



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

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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.

## North Carolina Physical Sciences Standards

Source: <https://drive.google.com/drive/folders/1iFGnl4uqvt180DJKQ2m5tkdQLiQioq9k>

**TITLE: Physical Sciences for NGSS (1ed)**

**Correlation locations are activity numbers (not page numbers).**

### Strand: Matter and its Interactions

Standard	Objectives	Correlation location
<b>PS.PSc.1</b> <i>Understand types, properties, and structure of matter.</i>		Activities 17 - 33
	<b>PS.PSc.1.1</b> Construct an explanation to classify matter as a pure substance or mixture; homogeneous or heterogeneous; element or compound; solution, colloid or suspension.	Activity 18
	<b>PS.PSc.1.2</b> Use models to compare the phases of matter and the physical changes they undergo.	N/A
	<b>PS.PSc.1.3</b> Carry out investigations to compare physical and chemical properties of matter.	Activity 31
	<b>PS.PSc.1.4</b> Use models to interpret the data presented in Bohr diagrams and electron dot diagrams for neutral atoms of elements 1 through 18.	Activities 21, 22, 27, 28, 29, 30, 33
	<b>PS.PSc.1.5</b> Use models to compare representations of atoms, ions, and isotopes.	Activities 19, 20, 21, 22, 30
	<b>PS.PSc.1.6</b> Use the Periodic Table as a model to predict the relative properties (metallic/nonmetallic character, ionic charge, and reactivity) and arrangement of elements based on the pattern of valence electrons in the outermost energy levels of atoms.	Activities 16, 23, 24, 25, 27, 28, 30

<p><b>PS.PSc.2</b> <i>Analyze interactions of matter within a chemical system.</i></p>		Activities 26 - 28, 34 - 55
	<p><b>PS.PSc.2.1</b> Construct an explanation to classify the type of chemical bond that occurs (covalent, ionic, or metallic) in a given substance.</p>	Activities 26, 27, 28, 30
	<p><b>PS.PSc.2.2</b> Use models to apply International Union of Pure and Applied Chemistry (IUPAC) conventions to name and write formulas for simple compounds.</p>	Activities 36, 37, 38
	<p><b>PS.PSc.2.3</b> Use mathematics and computational thinking to execute the balancing of chemical equations to illustrate the Law of Conservation of Mass.</p>	Activities 40, 41, 55
	<p><b>PS.PSc.2.4</b> Obtain, evaluate, and communicate information to classify a chemical reaction as synthesis, decomposition, combustion, single replacement, or double replacement reaction.</p>	Activity 40
	<p><b>PS.PSc.2.5</b> Construct an explanation to compare the composition and properties of acids and bases.</p>	Activity 53
	<p><b>PS.PSc.2.6</b> Use models to explain the interactions of acids and bases in the process of neutralization.</p>	Activities 43, 44, 53
<p><b>PS.PSc.3</b> <i>Understand the role of the nucleus in radiation and radioactivity.</i></p>		Activities 56 - 63
	<p><b>PS.PSc.3.1</b> Use models to compare nuclear reactions including alpha decay, beta decay, and gamma decay; nuclear fusion and nuclear fission.</p>	Activities 59, 60, 61, 63
	<p><b>PS.PSc.3.2</b> Use mathematics and computational thinking to execute simple half-life calculations based on the radioactive decay of unstable nuclei.</p>	N/A
	<p><b>PS.PSc.3.3</b> Obtain, evaluate, and communicate information to explain the application of nuclear reactions to radioactive dating, medicine, and energy production.</p>	Activities 59, 60, 125

Strand: Motion and Stability- Forces and Interactions		
Standard	Objectives	Correlation location
<b>PS.PSc.4</b> <i>Analyze motion in terms of speed, velocity, acceleration, and momentum.</i>		Activities 65 - 77
	<b>PS.PSc.4.1</b> Analyze and interpret data to explain the motion of an object moving with a constant velocity or that is accelerating.	Activities 66, 67
	<b>PS.PSc.4.2</b> Analyze and interpret data to explain the relationship between impulse and an object's change in momentum.	Activities 71, 72, 73, 77
<b>PS.PSc.5</b> <i>Understand the relationship between forces and motion.</i>		Activities 64 - 77
	<b>PS.PSc.5.1</b> Use mathematics and computational thinking to compare the weight and mass of an object.	Activity 69
	<b>PS.PSc.5.2</b> Use models to explain the velocity of an object in freefall.	Activity 69
	<b>PS.PSc.5.3</b> Construct an explanation to infer the effects of forces (specifically applied force and friction) on objects.	Activities 68, 69
	<b>PS.PSc.5.4</b> Use models to explain the relationship between an object's motion and the interaction of forces acting on it according to Newton's Three Laws of Motion.	Activities 68, 69, 70

<b>PS.PSc.6</b> <i>Understand the relationship between forces and motion.</i>		Activities 83 - 90
	<b>PS.PSc.6.1</b> Carry out investigations to explain static and current electricity.	Activity 81
	<b>PS.PSc.6.2</b> Construct an explanation to compare simple series and parallel circuits in terms of Ohm's Law.	N/A
	<b>PS.PSc.6.3</b> Obtain, evaluate, and communicate information to explain how current is affected by changes in composition, length, temperature, and diameter of wire.	N/A
	<b>PS.PSc.6.4</b> Use models to explain magnetism in terms of domains, interactions of poles, and magnetic fields.	Activities 84, 85, 86, 87
	<b>PS.PSc.6.5</b> Obtain, evaluate, and communicate information to explain the application of electromagnets.	Activity 88
<b>Strand: Energy</b>		
<b>Standard</b>	<b>Objectives</b>	<b>Correlation location</b>
<b>PS.PSc.7</b> <i>Analyze energy transfers and transformations within a mechanical system.</i>		Activities 92 - 101, 102 - 110
	<b>PS.PSc.7.1</b> Use models to explain thermal energy and its transfer.	Activities 93
	<b>PS.PSc.7.2</b> Use mathematics and computational thinking to explain the Law of Conservation of Energy in a mechanical system in terms of kinetic and potential energy.	Activities 96, 97, 98
	<b>PS.PSc.7.3</b> Use mathematics and computational thinking to explain work in terms of the relationship among the applied force to an object, the resulting displacement of the object, and the energy transferred to an object.	Activities 106, 107
	<b>PS.PSc.7.4</b> Construct an explanation to infer the relationship between work and power, both quantitatively and qualitatively.	Activity 106

Strand: Waves and Their Applications		
Standard	Objectives	Correlation location
<b>PS.PSc.8</b> <i>Analyze the nature of waves and their applications.</i>		Activities 111 -,120, 128 - 132
	<b>PS.PSc.8.1</b> Carry out investigations to explain the quantitative and qualitative relationships among wave frequency, wave velocity, wavelength, and wave energy.	Activities 112, 113
	<b>PS.PSc.8.2</b> Use models to compare the characteristics of mechanical and electromagnetic waves.	Activities 112, 122, 123
	<b>PS.PSc.8.3</b> Use models to explain the wave interactions of reflection, refraction, diffraction, and interference	Activities 116, 117
	<b>PS.PSc.8.4</b> Obtain, evaluate, and communicate information to explain how instruments that transmit and detect waves are used in everyday life.	Activities 115, 128 - 132