

Pacing Guide for 7-12 Curriculum

Course Title: _____ Biology _____

Length of Course: _____ 36 weeks _____

Week Number	Chapter	COS	Objectives / Content Standards	Strategies / Materials Needed
Week 1	Chapter 1	<p>Obj. 1.Select appropriate laboratory glassware, balances, time measuring equipment, and optical instruments to conduct an experiment.</p> <ul style="list-style-type: none"> • Describing the steps of the scientific method • Comparing controls, dependent variables, and independent variables • Identifying safe laboratory procedures when handling chemicals and using Bunsen burners and laboratory glassware • Using appropriate SI units for measuring length, volume, and mass 	<p>1)Define Biology. 2) Identify possible benefits from studying biology. 3) Summarize the characteristics of living things. 4) Explain the characteristics of science. 5) Describe the importance of the metric system and SI to scientific research. 6) Identify safe laboratory procedures when handling chemicals, glassware, and biological specimens. 7) Locate safety equipment in the lab. 8) Explain safety procedures in the event of fire, chemical splash or eye emergency.</p>	<p>-Introduction to Biology -8 Characteristics of Life -Lab Safety Notes -Paper Towel Lab -Is Sammy Alive?</p>
Week 2	Chapter 1 Chapter 2	<p>Obj: 1 Select appropriate laboratory glassware, balances, time measuring equipment, and optical instruments to conduct an experiment.</p> <ul style="list-style-type: none"> • Describing the steps of the scientific method • Comparing controls, dependent variables, and independent variables • Identifying safe laboratory procedures when handling chemicals and using Bunsen burners and laboratory glassware • Using appropriate SI units for measuring length, volume, and mass <p>Obj: 3 Identify reactants and products associated with photosynthesis and cellular respiration and the purposes of these two processes.</p> <p>Obj: 2 Describe cell processes necessary for achieving homeostasis, including active and passive transport, osmosis, diffusion, exocytosis, and endocytosis.</p> <ul style="list-style-type: none"> • Identifying functions of carbohydrates, lipids, proteins, and nucleic acids in cellular activities • Comparing the reaction of plant and animal cells in isotonic, hypotonic, and hypertonic solutions • Explaining how surface area, cell size, temperature, light, and pH affect cellular activities • Applying the concept of fluid pressure to biological systems Examples:blood pressure, turgor pressure, bends, strokes 	<p>1)Label selected lab equipment and identify equipment function. 2) Determine the appropriate equipment for accurately measuring volume and length. 3) Differentiate among control group, experimental group, dependent variable, and independent variable. 4) List 7 steps of the scientific method. 5) Identify and apply skills scientists use in conducting research. 6) Identify parts of a chemical reaction using the equation for photosynthesis and cellular respiration. 7) Summarize the importance of enzymes in living organisms.</p>	<p>-Lab Equipment Practical -Scientific Method notes -Chemical Reactions -Lab Safety Assessment -Benchmark Test for Obj. 1</p>
Week 3	Chapter 6	<p>Obj: 2 Describe cell processes necessary for achieving homeostasis, including active and passive transport, osmosis,</p>	<p>1)Evaluate how the structure of water makes it a good solvent. 2) Compare and contrast solutions</p>	<p>-Water/Solutions -Bio-Chemicals –</p>

		<p>diffusion, exocytosis, and endocytosis.</p> <ul style="list-style-type: none"> Identifying functions of carbohydrates, lipids, proteins, and nucleic acids in cellular activities Comparing the reaction of plant and animal cells in isotonic, hypotonic, and hypertonic solutions Explaining how surface area, cell size, temperature, light, and pH affect cellular activities Applying the concept of fluid pressure to biological systems Examples: blood pressure, turgor pressure, bends, strokes 	<p>and suspensions. 3) Describe the difference between acids and bases. 4) Describe the role of carbon in living organisms. 5) Summarize the four major families of biological macromolecules. 6) Compare the functions of each group of biological macromolecules.</p>	<p>Carbohydrates, Proteins, Lipids -Water/Oil Solvent Demonstration (pg 161) -Mentos in Coke ...catalyst demonstration</p>
Week 4	Chapter 7	<p>Obj: 4 Describe similarities and differences of cell organelles, using diagrams and tables. Describe similarities and differences of cell organelles, using diagrams and tables.</p> <ul style="list-style-type: none"> Identifying scientists who contributed to the cell theory Examples: Hooke, Schleiden, Schwann, Virchow, van Leeuwenhoek Distinguishing between prokaryotic and eukaryotic cells Identifying various technologies used to observe cells Examples: light microscope, scanning electron microscope, transmission electron microscope <p>Obj: 5 Identify cells, tissues, organs, organ systems, organisms, populations, communities, and ecosystems as levels of organization in the biosphere.</p> <ul style="list-style-type: none"> Recognizing that cells differentiate to perform specific functions Examples: ciliated cells to produce movement, nerve cells to conduct electrical charges 	<p>1) Relate advances in microscope technology to discoveries about cells. 2) Compare compound light microscopes with electron microscopes. 3) Summarize the principles of the cell theory. 4) Differentiate between a prokaryotic cell and a eukaryotic cell.</p>	<p>-Cell Discovery and Theory -Microscope Lab (Letter E) -Cells Alive! WebQuest http://www.cellsalive.com/cells/3dcell.htm</p>
Week 5	Chapter 7	<p>Obj: 4 Describe similarities and differences of cell organelles, using diagrams and tables. Describe similarities and differences of cell organelles, using diagrams and tables.</p> <ul style="list-style-type: none"> Identifying scientists who contributed to the cell theory Examples: Hooke, Schleiden, Schwann, Virchow, van Leeuwenhoek Distinguishing between prokaryotic and eukaryotic cells Identifying various technologies used to observe cells Examples: light microscope, scanning electron microscope, transmission electron microscope <p>Obj: 2 Describe cell processes necessary for achieving homeostasis, including active and passive transport, osmosis, diffusion, exocytosis, and endocytosis.</p> <ul style="list-style-type: none"> Identifying functions of carbohydrates, lipids, proteins, and nucleic acids in cellular activities Comparing the reaction of plant and animal cells in isotonic, hypotonic, and hypertonic solutions Explaining how surface area, cell size, temperature, light, and pH affect cellular activities Applying the concept of fluid pressure to biological systems Examples: blood pressure, turgor pressure, bends, strokes 	<p>1) Describe how a cell's plasma membrane functions. 2) Identify the roles of proteins, carbohydrates, and cholesterol in the plasma membrane. 3) Identify the structure and function of the parts of a typical eukaryotic cell. 4) Compare and contrast structures of plant and animal cells.</p>	<p>-Plasma Membrane -Organelles -Cell Membrane Diffusion Lab</p>

Week 6	Chapter 7	<p>Obj: 2 Describe cell processes necessary for achieving homeostasis, including active and passive transport, osmosis, diffusion, exocytosis, and endocytosis.</p> <ul style="list-style-type: none"> Identifying functions of carbohydrates, lipids, proteins, and nucleic acids in cellular activities Comparing the reaction of plant and animal cells in isotonic, hypotonic, and hypertonic solutions Explaining how surface area, cell size, temperature, light, and pH affect cellular activities Applying the concept of fluid pressure to biological systems Examples: blood pressure, turgor pressure, bends, strokes 	<p>1) Identify the structure and function of the parts of a typical eukaryotic cell. 2) Compare and contrast structures of plant and animal cells. 3) Explain the processes of diffusion, facilitated diffusion, and active transport. 4) Predict the effect of a hypotonic, hypertonic, or isotonic solution on a cell. 5) Discuss how large particles enter and exit cells.</p>	<p>-Organelles -Cell Transport -Benchmark Test Obj. 2,4</p>
Week 7	Chapter 8	<p>Obj: 3 Identify reactants and products associated with photosynthesis and cellular respiration and the purposes of these two processes.</p>	<p>1) Summarize the two laws of thermodynamics. 2) Compare and contrast autotrophs and heterotrophs. 3) Describe how ATP works in a cell. 4) Summarize the two phases of photosynthesis. 5) Explain the function of a chloroplast during the light reactions. 6) Describe and diagram electron transport. 7) Summarize the stages of cellular respiration. 8) Identify the role of electron carriers in each stage of cellular respiration. 9) Compare alcoholic fermentation and lactic acid fermentation.</p>	<p>-Obtaining Energy -Photosynthesis -Cellular Respiration -Elodea oxygen/CO2 lab (pg 220)</p>
Week 8	Chapter 8	<p>Obj: 3 Identify reactants and products associated with photosynthesis and cellular respiration and the purposes of these two processes.</p>	<p>1) Summarize the two phases of photosynthesis. 2) Explain the function of a chloroplast during the light reactions. 3) Describe and diagram electron transport. 4) Summarize the stages of cellular respiration. 5) Identify the role of electron carriers in each stage of cellular respiration. 6) Compare alcoholic fermentation and lactic acid fermentation.</p>	<p>-Photosynthesis and Cellular Respiration Equations -Benchmark Test Obj: 3</p>
Week 9	Chapter 12	<p>Obj: 8 Identify the structure and function of DNA, RNA, and protein.</p> <ul style="list-style-type: none"> Explaining relationships among DNA, genes, and chromosomes Listing significant contributions of biotechnology to society, including agricultural and medical practices Examples: DNA fingerprinting, insulin, growth hormone Relating normal patterns of genetic inheritance to genetic variation Example: crossing-over Relating ways chance, mutagens, and genetic engineering increase diversity Examples: insertion, deletion, translocation, inversion, recombinant DNA Relating genetic disorders and disease to patterns of genetic inheritance Examples: hemophilia, sickle cell anemia, Down's syndrome, Tay-Sachs disease, cystic fibrosis, color blindness, phenylketonuria (PKU) 	<p>1) Explain how messenger RNA, ribosomal RNA, and transfer RNA are involved in the transcription and translation of genes. 2) Summarize the role of RNA polymerase in the synthesis of messenger RNA. 3) Describe how the code of DNA is translated into messenger RNA and is utilized to synthesize a particular protein. 4) Discuss how eukaryotes regulate transcription of a gene. 5) Summarize the various types of mutations.</p>	<p>-DNA, RNA, Protein Synthesis -Gene Regulation & Mutation -Extracting DNA Lab</p>

Week 10	Chapter 12	<p>Obj: 8 Identify the structure and function of DNA, RNA, and protein.</p> <ul style="list-style-type: none"> Explaining relationships among DNA, genes, and chromosomes Listing significant contributions of biotechnology to society, including agricultural and medical practices Examples: DNA fingerprinting, insulin, growth hormone Relating normal patterns of genetic inheritance to genetic variation Example: crossing-over Relating ways chance, mutagens, and genetic engineering increase diversity Examples: insertion, deletion, translocation, inversion, recombinant DNA Relating genetic disorders and disease to patterns of genetic inheritance Examples: hemophilia, sickle cell anemia, Down's syndrome, Tay-Sachs disease, cystic fibrosis, color blindness, phenylketonuria (PKU) 	<p>1) Explain how messenger RNA, ribosomal RNA, and transfer RNA are involved in the transcription and translation of genes. 2) Summarize the role of RNA polymerase in the synthesis of messenger RNA.</p> <p>3) Describe how the code of DNA is translated into messenger RNA and is utilized to synthesize a particular protein.</p>	<p>-DNA, RNA, Protein Synthesis -“Make a Protein” Lab http://www.explorebiology.com/regentsbiology/labs/lab41.html</p>
Week 11	Chapter 9	<p>6. Describe the roles of mitotic and meiotic divisions during reproduction, growth, and repair of cells.</p> <ul style="list-style-type: none"> Comparing sperm and egg formation in terms of ploidy Example: ploidy—haploid, diploid Comparing sexual and asexual reproduction 	<p>1. Explain why cells are relatively small. 2. Summarize the primary stages of the cell cycle. 3. Describe the stages of interphase. 4. Describe the events of each stage of mitosis. 5. Explain the process of cytokinesis.</p>	<p>-Cell Growth; Mitosis -Cell Cycle Booklet -Mitosis Pipe Cleaner Lab: need pipe cleaners, beads</p>
Week 12	Chapter 9 Chapter 10	<p>6. Describe the roles of mitotic and meiotic divisions during reproduction, growth, and repair of cells.</p> <ul style="list-style-type: none"> Comparing sperm and egg formation in terms of ploidy Example: ploidy—haploid, diploid Comparing sexual and asexual reproduction 	<p>1) Describe the events of each stage of mitosis. 2) Explain the process of cytokinesis. 3) Summarize the role of cyclin proteins in controlling the cell cycle. 4) Explain the reduction in chromosome number that occurs during meiosis. 5) Recognize and summarize the stages of meiosis. 6) Analyze the importance of meiosis in providing genetic variation.</p>	<p>-Mitosis; Cell Regulation -View Mitotic Onion Cell Slide under microscope -Mitosis Pipe Cleaner Lab: need pipe cleaners, beads</p>
Week 13	Chapter 10	<p>6. Describe the roles of mitotic and meiotic divisions during reproduction, growth, and repair of cells.</p> <ul style="list-style-type: none"> Comparing sperm and egg formation in terms of ploidy Example: ploidy—haploid, diploid Comparing sexual and asexual reproduction <p>Obj: 7 Apply Mendel's law to determine phenotypic and genotypic probabilities of offspring.</p> <ul style="list-style-type: none"> Defining important genetic terms, including dihybrid cross, monohybrid cross, phenotype, genotype, homozygous, heterozygous, dominant trait, recessive trait, incomplete dominance, codominance, and allele Interpreting inheritance patterns shown in graphs and charts 	<p>1) Explain the reduction in chromosome number that occurs during meiosis. 2) Recognize and summarize the stages of meiosis. 3) Analyze the importance of meiosis in providing genetic variation. 4) Explain the significance of Mendel's experiments to the study of genetics. 5) Summarize the law of segregation and law of independent assortment. 6) Predict the possible offspring from a cross using a Punnett square.</p>	<p>-Meiosis -Benchmark Test Obj. 6 -Mendel's Genetics -Gene Dropping Genetics Activity (need copies of gene papers, scissors)</p>

		<ul style="list-style-type: none"> Calculating genotypic and phenotypic percentages and ratios using a Punnett square 		
Week 14	Chapter 10 Chapter 11	<p>Obj: 7 Apply Mendel's law to determine phenotypic and genotypic probabilities of offspring.</p> <ul style="list-style-type: none"> Defining important genetic terms, including dihybrid cross, monohybrid cross, phenotype, genotype, homozygous, heterozygous, dominant trait, recessive trait, incomplete dominance, codominance, and allele Interpreting inheritance patterns shown in graphs and charts Calculating genotypic and phenotypic percentages and ratios using a Punnett square 	<p>1) Explain the significance of Mendel's experiments to the study of genetics. 2) Summarize the law of segregation and law of independent assortment. 3) Predict the possible offspring from a cross using a Punnett square. 4) Summarize how the process of meiosis produces genetic recombination. 4) Analyze genetic patterns to determine dominant or recessive inheritance patterns. 5) Summarize examples of dominant and recessive disorders. 6) Construct human pedigrees from genetic information.</p>	<p>-Mendel's Genetics -Gene Linkage & Polyploidy -Enlivening Genetics WebQuest http://www2.edc.org/weblabs/WebLabDirectory1.html -Basic Patterns of Inheritance</p>
Week 15	Chapter 11	<p>Obj: 7 Apply Mendel's law to determine phenotypic and genotypic probabilities of offspring.</p> <ul style="list-style-type: none"> Defining important genetic terms, including dihybrid cross, monohybrid cross, phenotype, genotype, homozygous, heterozygous, dominant trait, recessive trait, incomplete dominance, codominance, and allele Interpreting inheritance patterns shown in graphs and charts Calculating genotypic and phenotypic percentages and ratios using a Punnett square 	<p>1) Analyze genetic patterns to determine dominant or recessive inheritance patterns. 2) Summarize examples of dominant and recessive disorders. 3. Construct human pedigrees from genetic information. 4) Distinguish between various complex inheritance patterns. 5) Analyze sex-linked and sex-limited inheritance patterns. 6) Explain how the environment can influence the phenotype of an organism. 7) Distinguish normal karyotypes from those with subnormal numbers of chromosomes. 8) Relate the effect of nondisjunction to Down syndrome and other abnormal chromosome numbers.</p>	<p>-Basic Patterns of Inheritance -Complex Patterns of Inheritance -Chromosomes and Human Heredity -Genetic Disorders Powerpoint Project</p>
Week 16	Chapter 11 Chapter 12	<p>Obj: 7 Apply Mendel's law to determine phenotypic and genotypic probabilities of offspring.</p> <ul style="list-style-type: none"> Defining important genetic terms, including dihybrid cross, monohybrid cross, phenotype, genotype, homozygous, heterozygous, dominant trait, recessive trait, incomplete dominance, codominance, and allele Interpreting inheritance patterns shown in graphs and charts Calculating genotypic and phenotypic percentages and ratios using a Punnett square <p>Obj: 8 Identify the structure and function of DNA, RNA, and protein.</p> <ul style="list-style-type: none"> Explaining relationships among DNA, genes, and chromosomes Listing significant contributions of biotechnology to 	<p>1) Distinguish normal karyotypes from those with subnormal numbers of chromosomes. 2) Relate the effect of nondisjunction to Down syndrome and other abnormal chromosome numbers. 3) Summarize the experiments leading to the discovery of DNA as the genetic material. 4) Diagram and label the basic structure of DNA. 5) Describe the basic structure of the eukaryotic chromosome. 6) Summarize the role of the enzymes involved in the replication of DNA. 7) Explain how leading and lagging strands are synthesized differently</p>	<p>-Patterns of Inheritance -Benchmark Test Obj: 7 -DNA Replication -Construct DNA model: need cardstock</p> <p>-Transcription/Translation Foldable -Benchmark Test Obj. 8</p>

		<p>society, including agricultural and medical practices Examples: DNA fingerprinting, insulin, growth hormone</p> <ul style="list-style-type: none"> • Relating normal patterns of genetic inheritance to genetic variation Example: crossing-over • Relating ways chance, mutagens, and genetic engineering increase diversity Examples: insertion, deletion, translocation, inversion, recombinant DNA • Relating genetic disorders and disease to patterns of genetic inheritance Examples: hemophilia, sickle cell anemia, Down's syndrome, Tay-Sachs disease, cystic fibrosis, color blindness, phenylketonuria (PKU) 		
Week 17	Chapter 15	<p>Obj: 12 Describe protective adaptations of animals, including mimicry, camouflage, beak type, migration, and hibernation.</p> <ul style="list-style-type: none"> • Identifying ways in which the theory of evolution explains the nature and diversity of organisms • Describing natural selection, survival of the fittest, geographic isolation, and fossil record 	<p>1) Discuss the evidence that convinced Darwin that species could change over time. 2) List the four principles of natural selection. 3) Show how natural selection could change a population. 4) Describe how fossils provide evidence of evolution. 5) Discuss morphological evidence of evolution. 6) Explain how physiology and biochemistry provide evidence of evolution. 7) Discuss patterns observed in evolution. 8) Describe factors that influence speciation. 9) Compare gradualism with punctuated equilibrium.</p>	<p>-Theory of Natural Selection -Evidence of Evolution -Shaping Evolution</p>
Week 18	Chapter 15	<p>Obj: 12 Describe protective adaptations of animals, including mimicry, camouflage, beak type, migration, and hibernation.</p> <ul style="list-style-type: none"> • Identifying ways in which the theory of evolution explains the nature and diversity of organisms • Describing natural selection, survival of the fittest, geographic isolation, and fossil record 	<p>1) Describe how fossils provide evidence of evolution. 2) Discuss morphological evidence of evolution. 3) Explain how physiology and biochemistry provide evidence of evolution. 4) Discuss patterns observed in evolution. 5) Describe factors that influence speciation. 6) Compare gradualism with punctuated equilibrium.</p>	<p>-Evidence of Evolution -Shaping Evolution -Semester Exams</p>
Week 19	Chapter 31	<p>Obj: 12 Describe protective adaptations of animals, including mimicry, camouflage, beak type, migration, and hibernation.</p> <ul style="list-style-type: none"> • Identifying ways in which the theory of evolution explains the nature and diversity of organisms • Describing natural selection, survival of the fittest, geographic isolation, and fossil record 	<p>1) Relate animal behaviors to evolution by natural selection. 2) Distinguish between innate and learned behavior. 3) Identify different types of animal behavior and provide examples of each. 4) Describe different types of competitive behaviors and give examples of each. 5) Identify types of communication, nurturing, and cooperative behaviors. 6) Analyze the advantages and disadvantages of behavior in terms of survival and reproductive success.</p>	<p>-Basic Behaviors -Ecological Behaviors -Benchmark Obj. 12</p>

<p>Week 20</p>	<p>Chapter 2</p>	<p>Obj. 13 Trace the flow of energy as it decreases through the trophic levels from producers to the quaternary level in food chains, food webs, and energy pyramids.</p> <ul style="list-style-type: none"> Describing the interdependence of biotic and abiotic factors in an ecosystem Examples: effects of humidity on stomata size, effects of dissolved oxygen on fish respiration Contrasting autotrophs and heterotrophs Describing the niche of decomposers Using the ten percent law to explain the decreasing availability of energy through the trophic levels <p>Obj. 16 Identify density-dependent and density-independent limiting factors that affect populations in an ecosystem. Examples: density-dependent—disease, predator-prey relationships, availability of food and water; density-independent—natural disasters, climate</p> <ul style="list-style-type: none"> Discriminating among symbiotic relationships, including mutualism, commensalism, and parasitism <p>Obj. 5: Identify cells, tissues, organs, organ systems, organisms, populations, communities, and ecosystems as levels of organization in the biosphere.</p> <ul style="list-style-type: none"> Recognizing that cells differentiate to perform specific functions Examples: ciliated cells to produce movement, nerve cells to conduct electrical charges <p>Obj. 14 :Trace biogeochemical cycles through the environment, including water, carbon, oxygen, and nitrogen.</p> <ul style="list-style-type: none"> Relating natural disasters, climate changes, nonnative species, and human activity to the dynamic equilibrium of ecosystems Examples: natural disasters—habitat destruction resulting from tornadoes; climate changes—changes in migratory patterns of birds;nonnative species—exponential growth of kudzu and Zebra mussels due to absence of natural controls; human activity—habitat destruction resulting in reduction of biodiversity, conservation resulting in preservation of biodiversity Describing the process of ecological succession 	<p>1) Explain the difference between abiotic factors and biotic factors. 2) Describe the levels of biological organization. 3) Differentiate between an organism’s habitat and its niche. 4) Describe the flow of energy through an ecosystem.5)Identify the ultimate energy source for photosynthetic producers. 6) Describe food chains, food webs, and pyramid models. 7) Describe how nutrients move through the biotic and abiotic parts of an ecosystem. 8) Explain the importance of nutrients to living organism. 9) Compare the biogeochemical cycles of nutrients.</p>	<p>-Organisms & Relationships -Flow of Energy -Cycling Matter -Create a Food Web (need plant/animal cutout sheets)</p>
<p>Week 21</p>	<p>Chapter 2 Chapter 3</p>	<p>Obj. 16 Identify density-dependent and density-independent limiting factors that affect populations in an ecosystem.</p> <p>Obj. 5: Identify cells, tissues, organs, organ systems, organisms, populations, communities, and ecosystems as levels of organization in the biosphere.</p> <ul style="list-style-type: none"> Recognizing that cells differentiate to perform specific 	<p>1) Describe how nutrients move through the biotic and abiotic parts of an ecosystem. 2) Explain the importance of nutrients to living organism. 3) Compare the biogeochemical cycles of nutrients. 4.)Recognize how unfavorable abiotic and biotic factors affect a species. 5 Describe how</p>	<p>-Cycling Matter -Benchmark Obj. 13 & 14 -Community Ecology, Tolerance, Limiting Factors -Ecological Succession</p>

		<p>functions Examples: ciliated cells to produce movement, nerve cells to conduct electrical charges</p> <p>Obj. 14 :Trace biogeochemical cycles through the environment, including water, carbon, oxygen, and nitrogen.</p> <ul style="list-style-type: none"> Relating natural disasters, climate changes, nonnative species, and human activity to the dynamic equilibrium of ecosystems <p>Examples: natural disasters—habitat destruction resulting from tornadoes; climate changes—changes in migratory patterns of birds;nonnative species—exponential growth of kudzu and Zebra mussels due to absence of natural controls; human activity—habitat destruction resulting in reduction of biodiversity, conservation resulting in preservation of biodiversity</p> <ul style="list-style-type: none"> Describing the process of ecological succession 	<p>ranges of tolerance affect the distribution of organism. 6) Sequence the stages of primary and secondary succession.</p>	
Week 22	Chapter 3 Chapter 4.1	<p>Obj. 15: Identify biomes based on environmental factors and native organisms.</p> <p>Obj. 16 Identify density-dependent and density-independent limiting factors that affect populations in an ecosystem.</p> <p>Obj. 5: Identify cells, tissues, organs, organ systems, organisms, populations, communities, and ecosystems as levels of organization in the biosphere.</p> <ul style="list-style-type: none"> Recognizing that cells differentiate to perform specific functions <p>Examples: ciliated cells to produce movement, nerve cells to conduct electrical charges</p>	<p>1) Relate latitude and the three major climate zones. 2) Describe the major abiotic factors that determine the location of a terrestrial biome. 3) Distinguish among terrestrial biomes based on climate and biotic factors. 4) Identify the major abiotic factors that determine the aquatic ecosystems. 5) Recognize that freshwater ecosystems are characterized by depth and water flow. 6) Distinguish the zones of marine ecosystems.7) Describe characteristics of populations. 8) Understand the concepts of carrying capacity and limiting factors. 9) Describe the ways in which populations are distributed.</p>	<p>-Terrestrial Biomes -Aquatic Biomes -Biome Projects (Posters/Glogster) -Population Characteristics</p>
Week 23	Chapter 3 Chapter 17	<p>Obj. 15: Identify biomes based on environmental factors and native organisms.</p> <p>Obj. 16 Identify density-dependent and density-independent limiting factors that affect populations in an ecosystem.</p> <p>Obj. 5: Identify cells, tissues, organs, organ systems, organisms, populations, communities, and ecosystems as levels of organization in the biosphere.</p> <ul style="list-style-type: none"> Recognizing that cells differentiate to perform specific functions <p>Examples: ciliated cells to produce movement, nerve cells to conduct electrical charges</p>	<p>1.)Identify the major abiotic factors that determine the aquatic ecosystems. 2) Recognize that freshwater ecosystems are characterized by depth and water flow. 3) Distinguish the zones of marine ecosystems. 4) Compare Aristotle’s and Linnaeus’s methods of classifying organism. 5) Explain how to write a scientific name using binomial nomenclature. 6) Summarize the taxa in the biological classification. 7) Use a dichotomous key. 9) Compare major characteristics of the three domains.10) Differentiate among the six kingdoms. 11) Classify organisms to the kingdom level.</p>	<p>-Aquatic Biomes -Benchmark Test Obj. 15, 16, 5 -History of Classification -Dichotomous Keys -Domain/Kingdoms -Classification Lab</p>

Week 24	Chapter 17 Chapter 18	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system.	1) Compare major characteristics of the three domains. 2) Differentiate among the six kingdoms. 3) Classify organisms to the kingdom level. 4) Differentiate among archaeobacteria and eubacteria and their subcategories. 5) Describe survival mechanisms of bacteria at both the individual and population levels. 6) Describe ways that bacteria are beneficial to humans.	-Domains & Kingdoms -Bacteria/Viruses
Week 25	Chapter 18 Chapter 19	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system.	1) Illustrate the general structure of viruses. 2) Compare and contrast the sequence of events in viral replication by the lytic cycle, lysogenic cycle, and retroviral replication. 3) Discuss the structure, replication, and action of prions in relationship to causing disease. 4) Explain how protists are classified. 5) Describe how some protists with mitochondria might have evolved. 6) Describe how some protists with chloroplasts might have evolved. 7) Explain why the organization of Kingdom Protists might change.	-Bacteria & Viruses -Bacterial Growth Demonstration (pg 520 textbook) -Protists -Kingdom Foldables
Week 26	Chapter 19 Protists	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system.	1) Explain how protists are classified. 2) Describe how some protists with mitochondria might have evolved. 3) Describe how some protists with chloroplasts might have evolved. 4) Explain why the organization of Kingdom Protists might change.	-Pond Water Microscope Lab (need water samples from local ponds)
Week 27	Chapter 20 Fungi	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system.	1) Identify the major characteristics of organisms in the Kingdom Fungi. 2) Explain how fungi obtain nutrients, including their role as decomposers. 3) Identify three types of asexual reproduction in fungi. 4) Identify four major phyla of fungi. 5) Identify the characteristics of lichens. 6) List some beneficial and harmful effects fungi can have on humans.	-Compost Column (pg 577 textbook)
Week 28	Chapter 21-23 Plants	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 10 Distinguish between monocots and dicots, angiosperms and gymnosperms, and vascular and nonvascular plants.	1) Compare the characteristics of plants and green algae. 2) Identify and evaluate adaptations of plants to land environments. 3) Assess the importance of vascular tissue to plant life on land. 4) Explain alternation of generations of plants.	-Leaf Cuticle Demonstration (from textbook) -Flower construction lab (using paper)

Week 29	Chapter 21-23	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 10 Distinguish between monocots and dicots, angiosperms and gymnosperms, and vascular and nonvascular plants.	5) List the divisions of the plant kingdom. 6) Identify the characteristics of nonvascular plants. 7) Identify the characteristics of vascular plants. 8) Identify the characteristics of Vascular seed plants.	-Plants -Celery Vascular Tissue Lab
Week 30	Chapter 21-23	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 10 Distinguish between monocots and dicots, angiosperms and gymnosperms, and vascular and nonvascular plants.	9) Compare and contrast the structure and function of roots, stems, and leaves. 10) Identify the parts of a flower and their functions. 11) Distinguish between monocot and eudicot flowers.	-Plants
Week 31	Chapter 21-23 Chapter 24-30	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 10 Distinguish between monocots and dicots, angiosperms and gymnosperms, and vascular and nonvascular plants. Obj. 11: Classify animals according to type of skeletal structures, method of fertilization and reproduction, body symmetry, body coverings, and locomotion	9) Compare and contrast the structure and function of roots, stems, and leaves. 10) Identify the parts of a flower and their functions. 11) Distinguish between monocot and eudicot flowers. 1) Examine adaptations that enable animals to live in different habitats. 2) Compare and contrast animal structure and function. 3) Distinguish among the stages of embryonic development in animals. 4) Analyze how animal body plans are related to phylogeny. 5) Demonstrate how body cavities are related to animal phylogeny. 6) Distinguish between the two type of coelomate development.	-Plants -Benchmark Test Obj. 10 -Animals:
Week 32	Chapter 24-30	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 11: Classify animals according to type of skeletal structures, method of fertilization and reproduction, body symmetry, body coverings, and locomotion	7) Distinguish structure and function in sponges and cnidarians. 8) Identify the basis for sponge classification. 9) Compare and contrast the four classes of Cnidarians based on body form. 10) Distinguish structure and function in flatworms. 11) Compare adaptations of free-living flatworms to parasitic flatworms. 12) Compare the three classes of flatworms. 13) Distinguish structure and function in roundworms and rotifers. 14) Describe the movement of roundworms. 15) Describe the diversity of roundworms with a focus on the parasitic relationships with humans and plants.	-Animals -“Monsters Inside Me” Videos
Week 33	Chapter 24-30	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 11: Classify animals according to type of skeletal structures, method of fertilization and reproduction, body symmetry, body coverings, and locomotion	16) Evaluate the importance of the coelom to mollusks and annelids. 17) Distinguish structure and function in mollusks. 18) Analyze the adaptive advantage of the mantle, mucus production and the muscular foot. 19) Describe the diversity of mollusks. 20) Distinguish the structure and	-Animals -Earthworm Dissection

			function of Segmented worms (Annelids). 21) Compare and contrast segmented worms with flatworms and roundworms. 22) Evaluate the importance of segmentation as an adaptation for survival. 23) Describe the diversity of segmented worms. 24) Distinguish structure and function in arthropods. 25) Evaluate the importance of exoskeletons, jointed appendages, and segmentation to arthropods. 26) Compare organ system adaptations in arthropods. 27) Describe arthropod diversity.	
Week 34	Chapter 24-30	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 11: Classify animals according to type of skeletal structures, method of fertilization and reproduction, body symmetry, body coverings, and locomotion	28) Distinguish structure and function in Echinoderms. 29) Evaluate the importance of the water vascular system and tube feet as adaptations for survival. 30) Describe Echinoderm diversity. 31) Interpret the features of invertebrate chordates that place them in the phylum Chordate. 32) Analyze the features of invertebrate chordates that place them with invertebrates. 33) Describe the diversity of invertebrate Chordates.	-Animals -Starfish Dissection
Week 35	Chapter 24-30	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 11: Classify animals according to type of skeletal structures, method of fertilization and reproduction, body symmetry, body coverings, and locomotion	34) Identify the features of vertebrates that make them different from invertebrates. 35) Describe the characteristics of fish. 36) Summarize how fish are adapted to aquatic life. 37) Describe the diversity of fish. 38) Analyze the kinds of adaptations that were important as animals moved to the land. 39) Summarize the characteristics of amphibians. 40) Describe the diversity of amphibians at the order level. 41) Analyze the importance of the amniotic egg to survival for land animals. 42) Summarize the characteristics of reptiles. 43) Describe the diversity of reptiles at the order level.	-Animals -Observe tadpole metamorphosing into frogs
Week 36	Chapter 24-30	Obj. 9: Differentiate between the previous five-kingdom and current six-kingdom classification system. Obj. 11: Classify animals according to type of skeletal structures, method of fertilization and reproduction, body symmetry, body coverings, and locomotion	44) Summarize the characteristics of birds. 45) Relate the adaptations of birds to their ability to fly. 46) Describe the diversity of birds at the order level. 47) Identify the characteristics of mammals. 48) Describe how mammals maintain a constant temperature. 49) Distinguish how respiration in mammals differs from that of other vertebrates. 50) Describe the diversity of mammals.	-Animals -Benchmark Obj. 9 & 11 -Final Exams

