7th Grade		
Strand	**Code**	**Benchmark**
Exploring Phenomena or Engineering Problems	7L.1.1.1.1	Ask questions about the processes and outcomes of various methods of communication between cells of multicellular organisms.
	7L.1.1.1.2	Ask questions that arise from careful observations of phenomena or models to clarify and or seek additional information about how changes in genes can affect organisms.
	7L.1.2.1.1	Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.
Looking at data and empirical evidence to understand phenomena or solve problems	7L.2.1.1.1	Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.**
	7L.2.1.1.2	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.
	7L.2.1.1.3	Analyze visual data to compare patterns of similarities in the embryological development across multiple species to identify relationships not evident in the fully formed anatomy.
	7L.2.2.1.1	Use an algorithm to explain how natural selection may lead to increases and decreases of specific traits in populations.
Developing possible explanations of phenomena or designing solutions to engineering problems	7L.3.1.1.1	Develop and use a model to describe the function of a cell as a whole and describe the way cell parts contribute to the cell's function.

	7L.3.1.1.2	Develop and use a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism.
	7L.3.1.1.3	Develop and use a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.
	7L.3.1.1.4	Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.
	7L.3.2.1.1	Construct an explanation based on evidence for how environmental and genetic factors influence the growth of organisms and/or populations.
	7L.3.2.1.2	Construct an explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms.
	7L.3.2.1.3	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.
	7L.3.2.1.4	Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.
Communicating reasons, arguments and ideas to others	7L.4.1.1.1	Support or refute an explanation by arguing from evidence for how the body is a system of interacting subsystems composed of groups of cells.
	7L.4.1.1.2	Support or refute an explanation by arguing from evidence and scientific reasoning for how animal behavior and plant structures affect the probability of successful reproduction.
	7L.4.1.2.1	Construct an argument supported by empirical evidence that changes in physical or biological components of an ecosystem affect populations.

	7L.4.1.2.2	Evaluate competing design solutions for maintaining biodiversity or ecosystem services.
	7L.4.2.2.1	Gather multiple sources of information and communicate how Minnesota American Indian Tribes and communities and other cultures use knowledge to predict or interpret patterns of interactions among organisms across multiple ecosystems.