

## What is it we expect students to learn? Identifying Essential Standards

**Grade Level:** 11 or 12

**Subject:** Biology

**Team Members:** Rachel Bozarth, Heather Stoecklein

1. Standard/Description	2. Evidence of Proficiency	3. Prior Skills Needed	4. Common Summative Assessment	5. When Taught?	6. Enrichment Standards
Follow basic safety guidelines	In a laboratory, the following should not be worn. A. loose clothing. B. dangling jewelry. C. sandals. D. all of the above.	Fire is hot, glass will cut, and goggles protect eyes.	Flinn Safety Test	Mid August	
Organize and analyze data (7.1.B) (7.1.A)	An organized plan for gathering, organizing, and communicating information is called a(an) _____.	Scientific method.	The Science of Life (Chapter 1)	August into September	
Recognize & name the molecules of life (3.2.D)	What are the 2 possible secondary protein structures?	atoms and bonding	Molecules of Cells (Chapter 3)	September	
Explain cell theory and how it relates to the biological sciences	Describe the 3 components of the cell theory	Definintion of a cell and its basic function.	Cell Structure and Function (Chapter 4)	September -October	
Describe a number of cellular structures and functions (3.1.C/3.2.A)	Make a T Chart that contrasts 5 differences between plant and animal cells	Understanding of major cell structures.	Cell Structure and Function (Chapter 4)	October	
Catagorize organization of organisms (3.1.E)	Relate the organelles within cells to the organs within our bodies	Understanding of major cell structures.	Cell Structure and Function (Chapter 4)	October	

Evaluate the process of the cell cycle and cellular division (mitosis) (3.3.A.a)	Draw, label and explain the 4 main phases of mitosis	Understanding of chromosomes and how it relates to human growth and development	Cellular Reproduction (Chapter 8)	Ocotober	
Explain the processes of cellular respiration & fermentation	When the poinson cyanide blocks the electron transport chain, glycolysis and the citric acid cycle soon grind to a halt as well. Why do you think they stop? A. they both run out of ATP B. Unused O <sub>2</sub> interferes with cellular respiration. C. They run out of NAD+ and FAD. D. Electrons are no longer available. E. They	Understanding of major cell structures and biomolecules.	How Cells Harvest Chemical Energy (Chapter 6)	Ocotober-November	
Analyze the process of photosynthesis and how it relates to cellular respiration. (3.2.B)	When light strikes chlorophyll molecules, they lose electrons, which are ultimately replaced by A. splitting water. B. breaking down ATP. C. oxidizing NADPH. D. fixing carbon. E. oxidizing glucose.	Understanding of major cell structures and biomolecules.	Photosynthesis: Using Light to Make Food (Chapter 7)	November-December	
Apply Mendelian Genetics (3.3.E)	Solve monohybrid and dihybrid crosses	Genes determine traits and are passed from parents to offspring	Fundamentals of Genetics (Chapter 9)	January	
Evaluate human diseases and pedigrees (3.3.E.c)	Determine the genotypes and phenotypes of all members within a pedigree	Contrast genotypes and phenotypes	Human Genetics (Chapter 12)	Late January	
Trascribe and Translate DNA/RNA/Protein synthesis (3.3.B.a) (3.3.B.b)	Manipulate modules working from a DNA sequence through to an amino acid chain	Basic function, location and structure of DNA	DNA, RNA, Protein Synthesis (Chapter 10)	February	
Examine the evidences of evolution. (4.3.A)	Which of the following is considered evidence for evolution? A. biogeography B. comparative anatomy C. molecular biology D. all of the above E. none of the above	Genes determine traits and are passed from parents to offspring	How Populations Evolve (Chapter 13)	February	
Name the parts of the nervous system & explain their fuction	Explain what synapses is and its role in the nervous system.	cells and ions	Nervous System (Chapter 28)	March	

Name the parts of the digestive system & explain their function (3.2.C)	The energy content of fats A. is released by bile salts. B. may be lost unless an herbivore eats some of its feces. C. is more than two times that of carbohydrates or proteins. D. can reverse the effects of malnutrition. E. both C and D are correct.	cells & biomolecules	Nutrition & digestion (Chapter 21)	March	
Classify organisms (3.1.E.a) (3.1.E.b)	Classify a species from Kingdom to Species through all 7 levels of classification	All species are classified	Classification of organisms (chapter 17)	March	
Demonstrate Cellular movement (passive and active transport) (3.2.F)	Differentiate between active and passive transport. Create a T-Chart showing these differences	Cell membrane is a semi-permeable barrier	Cell Transport (chapter 5)	April	
Compare and contrast community interactions (4.1.B.b) (4.1.A)	Name and define the three main classes of symbiotic relationships. Give examples of each.	Predator/Prey relationships	Communities & Ecosystems (Chapter 37)	April	
Analyze the ecological hierarchy/ecosystems (4.2.A)	Draw and label a food web with 5 organisms and 3 trophic levels	Food chain/food web. Relationships between producers and consumers. Understanding biome structure	Communities & Ecosystems (Chapter 37)	April	
Analyze plant structures and functions	Design a 3 dimensional angiosperm flower and present to the class	Location of stem, roots, and leaves	Plant Structure and Function (chapter 29)	May	

1. Standard: What is the essential standard to be learned? Describe in student-friendly vocabulary.
2. Example/Rigor: What does proficient student work look like? Provide an example and/or description.
3. Prior Skills Needed: What prior knowledge, skills, and/or vocabulary is needed for a student to master this standard?
4. Common Assessment: What assessment(s) will be used to measure student mastery?
6. When will this standard be taught?
6. Enrichment: What supplementary standards/skills enrich the essential standard?


