

**USING TECHNOLOGY TO STUDY CELLULAR AND MOLECULAR BIOLOGY**

**Indiana Academic Standards: Biology**

<b>Lesson</b>	<b>Standard</b>	<b>Description</b>
3	B.1.1	Recognize that and explain how the many cells in an individual can be very different from one another, even though they are all descended from a single cell and thus have essentially identical genetic instructions. Understand that different parts of the genetic instructions are used in different types of cells and are influenced by the cell's environment and past history.
3	B.1.7	Explain that complex interactions among the different kinds of molecules in the cell cause distinct cycles of activities, such as growth and division. Note that cell behavior can also be affected by molecules from other parts of the organism, such as hormones.
3	B.1.14	Recognize and explain that communication and/or interaction are required between cells to coordinate their diverse activities.
3	B.1.15	Understand and explain that, in biological systems, structure and function must be considered together.
3	B.1.17	Understand that and describe how the maintenance of a relatively stable internal environment is required for the continuation of life and explain how stability is challenged by changing physical, chemical, and environmental conditions, as well as the presence of disease agents.
3	B.1.20	Recognize that and describe how the human immune system is designed to protect against microscopic organisms and foreign substances that enter from outside the body and against some cancer cells that arise within.

**Indiana Academic Standards: Algebra I**

<b>Lesson</b>	<b>Standard</b>	<b>Description</b>
1	AI.2.6	Solve word problems that involve linear equations, formulas, and inequalities.
1, 2, 3	AI.9.2	Decide whether a solution is reasonable in the context of the original situation.

**Indiana Academic Standards: English Language Arts – Grades 9 & 10**

**Grade 9**

<b>Lesson</b>	<b>Standard</b>	<b>Description</b>
3, 4	9.2.1	Analyze the structure and format of reference or functional workplace documents, including the graphics and headers, and explain how authors use the features to achieve their purposes.
1, 3, 4	9.2.3	Generate relevant questions about readings on issues or topics that can be researched.
3, 4	9.2.8	Make reasonable statements and draw conclusions about a text, supporting them with accurate examples.

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3, 4	9.4.2	Establish a coherent thesis that conveys a clear perspective on the subject and maintain a consistent tone and focus throughout the piece of writing.
3, 4	9.4.4	Use writing to formulate clear research questions and to compile information from primary and secondary print or Internet sources.
3, 4	9.4.5	Develop the main ideas within the body of the composition through supporting evidence, such as scenarios, commonly held beliefs, hypotheses, and definitions.
3, 4	9.5.3	Write expository compositions, including analytical essays, summaries, descriptive pieces, or literary analyses that: gather evidence in support of a thesis (position on the topic), including information on all relevant perspectives, communicate information and ideas from primary and secondary sources accurately and coherently, make distinctions between the relative value and significance of specific data, facts, and ideas. use a variety of reference sources, including word, pictorial, audio, and Internet sources, to locate information in support of topic, include visual aids by using technology to organize and record information on charts, data tables, maps, and graphs, anticipate and address readers' potential misunderstandings, biases, and expectations, and use technical terms and notations accurately.
3, 4	9.5.7	Use varied and expanded vocabulary, appropriate for specific forms and topics.
3, 4	9.5.8	Write for different purposes and audiences, adjusting tone, style, and voice as appropriate.
3, 4	9.6.3	Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.
All lessons	9.7.7	Make judgments about the ideas under discussion and support those judgments with convincing evidence.
3	9.7.15	Deliver expository (informational) presentations that: provide evidence in support of a thesis and related claims, including information on all relevant perspectives, convey information and ideas from primary and secondary sources accurately and coherently, make distinctions between the relative value and significance of specific data, facts, and ideas, include visual aids by employing appropriate technology to organize and display information on charts, maps, and graphs, anticipate and address the listeners' potential misunderstandings, biases, and expectations, and use technical terms and notations accurately.
<b>Grade 10</b>		
<b>Lesson</b>	<b>Standard</b>	<b>Description</b>
3, 4	10.2.1	Analyze the structure and format of various informational documents and explain how authors use the features to achieve their purposes.
1, 3	10.2.3	Demonstrate use of sophisticated technology by following technical directions.
3, 4	10.2.4	Evaluate an author's argument or defense of a claim by examining the relationship between generalizations and evidence, the comprehensiveness of evidence, and the way in which the author's intent affects the structure and tone of the text.
3, 4	10.2.5	Make reasonable statements and draw conclusions about a text, supporting them with accurate examples.
3, 4	10.4.2	Establish a coherent thesis that conveys a clear perspective on the subject and maintain a consistent tone and focus throughout the piece of writing.

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3, 4	10.4.5	Develop main ideas within the body of the composition through supporting evidence, such as scenarios, commonly held beliefs, hypotheses, and definitions.
3, 4	10.5.3	Write expository compositions, including analytical essays, summaries, descriptive pieces, or literary analyses that: gather evidence in support of a thesis (position on the topic), including information on all relevant perspectives, communicate information and ideas from primary and secondary sources accurately and coherently, make distinctions between the relative value and significance of specific data, facts, and ideas, use a variety of reference sources, including word, pictorial, audio, and Internet sources to locate information in support of a topic, include visual aids by using technology to organize and record information on charts, maps, and graphs, anticipate and address readers' potential misunderstandings, biases, and expectations, and use technical terms and notations correctly.
3, 4	10.5.7	Use varied and expanded vocabulary, appropriate for specific forms and topics.
3, 4	10.6.3	Produce legible work that shows accurate spelling and correct use of the conventions of punctuation and capitalization.
All lessons	10.7.7	Make judgments about the ideas under discussion and support those judgments with convincing evidence.
3	10.7.15	Deliver expository (informational) presentations that: provide evidence in support of a thesis and related claims, including information on all relevant perspectives, convey information and ideas from primary and secondary sources accurately and coherently, make distinctions between the relative value and significance of specific data, facts, and ideas, include visual aids by employing appropriate technology to organize and display information on charts, maps, and graphs, anticipate and address the listeners' potential misunderstandings, biases, and expectations, and use technical terms and notations correctly.

**Indiana Academic Standards: Health Education – Basic and Advanced**

Lesson	Standard	Description
3, 4	9.1.8 10.1.8	Analyze how the prevention and control of health problems are influenced by research and medical advances. (9) Explain conclusions drawn from worldwide health issues. (10)
3	9.1.9 10.1.9	Explain complex health terms and concepts.
1, 3, 4	9.4.4 10.4.4	Research (10) and evaluate (9) the impact of technology on personal, family, and community health and health behaviors.
All lessons	9.5.1	Demonstrate skills for communicating effectively with family, peers, and others.
3	9.6.2	Analyze health concerns that require collaborative decision-making.