6/19

MS-LS1-8 From Molecules to Organisms: Structures and Processes

California Science Test—Item Content Specifications

# MS-LS1-8 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories.

[*Assessment Boundary: Assessment does not include mechanisms for the transmission of this information.*]

| Science and Engineering Practices | Disciplinary Core Ideas | Crosscutting Concepts |
| --- | --- | --- |
| Obtaining, Evaluating, and Communicating InformationObtaining, evaluating, and communicating information in 6-8 builds on K-5 experiences and progresses to evaluating the merit and validity of ideas and methods.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. | LS1.D: Information Processing3. 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. | Cause and EffectCause and effect relationships may be used to predict phenomena in natural systems. |

## Assessment Targets

Assessment targets describe the focal knowledge, skills, and abilities for a given three-dimensional Performance Expectation. Please refer to the Introduction for a complete description of assessment targets.

### Science and Engineering Subpractice(s)

Please refer to appendix A for a complete list of Science and Engineering Practices (SEP) subpractices. Note that the list in this section is not exhaustive.

8.1 Ability to comprehend and evaluate text in terms of its validity, reliability, and sources

### Science and Engineering Subpractice Assessment Targets

Please refer to appendix A for a complete list of SEP subpractice assessment targets. Note that the list in this section is not exhaustive.

8.1.1 Ability to obtain relevant information through conducting searches in print and online sources and evaluate the reliability of the obtained information

8.1.2 Ability to recognize, interpret, and critique key ideas in scientific and engineering text, including a mix of words, symbols, tables, diagrams, and graphs

8.1.3 Ability to summarize information from a single source and/or combine and synthesize information from multiple sources to address a question or solve a problem

### Disciplinary Core Idea Assessment Targets

#### LS1.D.3

* Describe how each sense receptor responds to different inputs (electromagnetic, mechanical, chemical)
* Describe how sensory information is transmitted along nerve cells from receptors to the brain
* Describe how sensory information is processed by the brain as memories or immediate behavioral responses

### Crosscutting Concept Assessment Target(s)

CCC2 Use cause and effect relationships to predict phenomena in natural or designed systems

## Examples of Integration of Assessment Targets and Evidence

Note that the list in this section is not exhaustive.

Task provides scientific texts, including a mix of words, symbols, tables, diagrams, and graphs, to describe how sense receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories:

* Interprets the information to correctly identify key ideas (8.1.1, LS1.D.3, and CCC2)

Task provides information from multiple sources about how sense receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories:

* Evaluates the sources for how well the information provides evidence that sensory receptors send signals to the brain which can result in an immediate behavioral change or stored memories (8.1.2, LS1.D.3, and CCC2)
* Evaluates sources to determine if the information is sufficient for predicting an organism’s response to different stimuli based on cause-and-effect relations between sensory receptors and behavioral responses (8.1.2, LS1.D.3, and CCC2)
* Evaluates the credibility, accuracy, and possible bias of the obtained information (8.1.2, LS1.D.3, and CCC2)

Task provides a single source of information about how sense receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories:

* Summarizes the information in order to address a question (8.1.3, LS1.D.3, and CCC2)

Task provides multiple sources of information about how sense receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories:

* Combines and synthesizes the information in order to address a question (8.1.3, LS1.D.3, and CCC2)

## Possible Phenomena or Contexts

Note that the list in this section is not exhaustive.

* Sensory input (e.g., electromagnetic, mechanical, chemical)
* Sensory reception (e.g., vision)
* Signal transmission
* Signal interpretation or processing (e.g., echolocation)
* Response (e.g., immediate behavior, memory)

## Common Misconceptions

Note that the list in this section is not exhaustive.

* There is only one type of sensory receptor.
* There are five senses.
* Each type of sensory receptor sends a different kind of signal.

## Additional Assessment Boundaries

None listed at this time.

## Additional References

MS-LS1-8 Evidence Statement [https://www.nextgenscience.org/sites/default/files/evidence\_statement/black\_white/MS-LS1-8 Evidence Statements June 2015 asterisks.pdf](https://www.nextgenscience.org/sites/default/files/evidence_statement/black_white/MS-LS1-8%20Evidence%20Statements%20June%202015%20asterisks.pdf)

The *2016 Science Framework for California Public Schools Kindergarten through Grade 12*

Appendix 1: Progression of the Science and Engineering Practices, Disciplinary Core Ideas, and Crosscutting Concepts in Kindergarten through Grade 12 <https://www.cde.ca.gov/ci/sc/cf/documents/scifwappendix1.pdf>

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