

Biology Proficiency Performance Level Descriptors (PLD) by the NM PED

<p>Vocabulary Recalls and defines the following scientific vocabulary (with 85 percent accuracy)</p> <ul style="list-style-type: none"> <input type="checkbox"/> genetics <input type="checkbox"/> biological evolution <input type="checkbox"/> ecosystems <input type="checkbox"/> energy flow in the environment <input type="checkbox"/> biodiversity <input type="checkbox"/> structure and function <input type="checkbox"/> biochemical mechanisms <input type="checkbox"/> science and society 	<p>Scientific Processes</p> <ul style="list-style-type: none"> <input type="checkbox"/> Accurately interprets and applies information in graphs, charts, pedigrees, and Punnett squares (mono- and di-hybrid crosses), and draws appropriate conclusions <input type="checkbox"/> Explains the roles of a control and the variables in a scientific experiment 	<p>Ecology</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interprets the flow of energy through food chains and food webs, using related vocabulary (primary consumers, secondary consumers, autotrophs, trophic levels, etc.) <input type="checkbox"/> Identifies biotic and abiotic factors as they relate to ecological organization (atom, cell, species, population, ecosystem, etc.) <input type="checkbox"/> Lists and describes the levels of biological organization (e.g., species, population, community, ecosystem, biome)
<p>Relationships Explains the relationships among organisms in terms of genetic code, herbivores and carnivores, etc.</p>	<p>Characteristics Lists and explains the characteristics of all living things</p>	<p>Biological Evolution Lists and explains and can provide examples of the different parts of Darwin’s Theory of Evolution including genetic variation and natural selection</p>
<p>Energy Flow in the Environment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compares and contrasts the processes of photosynthesis and cellular respiration (reactants and products, types of organisms that perform each process, organelles involved, etc.) <input type="checkbox"/> Explains the cause and effect of the flow within biogeochemical cycles (e.g., carbon, nitrogen, phosphorus, water.) 	<p>Genetics</p> <ul style="list-style-type: none"> <input type="checkbox"/> Explains advantages of sexual reproduction versus asexual reproduction <input type="checkbox"/> Describes the process and result of meiosis and possible abnormalities that may occur <input type="checkbox"/> Describes the process and result of mitosis and the sequence of changes that occur in each phase <input type="checkbox"/> Describes the structure of DNA and explains the base pairing rule <input type="checkbox"/> Explains DNA replication <input type="checkbox"/> Constructs both mono- and di-hybrid Punnett squares and predicts outcomes of genetic crosses (generations, ratios, probabilities, genotypes, phenotypes, karyotypes, etc.) 	<p>Structure and Function</p> <ul style="list-style-type: none"> <input type="checkbox"/> Compares and contrasts prokaryotes and eukaryotes <input type="checkbox"/> Explains the processes of cellular transport, including passive transport (osmosis, diffusion) and active transport (endocytosis, exocytosis, etc.) <input type="checkbox"/> Explains the structure and functions of the cell membrane components <input type="checkbox"/> Lists the three types of RNA and describes the role of each in the production of proteins <input type="checkbox"/> Lists and describes, in order, the steps of protein synthesis
<p>Biochemical Mechanisms</p> <ul style="list-style-type: none"> <input type="checkbox"/> Interprets the role that enzymes play in energy activation. <input type="checkbox"/> Explains how ATP is produced and used by cells (glycolysis, Krebs’s cycle, electron transport chain, etc.) 		