

## NGSS CORRELATIONS

### BODY SYSTEMS

Crosscutting Concepts		Activity number
Cause and Effect	Cause and effect relationships may be used to predict phenomena in natural or designed systems.	1, 6, 7, 8, 13, 14
Energy and Matter	Matter is conserved because atoms are conserved in physical and chemical processes.	5
	Within a natural system, the transfer of energy drives the motion and/or cycling of matter.	5
	The transfer of energy can be tracked as energy flows through a designed or natural system.	5
Scale, Proportion, and Quantity	The observed function of natural and designed systems may change with scale.	11
Stability and Change	Systems in dynamic equilibrium are stable due to a balance of feedback mechanisms.	9
Structure and Function	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 and designed structures/systems can be analyzed to determine how they function.	2, 3, 4, 11, 12
Systems and System Models	Systems may interact with other systems and be a part of larger complex systems.	4, 8, 9, 10, 11, 12, 13, 14
	Models can be used to represent systems and their interactions—such as inputs, processes and outputs—and energy and matter flows within systems.	2, 3
	Models are limited in that they only represent certain aspects of the system under study.	12
Connections to the Nature of Science	Scientists and engineers are guided by habits of mind, such as intellectual honesty, tolerance of ambiguity, skepticism, and openness to new ideas.	1, 13, 14
Science and Engineering Practices		Activity number
Analyzing and Interpreting Data	Analyze and interpret data to determine similarities and differences in findings.	13, 14
	Analyze and interpret data to provide evidence for phenomena.	6, 7, 9, 10
	Consider limitations of data analysis (e.g., measurement error), and/or seek to improve precision and accuracy of data with better technological tools and methods (e.g., multiple trials).	7

## NGSS CORRELATIONS

### BODY SYSTEMS (continued)

Science and Engineering Practices		Activity number
Asking Questions and Defining Problems	Ask questions to identify and clarify evidence of an argument.	2
	Ask questions that arise from careful observation of phenomena, models, or unexpected results, to clarify and/or seek additional information.	2
Constructing Explanations and Designing Solutions	Construct a scientific explanation based on valid and reliable evidence obtained from sources (including the students' own experiments) and the assumption that theories and laws that describe nature operate today as they did in the past and will continue to do so in the future.	3, 4, 5
	Apply scientific ideas to construct an explanation for real world phenomena, examples, or events.	4, 11, 12
Developing and Using Models	Develop a model to predict and/or describe phenomena.	2
	Develop a model to describe unobservable mechanisms.	5, 12
	Evaluate limitations of a model for a proposed object or tool.	12
Engaging in Argument from Evidence	Use an oral and written argument supported by evidence to support or refute an explanation or a model for a phenomenon.	1, 4, 12, 13, 14
Obtaining, Evaluating, and Communicating Information	Integrate qualitative scientific and technical information in written text with that contained in media and visual displays to clarify claims and findings.	1
	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.	7, 8
Planning and Carrying Out Investigations	Plan an investigation individually and collaboratively, and in the design: identify independent and dependent variables and controls, what tools are needed to do the gathering, how measurements will be recorded, and how many data are needed to support a claim.	7
	Conduct an investigation and evaluate the experimental design to produce data to serve as the basis for evidence that can meet the goals of the investigation.	10
	Conduct an investigation to produce data to serve as the basis for evidence that meet the goals of an investigation.	6, 10

## NGSS CORRELATIONS

### BODY SYSTEMS (continued)

Science and Engineering Practices		Activity number
Using Mathematics and Computational Thinking	Use mathematical representations to describe and/or support scientific conclusions and design solutions.	9
Connections to the Nature of Science	Scientific knowledge is based on logical and conceptual connections between evidence and explanations.	1, 11
Structure and Function (LS1.A)	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).	5
	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.	1, 2, 3, 4, 9, 10, 11, 12, 13, 14
Disciplinary Core Ideas		Activity number
Organization for Matter and Energy Flow in Organisms (LS1.C)	Within individual organisms, food moves through a series of chemical reactions in which it is broken down and rearranged to form new molecules, to support growth, or to release energy.	5
Information Processing (LS1.D)	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.	6, 7, 8
Energy in Chemical Processes and Everyday Life (PS3.D)	Cellular respiration in plants and animals involves chemical reactions with oxygen that release stored energy. In these processes, complex molecules containing carbon react with oxygen to produce carbon dioxide and other materials.	10
Performance Expectations		Activity number
From Molecules to Organisms: Structures and Processes (LS1)	Use argument supported by evidence for how the body is a system of interacting subsystems composed of groups of cells. (MS-LS1-3)	12
	Gather and synthesize information that sensory receptors respond to stimuli by sending messages to the brain for immediate behavior or storage as memories. (MS-LS1-8)	8

## COMMON CORE STATE STANDARDS CORRELATIONS

### BODY SYSTEMS

Common Core State Standards – English Language Arts		Activity number
Reading in Science and Technical Subjects (RST)	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. (RST.6-8.2)	5, 11
	Follow precisely a multi-step procedure when carrying out experiments, taking measurements, or performing technical tasks. (RST.6-8.3)	9, 10, 13
	Determine the meaning of symbols, Key terms, and other domain-specific words and phrases as they are used in a specific scientific or technical context relevant to grades 6–8 texts and topics. (RST.6-8.4)	4, 8
	Integrate quantitative or technical information expressed in words in a text with a version of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table). (RST.6-8.7)	1, 2
	Compare and contrast the information gained from experiments, simulations, video, or multimedia sources with that gained from reading a text on the same topic. (RST.6-8.9)	1, 5
Speaking and Listening (SL)	Engage effectively in a range of collaborative discussions (e.g., one-on-one, in groups, teacher-led) with diverse partners on grade 8 topics, texts, and issues, building on others' ideas and expressing their own clearly. (SL.8.1)	3
Writing in History/ Social Studies, Science, and Technological Subjects (WHST)	Write arguments focused on discipline-specific content. (WHST.6-8.1)	12, 13, 14
	Write informative/explanatory texts to examine and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. (WHST.6-8.2)	12
	Draw evidence from informational texts to support analysis, reflection, and research. (WHST.6-8.9)	14
Common Core State Standards – Mathematics		Activity number
Statistics and Probability (SP)	Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (6.SP.B.4)	9