NGSS CORRELATIONS

REPRODUCTION

Crosscutting Concepts		Activity number
Cause and Effect	Cause and effect relationships may be used to predict phenomena in natural or designed systems.	1, 2, 3, 4, 5, 6, 8, 9, 10, 11, 12, 13, 14
	Phenomena may have more than one cause, and some cause-and-effect relationships in systems can only be described using probability.	7, 9, 10, 11
Patterns	Patterns can be used to identify cause and effect relationships.	2 ,3, 4, 5, 6, 8, 9, 10, 11
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.	1, 8, 11, 12, 13
Scale, Proportion, and Quantity	Phenomena that can be observed at one scale may not be observable at another scale.	8
	Proportional relationships (e.g. speed as the ratio of distance traveled to time taken) among different types of quantities provide information about the magnitude of properties and processes.	4, 6
Connections to the Nature of Science	Scientific knowledge can describe the consequences of actions but does not necessarily prescribe the decisions that society takes.	1, 14
Science and Engineering Practices		**Activity number**
Analyzing and Interpreting Data	Analyze and interpret data to determine similarities and differences in findings.	6, 7
	Analyze and interpret data to provide evidence for phenomena.	4, 10, 13
Asking Questions and Defining Problems	Ask questions that can be investigated within the scope of the classroom, outdoor environment, and museums and other public facilities with available resources and, when appropriate, frame a hypothesis based on observations and scientific principles.	1

Science and Engineering Practices		Activity number
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.	4, 5, 7
	Construct an explanation that includes qualitative or quantitative relationships between variables that predict or describe phenomena.	2, 3, 6, 7
	Apply scientific ideas to construct an explanation for real world phenomena, examples, or events.	9, 12, 13
Developing and Using Models	Develop a model to predict and/or describe phenomena.	4, 5, 8, 9, 13
	Develop a model to describe unobservable mechanisms.	2, 3, 9, 12, 13
Engaging in Argument from Evidence	Construct and present oral and written arguments supported by empirical evidence and scientific reasoning to support or refute an explanation or a model for a phenomenon or a solution to a problem.	2, 4, 10, 11
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, 3, 6, 8, 14
	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.	1
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 to produce data to serve as the basis for evidence that meet the goals of an investigation.	7
Using Mathematics and Computational Thinking	Apply mathematical concepts and/or processes (e.g., ratio, rate, percent, basic operations, simple algebra) to scientific and engineering questions and problems.	4, 5, 6
Connections to the Nature of Science	Scientific knowledge is based on logical and conceptual connections between evidence and explanations.	6, 7

Performance Expectations		Activity number
From Molecules to Organisms: Structures and Processes (LS1)	Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants respectively. (MS-LS1-4)	10, 11
	Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms. (MS-LS1-5)	7
Heredity: Inheritance and variation of Traits (LS3)	Develop and use a model to describe why structural changes to genes (mutations) located on chromosomes may affect proteins and may result in harmful, beneficial, or neutral effects to the structure and function of the organism. (MS-LS3-1)	13
	Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation. (MS-LS3-2)	9
Disciplinary Core Ideas		**Activity number**
Growth and Development of Organisms (LS1.B)	Animals engage in characteristic behaviors that increase the odds of reproduction.	9, 10
	Plants reproduce in a variety of ways, sometimes depending on animal behavior and specialized features for reproduction.	11
	Genetic factors as well as local conditions affect the growth of the adult plant (and other organisms).	1, 7, 11, 14
	Organisms reproduce, either sexually or asexually, and transfer their genetic information to their offspring.	1, 2, 3, 4, 5, 6, 7, 8, 9, 14
Inheritance of Traits (LS3.A)	Genes are located in the chromosomes of cells, with each chromosome pair containing two variants of each of many distinct genes. Each distinct gene chiefly controls the production of specific proteins, which in turn affects the traits of the individual. Changes (mutations) to genes can result in changes to proteins, which can affect the structures and functions of the organism and thereby change traits.	4, 5, 8, 12, 13, 14
	Variations of inherited traits between parent and offspring arise from genetic differences that result from the subset of chromosomes (and therefore genes) inherited.	3, 4, 5, 6, 8, 9, 14

Disciplinary Core Ideas		Activity number
Variation of Traits (LS3.B)	In sexually reproducing organisms, each parent contributes half of the genes acquired (at random) by the offspring. Individuals have two of each chromosome and hence two alleles of each gene, one acquired from each parent. These versions may be identical or may differ from each other.	2, 3, 4, 5, 6, 7, 8, 9, 13, 14
	In addition to variations that arise from sexual reproduction, genetic information can be altered because of mutations. Though rare, mutations may result in changes to the structure and function of proteins. Some changes are beneficial, others harmful, and some neutral to the organism.	3, 5, 7, 8, 13
Adaptation (LS4.C)	Adaptation by natural selection acting over generations is one important process by which species change over time in response to changes in environmental conditions. Traits that support successful survival and reproduction in the new environment become more common; those that do not become less common. Thus, the distribution of traits in a population changes.	10, 11

COMMON CORE STATE STANDARDS CORRELATIONS

REPRODUCTION

Common Core State Standards – English Language Arts		Activity number
Reading Informational Text (RI)	Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not. (RI.6.8)	11
Reading in Science and Technical Subjects (RST)	Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions. (RST.6-8.1)	3, 10, 11
	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)	1, 5, 8
	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)	3, 4, 5, 8, 9
	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)	2, 3, 5, 6, 8, 12, 13
	Compare and contrast the information gained from experiments, simulations, video, or multi-media sources with that gained from reading a text on the same topic. (RST.6-8.9)	6
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)	1, 2
Writing in History/ Social Studies, Science, and Technological Subjects (WHST)	Write arguments focused on discipline-specific content. (WHST.6-8.1)	2, 10, 11
	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)	3, 8, 14
	Draw evidence from informational texts to support analysis, reflection, and research. (WHST.6-8.9)	1, 2, 3, 8

Common Core State Standards – Mathematics		Activity number
Ratios and Proportional Reasoning (RP)	Understand the concept of a ratio, and use ratio language to describe a ratio between two quantities. (6.RP.A.1)	4, 5, 6, 7, 14
Statistics and Probability (SP)	Understand that a set of data collected to answer a statistical question has a distribution that can be described by its center, spread, and overall shape. (6.SP.A.2)	10
	Display numerical data in plots on a number line, including dot plots, histograms, and box plots. (6.SP.B.4)	10
	Summarize numerical data sets in relation to their context. (6.SP.B.5)	7, 9