USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

Minnesota Academic Standards and Benchmarks: Science – Grades 9 – 12

Lesson	Standard	Benchmark
3	I.B.1	Design and complete a scientific experiment using scientific methods by determining a testable question, making a hypothesis, designing a scientific investigation with appropriate controls, analyzing data, making conclusions based on evidence and comparing conclusions to the original hypothesis and prior knowledge.
1, 2, 3	I.B.2	Distinguish between qualitative and quantitative data.
1, 2, 3	I.B.3	Apply mathematics and models to analyze data and support conclusions.
1, 2, 3	I.B.4	Identify possible sources of error and their effects on results.
3, 4	I.B.6	Give examples of how different domains of science use different bodies of scientific knowledge and employ different methods to investigate questions.
3, 4	I.C.2	Provide an example of a need or problem identified by science and solved by engineering or technology.
1, 3, 4	I.C.3	Provide an example of how technology facilitates new discoveries and the development of scientific knowledge.
1, 4	I.C.4	Know that technological changes and scientific advances are often accompanied by social, political, environmental and economic changes.
1, 4	I.C.5	Recognize that science and technology are influenced by cultural backgrounds and beliefs and by social needs, attitudes, values and limitations.
4	I.D.1	Be able to trace the development of a scientific advancement, invention or theory and its impact on society.

Minnesota Academic Standards and Benchmarks: Mathematics – Grades 9 – 12 (11/2006 Draft Version)

Lesson	Standard	Benchmark
1, 2, 3	Data & Probability A.3	Display sets of data using appropriate charts, plots, and graphs, including box and whisker plots.
1, 2, 3	Information & Technology Literacy B.1	Generate research questions based on observations, information, assigned topics and/or interests, gather data, organize, display and evaluate information, draw conclusions, make predictions, present results to an audience, and reflect on and summarize the results and process.
1, 2	Algebra B.1	Translate a problem described verbally or by tables, diagrams or graphs, into suitable mathematical language, solve the problem mathematically and interpret the result in the original context. Determine whether or not relevant information is missing from a problem and if so, decide how to best express the results that can be obtained without that information.

MINNESOTA ALIGNMENT FOR NIH SUPPLEMENT USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY

Minnesota Academic Standards and Benchmarks: Language Arts – Grades 9 – 12		
Lesson	**Standard**	**Benchmark**
1, 2, 3	I.B.1	Acquire, understand and use vocabulary by learning words through explicit vocabulary instruction and independent reading, and appropriately use these words in writing.
2, 3, 4	I.C.1	Monitor comprehension and know when and how to use strategies to clarify the understanding of a selection.
All lessons	I.C.2	Comprehend and evaluate the purpose, accuracy, comprehensiveness, and usefulness of informational materials.
2, 3, 4	I.C.5	Summarize and paraphrase main idea and supporting details.
All lessons	I.C.7	Make inferences and draw conclusions based on explicit and implied information from texts.
All lessons	I.C.8	Evaluate clarity and accuracy of information, as well as the credibility of sources.
2, 3, 4	I.C.10	Synthesize information from multiple selections in order to draw conclusions, make predictions, and form interpretations.
2, 3, 4	II.A.1	Plan, organize and compose narrative, expository, descriptive, persuasive, critical and research writing to address a specific audience and purpose.
All lessons	II.B.3	Make generalizations and use supporting details.
All lessons	II.C.1	Understand the differences between formal and informal language styles and use each appropriately.
2, 3, 4	II.C.2	Use an extensive variety of correctly punctuated sentences for meaning and stylistic effect.
2, 3, 4	II.D.1	Use print, electronic databases and online resources to access information, organize ideas, and develop writing.
All lessons	III.A.3	Understand the relationship between nonverbal, interpersonal, and small group communication.
2, 3, 4	III.C.1	Evaluate the accuracy and credibility of information found on Internet sites.
2, 3, 4	III.C.2	Evaluate the logic of reasoning in both print and non-print selections.
4	III.C.3	Evaluate the source's point of view, intended audience and authority.
2, 3, 4	III.C.7	Critically analyze the messages and points of view employed in different media, including advertising, news programs, web sites, and documentaries.
2, 3, 4	III.C.8	Formulate critical, evaluative questions relevant to a print or non-print selection.
National Health Education Standards – Grades 9 – 12: cited from pre-publication document of National Health Education Standards, Pre K-12, American Cancer Society, December 2005 – August 2006		
Lesson	**Standard**	**Performance Indicator**
3	3.12.1	Evaluate the validity of health information, products, and services.