

USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY**Oklahoma Priority Academic Student Skills – Science Processes and Inquiry**

Lesson	Standard	Description
3	1.1	Identify qualitative and quantitative changes in cells, organisms, populations, and ecosystems given conditions (e.g., temperature, mass, volume, time, position, length, quantity) before, during, and after an event.
1, 3	1.2	Use appropriate tools (e.g., microscope, pipette, metric ruler, graduated cylinder, thermometer, balances, stopwatches) when measuring cells, organisms, populations, and ecosystems.
1, 2, 3	1.3	Use appropriate System International (SI) units (i.e., grams, meters, liters, degrees Celsius, and seconds); and SI prefixes (i.e., micro-, milli-, centi-, and kilo-) when measuring cells, organisms, populations, and ecosystems.
3	3.1	Evaluate the design of a biology laboratory investigation.
3	3.2	Identify the independent variables, dependent variables, and controls in an experiment.
1, 2, 3	3.3	Use mathematics to show relationships within a given set of observations (e.g., population studies, biomass, probability).
3	3.4	Identify a hypothesis for a given problem in biology investigations.
2, 3	4.1	Select appropriate predictions based on previously observed patterns of evidence.
1, 2, 3	4.2	Report data in an appropriate manner.
1, 2, 3	4.3	Interpret data tables, line, bar, trend, and/or circle graphs.
3	4.4	Accept or reject hypotheses when given results of a biological investigation.
3	4.5	Evaluate experimental data to draw the most logical conclusion.
3	4.6	Prepare a written report describing the sequence, results, and interpretation of a biological investigation or event.
All lessons	4.7	Communicate or defend scientific thinking that results in conclusions.
1, 3, 4	4.8	Identify and/or create an appropriate graph or chart from collected data, tables, or written description (e.g., population studies, plant growth, heart rate).
1, 2	5.1	Interpret a biological model which explains a given set of observations.
2	5.2	Select predictions based on models such as pedigrees, life cycles, energy pyramids.
1, 2	5.3	Compare a given model to the living world.

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3	6.1	Formulate a testable hypothesis and design an appropriate experiment relating to the living world.
3	6.2	Design and conduct biological investigations in which variables are identified and controlled.
1, 2, 3	6.3	Use a variety of technologies, such as hand tools, microscopes, measuring instruments, and computers to collect, analyze, and display data.
2, 3	6.4	Inquiries should lead to the formulation of explanations or models (physical, conceptual, and mathematical). In answering questions, students should engage in discussions (based on scientific knowledge, the use of logic, and evidence from the investigation) and arguments that encourage the revision of their explanations, leading to further inquiry.

Oklahoma Priority Academic Student Skills – Biology

Lesson	Standard	Description
1, 3	1.1	Cells are composed of a variety of structures such as the nucleus, cell membrane, cell wall, cytoplasm, ribosomes, mitochondria, and chloroplasts.
3	1.2	Cells can differentiate and may develop into complex multicellular organisms (i.e., cells, tissues, organs, organ systems, organisms).

Oklahoma Priority Academic Student Skills – Mathematics Process Standards

Lesson	Standard	Description
1, 2, 3	1.1	Apply a wide variety of problem-solving strategies (identify a pattern, use equivalent representations) to solve problems from within and outside mathematics.
1, 2, 3	1.2	Identify the problem from a described situation, determine the necessary data and apply appropriate problem-solving strategies.
1	2.1	Use mathematical language and symbols to read and write mathematics and to converse with others.
1	2.2	Demonstrate mathematical ideas orally and in writing.
1, 2, 3	3.1	Use various types of logical reasoning in mathematical contexts and real-world situations.
1	4.1	Link mathematical ideas to the real world (e.g., statistics helps qualify the confidence we can have when drawing conclusions based on a sample).
1, 2	4.2	Apply mathematical problem-solving skills to other disciplines.
1	4.3	Use mathematics to solve problems encountered in daily life.
1	5.1	Use algebraic, graphic, and numeric representations to model and interpret mathematical and real-world situations.

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1	5.2	Use a variety of mathematical representations as tools for organizing, recording, and communicating mathematical ideas (e.g., mathematical models, tables, graphs, spreadsheets).
Oklahoma Priority Academic Student Skills – Algebra I		
Lesson	Standard	Description
1, 2	3.1.a	Translate from one representation of data to another and understand that the data can be represented using a variety of tables, graphs, or symbols and that different modes of representation often convey different messages.
1, 2, 3	3.1.b	Make valid inferences, predictions, and/or arguments based on data from graphs, tables, and charts.
Oklahoma Priority Academic Student Skills – Language Arts – Grade 10		
Lesson	Standard	Description
3, 4	2.2.b	Draw inferences such as conclusions, generalizations, and predictions, and support them with text evidence and personal experience. (Reading)
3, 4	4.1.a	Access information from a variety of primary and secondary sources. (Reading)
3, 4	4.2.a	Summarize, paraphrase, and/or quote relevant information. (Reading)
3, 4	4.2.c	Synthesize information from multiple sources to draw conclusions that go beyond those found in any of the individual studies. (Reading)
3, 4	1.2	Use extension and elaboration to develop an idea. (Writing)
3, 4	1.3	Demonstrate organization, unity, and coherence by using transitions and sequencing. (Writing)
3, 4	1.4	Use precise word choices, including figurative language, that convey specific meaning. (Writing)
3, 4	1.5	Use a variety of sentence structures, types, and lengths to contribute to fluency and interest. (Writing)
3, 4	2.2.a	Write expository compositions, including analytical essays and research reports that: include evidence in support of a thesis (position on the topic) including information on all relevant perspectives.
3, 4	2.2.e	Write expository compositions, including analytical essays and research reports that: include visual aids using technology to organize and record information on charts, data tables, maps, and graphs. (Writing)
3, 4	2.2.g	Write expository compositions, including analytical essays and research reports that: use technical terms and notations accurately. (Writing)
3, 4	2.8	Write for different purposes and audiences, adjusting tone, style, and voice as appropriate and continue to produce other writing forms introduced in earlier grades. (Writing)
All lessons	1.1	Engage in critical, empathetic, appreciative, and reflective listening to interpret, respond, and evaluate speaker's

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		messages. (Listening)
1, 2, 3	1.3	Evaluate informative and persuasive presentations of peers, public figures, and media presentations. (Listening)
All lessons	2.1	Use formal, informal, standard, and technical language effectively to meet the needs of purpose, audience, occasion, and task. (Speaking)
All lessons	2.2	Prepare, organize, and present a variety of informative and persuasive messages effectively. (Speaking)
Oklahoma Priority Academic Student Skills – Health and Safety Literacy – Grades 9 - 12		
Lesson	Standard	Description
3, 4	1.6	Analyze how the prevention and control of health problems are influenced by research and medical advances.
3, 4	2.4	Evaluate factors that influence personal choices of health products and services.
3, 4	3.2	Analyze how information from media, technology, and the community affects health and safety behavior.