

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

### Standard

#### **MS-LS1: From Molecules to Organisms: Structures and Processes**

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-LS1-1:** Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells. .

Dimension	Classroom Connection
<b>Science and Engineering Practice:</b>  Developing and Using Models: <ul style="list-style-type: none"><li>• Develop and/or use a model to predict and/or describe phenomena</li><li>• Develop a model to describe unobservable mechanisms</li></ul>	<ul style="list-style-type: none"><li>• Students will develop an initial model and revise it over time to describe the relationship of a virus and its host.</li><li>• Students will use models to convey explanations and information in an infographic.</li><li>• Students will engage with simulations to explore the spread of infectious diseases.</li></ul>
<b>Disciplinary Core Idea</b>  <b>LS1.A: Structure and Function</b> <ul style="list-style-type: none"><li>• All living things are made up of cells, which is the smallest unit that can be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).</li></ul>	<ul style="list-style-type: none"><li>• Student groups will discuss and analyze the structure of a cell and propose a reasoning why living cells can replicate and survive without a host.</li><li>• Students will compare and contrast the characteristics of living and non-living organisms to determine that a virus is non-living.</li><li>• Students will analyze the structure of a cell and the structure of a virus and explain why the virus must have a living cell (host) in order to go through the Lytic cycle to replicate and survive.</li></ul>

<p><b>Crosscutting Concept</b></p> <p>Scale, Proportion, and Quantity</p> <ul style="list-style-type: none"> <li>Phenomena that can be observed at one scale may not be observable at another scale.</li> </ul>	<ul style="list-style-type: none"> <li>Students will use models to predict how a single virus can go from a surface to infecting a human causing illness and replicating.</li> <li>Students will also use models to predict how a virus is spread locally and globally (i.e., handshakes, close contact, and international travel).</li> </ul>
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### Connections to the *Common Core State Standards* (NGAC and CCSSO 2010)

#### ELA

**SL.9.4:** Present information, findings, and supporting evidence clearly, concisely, and logically such that listeners can follow the line of reasoning and the organization, development, substance, and style are appropriate to purpose, audience, and task.

**W.9.9:** Draw evidence from literary or informational texts to support analysis, reflection, and research.

#### Mathematics

**N-Q.1:** Use units as a way to understand problems and to guide the solution of multi-step problems; choose and interpret units consistently in formulas; choose and interpret the scale and the origin in graphs and data displays