



Grades 6–8

3.1.6-8.B Life Science: Structure, Function, and Information Processing

Students who demonstrate understanding can *develop and use a model to describe the function of a cell as a whole and the ways the parts of cells contribute to the function.*

Clarifying 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.

Science and Engineering Practices (SEP)	Disciplinary Core Ideas (DCI)	Crosscutting Concepts (CCC)
<p>Developing and Using Models</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.</p> <ul style="list-style-type: none"> Develop and use a model to describe phenomena. 	<p>LS1.A: Structure and Function</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. 	<p>Structure and Function</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.

Pennsylvania Context: N/A

PA Career Ready Skills: Explain to others one's own strengths, needs, and preferences specific to a context.

Connections to Other Standards Content and Practices

Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Agriculture (AFNR)	CS.02.02.01.a: Identify and summarize the components within AFNR systems (e.g., Animal Systems: health, nutrition, genetics, etc.; Natural Resources Systems: soil, water, etc.).
Science, Environmental Literacy and Sustainability (NAAEE)	5-8 Strand 1.F. Working with models and simulations: Learners use models to analyze information that support their environmental investigations. They explain the purposes and limitations of these models.
PA Core Standards: ELA	CC.1.5.8.E: Adapt speech to a variety of contexts and tasks.
PA Core Standards and Practices: Math	CC.2.4.6.B.1: Demonstrate an understanding of statistical variability by displaying, analyzing, and summarizing distributions. CC.2.4.7.B.3: Investigate chance processes and develop, use, and evaluate probability models. CC.2.4.7.B.1: Draw inferences about populations based on random sampling concepts.
PA Standards: Social Studies	N/A



Standard Source	Possible Connections to Other Standard(s) or Practice(s)
Educational Technology (ISTE)	1.6. Creative Communicator: Students communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals.
Technology and Engineering (ITEEA)	STEL-2N: Illustrate how systems thinking involves considering relationships between every part, as well as how the system interacts with the environment in which it is used.