Oklahoma Science

# Chemistry

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| **Matter and Its Interactions** PS1 | 1 | **Use the periodic table as a model to predict the relative properties of elements based on the patterns of electrons in the outermost level of atoms.** CH.PS1.1 |
| | 2 | **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, knowledge of the patterns of chemical properties, and formation of compounds.** CH.PS1.2 |
| | 3 | **Plan and conduct an investigation to compare the structure of substances at the macroscopic scale to infer the strength of electrical forces between particles.** CH.PS1.3 |
| | 4 | **Develop a model to illustrate that the release or absorption of energy from a chemical reaction system depends upon the changes in total bond energy.** CH.PS1.4 |
| | 5 | **Apply scientific principles and evidence to provide an explanation for how changing the temperature or concentration of reactant particles affects the rate at which a reaction occurs.** CH.PS1.5 |
| | 6 | **Refine the design of a chemical system by specifying a change in conditions that would affect the amounts of reactants or products at equilibrium.*** CH.PS1.6 |
| | 7 | **Use mathematical representation to support the claim that atoms, and therefore mass, are conserved during a chemical reaction.** CH.PS1.7 |
| | 8 | **Develop models to illustrate the changes in composition of the nucleus of the atom and the energy released during the processes of fission, fusion, and radioactive decay.** CH.PS1.8 |
| **Motion and Stability: Forces and Interactions** PS2 | 6 | **Communicate scientific and technical information about why the molecular level of designed materials determines how the material functions.*** CH.PS2.6 |
| **Energy** PS3 | 3 | **Design, build, and refine a device that works within given constraints to convert one form of energy into another form of energy.*** CH.PS3.3 |

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| | 4 **Plan and conduct an investigation to provide evidence that the transfer of energy between components in a closed system involves changes in energy dispersal and results in a more uniform energy distribution among the components in the system while total energy is conserved.** CH.PS3.4 |
| **Waves and Their Applications in Technologies for Information Transfer** PS4 | 1 **Use mathematical representations to support a claim regarding relationships among the frequency, wavelength, and speed of waves traveling in various media.** CH.PS4.1 |
| | 3 **Develop an argument for how scientific evidence supports the explanation that electromagnetic radiation can be described either by the wave model or the particle model, and in some situations one model is more useful than the other.** CH.PS4.3 |