



Alignment Document
State of Idaho and Aventa Learning Biology

Biology
2005-2007 Benchmark Blueprint

| Standards | Goals | Benchmarks | Unit Name | Course Topic Description | |
|----------------------------|--|--|---------------------------------------|---|---|
| 9-10.B.1 Nature of Science | 9-10.B.1.1 Understand Systems, Order, and Organization | 9-10.B.1.1.1 Explain the scientific meaning of system, order, and organization. | | | |
| | | 9-10.B.1.1.2 Apply the concepts of order and organization to a given system. | Population Ecology | Biomes Lab | |
| | 9-10.B.1.2 Understand Concepts and Processes of Evidence, Models, and Explanations | 9-10.B.1.2.1 Use observations and data as evidence on which to base scientific explanations. | | The Nature of Science and Biology | The Scientific Method Lab |
| | | | | Photosynthesis and Cellular Respiration | Enzyme Lab |
| | | 9-10.B.1.2.2 Develop models to explain concepts or systems. | | History of Life on Earth | Birth of a Planet and Establishment of Life |
| | | | | History of Life on Earth | History of Life Lab |
| | 9-10.B.1.2.3 Develop scientific explanations based on knowledge, logic and analysis. | | History of Life on Earth | Birth of a Planet and Establishment of Life | |
| | | | History of Life on Earth | History of Life Lab | |
| | 9-10.B.1.3 Understand Constancy, Change, and Measurement | 9-10.B.1.3.1 Measure changes that can occur in and among systems. | | The Nature of Science and Biology | The Scientific Method Lab |
| | | | 9-10.B.1.3.2 Analyze changes that can | The Nature of | The Scientific Method Lab |

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| | | occur in and among systems. | Science and Biology | |
| | | 9-10.B.1.3.3 Measure and calculate using the metric system. | The Nature of Science and Biology | The Scientific Method Lab |
| | 9-10.B.1.4 Understand the Theory that Evolution is a Process that Relates to the Gradual Changes in the Universe and of Equilibrium as a Physical State | No objectives in Biology. | | |
| | 9-10.B.1.5 Understand Concepts of Form and Function | No objectives in Biology. | | |
| | 9-10.B.1.6 Understand Scientific Inquiry and Develop Critical Thinking Skills | 9-10.B.1.6.1 Identify questions and concepts that guide scientific investigations. | The Nature of Science and Biology | The Scientific Method Lab |
| | | 9-10.B.1.6.2 Utilize the components of scientific problem solving to design, conduct, and communicate results of investigations. | The Nature of Science and Biology | The Scientific Method Lab |
| | | 9-10.B.1.6.3 Use appropriate technology and mathematics to make investigations. | The Nature of Science and Biology | The Scientific Method Lab |
| | | | Genetics | Mendel and Heredity |
| | | 9-10.B.1.6.4 Formulate scientific explanations and models using logic and evidence. | Evolution | Descent With Modification |
| | | 9-10.B.1.6.5 Analyze alternative explanations and models. | History of Life on Earth | Birth of a Planet and Establishment of Life |
| | | | Evolution | Descent With Modification |
| | | 9-10.B.1.6.6 Communicate and defend a scientific argument. | History of Life on Earth | Birth of a Planet and Establishment of Life |
| | Evolution | | Descent With Modification | |
| | 9-10.B.1.6.7 Explain the differences among observations, hypotheses, and theories. | The Nature of Science and Biology | The Scientific Method Lab | |

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| | 9-10.B.1.7 Understand That Interpersonal Relationships Are Important in Scientific Endeavors | No objectives in Biology. | | | |
| | 9-10.B.1.8 Understand Technical Communication | 9-10.B.1.8.1 Analyze technical writing, graphs, charts, and diagrams. | | | |
| 9-10.B.2 Physical Science | No goals or objectives in Biology. | | | | |
| 9-10.B.3 Biology | 9-10.B.3.1 Understand the Theory of Biological Evolution | 9-10.B.3.1.1 Use the theory of evolution to explain how species change over time. | Evolution History of Life | Evolution Lab History of Life Lab | |
| | | 9-10.B.3.1.2 Explain how evolution is the consequence of interactions among the potential of a species to increase its numbers, genetic variability, a finite supply of resources, and the selection by the environment of those offspring better able to survive and reproduce. | Evolution Evolution | Descent With Modification Evolution and Genetics | |
| | 9-10.B.3.2 Understand the Relationship between Matter and Energy in Living Systems | 9-10.B.3.2.1 Explain how matter tends toward more disorganized states (entropy). | | | |
| | | 9-10.B.3.2.2 Explain how organisms use the continuous input of energy and matter to maintain their chemical and physical organization. | Photosynthesis and Cellular Respiration | Section 1: Thermodynamics | |
| | | | Photosynthesis and Cellular Respiration | Photosynthesis: Food Production | |
| | | | Photosynthesis and Cellular Respiration | Cellular Respiration | |
| 9-10.B.3.2.3 Show how the energy for life is primarily derived from the sun through photosynthesis. | Photosynthesis and Cellular Respiration | Photosynthesis Lab | | | |
| 9-10.B.3.2.4 Describe cellular respiration and the synthesis of macromolecules. | Photosynthesis and Cellular Respiration | Cellular Respiration | | | |

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| | | | Genetics | Protein Synthesis |
| | | 9-10.B.3.2.5 Show how matter cycles and energy flows through the different levels of organization of living systems (cells, organs, organisms, communities) and their environment. | Population Ecology Photosynthesis and Cellular Respiration Animal Organization | Biomes Lab Photosynthesis Lab Animal Organ Systems and Homeostasis |
| | 9-10.B.3.3 Understand the Cell is the Basis of Form and Function for All Living Things | 9-10.B.3.3.1 Identify the particular structures that underlie the cellular functions. | | |
| | | 9-10.B.3.3.2 Explain cell functions involving chemical reactions. | Photosynthesis and Cellular Respiration Photosynthesis and Cellular Respiration | Photosynthesis Lab Enzyme Lab |
| | | 9-10.B.3.3.3 Explain how cells use DNA to store and use information for cell functions. | Genetics | DNA Lab |
| | | 9-10.B.3.3.4 Explain how selective expression of genes can produce specialized cells from a single cell. | | |
| 9-10.B.4 Earth and Space Systems | No goals or objectives in Biology. | | | |
| 9-10.B.5 Personal and Social Perspectives; Technology | 9-10.B.5.1 Understand Common Environmental Quality Issues, Both Natural and Human Induced | 9-10.B.5.1.1 Analyze environmental issues such as water and air quality, hazardous waste, forest health, and agricultural production. | Population Ecology Population Ecology | Community and Ecosystem Dynamics Quiz 2 |
| | 9-10.B.5.2 Understand the Relationship between Science and Technology | 9-10.B.5.2.1 Explain how science advances technology. | Genetics | Biotechnology Lab |
| | | 9-10.B.5.2.2 Explain how technology advances science. | Cell Structure | Section 1: Microscopes |
| | | 9-10.B.5.2.3 Explain how science and technology are pursued for different purposes. | | |
| | 9-10.B.5.3 Understand the | 9-10.B.5.3.1 Describe the difference | | |



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| | Importance of Natural Resources and the Need to Manage and Conserve Them | between renewable and nonrenewable resources. | | |
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