

**Class Title: Biology**  
**Grade Level: 7<sup>th</sup> Grade 2018-2019**

<p><b>Lab Safety</b></p>	<p>Illinois State Learning Standards: 13.A.3a; 13.B.3c;                   However, there are not NGSS that apply to this topic.</p>			
<p>Essential Questions:</p>	<ol style="list-style-type: none"> <li>1. Appropriately use laboratory equipment and apply appropriate lab safety practices to that equipment. 13.A.3a; 13.B.3c;</li> <li>2. Pass with the established and appropriate score a lab safety test. 13.A.3a; 13.B.3c;</li> <li>3. Use appropriate, correct and effective measurement equipment and techniques. 13.A.3a; 13.B.3c;</li> <li>4. Using correct tools use the appropriate techniques to: transfer solids and liquids, test odors, light the Bunsen burner, remove waste. 13.A.3a; 13.B.3c;</li> </ol>			
<p>Concepts/Content</p>	<p>Desired Outcomes</p>	<p>Key Vocabulary</p>	<p>Resources</p>	<p>Assessments</p>
<p>Lab Safety                  Location of equipment                  Proper use of equipment</p>	<p>Students must pass the lab safety test with a 93% to be allowed to do labs in 7<sup>th</sup> and 8<sup>th</sup> grade science</p>	<p>Thermometer                  Volume                  Bunsen burner                  Solid                  Beaker                  Mass                  Balance                  Graduated cylinder                  Spatula                  Acids                  Goggles                  Test tube                  Chemicals                  Emergency eye wash</p>	<p>Lab room                  Notes from teacher                  Equipment                  Diagrams                  Close read assignments</p>	<p>CYK Quizzes                  Review Games                  Worksheets                  Lab safety test                  Formative and summative assessments</p>

		station Gas valves Waft Tongs Ring stand Test tube holder Forceps Flint striker Stirring rod		
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**Grade Level: 7<sup>th</sup> Grade**

<b>Scientific Method</b>	Standards: 11.A.3a; 11.A.3b;11.A.3c;11.A.3d;  However, there are not NGSS that apply to this topic.
<b>Essential Questions:</b>	<ol style="list-style-type: none"> <li>1. Distinguish and apply the steps of the Scientific Method. 11.A.3a; 11.A.3b;11.A.3c;11.A.3d</li> <li>2. Be able to create and experiment using these steps. Be able to identify these steps when presented with an experiment. 11.A.3a; 11.A.3b;11.A.3c;11.A.3d;11.A.3f; 11.A.3g</li> <li>3. Differentiate between a hypothesis and prediction. Apply to own experiment design.11.A.3a; . 11.A.3a; 11.A.3b;11.A.3c;11.A.3d</li> <li>4. Differentiate between a control group and experimental group as well as an independent and dependent variable. Apply to own experiment design. . 11.A.3a; 11.A.3b;11.A.3c;11.A.3d;</li> </ol>

	Desired Outcomes	Key Vocabulary	Resources	Assessments
	<ol style="list-style-type: none"> <li>Students must pass the summative</li> <li>When given experimental scenarios students must be able to create experiments by identifying the different components of the scientific method</li> <li>When given experimental scenarios students must be able to create a hypothesis, prediction, Control group, Experimental group, Independent variable, Dependent variable</li> </ol>	<ul style="list-style-type: none"> <li>-Scientific method</li> <li>-Hypothesis</li> <li>-Prediction</li> <li>-Control group</li> <li>-Experimental group</li> <li>-Independent variable</li> <li>-Dependent variable</li> <li>-tropisms</li> </ul>	<ul style="list-style-type: none"> <li>Notes from teacher</li> <li>Formative practice problems</li> <li>-Close read articles and graphic organizers</li> <li>-Review games</li> <li>-Video</li> <li>-Lab- Design an experiment to test different tropism-write out the experiment and the results</li> <li>-Lab-bubble gum and scientific method</li> </ul>	<p><b>Formative:</b></p> <ul style="list-style-type: none"> <li>CYK Quizzes</li> <li>Review Games</li> <li>Worksheets</li> </ul> <p><b>Summative:</b></p> <ul style="list-style-type: none"> <li>Scientific Method test</li> </ul>

**Class Title: Biology**

**Grade Level: 7<sup>th</sup> grade**

<b>Classification</b>	NGSS standards: MS-LS1-1; MS-LS1-4; MS-LS1-5; MS-LS3-2
<b>Essential Questions:</b>	<ol style="list-style-type: none"> <li>Memorize and apply Linnaeus' classification system</li> <li>Correctly create and use a dichotomous key.</li> <li>Use binomial nomenclature when using a dichotomous key as well as Linnaeus' classification system.</li> <li>Differentiate between spontaneous generation and biogenesis.</li> <li>Identify the characteristics of life</li> <li>Define homeostasis.</li> <li>Differentiate between producer, consumer and decomposer.</li> </ol>

	Desired Outcomes	Key Vocabulary	Activities/Resources	Assessments
	1. students must create and successfully use a dichotomous key 2. When given scenarios students are able to distinguish between the stimulus and the reaction 3. students will be able to list Linnaeus' classification system in order	Dichotomous key Classification Binomial nomenclature Stimulus Producer Consumer Decomposer Species	-Notes taken with teacher in class -Worksheets which allow students to practice using dichotomous keys -review games and activities -create a dichotomous key with classmates -play the predator game to review producer, consumer and decomposers in a food chain --Close read articles and graphic organizers	-formative CYK quizzes and worksheets over notes -create a working dichotomous key-summative assessment -dichotomous key worksheet -formative and summative chapter test assessments
<b>Class Title: Biology</b> <b>Grade Level: 7<sup>th</sup> grade</b>  <b>Cells</b>	NGSS standards MS-LS1-1; MS-LS1-2; MS-LS1-3;			
<b>Essential Questions:</b>	1.Distinguish between Hooke and Leeuwenhoek and their contributions to the modern microscope 2.Identify and apply the cell theory 3.Relate how the relationship between the volume and surface area of a cell limits its size 4.Identify the organelles in the cell and relate their function to maintaining homeostasis in the cell. 5.Explain the relationship between cristae in mitochondria , surface area and the amount of glucose that can be broken down and energy released.			

	6.Distinguish between plant and animal cells			
	Desired Outcomes	Key Vocabulary	Activities/Resources	Assessments
	<p>1. successfully relate the relationship between volume and surface area and cell size</p> <p>2. Identify the organelles in the cell and relate their function to maintaining homeostasis in the cell.</p> <p>3. Explain the relationship between cristae in mitochondria, surface area and the amount of glucose that can be broken down and energy released.</p>	<ul style="list-style-type: none"> <li>- Organism</li> <li>Tissue</li> <li>Organ</li> <li>Organ system</li> <li>Cell theory</li> <li>Explain what limits cell size</li> <li>Prokaryote</li> <li>Eukaryote</li> <li>Cytoplasm</li> <li>Cell membrane</li> <li>Nucleus</li> <li>Nucleolus</li> <li>Ribosome</li> <li>Endoplasmic reticulum</li> <li>Golgi bodies</li> <li>Lysosome</li> <li>Mitochondria</li> <li>Cell wall</li> <li>Chloroplasts</li> <li>Vacuoles</li> <li>Animal /Plant cell</li> </ul>	<ul style="list-style-type: none"> <li>-notes taken with teacher</li> <li>-review sheet questions and games</li> <li>-microscopes</li> <li>-letter e/colored thread lab</li> <li>-cheek cell and elodea lab</li> <li>-design a board game that includes the key organelles in the cell and how they work to maintain homeostasis</li> <li>-Close read articles and graphic organizers</li> <li>-Web Quest</li> </ul>	<ul style="list-style-type: none"> <li>-cheek and elodea cell Lab</li> <li>-learn to use the microscope lab</li> <li>-CYK quiz Formative assessments</li> <li>-Summative assessment chapter test</li> <li>-Game design and production summative assessment</li> </ul>

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<p><b>Chemistry of Life</b></p>	<p>NGSS Standards:  MS-LS1-1C; MS-LS1-2; PS3.D; MS-LS1-3; MS-LS1-6; MS-LS1-7</p>
<p>Essential Questions:</p>	<ol style="list-style-type: none"> <li>1. Identify the three parts of an atom.</li> <li>2. Explain the relationship between an atom, an element, a molecule and a compound.</li> <li>3. Define mixture and distinguish between a solution and a suspension. Identify different solutions and suspensions in the human body.</li> <li>4. Explain the difference between organic and inorganic compounds.</li> <li>5. Distinguish between carbohydrates, lipids, proteins, and nucleic acids. Use correct lab procedures to test for carbohydrates, lipids and proteins.</li> <li>6. Distinguish between passive and active transport. Apply the concept of facilitated diffusion to cells.</li> <li>7. Differentiate between osmosis and diffusion.</li> <li>8. Differentiate between hypertonic , hypotonic and isotonic osmotic solutions. Apply that knowledge in lab when studying the effect of those solutions on an onion cell.</li> <li>9. Explain the difference between endocytosis and exocytosis.</li> <li>10. Differentiate between photosynthesis and respiration. Explain how these processes affect how glucose is made and ATP stored in the bonds of glucose is released. Study the effects of fermentation on cabbage as well as the by products of fermentation.</li> <li>11. Explain the effect of enzymes (a protein) on the rate of reactions.</li> </ol>

	Desired Outcomes	Key Vocabulary	Resources	Assessments
	<p>1. Explain the effect of enzymes (a protein) on the rate of reactions</p> <p>2. Differentiate between photosynthesis and respiration. Explain how these processes affect how glucose is made and ATP stored in the bonds of glucose is released.</p> <p>3. establish the relationship and differences between varying types of passive and active transport</p> <p>4. Differentiate between hypertonic , hypotonic and isotonic osmotic solutions. Apply that knowledge in lab when studying the effect of those solutions on an onion cell</p>	<p>Atom Element Molecule Compound Solution Suspension Organic Inorganic Carbohydrates Lipids Proteins nucleic acids passive transport active transport osmosis diffusion hypertonic hypotonic isotonic endocytosis exocytosis photosynthesis fermentation aerobic respiration anaerobic respiration glucose enzyme</p>	<p>-Notes taken with teacher in class</p> <p>-Labs: Osmosis and the effect of hypertonic and hypotonic solutions on onion cells</p> <p>-Diffusion Lab: study the diffusion of a substance across a semi-permeable membrane. Test for presence of iodine with indicator</p> <p>- In lab, study the process of fermentation through experimentation with cabbage.</p> <p>-Enzyme lab</p> <p>-Demonstration/class activity regarding monosaccharide and polysaccharides</p> <p>-Review games</p> <p>-Close read articles and</p>	<p>-CYK quizzes- formative</p> <p>summative worksheets over the chapter</p> <p>videos-amoeba sisters biomolecules</p> <p>-amoeba sisters enzymes</p> <p>-labs</p> <p>-carbohydrate demo and assessment</p> <p>-review games</p> <p>Chapter test summative assessments</p>

			<p>graphic organizers</p> <p>-Web Quest</p> <p>-close read articles</p> <p>--honors-will write a short story about a cell who travels through osmotic solutions</p>	
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**Class Title: Biology**

**Grade Level: 7<sup>th</sup> Grade**

<b>DNA</b>		Standards:MS-LS1-2; MS-LS3-1;		
Essential Questions:	<ol style="list-style-type: none"> <li>1. Define DNA.</li> <li>2. Understand that DNA makes up genes and genes make up chromosomes.</li> <li>3. Identify the 3 parts of a DNA and RNA nucleotide and complementary nucleotides.</li> <li>4. Understand and explain the the different nitrogen base in a nucleotide and the order of the bases make DNA segments different from each other. Therefore, different expressions of genes are produced.</li> <li>5. Differentiate between the scientific contributions of Dr. Rosalind Franklin and Watson and Crick.</li> <li>6. Identify the steps of DNA replication and protein synthesis (in order).</li> <li>7. Explain the relationship between DNA, RNA and protein synthesis.</li> <li>8. Explain how the wrong order or deletion of a base can cause the wrong protein to be made or not made.</li> </ol>			
	<b>Desired Outcomes</b>	<b>Key Vocabulary</b>	<b>Resources</b>	<b>Assessments</b>
	1. Students will be able to explain the process of DNA replication	DNA Genes Chromosomes	-notes taken in class with teacher -review sheet	Formative CYK Quizzes Review games Summative andf

	<ol style="list-style-type: none"> <li>2. Students will build a DNA model and explain the components of the DNA model</li> <li>3. Students will make the connection between how a change in the order of nitrogen bases can affect protein synthesis and cause mutations.</li> <li>4. Students will explain the relationship between DNA, genes and chromosomes</li> </ol>	Adenine Thymine Cytosine Guanine RNA Uracil DNA replication Protein synthesis Nucleotide Nitrogen base	-close read articles -Videos -webquest -labs <ol style="list-style-type: none"> <li>1. Students will build a model of DNA and explain its structure.</li> <li>2. Students will extract DNA from strawberries.</li> </ol>	formative Worksheets Building a DNA model DNA extraction Labs Chapter test-summative assessment
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**Class Title: Biology**  
**Grade Level: 7<sup>th</sup> Grade**

<b>Mitosis and Meiosis</b>	Standards: MS-LS3-1; MS-LS3-2; MS-LS1.B; MS-LS3.A; MS-LS3.B
Essential Questions:	<ol style="list-style-type: none"> <li>1. Differentiate between different types of mutations: deletion, insertion and substitution.</li> <li>2. Differentiate between mutation and mutagen.</li> <li>3. Distinguish between chromatin, chromosomes, chromatids, diploid and haploid cells.</li> <li>4. Identify the steps of mitosis and meiosis.</li> <li>5. Apply knowledge in #4 to understanding of mutations and role of homologous pairs.</li> <li>6. Explain how mitosis relates to somatic cells and asexual reproduction</li> <li>7. Explain how meiosis relates to gametes and sexual reproduction</li> <li>8. Establish the relationship between meiosis and genetic diversity.</li> </ol>

	Desired Outcomes	Key Vocabulary	Resources	Assessments
	<ol style="list-style-type: none"> <li>1. identify the different steps of mitosis when looking at onion root tips using the microscope</li> <li>2. differentiate between a mutagen and mutation</li> <li>3. Explain how mitosis relates to somatic cells and asexual reproduction</li> <li>4. Explain how meiosis relates to gametes and sexual reproduction</li> <li>5. Establish the relationship between meiosis and genetic diversity.</li> </ol>	Deletion Insertion Substitution Mutation Mutagen Chromatin Chromosome Chromatid Diploid Haploid Homologous pairs Somatic cell Gamete Sexual reproduction Asexual reproduction Mitosis Meiosis Genetic diversity	-notes taken in class with teacher -review sheets -worksheets -close read article -webquest -videos -lab Using the microscope and a slide of an onion root tip, identify the stages of mitosis. Infer how long each stage takes on average.	CYK quizzes Review games Worksheets Labs formative and summative assessments

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**Grade Level: 7<sup>th</sup> grade**

<b>Mendel's Genetics</b>	Standards: MS-LS1-5; MS-LS3-1; MS-LS3-2; MS-LS1.B; MS-LS3.A; MS-LS3.B; MS-LS4-4; MS-LS4-5
Essential Questions:	1. Identify three characteristics of Gregor Mendel. Explain how his background in mathematics contributed to the creation of the punnett square by Reginald Punnett and how Mendel used

	<p>probability in his research.</p> <ol style="list-style-type: none"> <li>2. Define inheritance and apply that knowledge to example of student’s own traits.</li> <li>3. Explain the relationship between inheritance, genes and alleles.</li> <li>4. Distinguish between dominant and recessive alleles. Show how each are identified in genetics.</li> <li>5. Identify the Principle of Dominance and Recessiveness. Apply to genetic research and probability.</li> <li>6. Define punnett square. Use punnett squares to determine the probability of outcomes of monohybrid crosses. Set up different crosses and list the outcomes and ratios. Apply probability to predictions regarding future offspring. Monohybrid crosses. Honors-dihybrid crosses as well.</li> <li>7. Distinguish between genotype and phenotype.</li> <li>8. Differentiate among homozygous and heterozygous genotypes. Relate to dominant and recessive genotypes.</li> <li>9. Explain how modern technology in genetic research has allowed scientists to identify such disorders and that has affected treatment. Relate role of genetic engineering and recombinant DNA.</li> <li>10. Define karyotype and pedigree. Explain role of each, as a tool, for a genetic counselor or research scientist.</li> <li>11. Explain role of genetic engineering, genetics testing and research in genetic ethics. Relate how these areas find their way into politics and government policies and why.</li> <li>12. Explain the role of chromosomes and meiosis in nondisjunction mutations.</li> <li>13. Define the role of population sampling in studying genetics.</li> <li>14. Sex linked and incomplete dominance traits and Punnett squares.</li> </ol>			
	Desired Outcomes	Key Vocabulary	Resources	Assessments
	<ol style="list-style-type: none"> <li>1. Explain the relationship between inheritance and genes and alleles.</li> <li>2. Distinguish between</li> </ol>	Probability Genetics Punnett square Genotype Phenotype Heterozygous Homozygous	-notes taken with the teacher -review sheets -web quest -games -activities 1) Students use fictional offspring to study chromosomes and to determine genotypes and phenotypes for offspring. They study inheritance,	-CYK quizzes -worksheets -Review games -activities webquests

	<p>dominant and recessive alleles. Show how each are identified in genetics.</p> <p>3. Identify the Principle of Dominance and Recessiveness. Apply to genetic research and probability.</p> <p>4. Define punnett square. Use punnett squares to determine the probability of outcomes of monohybrid. Set up the cross and list the outcomes and ratios. Apply probability to predictions regarding future offspring.</p> <p>5. Distinguish between genotype and phenotype.</p>	<p>Dominant Recessive Genes Alleles Nondisjunction Genetic engineering Karotype Pedigree Population sampling Genetic engineering Genetic testing</p>	<p>dominant and recessive traits, practice using a key that represents dominant traits as well as create their dragon, Students practice determining genotype and phenotype of offspring using the chromosomes from the parents</p> <p>2) Using their own traits...explore hereditary traits to determine possible genotypes for some inherited traits. Compare individual traits with class amounts. Determine traits that are most common and infer as to why. Skills practiced are: observing, communicating and inferring.</p> <p>3) PRACTICE, PRACTICE, PRACTICE completing and creating Monohybrid and Dihybrid crosses.</p> <p>4) Practice punnett squares and monohybrid and dihybrid crosses with the following interactive websites</p> <p><a href="http://www.athro.com/evo/gen/punexam.html">http://www.athro.com/evo/gen/punexam.html</a>; <a href="http://www2.edc.org/weblabs/Punnett/punnettsquares.html">http://www2.edc.org/weblabs/Punnett/punnettsquares.html</a></p>	<p>formative and summative assessments</p> <p>-guest speakers for sex linked traits and autosomal recessive traits</p>
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	<p>6. Differentiate among homozygous and heterozygous. Relate to dominant and recessive genotypes.</p> <p>7. Explain the difference genetic engineering and genetic testing. Be able to express your position regarding genetic engineering and genetic testing.</p>			
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**Class Title: Biology**

**Grade Level: 7<sup>th</sup> grade**

<p><b>Natural Selection</b></p>	<p>Standards: MS-LS3-1; MS-LS4-1; MS-LS4-2; MS-LS4-3; MS-LS4-4; MS-LS4-6; MS-LS1-4; MS-LS1-5</p>
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<p>Essential Questions:</p>	<ol style="list-style-type: none"> <li>1. Describe Lamarck’s hypothesis of acquired characteristics and Darwin’s theory of Natural Selection.</li> <li>2. Identify why variations in organisms are important.</li> <li>3. Explain Natural Selection as well as why Survival of the Fittest does not mean the biggest and strongest but the most well adapted.</li> <li>4. Define adaptation and the relationship between variation and adaptation.</li> <li>5. Compare and contrast gradualism and punctuated equilibrium.</li> <li>6. Link the role of mutations to variations and natural selection.</li> <li>7. Define fossils and the difference between a cast, mold and imprint.</li> <li>8. Explain how relative dating and radiometric dating are used to estimate the age of fossils.</li> <li>9. Define embryology, homologous structures, vestigial organs and explain how they are examples for evolution as well as common DNA.</li> <li>10. Describe the differences among living primates.</li> <li>11. Identify adaptations of primates.</li> <li>12. Explain how modern <i>homo sapiens</i> developed.</li> </ol>			
	<p>Desired Outcomes</p>	<p>Key Vocabulary</p>	<p>Resources</p>	<p>Assessments</p>
	<ol style="list-style-type: none"> <li>1. Identify why variations in organisms are important.</li> <li>2. Explain Natural Selection as well as why Survival of the Fittest does not mean the biggest and strongest but the most well adapted.</li> <li>3. Define adaptation .</li> <li>4. Define fossils</li> </ol>	<p>Natural selection Fossils Mutations Adaptation Cast Mold imprint variation gradualism punctuated equilibrium relative dating radiometric dating embryology homologous</p>	<p>Model the process of Natural Selection using Teddy Grahams. Web quests Notes with teacher Review sheets Review games Worksheets</p>	<p>-CYK quizzes -worksheets -Review games -activities CYK quizzes Discussion formative and summative assessments</p>

		structures vestigial organs		
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**Class Title: Biology**

**Grade Level: 7<sup>th</sup> grade**

<b>Cardiovascular System</b>		Standards: <b>MS-LS1-1; MS-LS1-3</b>		
Essential Questions:	<ol style="list-style-type: none"> <li>1. Compare arteries, veins and capillaries.</li> <li>2. Explain how blood moves through the heart and body. Incorporate the how blood become oxygenated and deoxygenated.</li> <li>3. Identify the parts and functions of blood.</li> <li>4. Distinguish between antigens and antibodies. Explain how blood types are identified and why.</li> <li>5. Identify the chambers and main blood vessels of the heart.</li> <li>7. Identify the difference between universal donor and universal recipient.</li> <li>8. Explain the role of iron and hemoglobin in oxygen transport through the body.</li> <li>9. Explain the relationship between lysosomes and WBC's.</li> </ol>			
	<b>Desired Outcomes</b>	<b>Key Vocabulary</b>	<b>Resources</b>	<b>Assessments</b>
	<ol style="list-style-type: none"> <li>1. Compare arteries, veins and capillaries.</li> <li>2. Explain how blood moves through the heart.</li> <li>3. Identify the parts and functions of blood.</li> <li>4. Explain the role of iron and hemoglobin in oxygen transport through the body.</li> <li>6. Explain how blood typing is</li> </ol>	Arteries Capillaries Veins Iron Hemoglobin Anemia Oxygen Chambers Valves Antigens	On line surgery sites Online anatomy practice sites Labs-dissect heart Blood typing Close reads Discussion Homework	Discussion CYK quizzes Online practice sites  Labs Chapter test  formative and summative

	done and the role of antigens and antibodies 7. Explain the relationship between lysosomes and WBC's	Antibodies homeostasis		assessments
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**Class Title: Biology**

**Grade Level: 7<sup>th</sup> grade**

Skeletal, muscular, Integumentary Systems		Standards: MS-LS1-1; MS-LS1-2; MS-LS1-3; MS-LS1-8		
Essential Questions:	<ol style="list-style-type: none"> <li>1. Define homeostasis</li> <li>2. Define tissue.</li> <li>3. Define muscular tissue</li> <li>4. Define organ and organ system. Give examples</li> <li>5. Memorize certain skeletal bones and relate how muscles and bones work together to provide movement.</li> <li>6. Explain the difference between compact vs spongy bone. What is the relationship between the amount of ATP energy required to move the different types of bones.</li> <li>6. What is the difference between red and yellow marrow?</li> <li>7. Define muscle.</li> <li>8. What makes up the integumentary system?</li> <li>9. How do dilating and restricting blood vessels help regulate temperature.</li> <li>10. What is the role of sweat glands and the arrector pili muscle in regulating body temperature?</li> <li>11. What is melanin and how does this relate to skin genes?</li> <li>12. Explain how</li> <li>13. What is a skin graft?</li> <li>14. How and why do humans react to touch or heat with their fingers?</li> </ol>			
	<b>Desired Outcomes</b>	<b>Key Vocabulary</b>	<b>Resources</b>	<b>Assessments</b>
	1.Explain how the different	Epidermis	On line surgery sites	Labs

	<p>organs of the skeletal, muscular, integumentary systems interact and are related to each other.</p> <p>2. Explain how the skeletal, muscular, integumentary systems maintain homeostasis.</p>	<p>Dermis Compact bone Spongy bone Tissue Marrow Blood vessels Melanin Sweat glands Organ Organ system Skin graft osteoblast homeostasis</p>	<p>Online anatomy practice sites Labs Close reads Discussion Homework</p>	<p>Formative and summative assessments (skeleton practical) Discussions CYK quizzes Web quests</p>
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**Class Title: Biology**

**Grade Level: 7<sup>th</sup> Grade**

<b>Digestive, Respiratory and Excretory Systems</b>		<b>Standards: MS-LS1-3</b>
Essential Questions:	<ol style="list-style-type: none"> <li>1. What is the difference between respiration and breathing?</li> <li>2. What is the role of alveoli and the trachea in breathing/respiration?</li> <li>3. What is the role of the diaphragm in breathing? Define it and explain how it works during inhalation and exhalation.</li> <li>4. Define emphysema. Explain how emphysema affects the heart.</li> <li>5. Explain Asthma.</li> <li>6. Define excretion. What are the three ways that excretion occurs in the body.</li> <li>7. What is the role of the kidneys? How much blood is filtered a day by the kidneys?</li> <li>8. Explain the three steps in filtering blood. Include the job of the nephron and the role of circulatory system.</li> <li>9. Explain the relationship between urine, urinary bladder and urination.</li> <li>10. What is the response of the body when you get thirsty?</li> </ol>	

	<p>11. What organs are part of the digestive tract and how do they work together to digest food?          12. How does digestion start in the mouth?          13. What is the role of the large and small intestine in digestion and how they work with the circulatory system?          14. What is the relationship between the circulatory, respiratory and digestion systems? Hint: use blood as the link</p>			
	<p><b>Desired Outcomes</b></p>	<p><b>Key Vocabulary</b></p>	<p><b>Resources</b></p>	<p><b>Assessments</b></p>
	<p>1.Explain how oxygen and carbon dioxide are exchanged in the lungs and tissue.</p> <p>2.Distinguish between breathing and respiration. Identify the importance of the diaphragm in the act of breathing.</p> <p>3.Explain the role of the kidneys and nephrons in blood filtration and waste excretion.</p> <p>4.Explain the role of amylase in digestion.</p> <p>5.Identify the function of the small intestine and large intestine in digestion.</p> <p>6.Explain how asthma and emphysema occur and affect the heart.</p>	<p>Oxygen          Carbon dioxide          Respiration          Breathing          Stimulus          Digestion          Amylase          homeostasis</p>	<p>Online anatomy practice sites          Labs-dialysis lab          Close reads          Discussion          Homework          Review games</p>	<p>Discussion          CYK quizzes          Online practice sites          Labs</p> <p>formative and summative assessments</p>

	<p>7. What is the role of the large and small intestine in digestion and how they work with the circulatory system</p> <p>8. Explain how the different systems maintain homeostasis.</p>			
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**Class Title: Biology**

**Grade Level: 7<sup>th</sup> Grade**

Unit: Nervous System		Standards: MS-LS1-3; MS-LS1-8		
Essential Questions:	<ol style="list-style-type: none"> <li>1. Define Nervous System</li> <li>2. Define Central Nervous System and Peripheral Nervous System and Autonomic nervous system.</li> <li>3. Define neuron and nerve.</li> <li>4. What are all of the things that the cerebrum is in charge of?</li> <li>5. What is the relationship between the structure of cerebrum and its function?</li> <li>6. Define stimuli.</li> <li>7. What is the cerebellum in charge of?</li> <li>8. What is the medulla in charge of?</li> <li>9. Given different scenarios of things that are wrong with people students will have determine what part of the brain is damaged based on the symptoms.</li> <li>10. Define reflex.</li> <li>11. How does sound begin?</li> <li>12. Explain all three parts of the pathway of sound.</li> <li>13. What are taste buds? Where are they located? What are the four types?</li> <li>14. Define olfactory cells.</li> <li>15. What gives you a sense of flavor?</li> <li>16. What is the fight or flight response?</li> <li>17. Explain how the parts of the eye work together to create sight.</li> </ol>			

	<p>18. What happens to the lens when you are looking at objects that are close to you and when you are looking at objects that are far away from you?</p> <p>19. How does the Nervous System interact and affect the circulatory, digestive, respiratory, excretory, and muscular systems.</p>			
	<p><b>Desired Outcomes</b></p>	<p><b>Key Vocabulary</b></p>	<p><b>Resources</b></p>	<p><b>Assessments</b></p>
	<p>1. Describe the effect of a stimuli on a nerve</p> <p>2. Gather and synthesize information that sensory receptors respond to when stimulated and use to send messages to the brain for immediate behavior or storage as memories.</p> <p>3. Explain the relationship between a reflex and a stimuli.</p> <p>4. Explain how the Nervous System interact and affect the circulatory, digestive, respiratory, excretory, and muscular systems.</p> <p>5. Explain the flight or flight response.</p> <p>6. How does the anatomy of the eye produce sight working with the brain?</p> <p>7. Explain how the different systems in the body with the different types of nervous systems</p>	<p>Nervous system Neuron Nerve Cerebrum Stimuli Cerebellum Medulla Reflex Olfactory cells Lens Sound Taste buds homeostasis</p>	<p>Labs Close reads Discussion Homework Review games</p>	<p>Summative assessment Formative assessments Labs Close reads CYK quizzes</p>

	to maintain homeostasis			
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**Class Title: Biology**  
**Grade Level: 7<sup>th</sup> Grade**

Ecosystems: Interactions, Energy and Dynamics		Standards: MS-LS2-1; MS-LS2-2; MS-LS2-3; MS-LS2-4; MS-LS2-5; MS-LS3		
Essential Questions:	<ol style="list-style-type: none"> <li>1. What are ecosystems? What is the difference between abiotic and biotic factors in an ecosystem?</li> <li>2. What affects the populations of organisms that live in an ecosystem?</li> <li>3. What can limit population growth?</li> <li>4. Give three examples of interactions that occur between living things</li> <li>5. Define predator-prey relationships and explain how they can affect the environment or the environment can affect them</li> <li>6. Define symbiotic relationship</li> <li>7. Explain the flow of energy in an ecosystem, food chain and food web</li> <li>8. Define energy transfer and it affects an ecosystem.</li> <li>9. Explain the nitrogen cycle and its affect on an ecosystem.</li> <li>10. Explain the carbon cycle and its affect on an ecosystem.</li> <li>11. Explain how genetics, the ecosystem and the species affect biodiversity.</li> <li>12. How does biodiversity affect humans?</li> </ol>			
	<b>Desired Outcomes</b>	<b>Key Vocabulary</b>	<b>Resources</b>	<b>Assessments</b>
	1. Analyze and interpret data to to study the cause and effect relationships between resources and individual growth and numbers in ecosystems	Ecosystems Populations Predator Prey Biodiversity	Labs Close reads Discussion Homework Review games	Formative and Summative CYK quizzes Labs Design water

	<p>2. Predict population patterns among individuals in different populations and different ecosystems</p> <p>3. Develop model that will describe the flow of matter and energy among abiotic and biotic parts of an ecosystem</p> <p>4. Construct an argument supported by evidence that changes to parts of an ecosystem will affect populations</p> <p>5. Design and evaluate solutions for maintaining biodiversity and ecosystems</p>	<p>Symbiotic Abiotic Biotic Carbon cycle Nitrogen cycle Food chain Food web</p>		<p>purification system Web quests</p>
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