



GENERAL KEYSTONE BIOLOGY I

Common Units of Study with Sample Lesson Topics	Textbook Chapter(s)	Estimated % of Course Time	Estimated Time	Big Idea (s)	PA Academic Standard(s)
<p>Quarter 1: The Nature of Life and Cells</p> <ul style="list-style-type: none"> ❖ The Science of Biology <ol style="list-style-type: none"> 1. Course Intro 2. Studying Life ❖ The Chemistry of Life <ol style="list-style-type: none"> 1. Properties of Water 2. Carbon Compounds 3. Macromolecules to Monomers 4. Structure and Function of Macromolecules 5. Chemical Reactions and Enzymes ❖ CDT Administration #1 	1-2	25%	45 days	<ul style="list-style-type: none"> ❖ Organisms share common characteristics of life. ❖ Life emerges due to the chemical organization of matter into cells. 	<ul style="list-style-type: none"> ❖ Bio.B.3.3 ❖ Bio.B.3.3.1 ❖ Bio.A.1.1 ❖ Bio.A.2.1.1 Bio.A.2.2.1 Bio.A.2.2.2 Bio.A.2.2.3 Bio.A.2.3.1 Bio.A.2.3.2
<p>Quarter 2: Cells (Continued)</p> <ul style="list-style-type: none"> ❖ Cell Structure and Function (continued) <ol style="list-style-type: none"> 1. Life is Cellular 2. Cell Structure and Plasma Membrane 3. Cell Transport 4. Homeostasis and Cells 5. Organization of the Human Body ❖ Photosynthesis <ol style="list-style-type: none"> 1. Energy and Life 2. Photosynthesis 3. Plant Anatomy, Homeostasis and Gas Exchange 4. Leaves ❖ Cellular Respiration and Fermentation <ol style="list-style-type: none"> 1. Cellular Respiration 2. Fermentation ❖ Quarterly Exam Preparation and Assessment 	7-9	25%	45 days	<ul style="list-style-type: none"> ❖ Cells have organized structures and systems necessary to support chemical reactions needed to maintain the living condition. ❖ Structure is related to function at all biological levels of organization. ❖ Organisms obtain and use energy to carry out their life processes. 	<ul style="list-style-type: none"> ❖ Bio.B.3.3 ❖ Bio.B.3.3.1 ❖ Bio.A.1.1.1 Bio.A.1.2.1 Bio.A.1.2.2 Bio.A.4.1.1 Bio.A.4.1.2 Bio.A.4.1.3 Bio.A.4.2.1 ❖ Bio.A.3.2.1 Bio.A.3.2.2 Bio.A.3.1 Bio.A.3.1.1 Bio.A.4.2.1 ❖ Bio.A.3.1.1 Bio.A.3.2.1 Bio.A.3.2.2
<p>Quarter 3: Cells (Continued) and Genetics</p> <ul style="list-style-type: none"> ❖ Cell Growth and Division <ol style="list-style-type: none"> 1. Cell Growth, Division, and Reproduction 2. Process of Cell Division 3. Regulating the Cell Cycle 4. Cancer/Cell Differentiation 	10	25%	45 days	<ul style="list-style-type: none"> ❖ New cells arise from the division of pre-existing cells. 	<ul style="list-style-type: none"> ❖ Bio.B.3.3 ❖ Bio.B.3.3.1 ❖ Bio.B.1.1.1 Bio.B.1.1.2 Bio.B.2.1.2

5. Meiosis ❖ CDT Administration #2					
Quarter 4: Genetics ❖ Introduction to Genetics 1. The Work of Gregor Mendel 2. Applying Mendel's Principles 3. Other Patterns of Inheritance ❖ Quarterly Exam Preparation and Assessment	11	25%	45 days	❖ Eukaryotic cells can differentiate and organize making it possible for multicellularity.	❖ Bio.B.3.3 ❖ Bio.B.3.3.1 ❖ Bio.B.2.1.1 Bio.B.1.2.2