

Disciplinary Core Idea (DCI)	Standards (in order)	Concepts Covered	Crosscutting Concept(s) (CCC)	Science and Engineering Practice(s) (SEP)	4 ½ weeks to be Taught	Chapter in Miller and Levine Textbook	Suggested Labs and Activities
From Molecules to Organisms: Structure and Process	BIO1.LS1.1	<ul style="list-style-type: none"> Characteristics of Life Living vs. Nonliving 	Pattern	Engaging in argument from evidence	1 st	Chp 1	<ul style="list-style-type: none"> Living vs. Nonliving activity Testing Biomolecules Lab Enzyme/Potato Catalase Lab Prokaryotic vs. Eukaryotic Models Osmosis Lab Onion root tip lab State recommended Viruses activity
	BIO.LS1.2	<ul style="list-style-type: none"> Monomers/polymers/Organic Molecules 	Systems and System Models	Developing and using models	1 st	Chp 2	
	BIO.LS1.5	<ul style="list-style-type: none"> Enzymes 	Structure and Function	Planning and carrying out controlled investigations	1 st	Chp 2	
	BIO.LS1.2 and 1.1	<ul style="list-style-type: none"> Cell Types (different types of eukaryotic as well as prokaryotic) Viruses (link back to characteristics of life) Cellular structures 	Systems and System Models	Developing and using models	1 st	Chp 8 and Chp 1	
	BIO.LS1.7	<ul style="list-style-type: none"> Cell membrane and transport Membrane Proteins 	Systems and System Models	Constructing explanations and designing solutions	1 st	Chp 11	
	BIO.LS1.6	<ul style="list-style-type: none"> Cell cycle Mitosis 	Pattern	Developing and using models	1 st	Chp 11	
Common Assessment 1 (all above standards covered)							
Ecosystems: Interaction	BIO.LS2.1 and 2.4	<ul style="list-style-type: none"> Trophic Levels/Energy Transfer Populations (growth, carrying 	Systems and System	Using mathematics and	2 nd	•Chp 4, 5 and 6	• Carrying Capacity Activity

s, energy, and dynamics		<ul style="list-style-type: none"> capacity, limiting factors, growth curves) Human Impact (invasive species, exploitation, etc.) Interactions (competition, symbiosis) 	Models	computational thinking			<ul style="list-style-type: none"> Logistic vs. Exponential Growth Data Sets Random Sampling Lab Food webs and Energy pyramids Investigation of Human Impact on environment (ex. Information Pamphlet) Chromatography lab Lactic Acid build-up lab
	BIO.LS2.5	<ul style="list-style-type: none"> Ecological Succession 	Stability and Change	Constructing explanations and designing solutions	2 nd	Chp 6	
From Molecules to Organisms: Structure and Processes	BIO.LS1.8	<ul style="list-style-type: none"> Photosynthesis 	Energy and Matter	Planning and carrying out controlled investigations	2 nd	Chp 9	
	BIO.LS1.9	<ul style="list-style-type: none"> Cellular Respiration 	Energy and Matter	Planning and carrying out controlled investigations	2 nd	Chp 10	
Midterm							
Ecosystems: Interactions, energy and dynamics	BIO.LS2.2	<ul style="list-style-type: none"> Human Impact Tracking carbon atoms 	Systems and System Models	Developing and using models	3 rd	Chp 4 and 7	<ul style="list-style-type: none"> Tracking carbon in aquatic plants Carbon footprint activity
	BIO.LS2.3	<ul style="list-style-type: none"> Biogeochemical Cycles (Focus on impacts due to changes) 	Energy and Matter	Developing and using models	3 rd	Chp 4	
Heredity: Inheritance and Variation of Traits	BIO.LS3.1	<ul style="list-style-type: none"> Meiosis Asexual Reproduction 	Cause and Effect	Developing and using models	3 rd	<ul style="list-style-type: none"> Chp 12 	<ul style="list-style-type: none"> Paper plate meiosis /meiosis state lab Research and

							construct explanation on modes of reproduction
	BIO.LS3.3	<ul style="list-style-type: none"> • Mendelian Genetics • Patterns of Inheritance • Pedigrees 	Pattern	Constructing explanations and designing solutions	3 rd	<ul style="list-style-type: none"> • Chp 12 and 15 	<ul style="list-style-type: none"> • Punnett Square Lab • Pedigree analysis • “Make a Baby” Lab
From Molecules to Organisms: Structures and Processes	BIO.LS1.3	<ul style="list-style-type: none"> • DNA • DNA Replication 	Structure and Function	Developing and Using Models	3 rd	<ul style="list-style-type: none"> • Chp 13 	<ul style="list-style-type: none"> • DNA Models
	BIO.LS1.4	<ul style="list-style-type: none"> • Protein Synthesis • Protein Structure (could be covered during introduction of proteins) • Protein Types 	Structure and Function	Developing and Using Models	3 rd	<ul style="list-style-type: none"> • Chp 2 and 14 	<ul style="list-style-type: none"> • Protein Synthesis Lab • Protein Structure Lab (see state lab handout)
Heredity: Inheritance and Variation of Traits/	BIO.LS3.2 BIO.ETS2.2 BIO.ETS2.3 BIO.ETS2.1	<ul style="list-style-type: none"> • Somatic vs. germline mutations • Karyotypes/chromosomal mutations/nondisjunction • Ethics and bioengineering • Molecular Biotechnology 	Cause and Effect (LS3.2) Cause and Effect (ETS2.1) Pattern (ETS2.2) Cause and Effect (ETS2.3)	Constructing explanations and designing solutions (LS3.2) Obtaining, evaluating, and communicating information (ETS2.1) Developing	4 th	<ul style="list-style-type: none"> • Chp 15 and 16 	<ul style="list-style-type: none"> • Karyotype lab • Genetic Disorder research • Point mutation lab • Writing response for ethics in genetics

				and using models (ETS2.2) Engaging in argument from evidence (ETS3.3)			
Common Assessment 2 (All standards from Midterm to this point covered).							
Biological Change: Unity and Diversity	BIO.LS4.2	<ul style="list-style-type: none"> Population changes in allele frequency Evolution of a population 	Cause and Effect	Developing and Using Models	4 th	<ul style="list-style-type: none"> Chp 8 	<ul style="list-style-type: none"> Genetic Drift Activity Darwin's finches lab activity
	BIO.LS4.3	<ul style="list-style-type: none"> Natural Selection 	Scale, Proportion, and Quantity	Asking questions and defining problems	4 th	<ul style="list-style-type: none"> Chp 17 	<ul style="list-style-type: none"> Natural selection lab
	BIO.LS4.1	<ul style="list-style-type: none"> Evidence for Evolution Homologies Cladograms 	Stability and Change	Engaging in argument from evidence	4 th	<ul style="list-style-type: none"> Chp 19 and 20 	<ul style="list-style-type: none"> Homologous structures activity Cladogram Activity
TN READY TEST PREP							
TN READY EXAM							

Standards covered for each Common Assessment:

Common Assessment 1:

- LS 1.1, LS 1.2, LS 1.5, LS 1.6, LS 1.7

Common Assessment 2:

- LS 2.2, LS 2.3, LS 1.3, LS 1.4, LS 3.1, LS 3.3, LS 3.2

Standards covered for Benchmark/Midterm:

- LS 1.1, LS 1.2, LS 1.5, LS 1.6, LS 1.7, LS 2.1, LS 2.4, LS 2.5, LS 1.8, LS 1.9