KENOSHA UNIFIED SCHOOL DISTRICT NO. 1
CURRICULUM AND INSTRUCTIONAL SERVICES

STANDARDS AND BENCHMARKS
SCIENCE

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
STANDARD A: SCIENCE CONNECTIONS—STUDENTS WILL UNDERSTAND AND DESCRIBE THE UNIFYING CONCEPTS AND PROCESSES AMONG SCIENCE TOPICS WHICH LEAD TO CONNECTIONS BETWEEN PHYSICAL SCIENCE, EARTH/SPACE SCIENCE, AND LIFE SCIENCE.												
A-1: Systems	Most things are made of parts, and some things may not work if parts are missing. When parts are put together, they can do things that they couldn't do alone. A-1.k	Most things are made of parts, and some things may not work if parts are missing. When parts are put together, they can do things that they couldn't do alone. A-1.1	Most things are made of parts, and some things may not work if parts are missing. When parts are put together, they can do things that they couldn't do alone. A-1.2	In something that consists of many parts, the parts usually influence one another. Something may not work as well (or at all) if a part of it is missing, broken, worn out, mismatched, or misconnected. A-1.3	In something that consists of many parts, the parts usually influence one another. Something may not work as well (or at all) if a part of it is missing, broken, worn out, mismatched, or misconnected. A-1.4	In something that consists of many parts, the parts usually influence one another. Something may not work as well (or at all) if a part of it is missing, broken, worn out, mismatched, or misconnected. A-1.5	***A system can include processes as well as things.*** ***Any system is usually connected to other systems, both internally and externally.*** ***A-1.6***	***A system can include processes as well as things.*** ***Any system is usually connected to other systems, both internally and externally.*** ***A-1.7***	***A system can include processes as well as things.*** ***Any system is usually connected to other systems, both internally and externally.*** A-1.8	A system has properties that are different from those of its parts. The successful operation of a system involves feedback. It may not be possible to predict accurately the result of changing some part of a system. A-1.9	A system has properties that are different from those of its parts. The successful operation of a system involves feedback. It may not be possible to predict accurately the result of changing some part of a system. A-1.10	A system has properties that are different from those of its parts. The successful operation of a system involves feedback. It may not be possible to predict accurately the result of changing some part of a system. A-1.11
A-2: Models	A model of something is different from the real thing but can be used to learn something about the real thing. A-2.k	A model of something is different from the real thing but can be used to learn something about the real thing. A-2.1	A model of something is different from the real thing but can be used to learn something about the real thing. A-2.2	Seeing how a model works after changes are made to it may suggest how the real thing would work if the same were done to it. Geometric figures, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representations can never be exact in every detail. A-2.3	***Seeing how a model works after changes are made to it may suggest how the real thing would work if the same were done to it.*** ***Geometric figures, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representations can never be exact in every detail.*** ***A-2.4***	***Seeing how a model works after changes are made to it may suggest how the real thing would work if the same were done to it.*** ***Geometric figures, sketches, number lines, maps, and stories can be used to represent objects, events, and processes in the real world, although such representations can never be exact in every detail.*** ***A-2.5***	***Models are often used to think about processes that are not easily observed.*** Different models can be used to represent the same thing. ***A-2.6***	***Models are often used to think about processes that are not easily observed.*** ***Different models can be used to represent the same thing.*** ***A-2.7***	***Models are often used to think about processes that are not easily observed.*** ***Different models can be used to represent the same thing.*** ***A-2.8***	***Models are often used to think about processes that are not easily observed.*** ***The usefulness of a model can be tested by comparing its predictions to actual observations in the real world.*** ***A-2.9***	***The basic idea of mathematical modeling is to find a mathematical relationship that behaves in the same ways as the objects or processes under investigation.*** ***The usefulness of a model can be tested by comparing its predictions to actual observations in the real world.*** ***A-2.10***	***The basic idea of mathematical modeling is to find a mathematical relationship that behaves in the same ways as the objects or processes under investigation.*** ***The usefulness of a model can be tested by comparing its predictions to actual observations in the real world.*** ***A-2.11***

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
A-3: Change and Constancy	***Things change in some ways and stay the same in some ways.*** ***People can keep track of change.*** ***Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements.*** ***Some changes are so slow or so fast that they are hard to see.*** ***A-3.k***	***Things change in some ways and stay the same in some ways.*** ***People can keep track of change.*** ***Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements.*** ***Some changes are so slow or so fast that they are hard to see.*** ***A-3.1***	***Things change in some ways and stay the same in some ways.*** ***People can keep track of change.*** ***Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements.*** ***Some changes are so slow or so fast that they are hard to see.*** ***A-3.2***	***Some features of things may stay the same, even when other features change.*** ***Things change in steady, repetitive, or irregular ways—or sometimes in more than one way at the same time. Often, the best way to tell which kinds of change are happening is to make a table or graph of measurements.*** ***A-3.3***	***Some features of things may stay the same even when other features change.*** ***Things change in steady, repetitive, or irregular ways—or sometimes in more than one way at the same time. Often, the best way to tell which kinds of change are happening is to make a table or graph of measurements.*** ***A-3.4***	***Some features of things may stay the same even when other features change.*** ***Things change in steady, repetitive, or irregular ways—or sometimes in more than one way at the same time. Often the best way to tell which kinds of change are happening is to make a table or graph of measurements.*** ***A-3.5***	***Physical and biological systems tend to change until they become stable and then remain that way unless their surroundings change.*** ***A-3.6***	***Physical and biological systems tend to change until they become stable and then remain that way unless their surroundings change.*** Many systems contain feedback mechanisms that serve to keep changes within specified limits. ***Equations can be used to summarize how the quantity of something changes over time or in response to other changes.*** ***A-3.7***	***Physical and biological systems tend to change until they become stable and then remain that way unless their surroundings change.*** ***Many systems contain feedback mechanisms that serve to keep changes within specified limits.*** ***Equations can be used to summarize how the quantity of something changes over time or in response to other changes.*** ***A-3.8***	A system in equilibrium may return to the same state of equilibrium if the disturbances it experiences are small. Large disturbances may cause it to escape that equilibrium and eventually settle into some other state of equilibrium. The concept of the conservation of matter and energy is involved in all fields of science. Graphs and equations are useful ways for depicting and analyzing patterns of change. In evolutionary change, the present arises gradually from the materials and forms of the past. The precise behavior of most systems is unpredictable. A-3.9	A system in equilibrium may return to the same state of equilibrium if the disturbances it experiences are small. Large disturbances may cause it to escape that equilibrium and eventually settle into some other state of equilibrium. The concept of the conservation of matter and energy is involved in all fields of science. Graphs and equations are useful ways for depicting and analyzing patterns of change. In evolutionary change, the present arises gradually from the materials and forms of the past. The precise behavior of most systems is unpredictable. A-3.10	A system in equilibrium may return to the same state of equilibrium if the disturbances it experiences are small. Large disturbances may cause it to escape that equilibrium and eventually settle into some other state of equilibrium. The concept of the conservation of matter and energy is involved in all fields of science. Graphs and equations are useful ways for depicting and analyzing patterns of change. In evolutionary change, the present arises gradually from the materials and forms of the past. The precise behavior of most systems is unpredictable. A-3.11

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
A-4: Scale	Things in nature and things people make have very different sizes, weights, ages, and speeds. A-4.k	Things in nature and things people make have very different sizes, weights, ages, and speeds. A-4.1	Things in nature and things people make have very different sizes, weights, ages, and speeds. A-4.2	Almost anything has limits on how big or small it can be. Finding out what the biggest and the smallest possible values of something are often as revealing as knowing what the usual value is. A-4.3	Almost anything has limits on how big or small it can be. Finding out what the biggest and the smallest possible values of something are often as revealing as knowing what the usual value is. A-4.4	Almost anything has limits on how big or small it can be. Finding out what the biggest and the smallest possible values of something are often as revealing as knowing what the usual value is. A-4.5	As the complexity of any system increases, gaining an understanding of it depends increasingly on summaries, such as averages and ranges, and on descriptions of typical examples of that system. A-4.6	***As the complexity of any system increases, gaining an understanding of it depends increasingly on summaries, such as averages and ranges, and on descriptions of typical examples of that system.*** A-4.7	***As the complexity of any system increases, gaining an understanding of it depends increasingly on summaries, such as averages and ranges, and on descriptions of typical examples of that system.*** A-4.8	Representing large numbers in terms of powers of ten makes it easier to think about them and to compare things that are greatly different. Large changes in scale typically change the way that things work in physical or biological systems. As the number of parts of a system grows in size, the number of possible internal interactions increases much more rapidly. A-4.9	***Representing large numbers in terms of powers of ten makes it easier to think about them and to compare things that are greatly different.*** Large changes in scale typically change the way that things work in physical or biological systems. As the number of parts of a system grows in size, the number of possible internal interactions increases much more rapidly. A-4.10	***Representing large numbers in terms of powers of ten makes it easier to think about them and to compare things that are greatly different.*** Large changes in scale typically change the way that things work in physical or biological systems. As the number of parts of a system grows in size, the number of possible internal interactions increases much more rapidly. A-4.11
A-5: Connections	A-5.k	The general domains of science, which are physical, earth, and life, are connected. A-5.1	The general domains of science, which are physical, earth, and life, are connected. A-5.2	The general domains of science, which are physical, earth, and life, are connected. A-5.3	The study of earth and space science, life and environmental science, and physical science are interconnec-ted by unifying themes. A-5.4	The study of earth and space science, life and environmental science, and physical science are interconnec-ted by unifying themes. A-5.5	The study of earth and space science, life and environmental science, and physical science are interconnec-ted by unifying themes. A-5.6	The study of earth and space science, life and environmental science, and physical science are interconnec-ted by unifying themes. A-5.7	The study of earth and space science, life and environmental science, and physical science are interconnec-ted by unifying themes. A-5.8	Any event, issue, or problem in the natural or de-signed world can be associated with the general domains of science and the unifying themes of science. Many scientific investigations require the contributions of individuals from different disci-plines, including engineering. A-5.9	Any event, issue, or problem in the natural or de-signed world can be associated with the general domains of science and the unifying themes of science. Many scientific investigations require the contributions of individuals from different disci-plines, including engineering. A-5.10	Any event, issue, or problem in the natural or de-signed world can be associated with the general domains of science and the unifying themes of science. Many scientific investigations require the contributions of individuals from different disci-plines, including engineering. A-5.11

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
STANDARD B: NATURE OF SCIENCE—STUDENTS WILL UNDERSTAND THAT THE STUDY OF SCIENCE IS ONGOING, AND THEORIES AND CONCEPTS IN SCIENCE CHANGE OVER TIME AS NEW EVIDENCE IS FOUND. SCIENTIFIC EXPLANATIONS MUST ADHERE TO CRITERIA SUCH AS: A PROPOSED EXPLANATION MUST BE LOGICALLY CONSISTENT, IT MUST ABIDE BY THE RULES OF EVIDENCE, IT MUST BE OPEN TO QUESTIONS AND POSSIBLE MODIFICATION, AND IT MUST BE BASED ON HISTORICAL AND CURRENT SCIENTIFIC KNOWLEDGE.												
B-1: Science is a Human Endeavor, and There are Many Commonly Known Careers in Science.	***Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.*** ***Many people choose science as a career and devote their lives to studying it.*** ***B-1.k***	***Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.*** ***Many people choose science as a career and devote their lives to studying it.*** In science it is helpful to work with a team and share findings with others. ***B-1.1***	***Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.*** ***Many people choose science as a career and devote their lives to studying it.*** In science it is helpful to work with a team and share findings with others. ***B-1.2***	***Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.*** ***Many people choose science as a career and devote their lives to studying it.*** In science it is helpful to work with a team and share findings with others. ***B-1.3***	***Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.*** ***Many people choose science as a career and devote their lives to studying it.*** In science it is helpful to work with a team and share findings with others. B-1.4	***Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.*** ***Many people choose science as a career and devote their lives to studying it.*** In science it is helpful to work with a team and share findings with others. B-1.5	***Women and men of various social and ethnic backgrounds engage in the activities of science, engineering, and related fields.*** ***Many people choose science as a career and devote their lives to studying it.*** Some scientists work alone and some in teams, but all communicate extensively with others. B-1.6	***Women and men of various social and ethnic backgrounds engage in the activities of science, engineering, and related fields.*** ***Many people choose science as a career and devote their lives to studying it.*** Some scientists work alone and some in teams, but all communicate extensively with others. B-1.7	***Women and men of various social and ethnic backgrounds engage in the activities of science, engineering, and related fields.*** ***Many people choose science as a career and devote their lives to studying it.*** Some scientists work alone and some in teams, but all communicate extensively with others. B-1.8	Scientists in different disciplines ask different questions, use different methods of investigation, and accept different types of evidence to support their explanations. ***Many people choose science as a career and devote their lives to studying it.*** Scientists value peer review, truthful reporting about the methods and outcomes of investigations, and making public the results of work. B-1.9	Scientists in different disciplines ask different questions, use different methods of investigation, and accept different types of evidence to support their explanations. ***Many people choose science as a career and devote their lives to studying it.*** Scientists value peer review, truthful reporting about the methods and outcomes of investigations, and making public the results of work. B-1.10	Scientists in different disciplines ask different questions, use different methods of investigation, and accept different types of evidence to support their explanations. ***Many people choose science as a career and devote their lives to studying it.*** Scientists value peer review, truthful reporting about the methods and outcomes of investigations, and making public the results of work. B-1.11
B-2: Nature of Scientific Process and Knowledge	***Science is based on questions.*** ***The job of a scientist is to construct ideas and explanations.*** Scientific knowledge may change when new things are learned. Scientists make the results of	***Science is based on questions.*** ***The job of a scientist is to construct ideas and explanations.*** Scientific knowledge may change when new things are learned. Scientists make the results of	***Science is based on questions.*** ***The job of a scientist is to construct ideas and explanations.*** Scientific knowledge may change when new things are learned. Science experiments will	***Science is based on questions.*** ***The job of a scientist is to construct ideas and explanations.*** ***Scientific knowledge may change when new things are learned.*** Science experiments will	***Science is based on questions.*** ***The job of a scientist is to construct ideas and explanations.*** ***Scientific knowledge may change when new things are learned.*** ***Science experiments will***	***Science is based on questions.*** ***The job of a scientist is to construct ideas and explanations.*** ***Scientific knowledge may change when new things are learned.*** ***Science experiments will***	***Scientists formulate and test their explanations of nature using observations and experiments.*** ***It is part of scientific inquiry to evaluate the results of scientific investigations, experiments, observations, theoretical***	***Scientists formulate and test their explanations of nature using observations, experiment, and theoretical and mathematical models.*** ***It is part of scientific inquiry to evaluate the results of scientific investigations,***	***Scientists formulate and test their explanations of nature using observations, experiments, and theoretical and mathematical models.*** ***It is part of scientific inquiry to evaluate the results of scientific investigations,***	***Scientists strive for the best possible explanations about the natural world.*** ***Scientific explanations must be consistent with experimental and observational evidence.*** ***Scientific knowledge is subject to change***	Scientists strive for the best possible explanations about the natural world. Scientific explanations must be consistent with experimental and observational evidence. Scientific knowledge is subject to change	Scientists strive for the best possible explanations about the natural world. Scientific explanations must be consistent with experimental and observational evidence. Scientific knowledge is subject to change

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
	their investigations public. B-2.k	their investigations public. Scientists use different kinds of investigations depending on the questions they are trying to answer. B-2.1	usually work the same way when repeated under similar conditions. ***Scientists make the results of their investigations public***; they describe the investigations in ways that enable others to repeat the investigations. Scientists use different kinds of investigations depending on the questions they are trying to answer. B-2.2	usually work the same way when repeated under similar conditions. ***Scientists make the results of their investigations public;*** they describe the investigations in ways that enable others to repeat the investigations. Scientists use different kinds of investigations depending on the questions they are trying to answer. B-2.3	***usually work the same way when repeated under similar conditions.*** ***Scientists make the results of their investigations public; they describe the investigations in ways that enable others to repeat the investigations.*** Scientists use different kinds of investigations depending on the questions they are trying to answer. B-2.4	***usually work the same way when repeated under similar conditions.*** ***Scientists make the results of their investigations public; they describe the investigations in ways that enable others to repeat the investigations.*** ***Scientists use different kinds of investigations depending on the questions they are trying to answer.*** B-2.5	***models, and the explanations proposed by other scientists.*** It is common for scientists to differ with one another about the interpretation of the evidence or theory being considered. B-2.6	***experiments, observations, theoretical models, and the explanations proposed by other scientists.*** It is common for scientists to differ with one another about the interpretation of the evidence or theory being considered. B-2.7	***experiments, observations, theoretical models, and the explanations proposed by other scientists.*** It is common for scientists to differ with one another about the interpretation of the evidence or theory being considered. B-2.8	***as new evidence becomes available.*** Mathematical tools and models guide and improve the posing of questions, gathering data, constructing explanations, and communicating results. B-2.9	as new evidence becomes available. Mathematical tools and models guide and improve the posing of questions, gathering data, constructing explanations, and communicating results. B-2.10	as new evidence becomes available. Mathematical tools and models guide and improve the posing of questions, gathering data, constructing explanations, and communicating results. B-2.11
B-3: History of Science	B-3.k	B-3.1	B-3.2	B-3.3	B-3.4	B-3.5	***Many individuals have contributed to the traditions of science. Studying some of these individuals provides further understanding of scientific inquiry, science as a human endeavor, the nature of science, and the relationships between science and society.*** B-3.6	***Many individuals have contributed to the traditions of science. Studying some of these individuals provides further understanding of scientific inquiry, science as a human endeavor, the nature of science, and the relationships between science and society.*** B-3.7	***Many individuals have contributed to the traditions of science. Studying some of these individuals provides further understanding of scientific inquiry, science as a human endeavor, the nature of science, and the relationships between science and society.*** B-3.8	***In history, diverse cultures have contributed scientific knowledge and technologic inventions.*** Changes in science occur as modifications in existing knowledge. The historical perspective of scientific explanations demonstrates how scientific knowledge changes by evolving over time. B-3.9	***In history, diverse cultures have contributed scientific knowledge and technologic inventions.*** Changes in science occur as modifications in existing knowledge. The historical perspective of scientific explanations demonstrates how scientific knowledge changes by evolving over time. B-3.10	***In history, diverse cultures have contributed scientific knowledge and technologic inventions.*** Changes in science occur as modifications in existing knowledge. The historical perspective of scientific explanations demonstrates how scientific knowledge changes by evolving over time. B-3.11

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
STANDARD C: SCIENCE INQUIRY—STUDENTS WILL INVESTIGATE QUESTIONS USING SCIENTIFIC METHODS AND TOOLS, REVISE THEIR PERSONAL UNDERSTANDING TO ACCOMMODATE KNOWLEDGE, AND COMMUNICATE THOSE UNDERSTANDINGS TO OTHERS.												
C-1: Ask Questions about Objects, Organisms, and Events in the Everyday World.	***Ask questions and attempt reasonable answers based on observations and simple investigations.*** ***C-1.k***	***Ask questions and attempt reasonable answers based on observations and simple investigations*** ***C-1.1***	***Ask testable questions and attempt reasonable answers based on observations and investigations.*** ***C-1.2***	***Ask testable questions using scientific vocabulary and attempt reasonable answers based on observations and investigations.*** ***C-1.3***	***Identify, formulate and clarify questions that can be answered through scientific investigations using appropriate equipment and resources.*** ***C-1.4***	***Identify, formulate and clarify questions that can be answered through scientific investigations using appropriate equipment and resources.*** ***C-1.5***	***Identify, formulate, and clarify questions that can be answered through scientific investigations using appropriate equipment and resources.*** ***C-1.6***	***Formulate a testable hypothesis suggested by current social issues, scientific literature, or observations of phenomena; and demonstrate its connections to scientific concepts.*** ***C-1.7***	***Formulate a testable hypothesis suggested by current social issues, scientific literature, or observations of phenomena and demonstrate its connections to scientific concepts.*** ***C-1.8***	***Formulate a testable hypothesis suggested by current social issues, scientific literature, or observations of phenomena and demonstrate its connections to scientific concepts.*** ***C-1.9***	***Formulate a testable hypothesis suggested by current social issues, scientific literature, or observations of phenomena and demonstrate its connections to scientific concepts.*** ***C-1.10***	***Formulate a testable hypothesis suggested by current social issues, scientific literature, or observations of phenomena and demonstrate its connections to scientific concepts.*** ***C-1.11***
C-2: Make Connections to Prior Knowledge.	***Use prior knowledge to make predictions and help answer the question being investigated.*** ***C-2.k***	***Use prior knowledge to make predictions and help answer the question being investigated.*** ***C-2.1***	***Use prior knowledge to make predictions and help answer the question being investigated.*** ***C-2.2***	***Use prior knowledge to make predictions and help answer the question being investigated.*** ***C-2.3***	***Use prior knowledge and investigations to make predictions and help answer the question being investigated.*** ***C-2.4***	***Use prior knowledge and investigations to make predictions and help answer the question being investigated.*** ***C-2.5***	***Use prior knowledge of scientific facts, concepts, and investigations to make predictions and help answer the question being investigated.*** ***C-2.6***	***Use prior knowledge of scientific facts, concepts, and investigations to make predictions and help answer the question being investigated.*** ***C-2.7***	***Use prior knowledge of scientific facts, concepts, and investigations to make predictions and help answer the question being investigated.*** ***C-2.8***	***Use prior knowledge of scientific facts, concepts, and investigations to make predictions and guide the design of an experiment.*** ***C-2.9***	***Use prior knowledge of scientific facts, concepts, and investigations to make predictions and guide the design of an experiment.*** ***C-2.10***	***Use prior knowledge of scientific facts, concepts, and investigations to make predictions and guide the design of an experiment.*** ***C-2.11***
C-3: Gather Background Knowledge Related to the Questions Being Investigated.	***Locate and access data and scientific knowledge in age-appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.k***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.1***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.2***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.3***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/Language Arts and Information and Technology Literacy Standards.)*** ***C-3.4***	***Locate and access data and scientific knowledge in age-appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.5***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.6***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.7***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.8***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.9***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.10***	***Locate and access data and scientific knowledge in age- appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)*** ***C-3.11***

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
C-4: Design and Conduct Responsible and Safe Investigations to Help Answer Questions.	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Participate in teacher-directed activities.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Participate in teacher-directed activities, and conduct simple investigations.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Participate in teacher-directed activities, and conduct simple investigations.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Participate in guided inquiry to plan and conduct investigations, predict results, and build explanations.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Participate in guided inquiry to plan and conduct investigations, predict results, and build explanations.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design, plan, and conduct investigations that involve logical data collection, accurate measurements, and identifying, controlling, and changing variables.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design, plan, and conduct investigations that involve the identification of independent (manipulated) and dependent (responding) and controlled variables and determining which is the most logical data to collect.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design, plan, and conduct investigations that involve the identification of independent (manipulated) and dependent (responding) and controlled variables and determining which is the most logical data to collect.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design, plan, and conduct investigations that involve the identification of independent (manipulated) and dependent (responding) and controlled variables and determining which is the most logical data to collect.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design an appropriate scientific investigation based on current issues, scientific concepts, or student observations.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design an appropriate scientific investigation based on current issues, scientific concepts, or student observations.***	***Demonstrate knowledge of age-appropriate safe laboratory procedures.*** ***Design an appropriate scientific investigation based on current issues, scientific concepts, or student observations.***
	C-4.k	***C-4.1***	***C-4.2***	***C-4.3***	***C-4.4***	***C-4.5***	***C-4.6***	***C-4.7***	***C-4.8***	***C-4.9***	***C-4.10***	***C-4.11***
C-5: Safely Use Appropriate Senses, Equipment and Tools to Make Observations and Gather Data.	***Use simple equipment to make observations and describe objects, events, and organisms; and compare them in terms of number, shape, texture, size and color.***	***Use simple equipment to make observations and describe similarities and differences in objects, events, and organisms in terms of number, shape, texture, size, weight, color, and motion.*** ***Use appropriate standard and nonstandard measuring tools.***	***Use simple equipment to make observations and describe similarities and differences in objects, events, and organisms, in terms of number, shape, texture, size, weight, color, and motion.*** ***Use appropriate standard and nonstandard measuring tools.***	***Use a variety of metric measuring tools such as meter tapes, graduated cylinders and syringes, balances, and thermometers.*** ***Identify when to use an appropriate standard metric unit of length, liquid capacity, mass, time, and temperature. (See Math D-3.)***	***Determine which metric measuring tool is the most appropriate to use for data gathering when answering a question or planning an investigation, and use the measuring tool appropriately.*** ***Identify when to use an appropriate standard metric unit of length, liquid capacity, mass, time, and temperature. (See Math D-3.)***	***Determine which metric measuring tool is the most appropriate to use for data gathering when answering a question or planning an investigation, and use the measuring tool appropriately.*** ***Identify when to use an appropriate standard metric unit of length, liquid capacity, mass, time, and temperature. (See Math D-3.)***	***Select and use appropriate tools and equipment to make accurate observations and SI measurements for the purpose of scientific investigation.***	***Select and use appropriate tools and equipment to make accurate observations and SI measurements for the purpose of scientific investigation.***	***Select and use appropriate tools and equipment to make accurate observations and SI measurements for the purpose of scientific investigation.***	***Select and use appropriate tools and equipment to make accurate observations and SI measurements for the purpose of scientific investigation.***	***Select and use appropriate tools and equipment to make accurate observations and SI measurements for the purpose of scientific investigation.***	***Select and use appropriate tools and equipment to make accurate observations and SI measurements for the purpose of scientific investigation.***
	C-5.k	***C-5.1***	***C-5.2***	***C-5.3***	***C-5.4***	***C-5.5***	***C-5.6***	***C-5.7***	***C-5.8***	***C-5.9***	***C-5.10***	***C-5.11***

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
C-6: Collecting and Representing Qualitative and Quantitative Data **(See Math Standard E.)**	***Communicate observations with words and pictures.*** ***Make a simple bar graph, picto-graph, table, or chart with real objects to help tell about observations.*** ***C-6.k***	***Communicate, compare, and classify observa-tions with words and pictures.*** ***Make a simple bar graph, picto-graph, table, or chart to help tell about observations.*** ***C-6.1***	***Communicate, compare, and classify observa-tions and results in a journal, record sheet, response sheet, calendar, or by using media and technology appropriate to purpose and content.*** ***Create and interpret bar graphs, picto-graphs, tables, and charts to display data.*** ***C-6.2***	***Communicate, compare, and classify observa-tions and results in a journal, record sheet, response sheet, calendar, or by using media and technology appropriate to purpose and content.*** ***Create and interpret bar graphs, picto-graphs, tables and charts to display data.*** ***C-6.3***	***Collect, compare, and organize observations and results in a journal, record sheet, response sheet, calendar, or by using media and technology appropriate to purpose and content.*** ***Create and interpret bar graphs, line graphs, tables, and charts to organize and analyze data.*** ***C-6.4***	***Collect, compare, and organize observations and results in a journal, record sheet, response sheet, calendar, or by using media and technology appropriate to purpose and content.*** ***Create and interpret bar graphs, line graphs, tables, and charts to organize and analyze data.*** ***C-6.5***	***Collect and organize qualitative and quantitative data in a journal, lab report, record sheet, or by using media and technology appropriate to purpose and content.*** ***Create and interpret appro-priate types of graphs (bar graphs, line graphs, pie graphs).*** ***C-6.6***	***Collect and organize qualitative and quantitative data in a journal, lab report, record sheet, or by using media and technology appropriate to purpose and content.*** ***Create and interpret appro-priate types of graphs (bar graphs, line graphs, pie graphs).*** ***C-6.7***	***Collect and organize qualitative and quantitative data in a journal, lab report, record sheet, or by using media and technology appropriate to purpose and content.*** ***Create and interpret appro-priate types of graphs (bar graphs, line graphs, pie graphs).*** ***C-6.8***	***Collect and organize qualitative and quantitative data in a, lab note-book or report, or by using media and technology appropriate to purpose and content.*** ***Create and interpret appro-priate types of graphs.*** ***C-6.9***	***Collect and organize qualitative and quantitative data in a, lab note-book or report, or by using media and technology appropriate to purpose and content.*** ***Create and interpret appro-priate types of graphs.*** ***C-6.10***	***Collect and organize qualitative and quantitative data in a, lab note-book or report, or by using media and technology appropriate to purpose and content.*** ***Create and interpret appro-priate types of graphs.*** ***C-6.11***
C-7: Summarizing, Synthesizing, Inferring, and Building Explanations	***Explain observations and describe what is displayed on a bar graph, table, or chart. (See Math Standard E-2.k.)*** ***C-7.k***	***Compare observations with previously studied evidence, models or explanations.*** ***Interpret and describe data from a bar graph, table, or chart. (See Math Standard E.)*** ***C-7.1***	***Compare observations with previously studied evidence, models, or explanations.*** ***Use patterns, evidence, and observations to build explana-tions and ask new questions.*** ***Interpret bar graphs, picto-graphs, tables, and charts.*** ***C-7.2***	***Use patterns, evidence, and observations to build explana-tions, relate them to the scientific concepts being learned, and ask new questions.*** ***Interpret bar graphs, picto-graphs, tables and charts.*** ***C-7.3***	***Analyze, interpret, and summarize data to determine patterns and representative values, and the data's usefulness for building explanations and asking new questions.*** ***Compare results and explanations to known science concepts, models, or theories.*** ***Interpret bar graphs, line graphs, tables, and charts.*** ***C-7.4***	***Analyze, interpret, and summarize data to determine patterns and representative values, cause and effect, and the data's useful-ness for building explanations and asking new questions.*** ***Compare results and explanations to known science concepts, models, or theories.*** ***Interpret bar graphs, line graphs, tables, and charts to look for errors and make predictions.*** ***C-7.5***	***Analyze and interpret qualitative and quantitative data for experimental errors; and use them to build explanations, develop models, and raise further questions.*** ***Use the explanations and models found in science to develop likely explanations for the results of the investigation.*** ***C-7.6***	***Analyze and interpret qualitative and quantitative data for experimental errors; and use them to build explanations, develop models, and raise further questions.*** ***Use the explanations and models found in science to develop likely explanations for the results of the investigation.*** ***C-7.7***	***Analyze and interpret qualitative and quantitative data for experimental errors; and use them to build explanations, develop models, and raise further questions.*** ***Use the explanations and models found in science to develop likely explanations for the results of the investigation.*** ***C-7.8***	***Use experimental results, mathematical formulas, mod-els, and current scientific knowl-edge to develop and defend likely explanations of investigation results and refine work.*** ***Relate mathematical functions to data.*** ***C-7.9***	***Use experimental results, mathematical formulas, mod-els, and current scientific knowl-edge to develop and defend likely explanations of investigation results and refine work.*** ***Relate mathematical functions to data.*** ***C-7.10***	***Use experimental results, mathematical formulas, mod-els, and current scientific knowl-edge to develop and defend likely explanations of investigation results and refine work.*** ***Relate mathematical functions to data.*** ***C-7.11***

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
C-8: Communicating Results	***Complete appropriate lab report or response sheet.*** ***Communicate observations verbally, by drawing, or through simple writing.*** ***C-8.k***	***Report the results of scientific investigations by using precise vocabulary to complete an appropriate lab report, journal, or response sheet.*** ***C-8.1***	***Report the results of scientific investigations by using precise vocabulary to complete an appropriate lab report, journal, or response sheet or by using media and technology appropriate to purpose and content.*** ***C-8.2***	***Report the results of scientific investigations by using precise vocabulary to complete an appropriate lab report, journal, or response sheet or by using media and technology appropriate to purpose and content.*** ***C-8.3***	***Report the results of scientific investigations by using precise vocabulary to complete an appropriate lab report, journal, or response sheet or by using media and technology appropriate to purpose and content.*** ***Explain the validity of the experimental design and re-sults, and revise methods and explanations.*** ***C-8.4***	***Report the results of scientific investigations by using precise vocabulary to complete an appropriate lab report, journal, or response sheet or by using media and technology appropriate to purpose and content.*** ***Receive critical response from peers, defend the validity of the experimental de-sign and results, and revise methods and explanations.*** ***C-8.5***	***Complete a lab report or journal.*** ***Share, defend, and revise results, explana-tions, and procedures using media and technology appropriate to purpose and content.*** ***C-8.6***	***Complete a lab report or journal.*** ***Share, defend, and revise results, explana-tions, and procedures using media and technology appropriate to purpose and content.*** ***C-8.7***	***Complete a lab report or journal.*** ***Share, defend, and revise results, explanations, and procedures using media and technology appropriate to purpose and content.*** ***C-8.8***	***Complete an appropriate lab report.*** ***Share, defend, and revise results, explana-tions, and procedures using media and technology appropriate to purpose and content.*** ***Evaluate physical and conceptual models for accuracy and completeness.*** ***C-8.9***	***Complete appropriate lab report.*** ***Share, defend, and revise results, explana-tions, and procedures using media and technology appropriate to purpose and content.*** ***Evaluate physical and conceptual models for accuracy and completeness.*** ***C-8.10***	***Complete appropriate lab report.*** ***Share, defend, and revise results, explana-tions, and procedures using media and technology appropriate to purpose and content.*** ***Evaluate physical and conceptual models for accuracy and completeness.*** ***C-8.11***
STANDARD D: PHYSICAL SCIENCE —STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE PHYSICAL AND CHEMICAL PROPERTIES OF MATTER, THE FORMS AND PROPERTIES OF ENERGY, AND THE WAYS IN WHICH MATTER AND ENERGY INTERACT.												
D-1: Properties of Matter	***Objects and materials have many observable and measurable properties such as color, size, shape, texture, weight, etc.*** ***Objects and materials can be sorted and ord-ered in terms of their properties.***	***Objects and materials have many observable and measurable properties such as color, size, shape, weight, texture, hard-ness, flexibility, composition, etc.*** ***Objects and materials can be sorted and ord-ered in terms of their properties.***	***Objects and materials have many observable and measurable properties such as color, size, shape, weight, texture, hard-ness, flexibility, reactivity with other materials, etc.*** ***Objects and materials can be sorted and ord-ered in terms of their properties.*** Solids, liquids, and gases have different properties.	***Objects and materials have many observable and measurable properties such as color, size, shape, mass, weight, texture, hardness, flexi-bility, reactivity with other materials, etc.*** ***Objects and materials can be sorted and ord-ered in terms of their properties.*** Solids, liquids, and gases have different properties.	***Objects and materials have many observable and measurable properties such as color, size, shape, mass, weight, texture, hardness, flexi-bility, reactivity with other materials, etc.*** ***Objects and materials can be sorted and ord-ered in terms of their properties.*** Solids, liquids, and gases have different properties.	***Objects and materials have many observable and measurable properties such as color, size, shape, mass, weight, texture, hardness, flexi-bility, reactivity with other materials, etc.*** ***Objects and materials can be sorted and ord-ered in terms of their properties.*** ***Solids, liquids, and gases have different properties.***		***A substance has characteristic chemical and physical properties, all of which are independent of the amount of the sample.*** ***There are groups of elements that have similar properties.*** ***Elements can be solids, liquids, or gases.*** ***When elements are listed in order by the number of protons in their***		***In living organisms, atoms are arranged n special molecules that function in the processes necessary to support life.***	***The components that make up atoms have measurable properties.*** ***Chemical and physical properties of a substance can be measured: density, melting point, boiling point, pH, conductivity, magnetic attraction, and solubility.*** ***The physical properties of compounds reflect the nature of the interac-***	

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
								nucleus, the same sequence of properties appears over and over again in the list (periodic table).			***tions among its molecules. These interactions are determined by the structures of the molecule, including the constituent atoms and the distances and angles between them.*** ***Solids, liquids, and gases differ in the distances and angles between molecules or atoms and therefore the energy that binds them together.*** ***Carbon atoms can bond to one another in chains, rings, and branching networks to form a variety of structures including synthetic polymers, oils, and the large molecules essential to life.***	
	D-1.k	***D-1.1***	***D-1.2***	***D-1.3***	***D-1.4***	***D-1.5***		D-1.7		***D-1.9***	***D-1.10***	D-1.11
D-2: Structure of Matter	Most objects and living things are made of parts and the parts are made of one or more materials.	Most objects and living things are made of parts and the parts are made of one or more materials which scientists refer to as matter.	All things are made of matter, which can exist as solids, liquids, or gases and some materials are mixtures of different types of matter. Air is a gas that surrounds us and takes up space.	All things are made of matter, which can exist as solids, liquids, or gases and some materials are mixtures of different types of matter. Air is a gas that surrounds us and takes up space.	***All things are made of matter, which can exist as solids, liquids, or gases and some materials are mixtures of different types of matter.*** Air is a gas that surrounds us and takes up space.	***All things are made of matter, which can exist as solids, liquids, or gases and some materials are mixtures of different types of matter.*** Air is a gas that surrounds us and takes up space.		***All matter is made up of atoms, which are far too small to see directly through a microscope.*** ***A substance composed of a single kind of atom is called an element.***	***Different arrangements of atoms compose all substance and atoms may be bonded together.*** ***A compound is formed when two or more kinds of atoms bind together chemically.***		***The numbers of protons in the nucleus of an atom determines the atom's electron configuration, which determines how the atom interacts with other atoms.***	

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
			Living things are made of matter and have properties.	***Living things are made of matter and have properties.***	Materials may be composed of parts that are too small to be seen without magnification.	***Living things are made of matter and have properties.*** ***Materials may be composed of parts that are too small to be seen without magnification.***		Different arrangements of atoms compose all substances and atoms may be bonded together. A compound is formed when two or more kinds of atoms bind together chemically. ***An atom's nucleus is a tiny fraction of the volume of an atom.*** ***Atoms are made of a positive nucleus surrounded by negative electrons.*** ***The nucleus of an atom consists of positively charged protons and neutrons which have no charge but which affect the mass and stability of the atom.*** Atoms may stick together in well-defined molecules or may be packed together in large arrays. Different arrangements of atoms compose all substances. ***Atoms and molecules are in constant motion.***	***Atoms may stick together in well-defined molecules or may be packed together n large arrays. Different arrangements of atoms compose all substances.*** ***Atoms and molecules are in constant motion.***		***Atoms form bonds which other atoms by transferring or sharing outer electrons.*** ***The configuration of atoms in a molecule determines the molecule's properties.*** ***Neutrons have a mass that is nearly identical to that of protons, but neutrons have no electric charge.*** ***Neutrons have little effect on how an atom interacts with others, but they do affect the mass and stability of the nucleus.*** ***Isotopes of the same element have the same number of protons, but different numbers of neutrons.*** ***Scientists continue to investigate atoms and have discovered even smaller constituents of which protons and neutrons are made.*** ***At the atomic***	

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
											level, electric forces between oppositely charged electrons and protons hold atoms and molecules together and they are involved in all chemical reactions. ***The states of matter can be identified and described based on motion and distance between the particles that make them up.***	
	D-2.k	***D-2.1***	***D-2.2***	***D-2.3***	***D-2.4***	***D-2.5***		***D-2.7***	D-2.8		***D-2.10***	
D-3: Physical, Chemical and Nuclear Changes in Matter	Things can be done to materials to change some of their properties, but not all materials respond the same way to what is done to them. Objects can be broken into smaller pieces, which changes the appearance of the material but does not change what it is made of.	Things can be done to materials to change some of their properties, but not all materials respond the same way to what is done to them.	***Things can be done to materials to change some of their properties, but not all materials respond the same way to what is done to them.*** Objects can be broken into smaller pieces, which changes the appearance of the material but does not change what it is made of. ***Water can be changed from one state to another, but when this occurs the amount of water is the same as before the change.***	Heating and cooling cause changes in the properties of materials and may cause the material to change state. Many kinds of changes occur faster under hotter conditions When a new material is made by combining two or more materials, it has properties that are different from the original materials.	***Heating and cooling cause changes in the properties of materials and may cause the material to change state.*** ***Many kinds of changes occur faster under hotter conditions.***	***Heating and cooling cause changes in the properties of materials and may cause the material to change state.*** ***When a solid dissolves in a liquid, a physical change has occurred.*** ***Many kinds of changes occur faster under hotter conditions.*** When a new material is made by combining two or more materials, it has properties that are different from the original materials. Chemical		***A mixture of substances often can be separated into the original substances using one or more physical properties.*** ***Increased temperature means greater average energy of motion, so most substances expand when heated.*** Elements combine in a multitude of ways to produce compounds, which account for the living and nonliving substances that we encounter. The properties of the new substances may be very	***Elements combine in a multitude of ways to produce compounds, which account for the living and nonliving substances that we encounter. The properties of the new substances may be very different from those of the old.*** ***When substances interact chemically to form new substances, the elements composing them combine in new ways.*** ***Regardless of how substances within a closed system interact, the total mass of the system***	A wide variety of biological, chemical, and physical phenomena can be explained by changes in the arrangement and motion of atoms and molecules.	***A wide variety of biological, chemical, and physical phenomena can be explained by changes in the arrangement and motion of atoms and molecules.*** ***Chemical reactions form products that are different from the reactants and these chemical reactions can be represented by chemical equations.*** ***Different energy levels are associated with different configurations of atoms in molecules. Some changes of configuration***	

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
						reactions occur all around us.		different from those of the old. Atoms do not break down during normal laboratory reactions.	***remains the same.*** ***Atoms do not break down during normal laboratory reactions.***		***require a net input of energy, whereas others cause a net release.*** ***During chemical reactions, energy is absorbed or release and the energy can be in the form of light, heat or electrical energy.*** ***Matter and energy are conserved during chemical and physical changes.*** ***The nuclei of radioactive isotopes spontaneously decay emitting particles and/or wave-like radiation.*** ***Nuclear reactions (fission or fusion) convert a fraction of the mass of interacting particles into energy, but the total amount of mass and energy is conserved.***	
	D-3.k	D-3.1	***D-3.2***	D-3.3	D-3.4	***D-3.5***		D-3.7	D-3.8	D-3.9	***D-3.10***	
D-4: Position and Motion of Objects	The position of an object can be described by locating it relative to another object or the background.	***The position of an object can be described by locating it relative to another object or the background.*** ***Motion can be described (e.g.,***	***The position of an object or organism can be described by locating it relative to another object or the background.***	***The position of an object or organism can be described by locating it relative to another object or the background.***	***The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.***	***The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.***		***The motion of an object can be described by its position, direction of motion, and speed. That motion can be measured and represented on a graph.***				Objects change their motion only when a net force is applied. Laws of motion are used to calculate and graph precisely the effects of forces on the motion of

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
		straight, zigzag, back and forth, round and round, fast and slow) by tracing and measuring an object's position over time. ***Pushing or pulling can change the position and motion of objects.***			***Changes in speed or direction of motion are caused by forces and the greater the force is, the greater the change in motion will be.*** ***The more massive an object is the less effect a given force will have.***			***An object will stay still or keep its direction of motion and its speed, unless an unbalanced force acts on it.*** ***Laws of motion are used to calculate precisely the effects of forces on the motion of objects.*** ***The forces that act on an object can reinforce or cancel one another depending on their direction and magnitude***				objects.
	D-4.k	***D-4.1***	***D-4.2***	***D-4.3***	***D-4.4***	***D-4.5***		***D-4.7***				D-4.11
D-5: Forces of Nature	Things near the earth fall to the ground, unless something holds them up.	***Things near the earth fall to the ground, unless something holds them up.*** ***Magnets attract and repel each other and certain kinds of other materials.*** ***Magnets can be used to make some things move without being touched.***		The earth's gravity pulls any object toward it without touching it.	The earth's gravity pulls any object toward it without touching it. ***Without touching them, a magnet pulls on all things made of iron and either pushes or pulls on other magnets.***	The earth's gravity pulls any object toward it without touching it.			***Everything on or anywhere near the earth is pulled toward the earth's center by gravitational force.*** ***Every object exerts gravitational force on every other object. The force depends on how much mass the objects have and on how far apart they are.*** ***The electric force is a universal force that exists between any two charged objects. There are two kinds of charges—posi-***		***At the atomic level, electric forces between oppositely charged electrons and protons held atoms and molecules together and thus are involved in all chemical reactions. On a larger scale, these forces hold solid and liquid materials together.*** ***There are two kinds of charges—positive and negative. Like charges repel one another, opposite charges attract. In ma-***	Gravitational force is an attraction between masses. The strength of the force is proportional to the masses and weakens rapidly with increasing distance between them. The electric force is a universal force that exists between any two charged objects. Opposite charges attract, while like charges repel. The strength of the electric force is proportional to the charges and inversely propor-

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
									tive and negative. ***Opposite charges attract, while like charges repel. Electric currents and magnets can exert a force on each other.*** ***Moving electric charges produce magnetic forces, and moving magnets produce electric forces.***		***terials, there are almost exactly equal proportions of positive and negative charges, making the materials as a whole electrically neutral. Negative charges, being associated with electrons, are far more mobile in materials than positive charges are. A very small excess or deficit of negative charges in a material produces noticeable electric forces.***	tional to the square of the distance between them. Negative charges, being associated with electrons, are far more mobile in materials than positive charges are. A very small excess or deficit of negative charges in a material produces noticeable electric forces. At the atomic level, electric forces between oppositely charged electrons and protons hold atoms and molecules together and are involved in all chemical reactions. These forces also hold solid and liquid materials together and act between objects when they are in contact. Electricity and magnetism are two aspects of a single electromagnetic force. Moving electric charges produce magnetic forces, and moving magnets produce electric forces. The forces that hold the nucleus of an atom together are

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
												much stronger than the electro-magnetic force, so great amounts of energy are released from the nuclear reactions in the sun and other stars.
	D-5.k	***D-5.1***		D-5.3	***D-5.4***	D-5.5			***D-5.8***		***D-5.10***	D-5.11
D-6: Interactions of Energy and Matter	The sun provides the light and heat the earth needs.	***The sun provides the light and heat the earth needs.***	***The sun warms the land, air, and water.***	***Sound is produced by vibrating objects.*** The pitch of sound can be varied by chang-ing the rate of vibration. Heat can be produced in many ways, such as burning, rubbing, or mixing one substance with another.	***Electricity in circuits can produce light, heat, sound, and magnetic effects.*** Electrical circuits require a com-plete loop through which an electri-cal current can pass. Heat can be produced in many ways, such as burning, rubbing, or mixing one substance with another. A change in temperature is a result of addition or subtraction of heat. ***Energy can be stored and released to make an object move.*** When warmer things are put with cooler ones, the warm ones lose heat and the cool ones gain it until they are all at the same temperature.	Heat can be produced in many ways, such as burning, rubbing, or mixing one substance with another.	**Living things use energy.**	**Heat moves in predictable ways, flowing from warmer objects to cooler ones, until both reach the same temperature.** **Heat can be transferred through materials by the collisions of atoms or across a space by radiation. If the material is fluid, currents will be set up in it that aid the transfer of heat.** **All energy can be considered to be either kinetic energy, which is the energy of motion; potential energy, which depends on relative position; or energy con-tained by a field, such as electromagnetic waves.**	***Most of what goes on in the universe involves some form of energy being transformed into another.*** ***Energy in the form of heat is almost always one of the prod-ucts of an energy transformation.*** ***The sun's energy arrives as light with a range of wavelengths, consisting of visible light infrared, and ultraviolet rad-iation.*** ***The visible light from the sun is made up of a mixture of many different colors of light, even though to the eye the light looks almost white.*** ***Light interacts with matter by transmission, absorption, or scattering.*** ***Vibrations in materials set up***	***All living things use energy.*** ***The sun is a major source of energy for changes on the earth's surface.*** ***Plants convert light energy into stored chemical energy through photosynthesis, and animals get energy from cellular respira-tion (i.e. energy can change from one form to another in living things).***	***Heat consists of random motion and the vibra-tions of atoms, molecules, and ions. The higher the temperature, the greater the atomic or molecular motion.*** ***Energy is required to change the state of matter.*** ***In most chemical and nuclear re-actions, energy is transferred into or out of a sys-tem. Heat, light, mechanical motion, or elec-tricity might all be involved in such transfers.*** ***Each kind of atom or molecule can gain or lose energy only in particular dis-crete amounts and thus can absorb and emit light only at wavelengths corresponding to these amounts. These wavelengths can***	Different kinds of materials respond differently to electric forces. In conducting materials such as metals, electric charges flow eas-ily, whereas in insulating materi-als, such as glass, they can move hardly at all. At very low temperatures, some materials become super-conductors and offer no resis-tance to the flow of current. Electromagnetic waves result when a charged object is accelerated or decelerated. The energy of electromagnetic waves is carried in packets whose magnitude is inversely propor-tional to the wavelength. To see an object, light from that object—emitted by or scattered

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
									wavelike disturbances that transfer energy and spread away from the source. ***These and other waves move at different speeds in different materials.*** ***Electrical circuits provide a means of con-verting electrical energy into other forms of energy.***		***be used to identify the substance.***	from it—must enter the eye. To hear a sound, waves from an object must enter the ear.
	D-6.k	***D-6.1***	***D-6.2***	***D-6.3***	D-6.4	D-6.5	**D-6.6**	D-6.7	D-6.8	***D-6.9***	***D-6.10***	D-6.11
D-7: Conservation of Energy							The total energy of the universe is constant. Energy can be transferred in many ways, but it can never be destroyed. As transfers of energy occur, the matter involved becomes steadily less ordered.	The total energy of the universe is constant. Energy can be transferred in many ways, but it can never be destroyed. As transfers of energy occur, the matter involved becomes steadily less ordered.	The total energy of the universe is constant. Energy can be transferred in many ways, but it can never be destroyed.	The total energy of the universe is constant. Energy can be transferred in many ways, but it can never be destroyed.	***The total energy of the universe is constant. Energy can be transferred in mnay ways, but it can never be destroyed.*** As transfers of energy occur, the matter involved becomes steadily less ordered.	***The total energy of the universe is constant. Energy can be transferred in many ways but in can never be destroyed.*** As transfers of energy occur, the matter involved becomes steadily less ordered.
							D-7.6	D-7.7	D-7.8	D-7.9	***D-7.10***	***D-7.11***
STANDARD E: EARTH SCIENCE—STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE STRUCTURE AND SYSTEMS OF EARTH AND THE UNIVERSE AND OF THEIR INTERACTIONS.												
E-1: Properties and Structures of the Earth and its Materials	Earth materials are solid rocks and soils, water, and the gases of the atmosphere.	Earth materials are solid rocks and soils, water, and the gases of the atmosphere.	***Earth materials are solid rocks and soils, water, and the gases of the atmosphere.*** ***Chunks of rocks come in many sizes and shapes, from boulders to grains of sand and even smaller.*** ***Soil is made partly from weathered rock,***	Water is a very important earth material that can be liquid, solid, or gas and can be made to change from one form to another.	***Earth materials are solid rocks and soils, water, and the gases of the atmosphere.*** ***Rock is composed of different combinations of minerals. Smal-ler rocks come from the breakage and weathering of bedrock and larger rocks.***	***Water is a very important earth material that can be liquid, solid, or gas and can be made to change from one form to another.*** Air surrounds us and can move and cause changes. ***A landform is a shape of the earth's surface.***	***The solid earth is layered with a lithosphere; hot, convecting man-tle; and dense, metallic core.*** ***Lithospheric plates constantly move at rates of centimeters per year in response to movements in the mantle.*** ***Major geological events, such as***	***Three-fourths of the earth's sur-face is covered by a relatively thin layer of water, and the entire planet is surrounded by a relatively thin blanket of air.*** ***Water is a solvent. As it passes through the water cycle, it dissolves miner-als and gases***	***Earth is the only body in the solar system that appears able to support life.*** ***Living organisms have played many roles in the earth system, in-cluding affecting the composition of the atmos-phere, producing some types of rocks and con-tributing to the***			Earth systems have internal and external sources of energy, both of which create heat. The sun is the major external source of heat. Two pri-mary sources of internal energy are the decay of radioactive isotopes and the gravitational energy from the earth's original

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
			partly from plant remains, and also contains many living organisms. ***Different types of earth materials have different properties (e.g., color, texture, capacity to retain water, ability to support plant growth), which make them useful in different ways (e.g., building materials, sources of fuel, growing plants).*** Water is a very important earth material that can be liquid or solid and can be made to change from one form to another. ***Air surrounds us and can move and cause changes.*** ***Weather happens in the air that surrounds the earth.***		***Different types of earth materials have different properties (e.g., color, texture, capacity to retain water, ability to support plant growth), which make them useful in different ways (e.g., building materials, sources of fuel, growing plants.)*** ***Water is a very important earth material that can be liquid, solid, or gas and can be made to change from one form to another.*** Air surrounds us and can move and cause changes. Rocks and minerals can be organized based on properties, such as hardness, color, texture, and appearance. Some earth materials absorb more water than other earth materials do. Water flows more easily through some earth materials than through others.		***earthquakes, volcanic eruptions, and mountain building, result from lithospheric plate motions.*** ***Landforms are the result of a combination of constructive forces (crystal deformation, volcanic eruption, deposition of sediment) and destructive forces (weathering, erosion).*** ***Soil consists of weathered rocks and decomposed organic material from dead plants, animals, and bacteria. Soils are often found in layers.*** Water is a solvent. As it passes through the water cycle it dissolves minerals and gases and carries them to the oceans. ***Living organisms have played many roles in the earth system, including affecting the composition of the atmosphere, producing some types of rocks, and contributing to the weathering of rocks.***	***and carries them to the oceans.*** ***Fresh water is limited in supply and is essential for life and for most industrial processes.*** ***Living organisms have played many roles in the earth system, including affecting the composition of the atmosphere, producing some types of rocks and contributing to the weathering of rocks.***	***weathering of rocks.***			formation. The solid crust of the earth consists of separate plates that ride on a denser, hot, gradually deformable layer of the earth. The crust sections move very slowly, pressing against one another in some places, pulling apart in other places. Earthquakes, volcanic activity, mountain building and sea floor formation may occur at these boundaries.

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
	E-1.k	E-1.1	E-1.2	E-1.3	E-1.4	E-1.5	E-1.6	E-1.7	E-1.8			E-1.11
E-2: History and Changes of the Earth			The surface of the earth changes. Some changes are due to slow processes, such as erosions and weathering.	Fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.	***The surface of the earth changes. Some changes are due to slow processes, such as erosions and weathering,*** and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes. Waves, wind, water, and ice shape and reshape the earth's land surface by eroding rock and soil in some areas and depositing them in other areas. Fossils provide evidence about the plants and animals that lived long ago and the nature of the environment at that time.	***The surface of the earth changes. Some changes are due to slow processes, such as erosions and weathering, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes.*** ***Waves, wind, water, and ice shape and reshape the earth's land surface by eroding rock and soil in some areas and depositing them in other areas.***	***The earth processes we see today, including erosion, movement of lithospheric plates, and changes in atmospheric composition, are similar to those that occurred in the past.*** ***Climates have sometimes changed abruptly in the past as a result of changes in the earth's crust.*** ***Thousands of layers of sedimentary rock confirm the long history of the changing surface of the earth and the changing life forms whose remains (fossils) are found in successive layers. The youngest layers are not always found on top.*** ***Human activities have changed the earth's land, oceans, and atmosphere. Some of these changes have decreased the capacity of the environment to support some life forms.***					The sun, the earth, and the rest of the solar system formed from a nebular cloud of dust and gas approximately 4.6 billion years ago. The early earth was very different form the planet we live on today. Geologic time can be estimated by observing rock sequences and using fossils to correlate the sequences at various locations. Current methods include using the known decay rates of radioactive isotopes present in rocks to measure the time since the rock was formed. Interactions among the solid earth, the oceans, the atmosphere, and organisms have resulted in ongoing changes of the earth system. Evidence for one-celled forms of life extends back more that 3.5 billion years. The development of life on earth caused dramatic changes in the

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
												composition of the atmosphere, which did not originally contain oxygen. E-2.11
			E-2.2	***E-2.3***	***E-2.4***	***E-2.5***	***E-2.6***					
E-3: Cycles in the Earth System	Some events in nature have a repeating pattern. Seasonal changes occur in living things in the schoolyard.	Some events in nature have a repeating pattern.	The appearance of the moon changes in a pattern that can be observed, compared, and predicted. The pattern repeats approximately once a month. The objects in the sky—the sun, moon, stars and clouds—all have locations and movements that can be observed and described. Water can be a liquid or a solid and can change from one form to another. ***Weather changes from day to day and over the seasons. Weather can be described by measurable quantities, such as temperature, wind direction and speed, and precipitation.*** ***Seasonal changes occur in living things in the schoolyard.***	The sun, moon, and stars all appear to move slowly across the sky. The patterns of stars in the sky stay the same, although they appear to move across the sky nightly. Different stars can be seen in different seasons. Evaporation and condensation contribute to the movement of water through the water cycle. Clouds and fog are made of tiny droplets of water.	The sun, moon, and stars all appear to move slowly across the sky. Planets change their positions against the background of stars. Evaporation and condensation contribute to the movement of water through the water cycle. Clouds and fog are made of tiny droplets of water.		***Some changes in the solid earth can be described as the "rock cycle."*** Water circulates through the crust, oceans, and atmosphere in what is known as the "water cycle."	***Water circulates through the crust, oceans, and atmosphere in what is known as the "water cycle."*** ***The atmosphere is a mixture of nitrogen, oxygen, and trace gases that include water vapor. The atmosphere has different properties at different elevations.*** ***The cycling of water in and out of the atmosphere plays an important role in cloud formation and determining weather and climatic patterns. 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.*** ***Global patterns of atmospheric movement influence local weather.*** ***Oceans have a major effect on***				Heating of earth's surface and atmosphere by the sun drives convection within the atmosphere and oceans, producing winds and ocean currents. Weather and climate involve the transfer of energy in and out of the atmosphere. The earth is a system containing essentially a fixed amount of each stable chemical, atom, or element. Each element can exist in several different chemical reservoirs. Movement of matter between reservoirs is driven by the earth's internal and external sources of energy. These movements are often accompanied by a change in the physical and chemical properties of the matter. The formation, weathering, sedimentation, and

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
								climate. The patterns of stars in the sky stay the same, although they appear to move across the sky nightly. Different stars can be seen in different seasons.				reformation of rock constitute a continuing "rock cycle" in which the total amount of material stays the same as its forms change.
	E-3.k	E-3.1	E-3.2	E-3.3	E-3.4	E-3.5	***E-3.6***	***E-3.7***				E-3.11
E-4: The Earth, Our Solar System, and Space	The sun provides the light and heat the earth needs.	***The sun provides the light and heat the earth needs.***	***The objects in the sky—the sun, moon, stars and clouds—all have properties which can be observed and described.*** ***The sun provides the light and heat the earth needs.*** ***The sun can be seen only in the daytime, but the moon can be seen sometimes at night and sometimes during the day.***	The number of stars that can be seen through telescopes is dramatically greater than can be seen by the unaided eye. Stars are like the sun, some being smaller and some larger, but so far away that they look like points of light. The sun appears to move across the sky in the same way every day, but its path changes slowly over the seasons.	***The earth is approximately spherical in shape. The rotation of the earth on its axis every 24 hours produces the night and day cycle.*** The earth is one of several planets that orbit the sun, and the moon orbits around the earth.	Things on or near the earth are pulled toward it by the earth's gravity. The earth is approximately spherical in shape. The rotation of the earth on its axis every 24 hours produces the night and day cycle. The number of stars that can be seen through telescopes is dramatically greater than can be seen by the unaided eye. The earth is one of several planets that orbit the sun, and the moon orbits around the earth. Stars are like the sun, some being smaller and some larger, but so far away that they look like points of light. The sun appears to move across		***The sun is the major source of energy for phenomena on the earth's surface such as weather and ocean currents.*** ***Gravity is the force that keeps planets in orbit around the sun and governs the rest of the motion in the solar system.***	***The earth is the third planet from the sun in a system that includes the moon; the sun; seven other planets and their moons; and smaller objects, such as asteroids and comets.*** ***Most 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.*** ***The planets, having different sizes, surface features and compositions, move around the Sun in oval (elliptical) orbits, and some planets have a variety of moons and rings of particles orbiting around them.*** ***There are many different stars, and they have***			The origin of the universe remains one of the greatest questions in science. The "big bang" theory places the origin between 10 and 20 billion years ago, when the universe began in a hot, dense state; according to this theory, the universe has been expanding ever since. Early in the history of the universe, matter—primarily the light atoms, hydrogen and helium—clumped together by gravitational attraction to form countless trillions of stars. Billions of galaxies, each of which is a gravitationally bound cluster of billions of stars, now form most of the visible mass in the universe. Stars produce

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
						the sky in the same way every day, but its path changes slowly over the seasons.			***different properties.*** ***The sun is a medium-sized star and is the central and largest body in our solar system.*** ***The sun is the major source of energy for phenomena on the earth's surface, such as weather and ocean currents.*** ***Gravity explains the phenomena of the tides.*** ***The universe contains billions of galaxies, each containing billions of stars. A light year is a unit of distance.***			energy from nuclear reactions, primarily the fusion of hydrogen to form helium. These and other processes in stars have led to the formation of al the other elements.
	E-4.k	**E-4.1**	***E-4.2***	E-4.3	E-4.4	E-4.5		E-4.7	***E-4.8***			**E-4.11**
STANDARD F: LIFE AND ENVIRONMENTAL SCIENCE —STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE CHARACTERISTICS AND STRUCTURES OF LIVING THINGS, THE PROCESSES OF LIFE, AND HOW LIVING THINGS INTERACT WITH ONE ANOTHER AND THEIR ENVIRONMENT.												
F-1: Characteristics, Structure, and Function in Living Things	Each kind of living thing has unique structures and behaviors, but different kinds of living things can have similar structures and behaviors. Living things have structures and behaviors that help them live in different environments. ***Living things have basic needs: food,***	***Each kind of living thing has unique structures and behaviors, but different kinds of living things can have similar structures and behaviors.*** ***Living things have structures and behaviors that help them live in different environments.*** ***Living things have basic***	***Each kind of living thing has unique structures and behaviors, but different kinds of living things can have similar structures and behaviors.*** ***Living things have structures and behaviors that help them live in different environments.*** ***Living things have basic needs:***	***Each kind of living thing has unique structures and behaviors, but different kinds of living things can have similar structures and behaviors.*** ***Living things have structures and behaviors that help them live in different environments***. ***Living things have basic needs:***		***Each kind of living thing has unique structures and behaviors, but different kinds of living things can have similar structures and behaviors.*** ***Living things have structures and behaviors that help them live in different environments.*** ***Living things have basic needs:***	***Living systems at all levels demonstrate the complementary nature of structure and function.*** ***Organisms have a variety of body plans and internal structures to accomplish the functions required for life.*** All organisms are composed of cells. Many organisms are		***All organisms are composed of cells.*** ***Many organisms are single celled; others are multicellular.*** ***Cells continually divide to make more cells for growth and repair.*** ***Important levels of organization for structure and function include cells, organs,***	***Every cell is covered by a membrane that controls what can enter and leave the cell.*** ***A living cell is composed of a small number of chemical elements mainly carbon, hydrogen, nitrogen, oxygen, phosphorous, and sulfur.*** ***Different molecules inside***		***Differentiation of cells is regulated through the expression of different genes.***

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
	water, air, light, and an appropriate environment in which to live. The behaviors of living things are influenced by internal and external cues.	***needs: food, water, air, light, and an appropriate environment in which to live.*** ***The behaviors of living things are influenced by internal and external cues.***	***food, water, air, light, and an appropriate environment in which to live.*** ***The behaviors of living things are influenced by internal and external cues.***	***food, water, air, light, and an appropriate environment in which to live.*** ***The behaviors of living things are influenced by internal and external cues.*** Living things can be sorted into groups using a variety of characteristics.		***food, water, air, light, and an appropriate environment in which to live.*** ***The behaviors of living things are influenced by internal and external cues.*** Living things can be sorted into groups using a variety of characteristics.	single cells; others are multicellular. Important levels of organization for structure and function include cells, organs, tissues, organ systems, whole organisms, and ecosystems. ***The functions that are required for life include obtaining and using resources, growing, reproducing, and maintaining stable internal conditions by sensing and responding to a constantly changing external environment.*** ***In classifying organisms, biologists consider details of internal and external structures and processes and the evidence of common ancestry to be more important than behavior or general appearance.*** ***Disease is a breakdown in structures or functions of an organism and can be caused by intrinsic failure***		***tissues, organ systems, whole organisms, and ecosystems.***	***the cell form structures that carry out cell functions.*** ***Cell functions include transport of materials, energy capture and release, protein building, waste disposal, information feedback, and movement.*** ***The work of a cell is carried out by the many different proteins it assembles from 20 different amino acids.*** ***The function of each protein molecule depends on its sequence of amino acids.*** ***The genetic information in DNA molecules provides instructions for assembling protein molecules. The code used is virtually the same for all life forms.*** ***Complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Cell behavior can***		

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
							of a system or infection by other organisms.			***also be affected by molecules from other parts of the organism.*** ***Most cells function best within a narrow range of temperature and acidity.*** ***Plant cells contain chloro-plasts, the site of photosynthesis.*** ***Plants and many microorganisms use solar energy to combine mole-cules of carbon dioxide and water into complex, energy-rich compounds and release oxygen to the environment.*** ***Complex multicellular organisms are formed as a highly organized arrangement of differentiated cells.*** The complexity and organization of organisms ac-commodates the need for obtain-ing, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism.		
	F-1.k	F-1.1	F-1.2	F-1.3		F-1.5	F-1.6		***F-1.8***	***F-1.9***		F-1.11

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
F-2: Life Cycles and Heredity of Living Things	Living things have life cycles that include being born, developing into adults, reproducing, and dying. Living things are very much, but not exactly, like their parents. There is variation among individuals of one kind.	Living things have life cycles that include being born, developing into adults, reproducing, and dying. Living things are very much, but not exactly, like their parents. There is variation among individuals of one kind. Many characteristics of an organism are inherited from the parents of the organism, but other characteristics result from interactions with the environment.	***Living things have life cycles that include being born, developing into adults, reproducing, and dying.*** ***Living things are very much, but not exactly, like their parents.*** There is variation among individuals of one kind. Many characteristics of an organism are inherited from the parents of the organism, but other characteristics result from interactions with the environment.	***Living things have life cycles that include being born, developing into adults, reproducing, and dying.*** Many characteristics of an organism are inherited from the parents of the organism, but other characteristics result from interactions with the environment. There is variation among individuals of one kind, and sometimes the differences give individuals an advantage in surviving and reproducing.			***Reproduction is essential to the continuation of every species.*** Every organism requires a set of instructions for specifying its traits. Heredity is the passage of these instructions from one generation to another. Hereditary information is contained in genes, located in the chromosomes of each cell. Each gene carries a single unit of information. An inherited trait of an individual can be determined by one or by many genes, and a single gene can influence more that one trait. Some traits are inherited, and others result from interactions with the environment. Some organisms reproduce asexually, which means all the genes come from a single parent. In sexual reproduction, a single specialized cell from a female merges with a specialized cell from a male. As		***Every organism requires a set of instructions for specifying its traits. Heredity is the passage of these instructions from one generation to another.*** ***Hereditary information is contained in genes, located in the chromosomes of each cell.*** ***Each gene carries a single unit of information.*** ***An inherited trait of an individual can be determined by one or by many genes, and a single gene can influence more than one trait.*** ***Some traits are inherited, and others result from interactions with the environment.*** ***Some organisms reproduce asexually, which means all the genes come from a single parent.*** ***In sexual reproduction, a single specialized cell from a female merges with a specialized cell from a male. As the fertilized egg, carrying genetic information from***	***The information passed from parents to offspring is coded in DNA molecules.*** ***The chemical and structural properties of DNA explain how the genetic information that underlies heredity is both encoded in genes and replicated.*** ***Genes are segments of DNA molecules.*** ***The sorting and recombination of genes in sexual reproduction results in a great variety of possible gene combinations from the offspring of any two parents.*** ***Inserting, deleting, or substituting DNA segments can alter genes; and an altered gene may be passed on to every cell that develops from it. This may help, harm, or have little effect on the offspring's success in its environment.*** ***Behavior is one kind of response an organism can make to an***		

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
							the fertilized egg, carrying genetic information from each parent, multiplies to form the complete organism, the same genetic information is copied in each cell.		***each parent, multiplies to form the complete organism, the same genetic information is copied in each cell.***	***internal or environmental stimulus. Behavioral response is a set of actions determined in part by heredity and in part from experience.***		
	F-2.k	F-2.1	F-2.2	F-2.3			F-2.6		***F-2.8***	***F-2.9***		
F-3: Organisms, Populations, and Ecosystems	Living things are found almost everywhere in the world, and different environments support the life of different types of organisms. The behavior of living things is influenced by conditions in the environment.	***Living things are found almost everywhere in the world, and different environments support the life of different types of organisms.*** The behavior of living things is influenced by conditions in the environment.	***Living things are found almost everywhere in the world, and different environments support the life of different types of organisms.*** ***The behavior of living things is influenced by conditions in the environment.***	***Living things are found almost everywhere in the world, and different environments support the life of different types of organisms.*** ***The behavior of living things is influenced by conditions in the environment. An organism's behavior can help it survive in a changing environment.*** ***Organisms interact with one another in various ways.*** ***All organisms (including humans) cause changes in the environment.***		***Living things are found almost everywhere in the world, and different environments support the life of different types of organisms.*** ***The behavior of living things is influenced by conditions in the environment. An organism's behavior can help it survive in a changing environment.*** ***Organisms interact with one another in various ways.*** ***When the environment changes, some living things survive and others die or move to new locations.*** All organisms (including humans) cause changes in the environment.	***Millions of species of animals, plants, and microorganisms are alive today.***	***A population consists of all individuals of a species that occur together at a given place and time.*** ***For sexually reproducing organisms, a species comprises all organisms that can mate with one another to produce fertile offspring.*** Biological evolution accounts for the diversity of species developed through gradual processes over many generations. Species acquire many of their unique characteristics and behaviors through biological adaptations, which involve the selection of naturally occurring variations in populations.	***Biological evolution accounts for the diversity of species developed through gradual processes over many generations.*** ***Species acquire many of their unique characteristics and behaviors through biological adaptations, which involve the selection of naturally occurring variations in populations.*** ***Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival.*** ***Fossils provide evidence that many organisms that lived long ago are extinct.***	***Organisms are classified into a hierarchy of groups and subgroups based on anatomical similarities and the similarity of their DNA sequences.*** ***Organisms both cooperate and compete in ecosystems. The ecosystems may be stable for hundreds or thousands of years.*** ***Living organisms have the capacity to produce populations of infinite size, but environments and resources are finite.*** ***Genetic variability of organisms due to mutation and recombination of genes makes some organisms better able to survive and leave offspring.*** ***Natural selection and its***		

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
								Extinction of a species occurs when the environment changes and the adaptive characteristics of a species are insufficient to allow its survival. Fossils provide evidence that many organisms that lived long ago are extinct. ***All populations living together and the physical factors with which they interact compose an ecosystem.*** ***Food webs identify the relationships among producers, consumers, and decomposers in an ecosystem.*** ***Organisms may interact with each other in relationships that may be beneficial or harmful to one or both organisms.*** ***The number of organisms an ecosystem can support depends on the available biotic and abiotic resources.***		***evolutionary consequences provide a scientific explanation for the fossil record of ancient life forms as well as for the striking molecular similarities observed among the diverse species of living organisms.*** ***A great diversity of species increases the chance that at least some living things will survive in the face of large changes in the environment. Human beings are part of the earth's ecosystems. Human activities can, deliberately or inadvertently, alter the equilibrium in ecosystems.***		
	F-3.k	***F-3.1***	***F-3.2***	***F-3.3***		***F-3.5***	***F-3.6***	***F-3.7***	***F-3.8***	***F-3.9***		
F-4: Matter and Energy in Living Systems	The sun provides the light and heat that all living	The sun provides the light and heat that all living	***All animals depend on plants. Some***	***All animals depend on plants. Some***	All animals depend on plants. Some animals eat	All animals depend on plants. Some animals eat		***The major source of energy for ecosystems is***		***Living systems require a continuous input of***		

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
	things need. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.	things need. All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.	***animals eat plants for food. Other animals eat animals that eat the plants.***	***animals eat plants for food. Other animals eat animals that eat the plants.*** Over the whole earth, organisms are growing, dying and decaying and new organisms are being produced. Some source of energy is needed for organisms to live and grow.	plants for food. Other animals eat animals that eat the plants. Over the whole earth, organisms are growing, dying and decaying and new organisms are being produced. Some source of energy is needed for organisms to live and grow.	plants for food. Other animals eat animals that eat the plants. Over the whole earth, organisms are growing, dying and decaying and new organisms are being produced. Some source of energy is needed for organisms to live and grow.		***sunlight.*** ***Populations of organisms can be categorized by the function they serve in an ecosystem—producers, consumers, and decomposers.*** ***Energy entering ecosystems as sunlight is transferred by producers (plants and some microorganisms) into chemical energy through photosynthesis.*** ***Most consumers are animals, which depend on producers for energy in the form of food. Some consumers eat plants for food. Others eat animals that eat the plants.*** ***Decomposers, primarily bacteria and fungi, are consumers that use waste materials and dead organisms for food.*** ***The energy contained in food is released through chemical processes.*** ***Matter and energy change form and are***		***energy to maintain their chemical and physical organizations.*** ***The atoms and molecules on the earth cycle among the living and nonliving components of the biosphere.*** ***Energy flows through ecosystems in one direction, from photosynthetic organisms to herbivores to carnivores and decomposers.*** ***Plants capture energy by absorbing light and using it to form strong chemical bonds between the atoms of carbon-containing molecules. The energy stored in bonds between the atoms (chemical energy) can be used as sources of energy for life processes.*** ***At each link in a food web, some energy is stored in newly made structures; but much is dissipated into the environment as heat. Continual input of energy***		

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
								transferred from one organism to another repeatedly. ***Matter and energy are transferred between organisms and their physical environment.*** ***The total amount of matter and energy remains constant, even though its form and location change.***		***from sunlight keeps the process going.*** ***The amount of life any environment can support is limited by the available energy, water, oxygen, and minerals and by the ability of ecosystems to recycle the residue of dead organic materials. Human activities and technology can change the flow.***		
	F-4.k	F-4.1	***F-4.2***	***F-4.3***	F-4.4	F-4.5		***F-4.7***		***F-4.9***		
STANDARD G: SCIENCE APPLICATIONS—STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN SCIENCE AND TECHNOLOGY AND THE WAYS IN WHICH THAT RELATIONSHIP INFLUENCES HUMAN ACTIVITIES.												
G-1: The Process of Technological Design	Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.	Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.	Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.	***Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.***	***Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.***	***Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.***	***Identify appropriate problems for technological design, design a solution or product, implement a proposed design, evaluate completed technological designs or products, and communicate the process of technological design.***	***Identify appropriate problems for technological design, design a solution or product, implement a proposed design, evaluate completed technological designs or products, and communicate the process of technological design.***	***Identify appropriate problems for technological design, design a solution or product, implement a proposed design, evaluate completed technological designs or products, and communicate the process of technological design.***	***Identify a problem or an opportunity to improve a design; propose designs and choose between alternative solutions; implement a proposed solution; evaluate the solution and its consequences; and communicate the problem, process, and solution.*** ***Science and technology are pursued for different purposes. Scientific inquiry is driven by the desire to understand the natural world, and technology is driven by the need to meet human***	Identify a problem or an opportunity to improve a design; propose designs and choose between alternative solutions; implement a proposed solution; evaluate the solution and its consequences; and communicate the problem, process, and solution.	Identify a problem or an opportunity to improve a design; propose designs and choose between alternative solutions; implement a proposed solution; evaluate the solution and its consequences; and communicate the problem, process, and solution.

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
										needs and solve human problems.		
	G-1.k	G-1.1	G-1.2	***G-1.3***	***G-1.4***	***G-1.5***	***G-1.6***	***G-1.7***	***G-1.8***	***G-1.9***	G-1.10	G-1.11
G-2: Abilities to Distinguish Between Natural Objects and Objects Made by Humans	***Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.***	***Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.***	***Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.***	***Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.***	***Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.***	***Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.***	Propose a design (or redesign) of an applied science model or a machine that will have an impact in the community or elsewhere in the world.	Propose a design (or redesign) of an applied science model or a machine that will have an impact in the community or elsewhere in the world; and show how the design (or redesign) might work, including potential side effects.	Design, build, evaluate, and revise models and explanations related to the earth and space, life and environmental, and physical sciences.	Design, build, evaluate, and revise models and explanations related to the earth and space, life and environmental, and physical sciences.	Design, build, evaluate, and revise models and explanations related to the earth and space, life and environmental, and physical sciences.	Design, build, evaluate, and revise models and explanations related to the earth and space, life and environmental, and physical sciences. Analyze the costs, benefits, or problems resulting from a scientific or technological innovation.
	G-2.k	***G-2.1***	***G-2.2***	***G-2.3***	***G-2.4***	***G-2.5***	G-2.6	G-2.7	G-2.8	G-2.9	G-2.10	G-2.11
G-3: Understanding About Science and Technology	***People have always invented tools and ways of doing things to solve problems.*** ***Tools are used to do things better or more easily and to do some things that could not otherwise be done at all.*** ***Tools are used to observe, measure, and make things.***	***People have always invented tools and ways of doing things to solve problems.*** ***Tools are used to do things better or more easily and to do some things that could not otherwise be done at all.*** ***Tools are used to observe, measure, and make things.***	***People have always invented tools and ways of doing things to solve problems.*** ***Tools are used to do things better or more easily and to do some things that could not otherwise be done at all.*** ***Tools are used to observe, measure, and make things.***	***People have always invented tools and ways of doing things to solve problems, but most tools of today are modifications of tools from the past.*** ***Tools are used to do things better or more easily and to do some things that could not otherwise be done at all.*** ***Tools are used to observe, measure, and make things.***	***People have always invented tools and ways of doing things to solve problems, but most tools of today are modifications of tools from the past.*** ***Tools are used to do things better or more easily and to do some things that could not otherwise be done at all.*** ***Tools are used to observe, measure, and make things.*** ***Scientists and engineers often work together in teams to solve problems and develop new technology.***	***People have always invented tools and ways of doing things to solve problems, but most tools of today are modifications of tools from the past.*** ***Tools are used to do things better or more easily and to do some things that could not otherwise be done at all.*** ***Tools are used to observe, measure, and make things.*** ***Scientists and engineers often work together in teams to solve problems and develop new technology.***	***Technology impacts trends in science and scientific research.*** ***Science and technology have both positive and negative impacts on our culture.*** Scientists rely on technology to enhance the gathering and manipulation of data.	***Technology impacts trends in science and scientific research.*** ***Science and technology have both positive and negative impacts on our culture.*** Scientists rely on technology to enhance the gathering and manipulation of data.	***Technology impacts trends in science and scientific research.*** ***Scientific knowledge can be used to make real-life decisions.*** Scientists rely on technology to enhance the gathering and manipulation of data.	***Science often advances with the introduction of new technologies, and solving technological problems often results in new scientific knowledge.*** ***Scientists rely on technology to enhance the gathering and manipulation of data.*** ***The accuracy and precision of data depends on the technology used.***	***Science often advances with the introduction of new technologies, and solving technological problems often results in new scientific knowledge.*** ***Scientists rely on technology to enhance the gathering and manipulation of data.*** ***The accuracy and precision of data depends on the technology used.***	***Science often advances with the introduction of new technologies, and solving technological problems often results in new scientific knowledge.*** ***Scientists rely on technology to enhance the gathering and manipulation of data.*** ***The accuracy and precision of data depends on the technology used.***
	G-3.k	***G-3.1***	***G-3.2***	***G-3.3***	***G-3.4***	***G-3.5***	G-3.6	G-3.7	G-3.8	***G-3.9***	***G-3.10***	***G-3.11***

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
STANDARD H: SCIENCE IN SOCIAL AND PERSONAL PERSPECTIVES—STUDENTS WILL USE SCIENCE INFORMATION AND SKILLS TO MAKE INFORMED DECISIONS ABOUT THEMSELVES, THEIR COMMUNITY, AND THE WORLD IN WHICH THEY LIVE.												
H-1: Personal and Community Health							***Natural environments may contain substances (for example, radon and lead) that are harmful to human beings. Maintaining environmental health involves establishing or monitoring quality standards related to use of soil, water, and air.*** ***H-1.6***	***Natural environments may contain substances (for example, radon and lead) that are harmful to human beings. Maintaining environmental health involves establishing or monitoring quality standards related to use of soil, water, and air.*** ***H-1.7***	***Natural environments may contain substances (for example, radon and lead) that are harmful to human beings. Maintaining environmental health involves establishing or monitoring quality standards related to use of soil, water, and air.*** ***H-1.8***	***Scientific knowledge can be used to make real-life decisions.*** ***H-1.9***	***Scientific knowledge can be used to make real-life decisions.*** ***H-1.10***	***Scientific knowledge can be used to make real-life decisions.*** ***H-1.11***
H-2: Human Population Growth	Human populations are groups of people living in a particular location. H-2.k	Human populations are groups of people living in a particular location. H-2.1	Human populations are groups of people living in a particular location. H-2.2	Human populations are groups of people living in a particular location. The size of a population can increase or decrease. H-2.3	Human populations are groups of people living in a particular location. The size of a population can increase or decrease. H-2.4	Human populations are groups of people living in a particular location. The size of a population can increase or decrease. H-2.5	When an area becomes over-populated, the environment will become degraded due to the increased use of resources. H-2.6	When an area becomes over-populated, the environment will become degraded due to the increased use of resources. H-2.7	When an area becomes over-populated, the environment will become degraded due to the increased use of resources. H-2.8			Populations grow or decline through the combined effects of births and deaths and through emigration and immigration. Populations can increase through linear or expo-nential growth, with effects on resource use and environmental pollution. Populations can reach limits to growth. Carrying capacity is the maximum num-ber of individuals that can be sup-ported in a given environment. H-2.11
H-3: Types of Resources	Resources are things we get from the living	Resources are things we get from the living	***Resources are things we get from the living***	***Resources are things we get from the living***	***Resources are things we get from the living***	***Resources are things we get from the living***	***Humans have used renewable and nonrenew-***	***Humans have used renewable and nonrenew-***	***Humans have used renewable and nonrenew-***			Human populations use resources in the

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
	and nonliving environment to meet the needs and wants of a population. Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel, and building materials. The supply of many resources is limited, but their availability can be extended through recycling and decreased use. H-3.k	and nonliving environment to meet the needs and wants of a population. Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel, and building materials. The supply of many resources is limited, but their availability can be extended through recycling and decreased use. H-3.1	***and nonliving environment to meet the needs and wants of a population.*** ***Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel, and building materials.*** The supply of many resources is limited, but their availability can be extended through recycling and decreased use. H-3.2	***and nonliving environment to meet the needs and wants of a population.*** ***Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel, and building materials.*** The supply of many resources is limited, but their availability can be extended through recycling and decreased use. H-3.3	***and nonliving environment to meet the needs and wants of a population.*** ***Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel and building materials.*** The supply of many resources is limited, but their availability can be extended through recycling and decreased use. H-3.4	***and nonliving environment to meet the needs and wants of a population.*** ***Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel and building materials.*** ***The supply of many resources is limited, but their availability can be extended through recycling and decreased use.*** ***H-3.5***	***able natural resources through history.*** ***The global environment is affected by national policies and practices relating to energy use, waste disposal, ecological management, manufacturing, and population.*** ***H-3.6***	***able natural resources through history.*** ***The global environment is affected by national policies and practices relating to energy use, waste disposal, ecological management, manufacturing, and population.*** ***H-3.7***	***able natural resources through history.*** ***The global environment is affected by national policies and practices relating to energy use, waste disposal, ecological management, manufacturing, and population.*** ***H-3.8***			environment in order to maintain and improve their existence. Natural resources have been and will continue to be used to maintain human populations. The earth does not have infinite resources. Increasing human consumption places severe stress on the natural processes that renew some resources, and it depletes those resources that cannot be renewed. H-3.11
H-4: Quality of and Changes in Environments	Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life. Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans.	Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life. Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans.	Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life. Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans.	Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life. Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans. Some environmental	Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life. Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans. Some environmental	***Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life.*** ***Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans.*** ***Some***	***Internal and external processes of the earth system cause natural hazards (earthquakes, landslides, wildfires, volcanic eruptions, floods, storms, asteroid impact) that change or destroy human and wildlife habitats, damage property, and harm or kill living organisms.*** ***Human activities (resource acquisition, urban growth, land-use decisions, and waste disposal) can induce hazards and can accelerate many***	***Internal and external processes of the earth system cause natural hazards (earthquakes, landslides, wildfires, volcanic eruptions, floods, storms, asteroid impact) that change or destroy human and wildlife habitats, damage property, and harm or kill living organisms.*** ***Human activities (resource acquisition, urban growth, land-use decisions, and waste disposal) can induce hazards and can accelerate many***	***Internal and external processes of the earth system cause natural hazards (earthquakes, landslides, wildfires, volcanic eruptions, floods, storms, asteroid impact) that change or destroy human and wildlife habitats, damage property, and harm or kill living organisms.*** ***Human activities (resource acquisition, urban growth, land-use decisions, and waste disposal) can induce hazards and can accelerate many***			Human activities can enhance potential for hazards. Acquisition of resources, urban growth, and waste disposal can accelerate rates of natural change. Some hazards, such as earthquakes, volcanic eruptions, and severe weather, are rapid and spectacular; but there are slow and progressive changes that also result in problems for individuals and societies.

	KDG	GRADE 1	GRADE 2	GRADE 3	GRADE 4	GRADE 5	GRADE 6	GRADE 7	GRADE 8	GRADES 9 BIOLOGY	GRADE 10 CHEMISTRY	ELECTIVES
				changes occur slowly, and others occur rapidly.	changes occur slowly, and others occur rapidly.	***environmental changes occur slowly, and others occur rapidly.***	***natural changes.***	***natural changes.***	***natural changes.***			Humans have a major effect on other species.
	H-4.k	H-4.1	H-4.2	H-4.3	H-4.4	***H-4.5***	***H-4.6***	***H-4.7***	***H-4.8***			H-4.11
H-5: Science and Technology in Society	Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.	Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.	Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.	***Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.***	***Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.***	***Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.***	***Societal challenges often inspire questions for scientific research.*** ***Technology influences society through its products and processes.*** ***Social needs, attitudes and values influence the direction of technological development.***	***Societal challenges often inspire questions for scientific research.*** ***Technology influences society through its products and processes.*** ***Social needs, attitudes and values influence the direction of technological development.***	***Societal challenges often inspire questions for scientific research.*** ***Technology influences society through its products and processes.*** ***Social needs, attitudes and values influence the direction of technological development.***			Understanding basic concepts and principles of science and technology should precede active debate about the economics, policies, politics, and ethics of various science and technology-related challenges. Progress in science and technology can be affected by social issues and challenges.
	H-5.k	H-5.1	H-5.2	***H-5.3***	***H-5.4***	***H-5.5***	***H-5.6***	***H-5.7***	***H-5.8***			H-5.11