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| **Mendeleev’s eka-aluminum** | |
| **Engage** | * Have students watch videos of disappearing spoons made from Gallium. * Watch the following video first:   <http://www.youtube.com/watch?v=QaJ_Yxj9bG8>     * Then watch this video: * <http://www.youtube.com/watch?v=kIbYiO5BRYk> |
| **Explore** | * Gallium does not only make a magical spoon, it is also responsible for building Mendeleev’s credibility. * Read Kean’s article [“Gallium: It Proved That Dmitri Mendeleev, Father of the Periodic Table, Wasn’t a Crackpot”](file://localhost/Users/stomlinson/Documents/pd%202013/Dissappearing%20Spoon/Gallium_It_Proved_That_Dmitri_Mendeleev_Father_of_the_Periodi.pdf) or excerpts from pages 49-58 of *The Disappearing Spoon.* * View tables that compare Mendeleev’s predicted properties of eka-Aluminum to those of Gallium. * View tables that compare Mendeleev’s predicted properties of eka-Silicon to those of Germanium. |
| **Explain** | Explain:  How was Mendeleev able to be so certain of his prediction of both eka-Aluminum and eka-Silicon ? |
| **Extend** | * Imagine being the guy who spent two years purifying, weighing, and measuring the first-ever hunk of gallium in a lab and being told by some Russian who'd never touched the stuff that you got it all wrong. Lecoq de Boisbaudran was furious, insulted, but incorrect. * Should Mendeleev have been able to claim credit for Gallium since he theoretically had seen the properties of a new element more clearly than the chemist who discovered it? * Mendeleev also predicted there were many elements before hydrogen and swore the sun’s halo contained an element called coronium, along with many other inaccuracies. People tend to only remember his triumphs though. * How can scientist be both correct and inaccurate at the same time? * Should that cost them their credibility? * What are some current examples of this happening? |
| **Evaluate** | Assess student responses. |
| **Standards** | **Physical Science**  **Grade Band Endpoints for PS1.A: STRUCTURE AND PROPERTIES OF MATTER**  **By the end of grade 12**  ... The periodic table orders elements horizontally by the number of protons in the atom’s nucleus and places those with similar chemical properties in columns. The repeating patterns of this table reflect patterns of outer electron states…  **This lesson also has the potential to incorporate the CCSS for ELA in Science if you wish to expand on argumentation and have students research and write about the credibility of current scientists.** |