



Alignment of BIOZONE's Biology for NGSS (3rd edition)  
to North Carolina Biology Standards (July 2023)

ISBN: 978-1-98-856692-4

SKU: NBI3

Note 1: Correlation locations are activity numbers (not page numbers).

Note 2: Correlations do not usually include reference to the Science practices chapter.

Note 3: Correlations to the standard statement include background material to address the specific objectives.

<b>North Carolina Biology Standards</b> Source: <a href="https://drive.google.com/drive/folders/1iFGnl4uqvt180DJKQ2m5tkdQLiQjq9k" style="color: white;">https://drive.google.com/drive/folders/1iFGnl4uqvt180DJKQ2m5tkdQLiQjq9k</a>		
<b>TITLE: Biology for NGSS (3ed)</b> <b>Correlation locations are activity numbers (not page numbers).</b>		
<b>Strand: From Molecules to Organisms- Structures and Processes</b>		
Standard	Objectives	Correlation location
<b>LS.Bio.1</b> <i>Analyze how the relationship between structure and function supports life processes within organisms.</i>		Activities 29 - 66
	<b>LS.Bio.1.1</b> Construct an explanation to illustrate relationships between structure and function of major macromolecules essential for life.	Activities 38, 39, 41, 42, 47, 52, 53, 54, 55
	<b>LS.Bio.1.2</b> Carry out investigations to illustrate how enzymes act as catalysts for biochemical reactions and how environmental factors affect enzyme activity.	Activities 58 & 59
	<b>LS.Bio.1.3</b> Use models to explain how the structure of organelles determines its function and supports overall cell processes.	Activities 30, 34, 35, 37, 50, 51, 54, 55
	<b>LS.Bio.1.4</b> Construct explanations to compare prokaryotic and eukaryotic cells in terms of structures and degree of complexity.	Activities 31, 34, 35, 36
	<b>LS.Bio.1.5</b> Construct an explanation to summarize how DNA and RNA direct the synthesis of proteins.	Activities 47, 51, 52, 53, 187

<p><b>LS.Bio.2</b> <i>Analyze the growth and development processes of organisms.</i></p>		Activities 84 - 98
	<p><b>LS.Bio.2.1</b> Use models to illustrate how cellular division results in the reproduction, growth, and repair of organisms.</p>	Activities 90, 91, 92, 93, 94, 95
	<p><b>LS.Bio.2.2</b> Construct an explanation to illustrate that proteins regulate gene expression resulting in cellular differentiation, specialized cells with specific functions, and uncontrolled cell growth.</p>	Activities 94, 95, 191
<p><b>LS.Bio.3</b> <i>Analyze the relationship between biochemical processes and energy use.</i></p>		Activities 67 - 83, 99 - 112
	<p><b>LS.Bio.3.1</b> Carry out investigations to explain how homeostasis is maintained through feedback mechanisms.</p>	Activities 73, 75, 79
	<p><b>LS.Bio.3.2</b> Use models to illustrate how photosynthesis transforms light energy into chemical energy.</p>	Activities 102, 104, 112
	<p><b>LS.Bio.3.3</b> Use models to illustrate how cellular respiration [aerobic and anaerobic] transforms chemical energy into ATP.</p>	Activities 107, 108, 109, 112

Strand: Ecosystems- Interactions, Energy, and Dynamics		
Standard	Objectives	Correlation location
<b>LS.Bio.4</b> <i>Analyze the relationships between matter and energy within ecosystems.</i>		Activities 136 - 156
	<b>LS.Bio.4.1</b> Use models to illustrate how processes in organisms contribute to the flow of energy and the cycling of matter within an ecosystem.	Activities 148, 149, 150, 151, 125, 153, 154
	<b>LS.Bio.4.2</b> Use models to explain the relationship between the flow of energy and cycling of matter among organisms in an ecosystem.	Activities 140, 141, 142, 145, 146, 147, 151
<b>LS.Bio.5</b> <i>Understand ecosystem dynamics, functioning, and resilience.</i>		Activities 113 - 135, 157 - 172, 251 - 261
	<b>LS.Bio.5.1</b> Use mathematics and computational thinking to explain how interactions between organisms (predator/prey, competition) affect carrying capacity and maintain stability in an ecosystem.	Activities 125, 127, 133
	<b>LS.Bio.5.2</b> Engage in argument from evidence to evaluate various solutions to reduce the impact of human activities on biodiversity and ecosystem health.	Activities 252, 253, 255, 261

Strand: Heredity- Inheritance and Variation of Traits		
Standard	Objectives	Correlation location
<b>LS.Bio.6</b> <i>Understand genetic mechanisms for variation.</i>		Activities 194 - 210, 219
	<b>LS.Bio.6.1</b> Use models to explain how DNA is passed from parents to offspring through the processes of meiosis and fertilization in sexual reproduction.	Activities 197, 200, 201, 202
	<b>LS.Bio.6.2</b> Construct an explanation to summarize how inheritable genetic variations may result from: new genetic combinations in meiosis, mutations during replication, or mutations caused by environmental factors.	Activities 198, 200, 201, 202, 203, 204, 208, 209, 210
<b>LS.Bio.7</b> <i>Understand types of inheritance and how the environment can influence traits.</i>		Activities 194, 208 - 219
	<b>LS.Bio.7.1</b> Use mathematics and computational thinking to predict the variation and distribution of expressed traits based on: Mendelian inheritance, co-dominance, incomplete dominance, multiple alleles, and sex-linked inheritance.	Activities 211, 212, 213, 214, 215
	<b>LS.Bio.7.2</b> Analyze and interpret data to explain how polygenic traits result in a wide range of phenotypes.	Activities 194, 199, 219
	<b>LS.Bio.7.3</b> Construct an explanation to summarize how traits result from interactions of genetic factors (multiple genes and/or alleles) and environmental factors.	Activities 209, 210
<b>LS.Bio.8</b> <i>Understand applications of genetics and biotechnology.</i>		
	<b>LS.Bio.8.1</b> Analyze and interpret data to compare DNA samples.	Activity 228
	<b>LS.Bio.8.2</b> Obtain and communicate information that summarizes the impact of biotechnology applications on the individual, society, and the environment, including agriculture and medicine.	N/A

Strand: Biological Evolution - Unity and Diversity		
Standard	Objectives	Correlation location
<b>LS.Bio.9</b> <i>Understand natural selection as a mechanism for biological evolution.</i>		Activities 204 - 207, 220 -232, 233 - 250
	<b>LS.Bio.9.1</b> Analyze and interpret data to summarize how various factors such as geographic isolation, pesticide resistance, antibiotic resistance can influence natural selection.	Activities 205, 241, 244
	<b>LS.Bio.9.2</b> Construct an explanation to illustrate how common ancestry and biological evolution are supported by multiple lines of empirical evidence.	Activities 221 - 230
	<b>LS.Bio.9.3</b> Use models to illustrate the conditions required for natural selection, including the overproduction of offspring, inherited variation, and the struggle to survive.	Activities 234, 235,
	<b>LS.Bio.9.4</b> Construct an explanation to explain how natural selection leads to adaptations within populations.	Activities 237, 238, 239, 240, 241, 242
<b>LS.Bio.10</b> <i>Analyze evolutionary relationships among organisms.</i>		Activities 243 - 248, 250
	<b>LS.Bio.10.1</b> Construct explanations to illustrate how varying environmental conditions may result in: changes in the number of individuals of a species, the emergence of new species over time, or the extinction of other species.	Activities 244, 245, 246, 247, 248
	<b>LS.Bio.10.2</b> Use models (including dichotomous keys, scientific nomenclature, cladograms, phylogenetic trees) to identify organisms and exemplify relationships.	Activities 228, 231, 232