MASTERY VIEW
Predictive Assessments

South Carolina
BIOLOGY
Pacing Guide (Semester)

Topic	Performance Expectations	Major Concepts
DNA and Proteins	B-LS1-1	Construct an explanation based on evidence for how the structure of DNA determines the structure of proteins, which carry out the essential functions of life through systems of specialized cells.
Photosynthesis and Cellular Respiration	B-LS1-5 B-LS1-6 B-LS1-7	Use a model to illustrate how photosynthesis transforms light energy into stored chemical energy. Construct and revise an explanation based on evidence for how carbon, hydrogen, and oxygen from sugar molecules may combine with other elements to form amino acids and other large carbon-based molecules necessary for essential life processes. Use a model to illustrate that cellular respiration is a chemical process whereby the bonds of food molecules are broken, and the bonds in new compounds are formed, resulting in a net transfer of energy.
Mitosis and Cellular Differentiation	B-LS1-4	Use a model to illustrate the role of cellular division (mitosis) and differentiation in producing and maintaining complex organisms.
Heredity	B-LS3-2 B-LS3-3	Make and defend a claim based on evidence that inheritable genetic variations may result from (1) new genetic combinations through meiosis, (2) viable errors occurring during replication, and/or (3) mutations caused by environmental factors. Apply concepts of statistics and probability to explain the variation and distribution of expressed traits in a population.
1st Cumulative Assessment (covering all content to this point)		

Topic	Performance Expectations	Major Concepts
Biological Evolution	B-LS4-1 B-LS4-2 B-LS4-4 B-LS4-5	Communicate scientific information that common ancestry and biological evolution are supported by multiple lines of empirical evidence. Construct an explanation based on evidence that the process of evolution primarily results from four factors: (1) the potential for a species to increase in number, (2) the heritable genetic variation of individuals in a species due to mutation and sexual reproduction, (3) competition for limited resources, and (4) the proliferation of those organisms that are better able to survive and reproduce in the environment. Construct an explanation based on evidence for how natural selection leads to adaptation of populations. Evaluate the evidence supporting claims that changes in environmental conditions may result in (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species.
Ecology	B-LS2-1 B-LS2-5 B-LS2-7	Use mathematical and/or computational representations to support explanations of biotic and abiotic factors that affect carrying capacity of ecosystems at different scales. Develop a model to illustrate the roles of photosynthesis and cellular respiration in the cycling of carbon among the biosphere, atmosphere, hydrosphere, and geosphere. Design, evaluate, and refine a solution for reducing the impacts of human activities on biodiversity and ecosystem health.
Final Comprehensive Assessment (covering all content)		