**Unit: Atoms, Elements, and Compounds**

**MOD Learning objectives**

1. Write chemical formulae of ionic compounds, metal and non-metals, with their appropriate subscripts
2. Write the proper chemical name, given a chemical formulae of an ionic compound between a metal and a non-metal
3. Provide an example of a chemical and physical change and justify their choice
4. Identify a chemical or physical change as endothermic or exothermic and justify their choice
5. Use the Kinetic Molecular Theory to explain how added/removed heat from a substance changes the motion of particles inside the substance
6. Explain how the motion of the particles inside a substance affects the spacing between particles and the total volume the substance takes up
7. Draw Bohr models of neutral atoms from Hydrogen to Calcium

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| **Learning Objective** | **Activity Name** | **Description** |
| **1** | **1) Metal vs. Non-metal card game****2) Lego compounds** | 1) Card game where 2 players take turn playing an ion and the other player must play ions to neutralize the charge of the opposing ion.2) Activity sheet built-in for students to make ionic compounds |
| **2** | **1) Letter magnets** | 1) Activity sheet built-in for students. Best worked with another teacher. Teacher spells out a chemical compound with letter magnets. Student modifies the name by switching the letters.  |
| **3** | **1) Journal** | 1) Have students start a journal and write down all the changes they see at home, in their elective courses, or outside of school. Discuss these changes with a teacher and have them reason why these changes are physical/chemical and endothermic/exothermic. |
| **4** | **See 3** | See 3 |
| **5** | **1) PhET simulation (computer lab)** | 1) Paired with activity sheet to see how adding heat changes the motion of particles |
| **6** | **See 5** | See 5 |
| **7** | **1) Periodic table walk-through** | 1) This lesson should be done with a teacher. Teacher walks student through the periodic table, which leads to drawing Bohr models on a white board. |

**Formative Assessment:** Feedback on activities, redo-ing activity sheets.

**Summative Assessment**: Oral conversation with Ms. Li on a mini-white board.