

**Next Generation Science Standards for CA Public Schools
High School - DCI Arrangement**

HS-LS1 From Molecules to Organisms: Structures and Processes

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Students who demonstrate understanding can:		
<p>HS-LS1-2. Develop and use a model to illustrate the hierarchical organization of interacting systems that provide specific functions within multicellular organisms. [Clarification Statement: Emphasis is on functions at the organism system level such as nutrient uptake, water delivery, and organism movement in response to neural stimuli. An example of an interacting system could be an artery depending on the proper function of elastic tissue and smooth muscle to regulate and deliver the proper amount of blood within the circulatory system.] [Assessment Boundary: Assessment does not include interactions and functions at the molecular or chemical reaction level.]</p>		
The performance expectations above were developed using the following elements from the NRC document <i>A Framework for K–12 Science Education</i> :		
<p style="text-align: center;">Science and Engineering Practices</p> <p>Developing and Using Models</p> <p>Modeling in 9–12 builds on K–8 experiences and progresses to using, synthesizing, and developing models to predict and show relationships among variables between systems and their components in the natural and designed worlds.</p> <ul style="list-style-type: none"> Develop and use a model based on evidence to illustrate the relationships between systems or between components of a system. (HS-LS1-2) 	<p style="text-align: center;">Disciplinary Core Ideas</p> <p>LS1.A: Structure and Function</p> <ul style="list-style-type: none"> Multicellular organisms have a hierarchical structural organization, in which any one system is made up of numerous parts and is itself a component of the next level. (HS-LS1-2) 	<p style="text-align: center;">Crosscutting Concepts</p> <p>Systems and System Models</p> <ul style="list-style-type: none"> Models (e.g., physical, mathematical, computer models) can be used to simulate systems and interactions—including energy, matter, and information flows—within and between systems at different scales. (HS-LS1-2)
<i>Connections to other DCIs in this grade-band:</i>		
<i>Articulation to DCIs across grade-bands:</i> MS.LS1.A (HS-LS1-2)		
<i>California Common Core State Standards Connections:</i>		
<i>ELA/Literacy –</i>		
SL.11-12.5	Make strategic use of digital media (e.g., textual, graphical, audio, visual, and interactive elements) in presentations to enhance understanding of findings, reasoning, and evidence and to add interest. (HS-LS1-2)	
<i>Mathematics –</i>		

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

**California clarification statements, marked with double asterisks, were incorporated by the California Science Expert Review Panel. The section entitled "Disciplinary Core Ideas" is reproduced verbatim from *A Framework for K–12 Science Education: Practices, Cross-Cutting Concepts, and Core Ideas*.