Ectotherm ER: Frogs Under the Weather

NGSS Curriculum Standards

Standard	Description	Common Core State Standards Connections:	
MS-LS1-4	Use argument based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors affect the probability of successful reproduction of animals.	*ELA/Literacy -*	
		RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.(MS-LS1-4)
		RI.6.8	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. (MS-LS1-4)
		WHST.6-8.1	Write arguments focused on discipline content. (MS-LS1-4)
		Mathematics -	
		6.SP.A.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. *(MS-LS1-4)*
		6.SP.B.4	Summarize numerical data sets in relation to their context. *(MS-LS1-4)*
MS-LS1-5	Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.	*ELA/Literacy -*	
		RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.(MS-LS1-5)
		RST.6-8.2	Determine the central ideas or conclusions of a text; provide an accurate summary of the text distinct from prior knowledge or opinions. *(MS-LS1-5)*
		WHST.6-8.2	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.*(MS-LS1-5)*
		WHST.6-8.9	Draw evidence from informational texts to support analysis, reflection, and research.(MS-LS1-5)
		Mathematics -	
		6.SP.A.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape. *(MS-LS1-5)*
		6.SP.B.4	Summarize numerical data sets in relation to their context. *(MS-LS1-5)*
MS-LS2-4	Construct an argument supported by empirical evidence that changes to physical or biological components of an ecosystem affect populations.	*ELA/Literacy -*	
		RST.6-8.1	Cite specific textual evidence to support analysis of science and technical texts.(MS-LS2-4)
		RI.8.8	Trace and evaluate the argument and specific claims in a text, assessing whether the reasoning is sound and the evidence is relevant and sufficient to support the claims. (MS-LS2-4)
		WHST.6-8.1	Write arguments to support claims with clear reasons and relevant evidence. (MS-LS2-4)
		WHST.6-8.9	Draw evidence from literary or informational texts to support analysis, reflection, and research. (MS-LS2-4)

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NGSS Curriculum Standards (Continued)

MS-ESS3-3	Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.	*ELA/Literacy -*	
		WHST.6-8.7	Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration. (MS-ESS3-3)
		WHST.6-8.8	Gather Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation. (MS-ESS3-3)
		Mathematics -	
		6.RP.A.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. *(MS-ESS3-3)*
		7.RP.A.2	Recognize and represent proportional relationships between quantities. *(MS-ESS3-3)*
		6.EE.B.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set. *(MS-ESS3-3)*
		7.EE.B.4	Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. *(MS-ESS3-3)*

Pennsylvania Standards

PA Academic Standard	**Description**
4.1.7.A	Describe the relationships between biotic and abiotic components of an ecosystem
Science as Inquiry	- Identify questions that can be answered through scientific investigations and evaluate the appropriateness of questions.
	- Design and conduct a scientific investigation and understand that current scientific knowledge guides scientific investigations
	- Use appropriate tools and technologies to gather, analyze, and interpret data and understand that it enhances accuracy and allows scientists to analyze and quantify results of investigations

	- Develop descriptions, explanations, and models using evidence and understand that these emphasize evidence, have logically consistent arguments and are based on scientific principles, models, and theories
	- Understand that scientific investigations may result in new ideas for study, new methods or procedures for an investigation, or new technologies to improve data collection
CC.1.2.7.L	Read and comprehend literary nonfiction and informational text on grade level, reading independently and proficiently.
3.1.7.B	Describe the use of models as an application of scientific or technological concepts. • Apply models to predict specific results and observations (e.g., population growth, effects of infectious organisms).
3.1.7.E	Identify change as a variable in describing natural and physical systems. • Describe the effect of making a change in one part of a system on the system as a whole.
3.2.7.B	Apply process knowledge to make and interpret observations. • Describe relationships by making inferences and predictions. • Interpret data, formulate models, design models, and produce solutions. • Communicate, use space / time relationships, define operationally, raise questions, formulate hypotheses, test and experiment • Design controlled experiments, recognize variables, and manipulate variables • Interpret data, formulate models, design models, and produce solutions.
3.3.7.A	Describe the similarities and differences that characterize diverse living things. • Describe how the structures of living things help them function in unique ways • Account for adaptations among organisms that live in a particular environment.
3.3.7.B	Describe the cell as the basic structural and functional unit of living things. • Explain disease effects on structures or functions of an organism
3.3.7.D	Explain basic concepts of natural selection. • Identify adaptations that allow organisms to survive in their environment. • Describe how an environmental change can affect the survival of organisms and entire species. • know that differences in individuals of the same species may give some advantage in surviving and reproducing.