6th and 7th Grade Life Science Power Standard Rubrics 3,2,1

Overall Scoring		
Mastery of Standard	**Approaching the Standard**	**Beginning to Learn**
Demonstrates mastery of individual goals.	Demonstrates partial mastery of individual goals.	Developing prerequisite skills for mastery of individual goals.

Grade level: 6th and 7th Grade

Power Standard (Performance Expectation)	MS-LS1-1. Conduct an investigation to provide evidence that living things are made of cells; either one cell or many different numbers and types of cells.	
Learning Targets- Use from Units	- I can complete an investigation to show living things are made of cells. - I can collect data from an investigation. - I can provide evidence to show living things are made of cells - I can identify different types of cells. - I can determine what evidence supports a claim.	
Common Misconceptions	Living things contain cells instead of being made of cells Cells don't do all of the following things: reproduce, use energy, respond to the environment, grow, and develop.	
Mastery of Standard	**Approaching the Standard**	**Beginning to Learn**
Students can conduct an investigation AND Students can consistently provide evidence that living things are made of cells AND Students can consistently identify different types of cells.	Students can collect or provide evidence that living things are made of cells with support. AND Students can identify different types of cells with support.	Students struggle to provide evidence that living things are made of cells AND/OR Students struggle to identify different types of cells.
Previous Level	Organisms have both internal and external macroscopic structures that allow for growth, survival, behavior, and reproduction.	
Next Level	Systems of specialized cells within organisms help perform essential functions of life. Any one system in an organism is made up of numerous parts. Feedback mechanisms maintain an organism's internal conditions within certain limits and mediate behaviors.	

Power Standard (Performance Expectation)	MS-LS1-4. 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.	
Learning Targets- Use from Units	- I can support with evidence how animal behaviors affect successful reproduction. - I can explain how animal behaviors affect successful reproduction. - I can identify behaviors and structures that allow for successful reproduction among organisms.	
Common Misconceptions	Students may think that only primitive, unicellular organisms reproduce asexually. Students may have trouble thinking of plants as sexually reproducing organisms, since they usually do not come in direct contact with one another. Students may think that sexual reproduction is synonymous with copulation. Unlike mammals, many plants can reproduce both male and female gametes.	
Mastery of Standard	Approaching the Standard	Beginning to Learn
Students can consistently argue using evidence and reasoning how animal behavior affects successful reproduction. AND Students can consistently identify behaviors and structures that allow for successful reproduction among organisms including plants and animals.	With supports students can argue using evidence how animal behavior affects successful reproduction. AND/OR With supports students can identify behaviors and structures that allow for successful reproduction among organisms including plants and animals.	Students struggle to argue or explain how animal behavior affects successful reproduction. AND/OR Students struggle to identify behaviors and structures that allow for successful reproduction among organisms including plants and animals.
Previous Level	Reproduction is essential to every kind of organism. Organisms have unique and diverse life cycles.	
Next Level	Growth and division of cells in organisms occurs by mitosis and differentiation for specific cell types.	

Power Standard (Performance Expectation)	MS-LS4-1. Analyze and interpret data for patterns in the fossil record that document the existence, diversity, extinction, and change of life forms throughout the history of life on Earth under the assumption that natural laws operate today as in the past.		
Learning Targets- Use from Units	- I can use patterns in the fossil record to determine how life changes form. - I can use past evidence to understand current patterns of diversity.		
Common Misconceptions	Even though different locations have similar rock layers, the layers are not usually the same thickness. Some species are thought to be extinct because they are not seen for decades or seemingly "disappear" from the fossil record. However, some reappear when discoveries of living descendents emerge, or fossils are found in later rock layers. Students may not understand that fossils found at lower depths are older than fossils found in layers higher up.		
Mastery of Standard	Approaching the Standard	Beginning to Learn	
Students can accurately and consistently analyze patterns in the fossil record to determine how life changes form AND Students can consistently interpret past evidence to understand current patterns of diversity without support.	With support, students can analyze patterns in the fossil record to determine how life changes form AND With support, students can interpret past evidence to understand current patterns of diversity.	Students struggle to analyze patterns in the fossil record to determine how life changes form AND/OR Students struggle to interpret past evidence to understand current patterns of diversity.	
Previous Level	Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about types of organisms and environments that existed long ago.		
Next Level	Some living organisms resemble organisms that once lived on Earth. Fossils provide evidence about types of organisms and environments that existed long ago.		

Power Standard (Performance Expectation)	MS-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.		
Learning Targets- Use from Units	- I can use mathematical representations to support explanations of how natural selection may lead to increases of specific traits in a population over time. - I can use mathematical representations to support explanations of how natural selection may lead to decreases of specific traits in populations over time.		
Common Misconceptions	Students may think that organisms evolve purposefully to satisfy their own needs. Students view current population trends as the norm without looking at past trends and long term views of population dynamics.		
Mastery of Standard	**Approaching the Standard**	**Beginning to Learn**	
Students can use mathematical representations to support explanations of how natural selection may lead to increases of specific traits in a population over time. AND Students can use mathematical representations to support explanations of how natural selection may lead to decreases of specific traits in populations over time.	With support, students can use mathematical representations to support explanations of how natural selection may lead to increases of specific traits in a population over time. AND With support, students can use mathematical representations to support explanations of how natural selection may lead to decreases of specific traits in populations over time.	Students struggle to use mathematical representations to support explanations of how natural selection may lead to increases of specific traits in a population over time. AND/OR Students struggle to use mathematical representations to support explanations of how natural selection may lead to decreases of specific traits in populations over time.	
Previous Level	Differences in characteristics between individuals of the same species provide advantages in surviving and reproducing.		
Next Level	Natural selection occurs only if there is variation in the genes and traits between organisms in a population. Traits that positively affect survival can become more common in a population.		

Power Standard (Performance Expectation)	MS-LS2-2. Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems.		
Learning Targets- Use from Units	- I can construct an explanation to predict patterns of interactions among organisms in multiple ecosystems. - I can construct an explanation to explain patterns of interactions among organisms across multiple ecosystems. - I can determine the biotic and abiotic factors that affect ecosystems. - I can explain interactions such as mutualism, commensalism, parasitism, competition, and cooperation.		
Common Misconceptions	While there are individual winners and losers, both populations lose during competition. Students may also think that certain organisms exist only to meet the needs of other organisms.		
Mastery of Standard	**Approaching the Standard**		**Beginning to Learn**
Students can construct an explanation to predict patterns of interactions among organisms in multiple ecosystems. AND Students can provide evidence to support explanations about patterns of interactions among organisms across multiple ecosystems.	With support, students can construct an explanation to predict patterns of interactions among organisms in multiple ecosystems. AND With support, students can provide evidence to support explanations about patterns of interactions among organisms across multiple ecosystems.		Students struggle to construct an explanation to predict patterns of interactions among organisms in multiple ecosystems. AND/OR Students struggle to construct an explanation about patterns of interactions among organisms across multiple ecosystems.
Previous Level	The food of almost any animals can be traced back to plants. Organisms are related in food webs in which some animals eat plants for food and other animals eat the animals that eat plants, while decomposers restore some materials back to the soil.		
Next Level	Ecosystems have carrying capacities resulting from biotic and abiotic factors. The fundamental tension between resource availability and organism populations affects the abundance of species in any given ecosystem.		

Power Standard (Performance Expectation)	MS-LS2-3. Develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem.		
Learning Targets- Use from Units	- I can develop a model to describe the cycling of matter and flow of energy among living and nonliving parts of an ecosystem. - I can determine the limitations of my model. - I can create and revise a model to describe the cycling of matter. - I can use a model to represent a real life phenomenon. - I can determine where the energy for all life on earth comes from and how it is transferred through energy pyramids. - I can describe how matter is cycled through all parts of an ecosystem. - I can describe a food chain. - I can describe what happens if part of a food web is removed, increased, or if a new organism is introduced.		
Common Misconceptions	Some students might associate the word community with its human connotation of working and living together. While the different populations in a community often involve species depending on one another, they are just as often competing with each other for resources. Matter is in finite supply on earth, so it cannot be added to ecosystems from nothing.		
Mastery of Standard	**Approaching the Standard**	**Beginning to Learn**	
Students can develop a model to describe the flow of energy among living and nonliving parts of an ecosystem. AND Students can determine the limitations of their model. AND Students can create and revise a model to accurately describe the cycling of matter.	With support, students can develop a model to describe the flow of energy among living and nonliving parts of an ecosystem. AND Students can determine the limitations of their model. AND Students can create and revise a model to accurately describe the cycling of matter.	Students struggle to develop a model to describe the flow of energy among living and nonliving parts of an ecosystem. AND/OR Students struggle to determine the limitations of their model. AND/OR Students struggle to create and revise a model to accurately describe the cycling of matter.	
Previous Level	Matter cycles between the air and soil and among organisms as they live and die.		
Net Level	Photosynthesis and cellular respiration provide most of the energy for life processes. Only a fraction of energy consumed at the lower level of the food web is transferred up, resulting in fewer organisms at higher levels. At each link in the ecosystem elements are combined in different ways and matter and energy are conserved. Photosynthesis and cellular respiration are key components of the global carbon cycle.		