

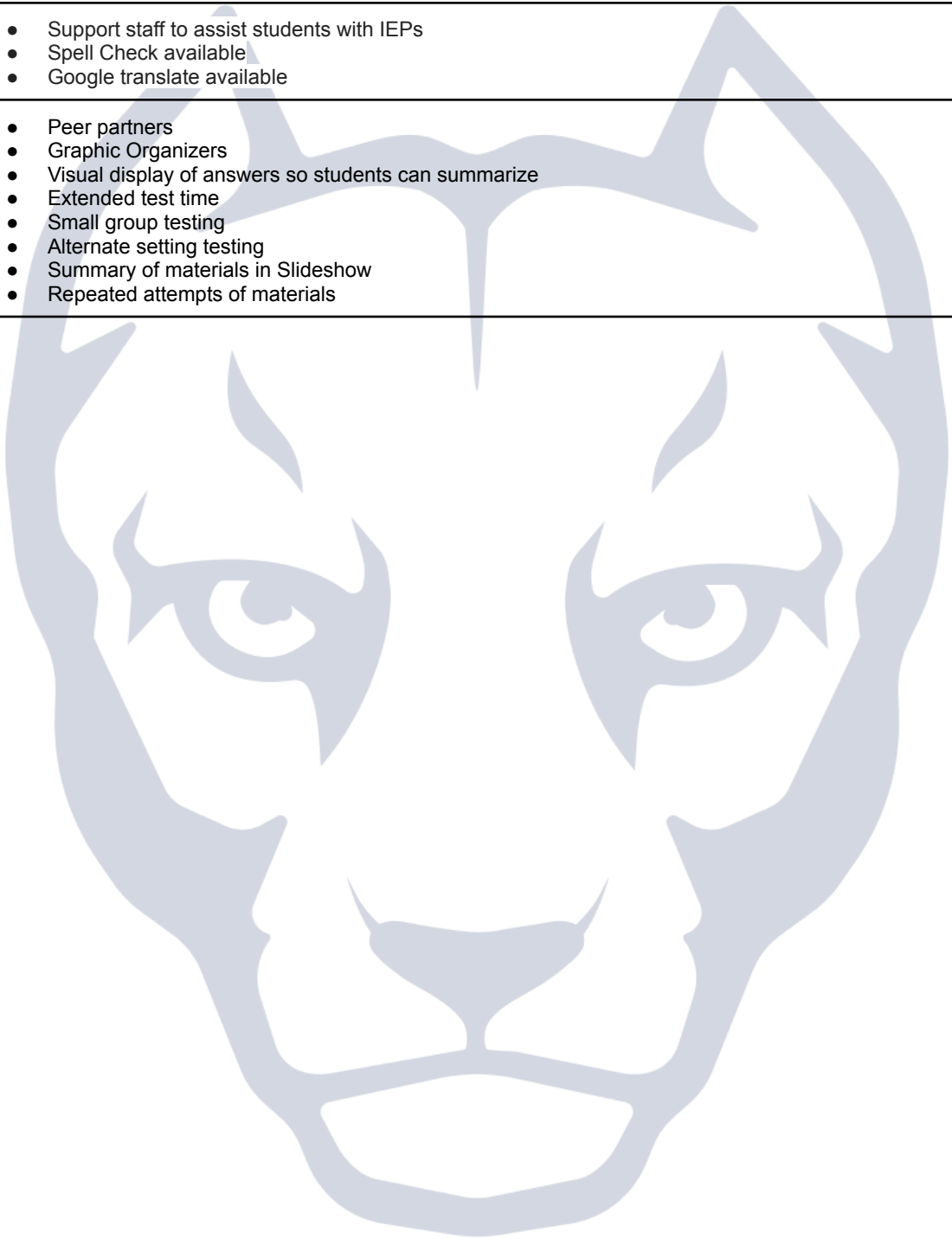
# IAA Biology Curriculum

<b>Content Area</b>	Science	<b>Grade</b>	10
<b>Course Name</b>	Keystone Biology Remediation		

<b>Unit 1/ Concept</b>	Unit 1: Unifying Characteristics of Life and Organization of Multicellular Organisms					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>• Is something alive?</li> <li>• Prokaryote and eukaryote cell complexity</li> <li>• Organelles specific functions</li> <li>• How similar cells organize to create complex organs, systems and organisms</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>• Identify systems</li> <li>• Label parts of systems</li> <li>• Collect data</li> <li>• Interpret data</li> <li>• Show cause and effect</li> <li>• Develop a scientific model</li> <li>• Apply scientific concepts</li> <li>• Apply mathematical equation to cell surface ratios</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>• What are the characteristics of life?</li> <li>• What would you see if you used a microscope?</li> <li>• Is something alive?</li> <li>• What is the complexity of prokaryotes and eukaryotes?</li> <li>• What are the similarities and differences in complex organs, systems and organisms?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>

<p><b>(12-15 days)</b></p>	<ul style="list-style-type: none"> <li>Describe 4 characteristics used to determine if something is alive.</li> <li>Identify the role of the nucleus in a cell</li> <li>Summarize the role of the ER</li> <li>Create a flow chart comparing the parts of a cell to an automobile production line.</li> <li>Compare and Contrast organelles that are specific to plants and animals</li> <li>Categorize the organization of life</li> <li>Determine the function of specialized cells within organs</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab, review relevant test questions,</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.A1. Explain the characteristics of life common to all organisms.</p> <p>3.1.10.A5. Relate life processes to sub-cellular and cellular structures to their functions.</p> <p>3.1.10.A8. Investigate the spatial relationships of organisms' anatomical features using specimens, models, or computer programs.</p> <p>3.1.10 B5. PATTERNS Use models to demonstrate patterns in biomacromolecules.</p>	<p>BIO.A.1.1, A.1.2, A.1.2</p>	<p>BIO.A.1.1.1, A.1.2.1, A.1.2.2</p>	<p>cells, unicellular, multicellular. homeostasis, plasma membrane, DNA, cytoplasm, ribosomes, nucleic acids, prokaryotes, , membrane bound, eukaryotes, organelles, nucleus, mitochondria, endoplasmic reticulum, Golgi apparatus, chloroplasts,structure, function, differentiated, tissue, epithelial, connective tissues, organ, capillaries, organ systems,gas exchange, viens, arteries, circulatory system, respiratory system, , plant vascular tissues, xylem, phloem, photosynthesis, stoma, meso = middle</p>
<p><b>Resources</b></p>	<ul style="list-style-type: none"> <li>Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>Lab equipment as necessary</li> <li>Lab-aids curriculum</li> <li>Pear-Deck interactive</li> <li>Khan Academy</li> <li>Edpuzzles</li> <li>California Academy of Sciences</li> <li>Kahoot!</li> <li>Videos by HHMI</li> <li>Crash Course Biology</li> <li>Amoeba Sisters</li> <li>Keystone Finish Line: Biology - 2020</li> <li>Modeling clay, sting, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>					
<p><b>Formative Assessments</b></p>	<p>Teacher made assessments, mind maps, models, and artistic rendering,exit slips, worksheets</p>					
<p><b>Summative Assessments</b></p>	<p>Mock Keystone test using previous Keystone test questions, project</p>					
<p><b>Strategies for ELL and IEP Support</b></p>	<ul style="list-style-type: none"> <li>Timer for assignments</li> <li>positive reinforcement</li> <li>redirect for task completion</li> <li>teacher check-in at the end of the day to make sure homework is being taken home</li> </ul>					

	<ul style="list-style-type: none"><li>• Support staff to assist students with IEPs</li><li>• Spell Check available</li><li>• Google translate available</li></ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"><li>• Peer partners</li><li>• Graphic Organizers</li><li>• Visual display of answers so students can summarize</li><li>• Extended test time</li><li>• Small group testing</li><li>• Alternate setting testing</li><li>• Summary of materials in Slideshow</li><li>• Repeated attempts of materials</li></ul>



# IAA Biology Curriculum

<b>Content Area</b>	Science	<b>Grade</b>	10
<b>Course Name</b>	Keystone Biology Remediation		

<b>Unit 2/ concepts</b>	Unit 2: Chemical Basis for Life					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>The Unique properties of Water support life on Earth.</li> <li>The chemistry of living things is based on carbon</li> <li>Biomolecules include DNA and proteins</li> <li>Enzymes function as catalysts to regulate specific biochemical reactions.</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Apply chemical concepts to water reactions</li> <li>Make visual representation of the properties of water</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>Why do things dissolve in water?</li> <li>Why is carbon essential to life?</li> <li>What are the properties of water?</li> <li>What are the properties of biomolecules?</li> <li>How do enzymes function?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
<b>(12-15 days)</b>	<ul style="list-style-type: none"> <li>Describe one way in which water helps maintain homeostasis in living organisms.</li> <li>Relate the structure of water to its ability to act as a solvent</li> <li>Explain If an unknown substance found on a meteorite contains no trace of carbon - can scientists conclude that there is life at the meteorite's origin.</li> <li>Summarize why the shape of an enzyme is important to its function.</li> <li>Differentiate between covalent and hydrogen bonds</li> <li>Explain the importance of the</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab, review relevant test questions,</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.A2. Explain cell processes in terms of chemical reactions and energy changes.</p> <p>3.1.10.A7. Describe the relationship between the structure of organic molecules and the function they serve in living organisms. Explain how cells store and use information to guide their functions.</p>	BIO.A.2.1, A.2.2, A.2.3, A.2.3	BIO.A.2.1.1, A.2.2.1, A.2.2.2, A.2.2.3, A.2.3.1, A.2.3.2	covalent bonding, polar, hydrogen bond, ionic compound, solubility, lipids, universal solvent, hydrophobic, hydrophilic, cohesion, adhesion, surface tension, capillary action (capillary action), meniscus, specific heat, heat of vaporization, heat of fusion, freezing point,

	<p>matter states of water</p> <ul style="list-style-type: none"> <li>• Compare and contrast hydrolysis and dehydration synthesis</li> <li>• Classify the macromolecules as per structure and function</li> <li>• Explain the importance and the role in life of water and the macromolecules</li> <li>• Identify the parts of the chemical reaction <math>a+b=ab</math></li> <li>• Diagram the changes that can occur in a chemical reaction.</li> <li>• Explain the importance of enzymes in living organisms.</li> </ul>		<p>3.1.10.A8. Investigate the spatial relationships of organisms' anatomical features using specimens, models, or computer programs.</p> <p>3.2.10.A2. Compare and contrast different bond types that result in the formation of molecules and compounds.</p> <p>3.2.10.A1. Predict properties of elements using trends of the periodic table.</p> <p>3.2.C.A3. Describe the three normal states of matter in terms of energy, particle motion, and phase transition</p> <p>3.2.10.A4. Describe chemical reactions in terms of atomic rearrangement and/or electron transfer.</p>			<p>organic compounds, macromolecules, lipids, glycerol, fatty acid chains, adipose, sterols, phospholipids, carbohydrates, disaccharide, monomers, polysaccharides, polymers, dehydration synthesis, hydrolysis, nucleic acid, DNA, RNA, Nucleotides, complementary DNA, proteins, amino acids, R-group, peptide bonds, enzymes, catalyst, reactants, products, activation energy, substrate, substrate-specific, ase, active site, induce, reaction rate, pHscale, denaturation</p>
<p><b>Resources</b></p>	<ul style="list-style-type: none"> <li>• Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>• Lab equipment as necessary</li> <li>• Lab-aids curriculum</li> <li>• Pear-Deck interactive</li> <li>• Khan Academy</li> <li>• Edpuzzles</li> <li>• California Academy of Sciences</li> <li>• Kahoot!</li> <li>• Videos by HHMI</li> <li>• Crash Course Biology</li> <li>• Amoeba Sisters</li> <li>• Keystone Finish Line: Biology - 2020</li> </ul>					

	<ul style="list-style-type: none"> <li>Modeling clay, sting, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project
<b>Strategies for ELL and IEP Support</b>	<ul style="list-style-type: none"> <li>Timer for assignments</li> <li>positive reinforcement</li> <li>redirect for task completion</li> <li>teacher check-in at the end of the day to make sure homework is being taken home</li> <li>Support staff to assist students with IEPs</li> <li>Spell Check available</li> <li>Google translate available</li> </ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"> <li>Peer partners</li> <li>Graphic Organizers</li> <li>Visual display of answers so students can summarize</li> <li>Extended test time</li> <li>Small group testing</li> <li>Alternate setting testing</li> <li>Summary of materials in Slideshow</li> <li>Repeated attempts of materials</li> </ul>

# IAA Biology Curriculum

<b>Content Area</b>	Science	<b>Grade</b>	10
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<b>Unit 3/ concept</b>	Unit 3: Bioenergetics					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>ATP is a compound central to the processing of energy by the cell.</li> <li>Energy transformations also take place in photosynthesis.</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Create a venn diagram using cellular respiration and photosynthesis</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>Why would a farmer grow lettuce in a greenhouse?</li> <li>Lettuce plants can't eat - so how do they get energy?</li> <li>How is the function of ATP in a cell like a battery in a car?</li> <li>How does your body get energy from eating lettuce?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
<b>(12-15 days)</b>	<ul style="list-style-type: none"> <li>Identify the major source of energy for living organisms</li> <li>Compare and contrast anabolic and catabolic processes.</li> <li>Connect the role of ATP to energy transfers within a cell.</li> <li>Diagram and explain the ETC.</li> <li>Summarize the steps of the Calvin cycle</li> <li>Summarize the stages of cellular respiration</li> <li>Explain how energy drives the cycle of matter in photosynthesis and cellular respiration.</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab,</li> <li>review relevant test questions,</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.A2. Explain cell processes in terms of chemical reactions and energy changes.</p> <p>3.1.10.A8. Investigate the spatial relationships of organisms' anatomical features using specimens, models, or computer programs.</p>	BIO.A.3.1, A.3.2, A.3.2	BIO.A.3.1.1, A.3.2.1, A.3.2.2	ATP, ADP, respiration(cell), glycolysis, aerobic, anaerobic respiration, mitochondria, citric acid cycle, photosynthesis, chloroplasts, chlorophyll, pigment, stomata, light dependent reactions, light-independent reactions, calvin cycle, dark reactions

<b>Resources</b>	<ul style="list-style-type: none"> <li>● Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>● Lab equipment as necessary</li> <li>● Lab-aids curriculum</li> <li>● Pear-Deck interactive</li> <li>● Khan Academy</li> <li>● Edpuzzles</li> <li>● California Academy of Sciences</li> <li>● Kahoot!</li> <li>● Videos by HHMI</li> <li>● Crash Course Biology</li> <li>● Amoeba Sisters</li> <li>● Keystone Finish Line: Biology - 2020</li> <li>● Modeling clay, string, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project
<b>Strategies for ELL and IEP Support</b>	<ul style="list-style-type: none"> <li>● Timer for assignments</li> <li>● positive reinforcement</li> <li>● redirect for task completion</li> <li>● teacher check-in at the end of the day to make sure homework is being taken home</li> <li>● Support staff to assist students with IEPs</li> <li>● Spell Check available</li> <li>● Google translate available</li> </ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"> <li>● Peer partners</li> <li>● Graphic Organizers</li> <li>● Visual display of answers so students can summarize</li> <li>● Extended test time</li> <li>● Small group testing</li> <li>● Alternate setting testing</li> <li>● Summary of materials in Slideshow</li> <li>● Repeated attempts of materials</li> </ul>

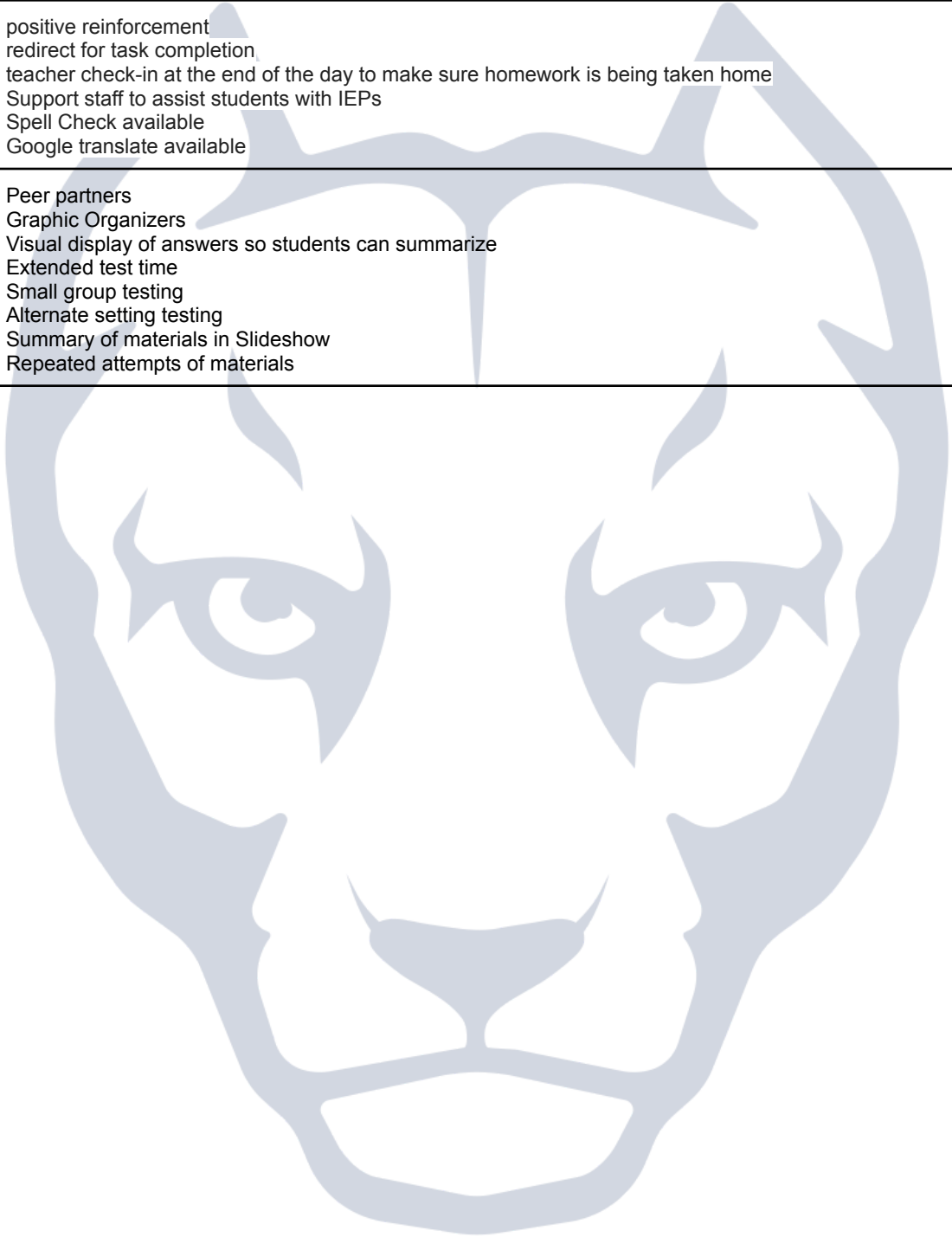


# IAA Biology Curriculum

<b>Content Area</b>	Science	<b>Grade</b>	10
<b>Course Name</b>	Keystone Biology Remediation		

<b>Unit 4/ concept</b>	Unit 4: Homeostasis and Transport					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>Particular cell structures are involved in the transport of materials into and out of and throughout the cell.</li> <li>Some materials are transported into, out of or throughout a cell by passive mechanisms.</li> <li>Other materials are transported into, out of or throughout a cell by active mechanisms.</li> <li>Organisms use particular mechanisms to maintain homeostasis, the biological balance between their internal and external environments.</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Explain how organisms stay the same by changing</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>Why is the plasma membrane an important structure of the cell?</li> <li>What processes enable substances to move into or out of a cell?</li> <li>How are cells structured?</li> <li>How are materials transported into, out of, or through a cell?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
<b>(12-15 days)</b>	<ul style="list-style-type: none"> <li>Identify molecules in the plasma membrane</li> <li>Explain how the inside of a cell remains separate from its environment</li> <li>Describe how the plasma membrane helps maintain homeostasis in a cell.</li> <li>List and describe the types of cellular transport</li> <li>Sketch a before and after diagram of an animal cell placed in a hypotonic solution</li> <li>Contrast facilitated diffusion and active transport.</li> <li>Summarize the role of the phospholipid bilayer in cellular transport in living cells.</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab,</li> <li>review relevant test questions,</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.A8. Investigate the spatial relationships of organisms' anatomical features using specimens, models, or computer programs.</p> <p>3.1.10.A1. Explain the characteristics of life common to all organisms.</p>	BIO.A.4.1, A.4.2	BIO.A.4.1.1, A.4.1.2, A.4.1.3, A.4.2.1.	plasma membrane, impermeable, semipermeable, bilayer, phospholipids, hydrophilic, hydrophobic, amphiphilic, membrane proteins, aquaporin, glycolipids/proteins, endosymbiosis, endomembrane system, vesicles. active transport, ion pumps,

			3.1.10.A2. Explain cell processes in terms of chemical reactions and energy changes.			molecular pumps, vesicles, exocytosis, endocytosis, concentration, concentration gradient, diffusion, equilibrium, input, passive transport, facilitated diffusion, transport protein, facilitated diffusion, protein channels, carrier proteins, osmosis, solute, hypotonic, hypertonic, active transport, ion pumps, molecular pumps, vesicles, exocytosis, endocytosis
<b>Resources</b>	<ul style="list-style-type: none"> <li>• Textbooks - Inspire Biology - McGraw Hill 2020</li> <li>• Lab equipment as necessary</li> <li>• Lab-aids curriculum</li> <li>• Pear-Deck interactive</li> <li>• Khan Academy</li> <li>• Edpuzzles</li> <li>• California Academy of Sciences</li> <li>• Kahoot!</li> <li>• Videos by HHMI</li> <li>• Crash Course Biology</li> <li>• Amoeba Sisters</li> <li>• Keystone Finish Line: Biology - 2020</li> <li>• Modeling clay, string, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>					
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets					
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project					
<b>Strategies for ELL and IEP</b>	<ul style="list-style-type: none"> <li>• Timer for assignments</li> </ul>					



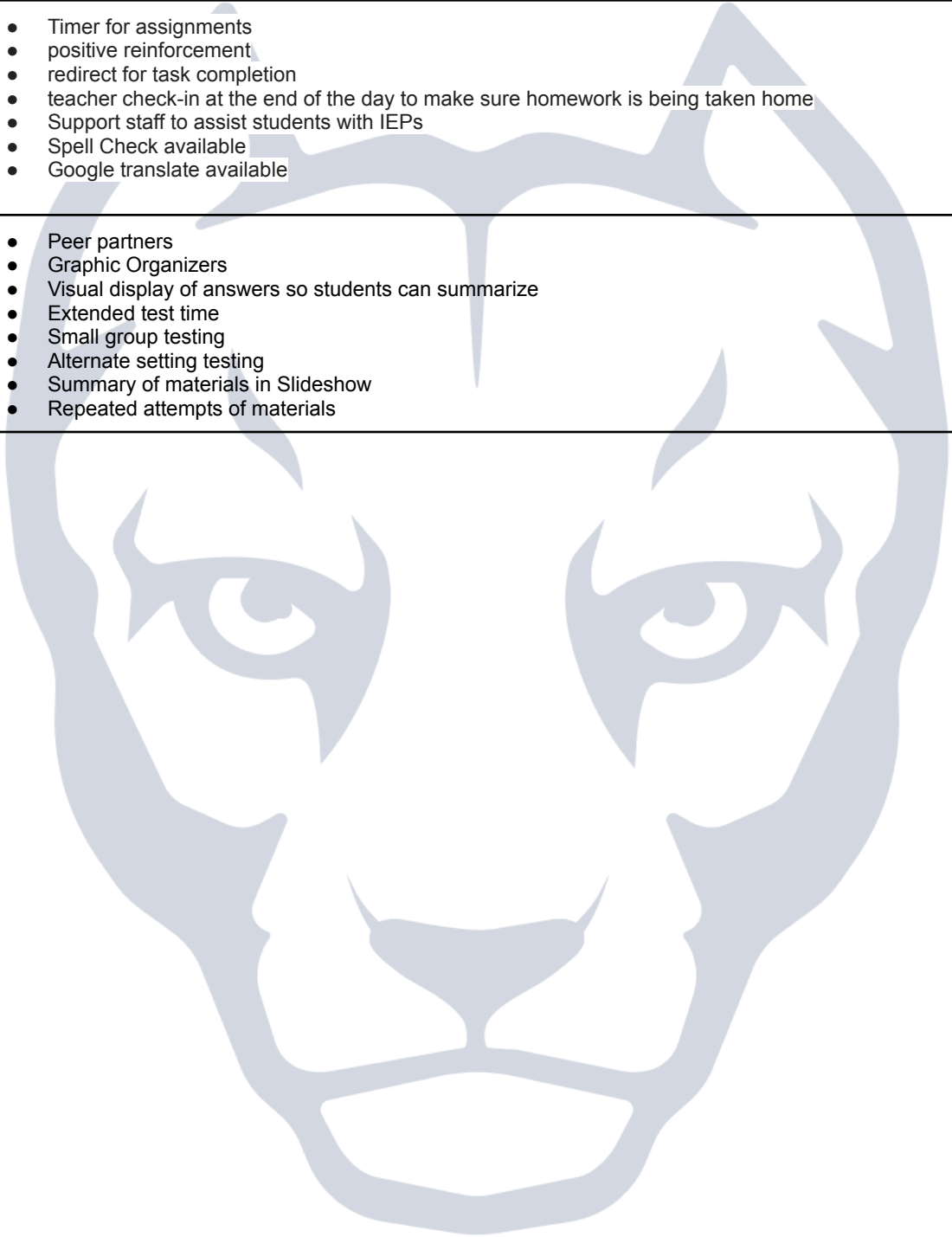
<b>Support</b>	<ul style="list-style-type: none"><li>● positive reinforcement</li><li>● redirect for task completion</li><li>● teacher check-in at the end of the day to make sure homework is being taken home</li><li>● Support staff to assist students with IEPs</li><li>● Spell Check available</li><li>● Google translate available</li></ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"><li>● Peer partners</li><li>● Graphic Organizers</li><li>● Visual display of answers so students can summarize</li><li>● Extended test time</li><li>● Small group testing</li><li>● Alternate setting testing</li><li>● Summary of materials in Slideshow</li><li>● Repeated attempts of materials</li></ul>

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<b>Content Area</b>	Science	<b>Grade</b>	10
<b>Course Name</b>	Keystone Biology Remediation		

<b>Unit 5 / concepts</b>	Unit 5: Cell Growth and Reproduction					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>DNA serves as a blueprint for the synthesis of proteins and the transmission of genetic information</li> <li>The process that cells undergo to grow and reproduce is called the cell cycle</li> <li>Meiosis is a second kind of cell division that occurs in organisms that reproduce sexually.</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Create a flip book for mitosis</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>What are the primary stages of the cell cycle?</li> <li>What are the stages of Meiosis?</li> <li>How does meiosis provide genetic variation?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
(12-15 days)	<ul style="list-style-type: none"> <li>Relate cell size to cell functions, and explain why cell size is limited</li> <li>Summarize the stages of the cell cycle</li> <li>Explain why mitosis alone does not produce daughter cells.</li> <li>Explain how the cancer cell is different from a normal cell cycle.</li> <li>Illustrate how nondisjunction occurs during meiosis</li> <li>Describe a possible application of stem cells</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab,</li> <li>review relevant test questions,</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.A4. Describe the cell cycle and the process and significance of mitosis.</p> <p>3.1.10.A5. Relate life processes to sub-cellular and cellular structures to their functions.</p> <p>3.1.10.A8. Investigate the spatial relationships</p>	BIO. B.1.2, B.2.2, B.1.1, B.1.2	BIO. B.1.2.2, B.2.2.1, B.2.2.2, B.1.1.1, B.1.2.1, B.1.1.2	DNA, nucleotides, complementary base pairs, codons, gene, genetic code, chromosome, histones, RNA, transcription, transcribed strand, polymerases, translation, ribosomes, anticodon, codon, tRNA rRNA, central dogma, exocytosis, cell cycle,

			<p>of organisms' anatomical features using specimens, models, or computer programs.</p> <p>3.1.10.B2. Explain the process of meiosis resulting in the formation of gametes. Compare and contrast the function of mitosis and meiosis.</p>			<p>interphase, S-phase, M-phase, mitosis, cytokinesis, daughter cells, parent cells, DNA replication, sister chromatids, centromere, semiconservative replication, prophase, metaphase, anaphase, telophase, meiosis, gametes, chromosome number, diloid, homologous pairs, allele, Meiosis I, Meiosis II, crossing over, homologs</p>
<b>Resources</b>	<ul style="list-style-type: none"> <li>• Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>• Lab equipment as necessary</li> <li>• Lab-aids curriculum</li> <li>• Pear-Deck interactive</li> <li>• Khan Academy</li> <li>• Edpuzzles</li> <li>• California Academy of Sciences</li> <li>• Kahoot!</li> <li>• Videos by HHMI</li> <li>• Crash Course Biology</li> <li>• Amoeba Sisters</li> <li>• Keystone Finish Line: Biology - 2020</li> <li>• Modeling clay, string, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>					
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets					
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project					



<b>Strategies for ELL and IEP Support</b>	<ul style="list-style-type: none"><li>● Timer for assignments</li><li>● positive reinforcement</li><li>● redirect for task completion</li><li>● teacher check-in at the end of the day to make sure homework is being taken home</li><li>● Support staff to assist students with IEPs</li><li>● Spell Check available</li><li>● Google translate available</li></ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"><li>● Peer partners</li><li>● Graphic Organizers</li><li>● Visual display of answers so students can summarize</li><li>● Extended test time</li><li>● Small group testing</li><li>● Alternate setting testing</li><li>● Summary of materials in Slideshow</li><li>● Repeated attempts of materials</li></ul>

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<b>Course Name</b>	Keystone Biology Remediation		

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<b>Course Name</b>	Keystone Remediation/ Biology		

<b>Unit 6/ concept</b>	Unit 6: Genetics					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>Genetic information is inherited according to particular patterns.</li> <li>Genetic information may be altered in various ways.</li> <li>Genetic engineering is the control of genetic variability through technology and human intervention.</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Punnett square</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>What is the significance of Mendel's experiments to the study of genetics?</li> <li>How do genetic recombination and gene linkage compare?</li> <li>Why are there numerous dog breeds?</li> <li>What are examples of complex inheritance?</li> <li>How do prokaryotes and eukaryotes regulate their genes?</li> <li>What is genetic engineering and why is it useful?</li> <li>Why does the human genome project continue to be significant?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
<b>(12-15 days)</b>	<ul style="list-style-type: none"> <li>Diagram - use a Punnett square to explain how a dominant allele masks the presence of a recessive allele.</li> <li>Evaluate the significance of Mendel's work to the field of genetics</li> <li>Analyze how crossing over is related to variation</li> <li>Diagram specific alleles involved in the process of</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content</li> <li>review vocab</li> <li>review relevant test questions</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	3.1.10.A8. Investigate the spatial relationships of organisms' anatomical features using specimens, models, or computer programs.	Bio. B.1.2, B.2.1 B.2.3 B.3.1, B.2.4	Bio. B.1.2.2, B.2.1.1 B.2.1.2, B.2.3.1, B.3.1.3, B.2.4.1	gene, polygenic trait, genotype, phenotype, dominant, recessive, homozygous, Punnett squares, pedigree, incomplete dominance, codominant

	<p>crossing over.</p> <ul style="list-style-type: none"> <li>Assess the effect of selective breeding on food crops</li> <li>Describe derived traits in sheep</li> <li>Compare and contrast inbreeding and hybridization</li> <li>Construct a pedigree of two unaffected parents and 1 child with CF</li> </ul> <p>Interpret: can two parents with albinism produce unaffected offspring?</p> <ul style="list-style-type: none"> <li>Describe two patterns of complex inheritance - how do they differ from Mendelian genetics?</li> </ul>		<p>3.1.10.B1. Describe how genetic information is inherited and expressed.</p> <p>3.1.10.B3. Describe the basic structure of DNA and its function in genetic inheritance.</p> <p>3.1.10.B4. Explain how genetic technologies have impacted the fields of medicine, forensics, and agriculture.</p> <p>3.1.10 B5. PATTERNS Use models to demonstrate patterns in biomacromolecules. Compare and contrast Mendelian and non Mendelian patterns of inheritance.</p>			<p>alleles, multiple alleles, sex chromosomes, sex-linked traits, sex, mutation, codons, silent mutation, missense mutation, nonsense mutations, frameshift mutation, deletion, duplication, inversion, translocation, genome, selective breeding, artificial selection, hybrid, genetic engineering, GMO, Bt, gene splicing, recombinant, vector, gene therapy, tandem repeat, CODIS, polymerase chain reaction, gel electrophoresis, cloning, nuclear transfer</p>
<p><b>Resources</b></p>	<ul style="list-style-type: none"> <li>Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>Lab equipment as necessary</li> <li>Lab-aids curriculum</li> <li>Pear-Deck interactive</li> <li>Khan Academy</li> <li>Edpuzzles</li> <li>California Academy of Sciences</li> <li>Kahoot!</li> <li>Videos by HHMI</li> <li>Crash Course Biology</li> </ul>					



	<ul style="list-style-type: none"> <li>• Amoeba Sisters</li> <li>• Keystone Finish Line: Biology - 2020</li> <li>• Modeling clay, string, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project
<b>Strategies for ELL and IEP Support</b>	<ul style="list-style-type: none"> <li>• Timer for assignments</li> <li>• positive reinforcement</li> <li>• redirect for task completion</li> <li>• teacher check-in at the end of the day to make sure homework is being taken home</li> <li>• Support staff to assist students with IEPs</li> <li>• Spell Check available</li> <li>• Google translate available</li> </ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"> <li>• Peer partners</li> <li>• Graphic Organizers</li> <li>• Visual display of answers so students can summarize</li> <li>• Extended test time</li> <li>• Small group testing</li> <li>• Alternate setting testing</li> <li>• Summary of materials in Slideshow</li> <li>• Repeated attempts of materials</li> </ul>

# IAA Biology Curriculum

<b>Content Area</b>	Science	<b>Grade</b>	10
<b>Course Name</b>	Keystone Biology Remediation		

<b>Unit 7/ Concepts</b>	Unit 7: Theory of Evolution					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>A number of evolutionary mechanisms can contribute to the development of the new species.</li> <li>The theory of biological evolution is supported by evidence from a variety of sources.</li> <li>Precise scientific terminology is among the tools applied to the study of the theory of evolution</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Create a family tree for humans</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>How can fossils provide evidence of past life?</li> <li>How does the theory of biogenesis relate to modern ideas of cellular life?</li> <li>How does the fossil record, morphology, biochemistry, and adaptation provide evidence of evolution?</li> <li>What patterns can be observed in evolution?</li> <li>How and why do we classify organisms?</li> <li>How is the evolutionary history of organisms determined?</li> <li>What are the major characteristics of the three domains?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
<b>(12-15 days)</b>	<ul style="list-style-type: none"> <li>Describe the evidence Charles Darwin gathered that led to his theory of evolution</li> <li>Describe the four conditions for natural selection to occur</li> <li>Infer the consequences for evolution if species did not vary.</li> <li>Explain how the scientific theory of evolution is supported by patterns in the fossil record</li> <li>Compare the morphological evidence and the biochemical evidence supporting evolution</li> <li>Discuss the factors that can lead to speciation</li> <li>Describe how and why organisms are hierarchically</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab,</li> <li>review relevant test questions</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.A8. Investigate the spatial relationships of organisms' anatomical features using specimens, models, or computer programs.</p> <p>3.1.10.C1. Explain the mechanisms of biological evolution.</p> <p>3.1.10.C2. Explain the role of mutations and gene</p>	BIO.3.1, B.3.2, B.3.3	BIO.3.1.1 B.3.1.2, B.3.1.3, B.3.2.1, B.3.3.1	evolution, natural selection, adaptation, allele frequency, allele, population, genetic drift, migration, founder effect, speciation, geographical isolation, reproductive isolation, species, isolating mechanism, fossils, transitional fossils, homologous structures,

	<ul style="list-style-type: none"> <li>organized</li> <li>Classify a giant panda <i>Ailuropoda melanoleuca</i> from domain to species level.</li> <li>Differentiate between taxonomy and systematics</li> <li>Summarize the different concepts of a species</li> <li>Compare and contrast the characteristics of the domains.</li> </ul>		<p>recombination in changing a population of organisms.</p> <p>3.1.10.C3. CONSTANCY AND CHANGE Interpret data from fossil records, anatomy and physiology, and DNA studies relevant to the theory of evolution.</p>		<p>analogous structures, vestigial structures, mutations, genetic code, development, fact, observation, inference, scientific theory, transitional form, hypothesis, scientific law, scientific principle,</p>
<b>Resources</b>	<ul style="list-style-type: none"> <li>Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>Lab equipment as necessary</li> <li>Lab-aids curriculum</li> <li>Pear-Deck interactive</li> <li>Khan Academy</li> <li>Edpuzzles</li> <li>California Academy of Sciences</li> <li>Kahoot!</li> <li>Videos by HHMI</li> <li>Crash Course Biology</li> <li>Amoeba Sisters</li> <li>Keystone Finish Line: Biology - 2020</li> <li>Modeling clay, string, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>				
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets				
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project				
<b>Strategies for ELL and IEP Support</b>	<ul style="list-style-type: none"> <li>Timer for assignments</li> <li>positive reinforcement</li> <li>redirect for task completion</li> <li>teacher check-in at the end of the day to make sure homework is being taken home</li> <li>Support staff to assist students with IEPs</li> <li>Spell Check available</li> <li>Google translate available</li> </ul>				
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"> <li>Peer partners</li> <li>Graphic Organizers</li> <li>Visual display of answers so students can summarize</li> <li>Extended test time</li> <li>Small group testing</li> <li>Alternate setting testing</li> <li>Summary of materials in Slideshow</li> </ul>				

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|  | <ul style="list-style-type: none"><li>• Repeated attempts of materials</li></ul> |
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# IAA Biology Curriculum

<b>Content Area</b>	Science	<b>Grade</b>	10
<b>Course Name</b>	Keystone Biology Remediation		

<b>Unit 8/ concepts</b>	Unit 8: Ecology					
<b>Big Ideas</b>	<ul style="list-style-type: none"> <li>The biosphere is composed of many levels of ecological organization.</li> <li>Energy flows through the many interactions and relationships of an ecosystem</li> <li>Matter as well as energy cycles through an ecosystem</li> <li>Ecosystems respond to change in a variety of ways.</li> </ul>					
<b>Key learning objectives and skills</b>	<ul style="list-style-type: none"> <li>Identify systems</li> <li>Label parts of systems</li> <li>Collect data</li> <li>Interpret data</li> <li>Show cause and effect</li> <li>Develop a scientific model</li> <li>Apply scientific concepts</li> <li>Create a diorama</li> </ul>					
<b>Essential Questions</b>	<ul style="list-style-type: none"> <li>What relationships among organisms might exist with a bird nest built in a thorny tree?</li> <li>How does energy flow through an ecosystem?</li> <li>How does matter flow through an ecosystem?</li> <li>What is an ecological community?</li> <li>What characteristics do scientists consider when they are describing different regions of the world?</li> <li>What are the characteristics of aquatic ecosystems?</li> </ul>					
<b>Dates (estimates only)</b>	<b>Smart Objectives</b>	<b>Instructional Strategies and Activities</b>	<b>PA CC Standards</b>	<b>Keystone Anchors</b>	<b>Keystone Eligible Content</b>	<b>Vocabulary</b>
<b>(12-15 days)</b>	<ul style="list-style-type: none"> <li>Predict how unfavorable abiotic and biotic factors affect a species</li> <li>Differentiate between habitat and niche of an organism found in your community</li> <li>Distinguish producers, consumers and decomposers from each other.</li> <li>Explain how photosynthesis and cellular respiration provide energy in each step of the web chain.</li> <li>Name four important biogeochemical processes that cycle matter.</li> <li>Identify the living and nonliving</li> </ul>	<ul style="list-style-type: none"> <li>Direct instruction</li> <li>Peer/Group work</li> <li>Review content, review vocab,</li> <li>review relevant test questions,</li> <li>Analyze visuals</li> <li>Assorted relevant labs</li> </ul>	<p>3.1.10.B1. Describe how genetic information is inherited and expressed.</p> <p>3.1.B.C1. Describe species as reproductively distinct groups of organisms.</p> <p>Explain how evolution through</p>	BIO.B. 4.1, B.4.1.2, b.4.2	BIO.B. 4.1.1, B4.1.2, b.4.2.1, B.4.2.2, B.4.2.3, B.4.2.4, B.4.2.5	Ecology, organism, population, community, ecosystem, biomes, biosphere, biotic, abiotic, terrestrial, aquatic, competition, symbiotic relationship, producers, consumers, food chain, food web, decomposers,

	<p>parts of the nitrogen cycle</p> <ul style="list-style-type: none"> <li>Summarize succession of an ecosystem that has recently been subject to extreme fire.</li> <li>Hypothesize why tropical rain forest have the highest biodiversity</li> <li>Describe how water quality changes from the source of a river to the mouth.</li> </ul>		<p>natural selection can result in changes in biodiversity through the increase or decrease of genetic diversity within a population.</p> <p>3.4.10.A1. Illustrate how the development of technologies is often driven by profit and an economic market.</p> <p>3.4.10.A2. Interpret how systems thinking applies logic and creativity with appropriate comprises in complex real-life problems.</p> <p>3.1.3.A2. Describe the basic needs of living things and their dependence on light, food, air, water, and shelter.</p>			<p>trophic levels, energy pyramid, biochemical cycles, organic, succession, population dynamics, endemic, non-native species, limiting factors, habitat</p>
<p><b>Resources</b></p>	<ul style="list-style-type: none"> <li>Textbooks - Inspire Biology - Mcgraw Hill 2020</li> <li>Lab equipment as necessary</li> <li>Lab-aids curriculum</li> <li>Pear-Deck interactive</li> </ul>					

	<ul style="list-style-type: none"> <li>● Khan Academy</li> <li>● Edpuzzles</li> <li>● California Academy of Sciences</li> <li>● Kahoot!</li> <li>● Videos by HHMI</li> <li>● Crash Course Biology</li> <li>● Amoeba Sisters</li> <li>● Keystone Finish Line: Biology - 2020</li> <li>● Modeling clay, string, sticks, plaster, wire, paints, brushes, crayons, markers, canvas, plants, scalpels, etc.</li> </ul>
<b>Formative Assessments</b>	Teacher made assessments, mind maps, models, and artistic rendering, exit slips, worksheets
<b>Summative Assessments</b>	Mock Keystone test using previous Keystone test questions, project
<b>Strategies for ELL and IEP Support</b>	<ul style="list-style-type: none"> <li>● Timer for assignments</li> <li>● positive reinforcement</li> <li>● redirect for task completion,</li> <li>● teacher check-in at the end of the day to make sure homework is being taken home</li> <li>● Support staff to assist students with IEPs</li> <li>● Spell Check available</li> <li>● Google translate available</li> </ul>
<b>Acceleration Strategies</b>	<ul style="list-style-type: none"> <li>● Peer partners</li> <li>● Graphic Organizers</li> <li>● Visual display of answers so students can summarize</li> <li>● Extended test time</li> <li>● Small group testing</li> <li>● Alternate setting testing</li> <li>● Summary of materials in Slideshow</li> <li>● Repeated attempts of materials</li> </ul>