

Content Area: 8th Grade Science			
Essential Standard: LS4-6 Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time			
Scale Title: Mathematical Representations of Evolution			
Score 4.0	In addition to Score 3.0, in-depth inferences and applications that indicate and extension of understanding.		Sample Tasks
			Identify that when environmental shifts are too extreme, populations do not have time to adapt and may become extinct
	3.5	In addition to score 3.0 performance, in-depth inferences and applications with partial success.	
Score 3.0	The Student will: <ul style="list-style-type: none"> use the given mathematical and/or computational representations of evolutionary changes to identify relationships in the data and/or simulations, including: <ul style="list-style-type: none"> Changes and trends over time in the distribution of traits within a population Multiple relationships between environmental conditions and natural selection in a population The increases or decreases of some traits within a population can have more than one environmental cause Based on data analysis, describe that because of multiple relationships contributing to evolutionary changes, it is not possible to predict with 100% certainty what will happen The student exhibits no major errors or omissions.		
	2.5	No major errors or omissions regarding 2.0 content and partial knowledge of the 3.0 content.	
Score 2.0	There are no major errors or omissions regarding the simpler details and processes as the student: Recognizes or recalls specific terminology such as: Traits, Mathematical representation, Simulation, Evolution, Natural selection, Trend, Extinction <ul style="list-style-type: none"> use data to identify relationships that: <ul style="list-style-type: none"> Traits within a population can increase or decrease Environmental factors affect changes in traits However, the student exhibits major errors or omissions regarding the more complex ideas and processes.		Note: George suggests using the Bird Beak Lab that covers much of this content.
	1.5	With help, a partial understanding of the 2.0 content, but major errors or omissions regarding the 3.0 content.	
Score 1.0	With help, a partial understanding of some of the simpler details and processes and some of the more complex ideas and processes.		

