

Planned Course: Biology	Course Number: S401	Department: Science	
Unit: The Nature of Life and Cells	Grade Level: 9-10		
Estimated Time: 45 days	Level/Track: College Prep.	Date Approved: 08/22/2016	
Biology Keystone Eligible Content ▶ PA Academic Standards	Core Concepts (in question format) • Skills/Knowledge	Activities/Strategies/Study Skills (identify some activities as remedial or enrichment activities)	Assessments (include types and topics)

<ul style="list-style-type: none"> ▶ Bio.B.3.3.1 <ul style="list-style-type: none"> • 3.1.B.A9 ▶ Bio.A.2.1.1 <ul style="list-style-type: none"> • 3.1.B.A8 • 3.1.B.A5 • 4.2.5.C Bio.A.2.2.1 <ul style="list-style-type: none"> • 3.1.B.A7 • 3.2.C.A2 Bio.A.2.2.2 <ul style="list-style-type: none"> • 3.1.B.A7 • 3.1.B.A8 • 3.1.B.A2 • 3.1.C.A2 • 3.1.C.A7 Bio.A.2.2.3 <ul style="list-style-type: none"> • 3.1.B.A7 • 3.1.B.A2 • 3.1.C.A2 • 3.1.C.A7 Bio.A.2.3.1 <ul style="list-style-type: none"> • 3.1.B.A2 • 3.1.B.A7 Bio.A.2.3.2 <ul style="list-style-type: none"> • 3.1.B.A2 • 3.1.B.A7 ▶ Bio.A.1.1.1 <ul style="list-style-type: none"> • 3.1.B.A1 • 3.1.B.C2 • 4.1.3.A • 4.1.4.A Bio.A.1.2.1 	<ul style="list-style-type: none"> ▶ The Science of Biology: What are the common characteristics of life? <ul style="list-style-type: none"> • List the characteristics of living things. • Identify the central themes of biology. • Explain how life can be studied at different levels. ▶ The Chemistry of Life: How is life organized from chemicals into cells? How are cell structures and systems necessary in supporting chemical reactions needed to maintain the living condition? <ul style="list-style-type: none"> • Discuss the unique properties of water. • Differentiate between solutions and suspensions. • Explain what acidic solutions and basic solutions are. • Describe the unique qualities of carbon. • Describe the structures and functions of each of the four groups of macromolecules. • Explain how chemical reactions affect chemical bonds. • Describe how energy changes affect how easily a chemical reaction will occur. 	<ul style="list-style-type: none"> ▶ Suggested Labs and Activities: <ul style="list-style-type: none"> • Scientific Methods Lab • pH Analysis Gizmo • Making Models of Macromolecules Activity • Macromolecules in Foods Lab • Dehydration Synthesis Gizmo • Collision Theory Gizmo • Enzyme Reaction Lab • Using a Compound Microscope Lab • Cell Structure Gizmo • Cell Microscope Lab • Building a Cell Membrane Activity • Egg Diffusion Lab • Osmosis in Plant Cells Lab • Osmosis Gizmo • Diffusion Gizmo • Paramecium Homeostasis Gizmo ▶ Scientific Article Assignments ▶ Homework / Classwork to reinforce major concepts <ul style="list-style-type: none"> • Data Analysis • Visual Quizzes • Graphic Organizers / Diagrams • Study Guides 	<ul style="list-style-type: none"> ▶ Formative Assessments ▶ Quizzes ▶ Chapter/topic summative assessments ▶ Lab Reports/Assessments ▶ Quarterly Assessment #1
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<ul style="list-style-type: none"> • 3.1.B.A1 • 3.1.B.A5 • 3.1.B.C2 • 4.1.4.A Bio.A.1.2.2 • 3.1.B.A5 • 3.1.B.A6 • 3.1.B.A1 Bio.A.4.1.1 • 3.1.B.A5 • 3.1.B.A2 • 3.1.B.A4 • 3.1.B.A7 • 3.2.C.A1 • 3.2.P.B6 Bio.A.4.1.2 • 3.1.B.A5 • 3.1.B.A2 • 3.1.B.A7 • 3.2.C.A1 • 3.2.P.B6 Bio.A.4.1.3 • 3.1.B.A5 • 3.1.B.A2 Bio.A.4.2.1 • 3.1.B.A8 • 3.1.B.A5 • 4.5.4.D • 4.2.4.C 	<ul style="list-style-type: none"> • Explain why enzymes are important to living things. ▶ Cell Structure and Function: How is structure and function related at all biological levels of organization? <ul style="list-style-type: none"> • State the cell theory. • Distinguish between prokaryotes and eukaryotes. • Describe the structure and function of cell organelles. • Describe the function of the cell membrane. • Describe passive and active transport. • Explain how unicellular and multicellular organisms maintain homeostasis. 		
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