

NOTE: This curriculum map is a general outline of questions and content that is covered in this class. Some topics may continue throughout the year depending on student interest and availability of materials.

	September	October	November	December	January	February	March	April	May
Essential Questions	<ul style="list-style-type: none"> ◆ What skills do scientists use to learn about the world? ◆ What is scientific inquiry? ◆ What makes a hypothesis testable? ◆ How does technology differ from science? ◆ How does technology affect society? ◆ Why is preparation important when carrying out scientific investigations in the lab? ◆ What characteristics do all living things share? ◆ Where do living things come from? ◆ Why do biologists organize living things into groups? ◆ What characteristics are used to classify organisms into domains and kingdoms? 	<ul style="list-style-type: none"> ◆ What are cells? ◆ How did the invention of the microscope contribute to knowledge about living things? ◆ How do microscopes produce magnified images? ◆ What is the cell theory? ◆ What role do the cell wall and membrane play in the cell? ◆ What are the functions of cell organelles? ◆ How are cells organized into many celled organisms? 	<ul style="list-style-type: none"> ◆ What are elements and compounds? ◆ What are the main kinds of organic compounds in living things? ◆ How do most small molecules cross the cell membrane? ◆ Why is osmosis important to cells? ◆ What is the difference between active and passive transport? ◆ What happens during the process of photosynthesis? ◆ What events occur during respiration? 	<ul style="list-style-type: none"> ◆ What events take place during the 3 stages of the cell cycle? ◆ How does the structure of DNA help account for the way in which DNA copies itself? 	<ul style="list-style-type: none"> ◆ What were the results of Mendel's experiments? ◆ What controls the inheritance of traits in organisms? ◆ What is probability and how does it help explain the results of genetic crosses? ◆ What is co-dominance? ◆ What is meant by genotype and phenotype? ◆ What role do chromosomes play in inheritance? ◆ What events occur during meiosis? ◆ What is the relationship between chromosomes and genes? ◆ What forms the genetic code? ◆ How can mutations affect an organism? ◆ What are some patterns of inheritance in humans? ◆ What are the functions of sex chromosomes? ◆ What is the relationship between genes and the environment? ◆ What are 2 major causes of genetic disorders in humans? ◆ How do geneticists trace the inheritance of traits? ◆ What is the goal of the human genome project? 	<ul style="list-style-type: none"> ◆ How are viruses like organisms? ◆ What is the structure of a virus? ◆ How do the cells of bacteria differ from those of eukaryotes? ◆ What positive roles do bacteria play in peoples' lives? ◆ What are the characteristics of animal-like, plant-like, and fungus-like protists? ◆ What roles do fungi play in nature? ◆ How are animals' bodies typically organized? ◆ What can you infer about an animal based on its symmetry? ◆ What are the main characteristics of sponges and cnidarians? ◆ What are the 3 main phyla of worms? 	<ul style="list-style-type: none"> ◆ What are the main characteristics of mollusks? ◆ What are the major groups of mollusks and how do they differ? ◆ How do crustaceans, arachnids, centipedes, and millipedes differ? ◆ What are the main characteristics of insects? ◆ What are the 2 types of metamorphosis that insects undergo? ◆ Why are insects important in food chains? ◆ What are ways insects interact with their environments? ◆ What are some ways used to control insect pests? ◆ What are the main characteristics of echinoderms? 	<ul style="list-style-type: none"> ◆ What characteristics do chordates share? ◆ How do vertebrates differ in the way they control body temperatures? ◆ What are the characteristics of fishes? ◆ What are the characteristics of amphibians? ◆ What are some adaptations of adult amphibians for living on land? ◆ What are some adaptations that allow reptiles to live on land? ◆ What are the main characteristics of birds? ◆ How are birds adapted to their environment? ◆ What causes a bird to rise in the air? ◆ What characteristics do all mammals share? 	<ul style="list-style-type: none"> ◆ What are biotic and abiotic factors? ◆ What are the levels of organization within an ecosystem? ◆ What are the methods for determining the size of a population? ◆ What adaptations enable organisms to survive? ◆ What are the differences between primary and secondary succession? ◆ What are the energy roles that organisms play in an ecosystem? ◆ How much energy is available at each level of the energy pyramid?
Content	<ul style="list-style-type: none"> ◆ Lab Safety ◆ Scientific Method ◆ Characteristics of Living Things ◆ Chemical Compounds of Life ◆ Classification 	<ul style="list-style-type: none"> ◆ Microscope ◆ Cell Theory ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Cell Processes & Energy ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Cell Division ◆ DNA ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Mendelian Genetics ◆ Modern Genetics ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Viruses ◆ Bacteria ◆ Protists ◆ Fungi ◆ Sponges ◆ Cnidarians ◆ Worms ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Mollusks ◆ Arthropods ◆ Insects ◆ Echinoderms ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Fishes ◆ Amphibians ◆ Reptiles ◆ Birds ◆ Mammals ◆ Scientific Method 	<ul style="list-style-type: none"> ◆ Populations & Communities ◆ Ecosystems ◆ Biomes ◆ Biodiversity ◆ Scientific Method