Grade 8 Science MATTER AND ITS INTERACTIONS	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-PS1-1 Develop models to describe the atomic composition of simple molecules and extended structures.	**LC-8-MS-PS1-1a** Using a model(s), identify that an atom's nucleus as made of protons and neutrons and is surrounded by electrons.
	LC-8-MS-PS1-1b Using a model(s), identify that individual atoms of the same or different types repeat to form extended structures (e.g., sodium chloride).
8-MS-PS1-3 Gather and make sense of information to describe that synthetic materials come from natural resources and impact society.	**LC-8-MS-PS1-3a** Compare and contrast characteristics of natural and synthetic materials (e.g., fibers) from provided information (e.g., text, media, visual displays, data).
	LC-8-MS-PS1-3b Identify ways in which natural resources undergo a chemical process to form synthetic materials (e.g., medicine, textiles, clothing) which impact society.
8-MS-PS1-6 Undertake a design project to construct, test, and modify a device that either releases or absorbs thermal energy by chemical processes.	**LC-8-MS-PS1-6a** Identify a chemical process that releases or absorbs thermal energy (e.g., dissolving ammonium chloride or calcium chloride) which, given the features of a problem, may provide a solution.
	LC-8-MS-PS1-6b Identify a way to test or modify a device that either releases or absorbs thermal energy by chemical processes.

Grade 8 Science ENERGY	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-PS3-3 Apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.	**LC-8-MS-PS3-3a** Use information (e.g., graph, model) to identify a device (e.g., foam cup, insulated box) that either minimizes or maximizes thermal energy transfer (e.g., keeping liquids hot or cold).
8-MS-PS3-5 Construct, use, and present arguments to support the claim that when the kinetic energy of an object changes, energy is transferred to or from the object.	**LC-8-MS-PS3-5a** Using information from graphical displays of data and models, describe the change in the kinetic energy of an object as energy transferred to or from an object.

Grade 8 Science EARTH'S PLACE IN THE UNIVERSE	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-ESS1-4 Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's geologic history.	**LC-8-MS-ESS1-4a** Sequence the relative order of events from Earth's history shown by rock strata and patterns of layering.

Grade 8 Science EARTH'S SYSTEMS	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-ESS2-1 Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process.	**LC-8-MS-ESS2-1a** Identify relationships between components in a model showing the cycling of energy flows and matter within and among Earth's systems, including the sun and Earth's interior as primary energy sources.
8-MS-ESS2-2 Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales.	**LC-8-MS-ESS2-2a** Identify examples of processes to explain that change Earth's surface at varying time and spatial scales that can be large (e.g., plate motions) or small (e.g., landslides).
8-MS-ESS2-3 Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and sea floor structures to provide evidence of the past plate motions.	**LC-8-MS-ESS2-3a** Using graphical displays of data, identify how the shapes of the continents and fossil comparisons along the edges of continents to demonstrate lithospheric plate movement.

Grade 8 Science EARTH AND HUMAN ACTIVITY	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-ESS3-1 Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes.	**LC-8-MS-ESS3-1a** Identify explanations of the uneven distributions of Earth's minerals, energy, and groundwater resources due to past and current geoscience processes or by removal of resources.
8-MS-ESS3-2 Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.	**LC-8-MS-ESS3-2a** Use maps, charts, and images of natural hazards to look for patterns in past occurrences of catastrophic events in each of two regions to predict which location may receive a future similar catastrophic event.
	LC-8-MS-ESS3-2b Identify technologies that mitigate the effects of natural hazards (e.g., the design of buildings and bridges to resist earthquakes, storm shelters for tornados, levees along rivers to prevent flooding).
8-MS-ESS3-3 Apply scientific principles to design a method for monitoring and minimizing human impact on the environment.	**LC-8-MS-ESS3-3** Using data from a design solution for minimizing a human impact on the environment, identify limitations of the solution.

Grade 8 Science FROM MOLECULES TO ORGANISMS: STRUCTURES AND PROCESSES	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-LS1-4 Construct and use argument(s) based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of survival and successful reproduction of animals and plants respectively.	**LC-8-MS-LS1-4a** Identify behaviors animals engage in (e.g., vocalization) that increase the likelihood of reproduction.
	LC-8-MS-LS1-4b Identify specialized plant structures (e.g., bright flower parts) that increase the likelihood of reproduction.
8-MS-LS1-5 Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	**LC-8-MS-LS1-5a** Identify a scientific explanation for how environmental factors (e.g., availability of light, space, water, size of habitat) affect the growth of animals and plants.
	LC-8-MS-LS1-5b Identify a scientific explanation for how genetic factors (e.g., specific breeds of plants and animals and their typical sizes) affect the growth of animals and plants.

Grade 8 Science HEREDITY: INHERITANCE AND VARIATION OF TRAITS	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-LS3-1 Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism.	**LC-8-MS-LS3-1a** Use a model to explain how genetic variations in specific traits may occur as organisms pass on their genetic material from one generation to the next, along with small changes.

Grade 8 Science BIOLOGICAL EVOLUTION: UNITY AND DIVERSITY	
Louisiana Student Standards	**Louisiana Connectors (LC)**
8-MS-LS4-1 Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.	**LC-8-MS-LS4-1a** Use data to identify that fossils of different animals that lived at different times are placed in chronological order (i.e., fossil record) and located in different sedimentary layers.
8-MS-LS4-2 Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships.	**LC-8-MS-LS4-2a** Recognize that similarities and differences in external structures can be used to infer evolutionary relationships between living and fossil organisms.
	LC-8-MS-LS4-2b Identify an explanation of the evolutionary relationships between modern and fossil organisms.
8-MS-LS4-3 Analyze displays of pictorial data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.	**LC-8-MS-LS4-3a** Identify patterns (i.e., pictorial displays, representations, data) in the embryological development as evidence of relationships among species.
8-MS-LS4-6 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations of species over time.	**LC-8-MS-LS4-6a** Analyze numerical data sets that represent a proportional relationship between some change in the environment and corresponding changes in genetic variation (i.e., traits) over time.