science as a human endeavor, the nature of science, and the relationships between science and society. 7. Recognize, in historical perspective, that science has been practiced by different individuals in different cultures. In looking at the history of many peoples, one finds that scientists and engineers of high achievement are considered to be among the most valued contributors to their culture. 8. Trace the history of science to show how difficult it was for scientific innovators to break through the accepted ideas of their time to reach the conclusions that we currently take for granted.	

COMPONENT	OBJECTIVES	COMPETENCY
II Life Science	1. Based upon activities observing a variety of characteristic organisms, describe different levels of organization for structure and function include cells, organs, tissues, organ systems, whole organisms, and ecosystems. **(SC.F.1.3.2)** 2. Identify sources of diseases (bacteria, virus, fungus, etc.) and describe how they affect the plant and animal kingdoms. **(SC.G.1.3.1)** 3. Based upon activities observing a variety of characteristic organisms, describe examples of how all organisms are composed of cells, the fundamental unit of life, understanding that most organisms are single cells and that other organisms, including humans, are multicellular. 4. Based upon activities observing a variety of characteristic organisms, describe examples of how cells carry on the many functions needed to sustain life including how they grow and divide, thereby producing more cells. This requires that they take in nutrients, which they use to provide energy for the work that cells do and to make the materials that a cell or an organism needs. **(SC.F.1.3.3)** 5. Based upon activities observing a variety of characteristic organisms, describe how specialized cells perform specialized functions in multicellular organisms. Groups of specialized cells cooperate to form a tissue, such as a muscle. Different tissues are in turn grouped together to form larger functional units, called organs. Each type of cell, tissue, and organ has a distinct structure and set of functions that serve the organism as a whole. **(SC.F.1.3.1)** 6. Based upon activities, describe the systems responsible for digestion, respiration, reproduction, circulation, excretion, movement, control, coordination, and protection from disease in the human organism and how these systems interact with one another.	A. Give examples of the complementary nature of structure and function in organisms at different levels of organization such as cells, tissues, organs, organ systems, whole organisms, and ecosystems. **(SC.G.1.3.2)**

COMPONENT	OBJECTIVES	COMPETENCY
	7. Research examples of how disease is a breakdown in structures or functions of an organism and that some diseases are the result of intrinsic failures of the system while others are the result of damage caused by infection by other organisms. **(SC.G.1.3.1)** 8. Describe examples of how all organisms must be able to obtain and use resources, grow, reproduce, and maintain stable internal conditions while living in a constantly changing external environment. **(SC.F.1.3.5)** 9. Explain why the regulation of an organism's internal environment involves sensing the internal environment and changing physiological activities to keep conditions within the range required to survive. 10. Describe examples of how behavior is one kind of response an organism can make to an internal or environmental stimulus. A behavioral response requires coordination and communication at many levels, including cells, organ systems, and whole organisms. Behavioral response is a set of actions determined in part by heredity and in part from experience. **(SC.F.1.3.7)** 11. Observe common aquatic, microscopic organisms. **(SC.F.1.3.2)** 12. Recognize 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)**	

COMPONENT	OBJECTIVES	COMPETENCY
III Earth and Space Science	1. Describe the Earth as the third planet from the sun in a system that includes the moon, the sun, eight other planets and their moons, and smaller objects, such as asteroids and comets. The sun, an average star, is the central and largest body in the solar system. **(SC.E.1.3.1)** 2. Describe how objects in the solar system are in regular and predictable motion. Those motions explain such phenomena as the day, the year, phases of the moon, and eclipses. 3. Through observations and simple investigations, recognize gravity as the force that keeps planets in orbit around the sun and governs the rest of the motion in the solar system. Gravity alone holds us to the Earth's surface and the interactions of the sun's and moon's gravity explains the phenomena of the tides. **(SC.C.2.3.7)** 4. Using data from research, describe the sun as the major source of energy for phenomena on the Earth's surface, such as growth of plants, winds, ocean currents, and the water cycle. Seasons result from variations in the amount of the sun's energy hitting the surface, due to the tilt of the Earth's rotation on its axis and the length of the day. 5. Describe the characteristics of stars, such as our Sun. **(SC.E.1.3.3)** 6. Describe how stars are organized into larger systems called galaxies which make up the Universe. **(SC.E.2.3.1)**	A. Recognize that the sun is the major source of energy for phenomena on the Earth's surface, and explain the relationship between the location of the Earth in the solar system and motions resulting from these interactions.

COMPONENT	OBJECTIVES	COMPETENCY
IV Physical Science	1. As a result of varied laboratory activities, describe characteristic properties of substances, such as density, boiling point, and solubility, all of which are independent of the amount of the sample. **(SC.A.1.3.1)** 2. As a result of experimentation, describe how a mixture of substances often can be separated into the original substances using one or more of the characteristic properties. 3. As a result of varied laboratory activities, distinguish between mass and weight. **(SC.A.1.3.2)** 4. As a result of varied laboratory activities, explain that equal volumes of different substances may have different masses. **(SC.A.1.3.6)** 5. Recognize by using models and diagrams that particles in solids are close together and do not move around easily; in liquids, tend to move farther apart; and in gases, are quite far apart and move around freely. **(SC.A.1.3.4)**	A. Identify and describe a substance by characteristic properties, such as density, boiling point, and solubility, and how they are independent of the amount of the sample. **(SC.A.1.3.5)**
V The Interaction of Society and the Environment	1. Identify the risks associated with biological hazards (pollen, viruses, bacteria, and parasites). **(SC.G.1.3.1)** 2. Identify and explain those factors which contribute to or harm environmental quality. **(SC.G.2.3.3)** 3. Investigate how the causes of environmental damage and resource depletion vary from region to region and from country to country. **(SC.D.2.3.2)** 4. Identify and explain how people have used scientific principles in land use (erosion, wildlife habitat loss, deforestation, reclamation, urban development). **(SC.D.2.3.2)**	A. Describe how natural hazards, events that change or destroy human and wildlife habitats, damage property and harm or kill humans. **(SC.G.2.3.4)**

COMPONENT	OBJECTIVES	COMPETENCY
VI Science and Technology Design	1. Identify and Solve Appropriate Problems for Technological Design. Demonstrate the ability to identify a specified need and consider its various aspects. After talking to different potential users or beneficiaries and accounting for some needs, recognize that the cultural backgrounds and beliefs of different groups can affect the criteria for a suitable product. **(SC.H.3.3.5)** 2. Design A Solution Or Product. Make and compare different proposals in the light of selected criteria, consider constraints (such as cost, time, tradeoffs, and materials needed), and communicate ideas with drawings and simple models. **(SC.H.3.3.5)** 3. Implement A Proposed Design. Organize materials and other resources, plan the work, make good use of group collaboration where appropriate, choose suitable tools and techniques, and work with appropriate measurement methods to ensure adequate accuracy. **(SC.H.3.3.5)** 4. Evaluate Completed Technological Designs Or Products. Use criteria relevant to the original purpose or need, consider a variety of factors that might affect acceptability and suitability for intended users or beneficiaries, and develop measures of quality with respect to such criteria and factors. Suggest improvements and, for the products, try proposed modifications. **(SC.H.3.3.5)** 5. Communicate The Process Of Technological Design. Review and describe any completed piece of work and identify the stages of problem identification, solution design, implementation, and evaluation. **(SC.H.3.3.5)** 6. Recognize that technological designs have constraints, are not perfect, have intended benefits and unintended consequences. **(SC.H.3.3.5)**	A. Collaboratively design and carry out a technology plan that is a solution or a product to an identified problem and communicate the results of the project. **(SC.H.3.3.5)**

COMPONENT	OBJECTIVES	COMPETENCY
VII Comprehensive Health	1. Recognize that regular exercise is important to the maintenance and improvement of health. The benefits of physical fitness include maintaining healthy weight, having energy and strength for routine activities, good muscle tone, bone strength, strong heart/lung systems, and improved mental health. Personal exercise, especially developing cardiovascular endurance, is the foundation of physical fitness. 2. Recognize that the potential for accidents and the existence of hazards imposes the need for injury prevention. Safe living involves the development and use of safety precautions and the recognition of risk in personal decisions. Injury prevention has personal and social dimensions. 3. Research the relationship of the use of tobacco and the increased risk of illness. Students should understand the influence of short-term social and psychological factors that lead to tobacco use, and the possible long-term detrimental effects of smoking and chewing tobacco. 4. Recognize that alcohol and other drugs are often abused substances. Such drugs change how the body functions and can lead to addiction. Food provides energy and nutrients for growth and development. Nutrition requirements vary with body weight, age, sex, activity, and body functioning. 5. Recognize that sex drive is a natural human function that requires understanding. Sex is also a prominent means of transmitting diseases. The diseases can be prevented through a variety of precautions. 6. Investigate substances (for example, radon and lead) in natural environments that are harmful to human beings. Maintaining environmental health involves establishing or monitoring quality standards related to use of soil, water, and air.	A. After utilizing the appropriate components of the Human Growth and Development, Health, Prevention of HIV/AIDS, and Substance Abuse Curriculums, the student will develop and promote a healthy lifestyle.