

MS-LS1-2 From Molecules to Organisms: Structures and Processes

Students who demonstrate understanding can:

- MS-LS1-2.** **Develop and use a model to describe the function of a cell as a whole and ways the parts of cells contribute to the function.** [Clarification Statement: Emphasis is on the cell functioning as a whole system and the primary role of identified parts of the cell, specifically the nucleus, chloroplasts, mitochondria, cell membrane, and cell wall.] [Assessment Boundary: Assessment of organelle structure/function relationships is limited to the cell wall and cell membrane. Assessment of the function of the other organelles is limited to their relationship to the whole cell. Assessment does not include the biochemical function of cells or cell parts.]

The performance expectation above was developed using the following elements from the NRC document *A Framework for K-12 Science Education*:

Science and Engineering Practices	Disciplinary Core Ideas	Crosscutting Concepts
<p>Developing and Using Models (http://www.nap.edu/openbook.php?record_id=13165&page=56)</p> <p>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. (http://www.nap.edu/openbook.php?record_id=13165&page=56)</p> <ul style="list-style-type: none"> Develop and use a model to describe phenomena. (http://www.nap.edu/openbook.php?record_id=13165&page=56) 	<p>LS1.A: Structure and Function (http://www.nap.edu/openbook.php?record_id=13165&page=143)</p> <ul style="list-style-type: none"> Within cells, special structures are responsible for particular functions, and the cell membrane forms the boundary that controls what enters and leaves the cell. (http://www.nap.edu/openbook.php?record_id=13165&page=143) 	<p>Structure and Function (http://www.nap.edu/openbook.php?record_id=13165&page=96)</p> <ul style="list-style-type: none"> Complex and microscopic structures and systems can be visualized, modeled, and used to describe how their function depends on the relationships among its parts, therefore complex natural structures/systems can be analyzed to determine how they function. (http://www.nap.edu/openbook.php?record_id=13165&page=96)
<p>Connections to other DCIs in this grade-band: MS.LS3.A (/m/s3-heredity-inheritance-variation-traits)</p> <p>Articulation of DCIs across grade-bands: 4.LS1.A (/4s1-molecules-organisms-structures-processes); HS.LS1.A (/h/s1-molecules-organisms-structures-processes)</p>		
<p>Common Core State Standards Connections:</p> <p>ELA/Literacy - SL.8.5 (http://www.corestandards.org/ELA-Literacy/SL/8)</p> <p>Mathematics - 6.EE.C.9 (http://www.corestandards.org/Math/Content/6/EE)</p>		
<p><u>Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.</u> (http://www.corestandards.org/ELA-Literacy/SL/8)(MS-LS1-2)</p> <p><u>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 independent variables using graphs and tables, and relate these to the equation.</u> (http://www.corestandards.org/Math/Content/6/EE)(MS-LS1-2)</p>		

* The performance expectations marked with an asterisk integrate traditional science content with engineering through a Practice or Disciplinary Core Idea.

The section entitled “Disciplinary Core Ideas” is reproduced verbatim from *A Framework for K-12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas* (http://www.nap.edu/catalog.php?record_id=13165). Integrated and reprinted with permission from the National Academy of Sciences.

Viewing Options

- Hide Popup
- Black and White
- Practices and Core Ideas
- Practices and Crosscutting Concepts

Use browser zoom to increase text size (ctrl + on PC, command + on Mac)

Related Evidence Statements

[MS-LS1-2-1 Evidence Statements \(/sites/default/files/evidence_statement/black_white/MS-LS1-2%20Evidence%20Statements%20June%202015%20asterisks.pdf\)](#)

Related Quality Units

Middle School: BSCS Science Learning: A Medical Mystery ([/resources/middle-school-bscs-science-learning-medical-mystery](#))

Middle School: OpenSciEd Unit 8.5: Why Are Living Things Different From One Another? ([/resources/middle-school-opensci-ed-unit-85-why-are-living-things-different-one-another](#))

Middle School: OpenSciEd Unit 6.6: How Do Living Things Heal? ([/resources/middle-school-opensci-ed-unit-66-how-do-living-things-heal](#))

Related Example Bundles

Middle School Phenomenon Model Course 2: Bundle 4 ([/sites/default/files/MS%20Phenomenon%20Course%202%20Bundle%204_0.pdf](#))

Middle School Topic Model Course 1: Bundle 1 ([/sites/default/files/MS%20Topics%20Course%201%20Bundle%201_0.pdf](#))

How to Read the Standards

The standards integrate three dimensions within each standard and have intentional connections across standards. More... ([/how-to-read-the-standards](#))

SEARCH



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