**Connecting to the *Next Generation Science Standards* (NGSS Lead States 2013)**

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| **Standard**  MS-LS2 Ecosystems: Interactions, Energy, and Dynamics  The chart below makes one set of connections between the instruction outlined in this article and the NGSS.  Other valid connections are likely; however, space restrictions prevent us from listing all possibilities. | |
| **Performance Expectation**  MS-LS2-4. **Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.** | |
| **Dimension** | **Classroom Connection** |
| **Science and Engineering Practice**  Engaging in Argument from Evidence:    Compare and critique two arguments on the same topic and analyze whether they emphasize similar or different evidence and/or interpretations of facts. | Students use qualitative and quantitative data (temperature, pH, and color) to construct oral and written arguments supported by empirical evidence and scientific reasoning to arrive at explanations as to which thermophiles could thrive or which would die in various hydrothermal features in Yellowstone National Park. |
| **Disciplinary Core Idea**  LS2.C: Ecosystem Dynamics, Functioning, and Resilience:  Ecosystems are dynamic in nature; their characteristics can vary over time. Disruptions to any physical or biological component of an ecosystem can lead to shifts in all its populations. | Throughout the lesson, students discover that thermophilic microorganisms thrive in very specific ecosystems. Disruptions to the physical components of these ecosystem (i.e. temperature and pH) can lead to shifts in Yellowstone’s microorganism populations. |
| **Crosscutting Concept**  Stability and Change:  Small changes in one part of a system might cause large changes in another part. | Students discover that hot spring ecosystems are dynamic in nature and that changes in the physical components (such as temperature or pH) may cause some microorganisms to thrive while others may die. |

**Connections to the *Common Core State Standards* (NGAC and CCSSO 2010)**

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| **ELA**  RST.6-8.1. Cite specific textual evidence to support analysis of science and technical texts.  WHST. 6-8.1. Write arguments focused on discipline-specific content.  WHST.6-8.9. Draw evidence from literary or informational texts to support analysis, reflection, and research. |