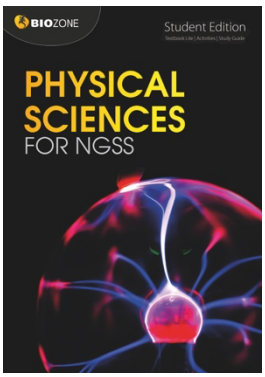
Alignment of BIOZONE's Physical Science for NGSS (1st edition) to Idaho HS Physical Sciences: Chemistry (April 2025)



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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.

High School Physical Science: Chemistry

Structure and Properties of Matter ***Students who demonstrate understanding can:***	Justification or Comments
Develop models to describe the atomic composition of simple molecules and extended structures. (1.1)	Activities 20-22, 27-30, 33 Related activities (background) 19, 26
Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost energy level of atoms. (1.2)	Activities 24, 33 Related activities (background) 19-24, 33, 81, 82
Plan and conduct an investigation to gather evidence to compare the structure of substances at the bulk scale to infer the strength of electrostatic forces between particles. (1.3)	Activity 81 Related activities (background)
Develop models to illustrate the changes in the composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and the various modes of radioactive decay. (1.4)	Activities 60, 61, 63 Related activities (background) 57-61
Communicate scientific and technical information about why the molecular-level structure is important in the functioning of designed materials. (1.5)	Activity 89 Related activities (background) 81, 122, 123

Chemical Reactions	Justification or Comments
Students who demonstrate understanding can:	
Construct and revise an explanation for the outcome of a simple chemical reaction based on the outermost electron states of atoms, trends in the periodic table, and knowledge of the patterns of chemical properties. (2.1)	Activities 54, 55 Related activities (background)16, 23, 24, 40, 41
Develop a model to illustrate that the energy transferred during an exothermic or endothermic chemical reaction is based on the bond energy difference between bonds broken (absorption of energy) and bonds formed (release of energy). (2.2)	Activities 46, 55 Related activities (background) 45-49, 60
Apply scientific principles and evidence to provide an explanation about the effects of changing the temperature or concentration of the reacting particles on the rate at which a reaction occurs. (2.3)	Activity 45 Related activities (background) 46-49
Use mathematical representations to support the claim that the number and type of atoms, and therefore mass, are conserved during a chemical reaction. (2.4)	Activity 55 Related activities (background) 40, 41, 54

Energy *Students who demonstrate understanding can:*	Justification or Comments
Ask questions to clarify the idea that electromagnetic radiation can be described either by a wave model or a particle model. (3.1)	Activities 117, 122, 123 Related activities (background) 112, 116
Create a computational model to calculate the change in the energy of one component in a system when the change in energy of the other component(s) and energy flows in and out of the system are known. (3.2)	Activity 101 Related activities (background) 93-98
Develop and use models to illustrate that energy at the macroscopic scale can be accounted for as a combination of energy associated with the motions of particles (objects) and energy associated with the relative positions of particles (objects). (3.3)	Activity 97 Related activities (background) 93, 98, 103, 105
Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy. –OPTIONAL (3.4)	Activity 108 Related activities (background) 88, 93, 97, 103, 107
Plan and conduct an investigation to provide evidence that the transfer of thermal energy when two components of different temperature are combined within a closed system results in a more uniform energy distribution among the components in the system (second law of thermodynamics). (3.5)	Activities 104, 105 Related activities (background) 46, 47, 48, 52, 55 103, 107, 110