# Curriculum Outline 2021-22 - Science 8

| Unit | Standards | Essential Skills | Resources | Assessments |
|---|---|---|---|---|
| **1. Heredity & Genetics** | • **Key Idea 2:** Organisms inherit genetic information in a variety of ways that result in continuity of structure and function between parents and offspring.<br>• **Key Idea 4:** The continuity of life is sustained through reproduction and development.<br>• **Key Idea 5:** Organisms maintain a dynamic equilibrium that sustains life. | • Describe sexual and asexual mechanisms for passing genetic materials from generation to generation.<br>• Compare and contrast dominant and recessive traits<br>• Describe simple mechanisms for the inheritance of traits in offspring.<br>• Predict the likelihood of offspring getting a certain trait using a Punnett square<br>• Read and produce a pedigree chart | • FOSS kits/web<br>• Various YouTube videos<br>• Google Classroom<br>• PBSlearningmedia.org<br>• Amoeba Sisters | • Genetics Lab<br>• Quizzes<br>• Unit test |
| **2. Human Body Systems** | • **Key Idea 1:** Living things are both similar to and different from each other and from nonliving things.<br>• **MS-LS1-3.** Construct an explanation supported by evidence for how the body is composed of interacting systems consisting of cells, tissues, and organs working together to maintain homeostasis.<br>• **MS-LS1-8.** Gather and | • Correctly organize the levels of structural organization in humans<br>• Explain the functioning of the major human organ systems and their interactions<br>• Describe how the various human body systems work together to maintain homeostasis | • FOSS kits/web<br>• Various YouTube videos<br>• Google Classroom | • Human Body Packet<br>• Various labs<br>• Quiz<br>• Unit test |

| | | | | |
|---|---|---|---|---|
| | synthesize information that sensory receptors respond to stimuli, resulting in immediate behavior and/or storage as memories. | | | |
| **3. Ecology** | • **Key Idea 6:** Plants and animals depend on each other and their physical environment.<br>• **Key Idea 7:** Human decisions and activities have had a profound impact on the physical and living environment.<br>• **MS-LS2-1.** Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem.<br>• **MS-LS2-3.** Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.<br>• **MS-LS2-4.** Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.<br>• **MS-LS2-2.** Construct an explanation that predicts patterns of interactions among organisms in a variety of ecosystems. | • Describe the flow of energy and matter through food chains and food webs<br>• Describe how living things, including humans, depend upon the living and nonliving environment for their survival<br>• Describe the effects of environmental changes on humans and other populations<br>• Recognize patterns in data and make predictions about population changes<br>• Describe and predict various patterns of interaction between organisms (competition, predation, mutualism, parasitism) | • FOSS kits/web<br>• Various YouTube videos<br>• Google Classroom | • Ecology lab<br>• Quizzes<br>• Unit test |
| **4. Natural Selection &** | • **Key Idea 3:** Individual organisms and species change | • Describe sources of variation in organisms | • TedEd<br>• Various | • Various labs<br>• Quizzes |

| | | | | |
|---|---|---|---|---|
| **Adaptation** | over time.<br>• **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.<br>• **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.<br>• **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.<br>• **MS-LS4-4.** 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.<br>• **MS-LS4-6.** Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of | and their structures and relate the variations to survival<br>• Describe factors responsible for competition within species and the significance of that competition<br>• Use fossil records to compare and contrast different organisms and to determine the chronological order of fossil appearance in the rock layers<br>• Determine organism relatedness by comparing diagrams<br>• Explain trends in changes to populations over time | YouTube videos<br>• Google Classroom | • Unit test |

| | | | | |
|---|---|---|---|---|
| | specific traits in populations over time. | | | |