

Essential Standards Chart: What is it we expect students to learn?

Grade:	9-12	Subject:	CP Biology	Semester	Q1	Team Members:	Addington		
							Domek		
							Durham		
Standard/ Description	Example/ Rigor	Prior Skills Needed	Common Assessment (C-A)	When Taught?	Enrichment				
What is the essential standard to be learned? Describe in student-friendly vocabulary.	What does proficient student work look like? Provide an example and/or description.	What prior knowledge, skills, and/or vocabulary is/are needed for a student to master this standard?	What assessment(s) will be used to measure student mastery?	When will this standard be taught?	What will we do when students have learned the essential standard(s)?				
I am able to describe the steps of the scientific method. I am able to make distance, mass and volume measurements using the metric system.	<ol style="list-style-type: none"> 1. Know the steps of experimentation 2. Use the metric system 3. Recognize how theories are formed 	<p>PK: Student should have basic knowledge of the metric system. Student should be able to make measurements using a balance, metric ruler and graduated cylinder.</p> <p>VOCAB: hypothesis, prediction, theory, variable, experimental group, control group.</p>	BIO C-A (1-1): Themes of biology BIO C-A (1-3): Scientific Process	WEEK 1					
I can describe how biologists organize living things into different groups	<ol style="list-style-type: none"> 1. Know the characteristics of living things 2. Know the 8 levels of classification 3. Use the binomial nomenclature system 	<p>PK: Student should know 6 kingdoms of living things. Student should recognize characteristics of living things.</p> <p>VOCAB: classification, taxonomy, species, kingdom, cells, metabolism, homeostasis, reproduction, heredity, growth/development, responsiveness</p>	BIO C-A (14 & 19): Classification	WEEK 2					
I can explain the structure and function of the major biological molecules important to living things.	<ol style="list-style-type: none"> 1. Important properties of water 2. Identify the 4 major organic compounds, subunits and functions 3. Know the properties and function of enzymes 	<p>PK: Student should know basic atomic theory and basic chemistry principles. Know that food is consumed for energy.</p> <p>VOCAB: element, molecule, polar/non-polar molecules, acid, base, protein, carbohydrate, lipid, nucleic acid, enzyme</p>	BIO C-A (2-1 & 2-2): Matter & Water BIO C-A (2-3): Macromolecules	WEEK 3					
I can identify the two basic cell types as well as explain the function of major cell parts.	<ol style="list-style-type: none"> 1. Identify characteristics of prokaryotes and eukaryotes 2. Identify parts of the cell theory 3. Recognize cell parts/organelles and identify their functions 	<p>PK: Student should have basic microscope skills and know how to make a wet mount slide.</p> <p>VOCAB: prokaryotic, eukaryotic, organelle, cell membrane, nucleus, chloroplast, mitochondria, ribosome, phospholipid bilayer, marker/receptor/transport proteins.</p>	BIO C-A (3-2): Cell Membrane	WEEK 4					

<p>I can explain how cells move materials in and out of the cell membrane.</p>	<ol style="list-style-type: none"> 1. Explain the structure of the cell membrane 2. Describe methods of passive transport 3. Describe methods of active transport 	<p>PK: Student should know the structure of the cell membrane.</p> <p>VOCAB: Passive/Active transport, concentration gradient, equilibrium, diffusion, osmosis, hypertonic, isotonic, hypotonic</p>	<p>BIO C-A (4-1): Passive Transport BIO C-A (4-2): Active Transport</p>	<p>WEEK 5</p>	
<p>I know the importance of photosynthesis to living things, what it produces and I can explain the function of chloroplasts and pigments in this process.</p>	<ol style="list-style-type: none"> 1. Explain how pigments capture light energy 2. Explain how light energy is converted to chemical energy 3. Explain how chemical energy is transferred to food molecules 	<p>PK: Student should know the concept of metabolism and that energy flows through living systems. Student should know basics of photosynthesis and the function of the chloroplast.</p> <p>VOCAB: Autotroph, heterotroph, photosynthesis, cellular respiration, chloroplast, pigment, chlorophyll, thylakoid, Calvin Cycle.</p>	<p>BIO C-A (5-1): Energy in Living Systems BIO C-A (5-2): Photosynthesis</p>	<p>WEEK 6/7</p>	
<p>I know why living things do cellular respiration and can describe the process.</p>	<ol style="list-style-type: none"> 1. Explain how food is converted to chemical energy (ATP) 2. Describe the process of glycolysis 3. Differentiate between aerobic and anaerobic respiration 	<p>PK: Student should know the function of the mitochondria. Student should know that the food is turned into useable energy.</p> <p>VOCAB: Cellular respiration, aerobic, anaerobic, fermentation, glycolysis, Krebs Cycle, ATP</p>		<p>WEEK 7/8</p>	
<p>I can name and describe the major types of cell division.</p>	<ol style="list-style-type: none"> 1. Describe the process of binary fission and identify the types of cells that use this process 2. Explain the steps of mitosis 3. Describe the formation of gametes thru the process of meiosis 	<p>PK: Student knows that cells divide and that they pass on hereditary information. Student should know the terms fertilization, nucleus, DNA and chromosomes.</p> <p>VOCAB (chp6): haploid, diploid, chromosomes, chromatid, centromere, spindles, mitosis, cytokinesis, cancer, karyotype, gamete, zygote, homologous, sex chromosomes</p> <p>VOCAB (chp7): meiosis, spermatogenesis, oogenesis, sperm, ovum, crossing over, law of independent assortment, law of segregation, clone</p>	<p>BIO C-A (6-1): Chromosomes BIO C-A (6-2): Cell Cycle BIO C-A (6-3): Mitosis & Cytokinesis BIO C-A (7-1): Meiosis</p>	<p>WEEK 8/9</p>	