### MS. Structure, Function, and Information Processing

#### Disciplinary Core Ideas

**LS1A: Structure and Function**
- All living things are made up of cells, which is the smallest unit that can be said to be alive. An organism may consist of one single cell (unicellular) or many different numbers and types of cells (multicellular).
  - (MS-LS1-1)
- Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell.
  - (MS-LS1-2)
- In multicellular organisms, the body is a system of multiple interacting subsystems. These subsystems are groups of cells that work together to form tissues and organs that are specialized for particular body functions.
  - (MS-LS1-3)

**LS1D: Information Processing**
- Each sense receptor responds to different inputs (electromagnetic, mechanical, chemical), transmitting them as signals that travel along nerve cells to the brain. The signals are then processed in the brain, resulting in immediate behaviors or memories.
  - (MS-LS1-8)

### Crosscutting Concepts

**Cause and Effect**
- Cause and effect relationships may be used to predict phenomena in natural systems. (MS-LS1-8)

**Scale, Proportion, and Quantity**
- Phenomena that can be observed at one scale may not be observable at another scale. (MS-LS1-1)

### Science and Engineering Practices

**Developing and Using Models**
- Modeling in 6–8 builds on K–5 experiences and progresses to developing, using, and revising models to describe, test, and predict more abstract phenomena and design systems.
  - (MS-LS1-2)

**Planning and Carrying Out Investigations**
- Planning and carrying out investigations in 6–8 builds on K–5 experiences and progresses to include investigations that use multiple variables and provide evidence to support explanations or solutions.
  - (MS-LS1-3)

**Obtaining, Evaluating, and Communicating Information**
- Obtaining, evaluating, and communicating information in 6–8 builds on K–5 experiences and progresses to evaluating the merit and validity of ideas and methods.
  - (MS-LS1-4)
- Gather, read, and synthesize information from multiple appropriate sources and assess the credibility, accuracy, and possible bias of each publication and methods used, and describe how they are supported or not supported by evidence.
  - (MS-LS1-5)

**Connections to Other DCIs in this grade-band:** MS.LS3.A (MS-LS1-2)

**Articulation to DCIs across grade-bands:** 4.LS1.A (MS-LS1-2); 4.LS1.D (MS-LS1-8); HS.LS1.A (MS-LS1-1),(MS-LS1-2),(MS-LS1-3),(MS-LS1-8)

**Common Core State Standards Connections:**

**ELA/Literacy –**

- RST.6-8.1: Cite specific textual evidence to support analysis of science and technical texts. (MS-LS1-3)
- RST.6.8: Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. (MS-LS1-3)

**WHST.6-8.1:** Write arguments focused on discipline content. (MS-LS1-3)

**WHST.6-8.7:** Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-LS1-1)

**WHST.6-8.8:** Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-LS1-8)

**SL.8:** Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest. (MS-LS1-2)

**Mathematics –**

- 6.EE.C.9: Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and
The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.