

THE SCIENCE OF ENERGY BALANCE: CALORIE INTAKE AND PHYSICAL LESSON		
Illinois Learning Standards Science – Stage G – Grades 6, 7, 8		
Lesson	Standard	Performance Descriptor
1, 3, 4	11A.1	Formulate contextual hypotheses generating an if-then, cause- effect premise, differentiating qualitative and quantitative data and their applicability, using conceptual/mathematical/ physical models, or previewing existing research as primary reading sources.
1, 3, 4	11A.2	Design inquiry investigation, which addresses proposed hypothesis, determining choice of variables, preparing data-collecting format, or incorporating all procedural and safety precautions, materials and equipment handling directions.
1, 2, 3, 4	11A.3	Conduct inquiry investigation choosing applicable metric units of measurement with estimated scale and range of results for student-generated data tables, using direct, indirect, or remote technologies for observing and measuring, conducting sufficient multiple trials, or recording all necessary data and observations objectively.
1, 2, 3, 4	11A.4	Interpret and represent analysis of results to produce findings, observing trends within data sets, evaluating data sets to explore explanations of outliers or sources of error, or analyzing observations and data which may support or refute inquiry hypothesis.
1, 2, 3, 4	11A.5	Report and display the process and findings of inquiry investigation, presenting oral or written final report for peer review, generating further questions for alternative investigations or procedural refinements, or evaluating other investigations for consolidation/refinement of procedures or data explanation.
1, 3, 4	12A.1	Apply scientific inquiries or technological designs to examine the cellular-to-organism interrelationships, comparing the increasingly complex structure and function of cells, tissues, organs and organ systems, demonstrating the processes for biological classification, analyzing normal and abnormal growth and health in organisms (with a focus on humans), describing how physiological systems carry out vital functions (e.g., respiration, digestion, reproduction, photosynthesis, excretion, and temperature regulation).
4	12A.2	Apply scientific inquiries or technological designs to examine macro- and micro-evolution in organisms, comparing and assessing changes in the features or forms of organisms over broad time periods to their adaptive functions and competitive advantages, describing how natural selection accounts for diversity of species over many generations.
4	12A.3	Apply scientific inquiries or technological designs to explore the science of genetics, tracing the history of genetics, correlating the principles of genetics to mitotic cell division and simple mathematical probabilities, researching applied genetics in plant and animal breeding, or associating genetic factors for inheritance in humans,

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		including genetic disorders.
3, 4	12A.4	Apply scientific inquiries or technological designs to examine the cellular coordination of responses, describing how the nervous system communicates between cells within the whole organism, tracing stimulus-response paths in various nervous systems, or analyzing the effect of substances (e.g., oxygen, food, blood, hormones, drugs) circulating through the body.
2	12C.3	Apply scientific inquiries or technological designs to explore the basic structure of matter measuring mass and volumes of common solids (regular and irregular) and liquids to introduce density ratios, comparing ratios of different masses and different volumes of the same kinds of samples, relating how historic models of elemental matter from ancient Greeks to medieval alchemists evolved to current representations and explanations, classifying comparable properties of representative elements or similar compounds (mixtures, acids, bases, salts, metals, non-metals), or constructing simple chemical structure models to explain chemical combinations, states, and properties.
1, 3, 4	13A.2	Apply scientific habits of mind, generating questions and strategies to test science concepts using critical and creative thinking, identifying instances of how scientific reasoning, insight, skill, creativity, intellectual honesty, tolerance of ambiguity, skepticism, persistence, and openness to new ideas have been integral to scientific discoveries and technological improvements, or comparing scientist's work and habits of mind to work in other careers.
All lessons	13A.3	Analyze cases of scientific studies, studying historic examples of valid investigations from curricular life, environmental, physical, earth, and space sciences, finding examples of faulty or biased scientific reasoning which distorted scientific understanding, or citing experimental and observational strategies in direct, indirect, and remote investigations.
Illinois Learning Standards Science – Stage H – Grades 7, 8, 9		
Lesson	Standard	Performance Descriptor
1, 3, 4	11A.1	Formulate issue-specific hypothesis, generating inquiry questions for an issue investigational premise, differentiating qualitative and quantitative data and their applicability, using conceptual/mathematical/physical models, or previewing associated research.
1, 3, 4	11A.2	Design scientific issue investigation which addresses proposed hypothesis(es), proposing applicable survey instruments, or selecting associated research, analysis, and communication components.
1, 2, 3, 4	11A.3	Conduct issue investigation, using technologies for data collection and assimilation, following established formats for random sampling, or following all procedural and safety precautions, materials and equipment handling directions.

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1, 2, 3, 4	11A.4	Interpret and represent analysis of results evaluating data sets to explore explanations of unexpected responses and data concurrence, evaluating survey validity and reliability, or analyzing research and data for supporting or refuting the hypothesis.
1, 2, 3, 4	11A.5	Report, display and defend the process and findings of issue investigation, presenting oral or written final report for action response options for peer review, generating further questions or issues for consideration, or evaluating other resolutions or responses for action for applicable correlations, consolidation or explanations.
1, 2, 3, 4	11B.3	Collect and record data accurately, using consistent metric measuring and recording techniques with necessary precision, recording data accurately in appropriate format, or graphing data appropriately according to the tested variables.
4	12A.4	Apply scientific inquiries or technological designs to explore social and environmental responses of organisms, describing learned and inherited behaviors and responses across kingdoms and between/among phyla, explaining cyclic behaviors and responses in various species, or examining social behaviors of insects and vertebrates.
1, 3	12C.1	Apply scientific inquiries or technological designs to examine patterns of interactions of energy with matter, describing and measuring how the interactions effect changes of state or properties, using quantitative data from investigations and simple chemical formulas and equations to support the concept of conservation of mass, comparing positions, movements, and relationships of atoms in different states, or predicting chemical reactivity from information in the Periodic Table.
All lessons	13A.2	Apply scientific habits of mind to curricular investigations in life, environmental, physical, earth, and space sciences, evaluating evidence, inferring statements based on data, questioning sources of information, explaining necessity of manipulating only one variable at a time, or retrieving mathematical data accurately for scientific analysis.

Illinois Learning Standards Mathematics – Stage G – Grades 6, 7, 8

Lesson	Standard	Performance Descriptor
3	6A.1	Represent any large number using scientific notation.
1, 2, 3, 4	6B.7	Solve multi-step number sentences and word problems with rational numbers using the four basic operations.
1, 2, 3, 4	6C.1	Select, use, and justify appropriate operations, methods, and tools to compute or estimate with integers and familiar rational numbers.
2, 3	6D.1	Work flexibly with fractions, decimals, and percents to solve number sentences and word problems (e.g., 50% of 10 is the same as 1/2 of 10 is the same as 0.5 x 10).
2, 3, 4	6D.2	Create and explain ratios and proportions that represent quantitative relationships.

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2, 3	6D.3	Create and explain a variety of equivalent ratios to represent a given situation.
2, 3, 4	6D.4	Develop, use, analyze, and explain methods for solving numeric or word problems involving proportions.
2, 3	7A.1	Select and justify the choice of either U.S. customary or metric systems of measurement according to the situation (e.g., measure fabric in yards, measure dry chemicals in grams).
1, 2, 3	7B.2	Determine and describe acceptable levels of accuracy in estimation situations.
2	7C.1	Select and use appropriate units and tools to measure volume, surface area, and mass/weight accurately for a given situation.
1, 2, 3, 4	8C.1	Solve arithmetic and linear equations using the properties of equality and inequality.
All lessons	10A.1	Construct, read, interpret, infer, predict, draw conclusions, and evaluate data from various displays, including box and whiskers plots.
1, 2, 3	10B.1	Select and use appropriate data gathering techniques.
Illinois Learning Standards English Language Arts – Stage G – Grades 6, 7, 8		
Lesson	Standard	Performance Descriptor
All lessons	1B.2	Make connections to real world situations or related topics before and during reading.
All lessons	1B.3	Define and analyze information needed to carry out a procedure.
All lessons	1B.5	Infer and draw conclusions about text supported by textural evidence and experience.
All lessons	1C.1	Use inferences to improve and/or expand knowledge obtained from text and ask open-ended questions to improve critical thinking skills.
All lessons	1C.2	Synthesize key points and supporting details to form conclusion and to apply text information to personal experience.
All lessons	1C.12	Use text information to interpret tables, maps, visual aids, or charts.
3, 4, 5	3B.2	Analyze audience and purpose for writing, and choose the appropriate form (e.g., letters, editorials, reviews, poems, reports, narratives).
3, 4, 5	3C.1	Compose expository writing that supports a topic or thesis statement with evidence (e.g., newspaper article, pamphlet, report, brochure, manual, business letter).
3, 4, 5	3C.4	Use appropriate language, details, and format for a specified audience (e.g., gender, age, prior knowledge, interest).

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5	3C.6	Compose a multi-paragraph persuasive piece which presents one position of an issue that offers sufficient support through multiple strategies (e.g., cause/effect, compare/contrast).
All lessons	4A.7	Separate main ideas, facts, and supporting details in oral messages.
All lessons	4A.9	Synthesize, analyze, and evaluate information.
All lessons	4A.10	Paraphrase and summarize, in both oral and written form, information in formal/informal presentations.
All lessons	4A.11	Ask and respond to relevant questions.
All lessons	4A.12	Follow a multi-step set of instructions to complete a task.
All lessons	4B.10	Identify and use discussion techniques to arrive at a consensus of opinion.
All lessons	5A.2	Formulate questions to direct research.
All lessons	5C.2	Evaluate use of text, graphic materials, and visual aids to present information.
3, 4, 5	5C.3	Select and justify adaptations in format to accommodate characteristics of audiences (e.g., age, background, interest level, group size) and purposes of the presentation (e.g., inform, persuade, entertain).
3, 4, 5	5C.4	Design and present a project (e.g., written report, graphics, visuals, multi-media presentations).

Illinois Learning Standards Health – Stage G – Grades 6, 7, 8

Lesson	Standard	Performance Descriptor
3, 4, 5	22A.6	Describe behaviors/choices that reduce health risks (sleep, nutrition, activity, stress management, hygiene).
2	22B.3	Evaluate the reliability of health-related information.
2, 3	22B.4	Discuss how peers affect health-related choices.
1, 3	23A.2	Analyze what happens to food once it has been digested.
2	23A.4	List ways that the body's systems work together.
3, 4, 5	23B.1	Recognize the importance of establishing an ongoing exercise plan in order to sustain the health of the body's systems.
2, 3, 4, 5	23B.2	Identify the components of a healthy lifestyle.
2, 3, 4, 5	23B.4	List choices that have a positive influence on health.
2, 3, 4, 5	23B.5	List choices that have a negative influence on health.
2, 3, 4, 5	23C.1	Describe situations and/or choices affecting the use, misuse, or abuse of substances that will affect physical, mental, emotional, and social growth and development.

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3, 4, 5	23C.2	Investigate options for healthy weight loss and gain. Discuss physical, mental, emotional, and social changes that occur during puberty.
2, 3, 4, 5	23C.3	Recognize the relationships between diet (excesses and deficiencies) and the body's systems.
All lessons	23C.4	Describe the principles of energy balance (calorie intake and expenditure).
3, 4, 5	24B.2	Apply the decision-making model to solve a health problem.
5	24C.1	Find school and community health-related resources available for assistance when in need.