THE SCIENCE OF ENERGY BALANCE: CALORIE INTAKE AND PHYSICAL ACTIVITY		
Massachusetts Science Learning Standards: Grades 6 — 8		
Lesson	**Standard**	**Description**
1, 2, 3, 4	Life 4	Recognize that within cells, many of the basic functions of organisms (e.g., extracting energy from food and getting rid of waste) are carried out. The way in which cells function is similar in all living organisms.
2	Life 6	Identify the general functions of the major systems of the human body (digestion, respiration, reproduction, circulation, excretion, protection from disease, and movement, control, and coordination) and describe ways that these systems interact with each other.
3, 4	Life7	Recognize that every organism requires a set of instructions that specifies its traits. These instructions are stored in the organism's chromosomes. Heredity is the passage of these instructions from one generation to another.
3, 4	Life 10	Give examples of ways in which genetic variation and environmental factors are causes of evolution and the diversity of organisms.
2	Physical 3	Recognize that the measurement of volume and mass requires understanding of the sensitivity of measurement tools (e.g., rulers, graduated cylinders, balances) and knowledge and appropriate use of significant digits.
1, 3, 4	Inquiry 1	Formulate a testable hypothesis.
1, 4	Inquiry 2	Design and conduct an experiment specifying variables to be changed, controlled, and measured.
1, 2, 3, 4	Inquiry 3	Select appropriate tools and technology (e.g., calculators, computers, thermometers, meter sticks, balances, graduated cylinders, and microscopes), and make quantitative observations.
1, 2, 3, 4	Inquiry 4	Present and explain data and findings using multiple representations, including tables, graphs, mathematical and physical models, and demonstrations.
All lessons	Inquiry 5	Draw conclusions based on data or evidence presented in tables or graphs, and make inferences based on patterns or trends in the data.
1, 2, 3, 4	Inquiry 6	Communicate procedures and results using appropriate science and technology terminology.
1, 2, 3, 4	Inquiry 7	Offer explanations of procedures, and critique and revise them.
Massachusetts Mathematics Learning Standards: Grades 6, 7, 8		
Grade 6		
Lesson	**Standard**	**Description**
2	6.N.4	Demonstrate an understanding of fractions as a ratio of whole numbers, as parts of unit wholes, as parts of a collection, and as locations on the number line.
1, 2, 3	6.N.5	Identify and determine common equivalent fractions, mixed numbers, decimals, and percents.
1, 2, 3	6.N.9	Select and use appropriate operations to solve problems involving addition, subtraction, multiplication, division, and

		positive integer exponents with whole numbers, and with positive fractions, mixed numbers, decimals, and percents.
1, 2, 3	6.N.13	Accurately and efficiently add, subtract, multiply, and divide (with double-digit divisors) whole numbers and positive decimals.
1, 2, 3	6.N.15	Add and subtract integers, with the exception of subtracting negative integers.
1, 2, 3, 4	6.P.4	Represent real situations and mathematical relationships with concrete models, tables, graphs, and rules in words and with symbols, e.g., input-output tables.
1, 4	6.P.6	Produce and interpret graphs that represent the relationship between two variables in everyday situations.
2, 3	6.M.3	Solve problems involving proportional relationships and units of measurement, e.g., same system unit conversions, scale models, maps, and speed.
1, 4, 5	6.D.2	Construct and interpret stem-and-leaf plots, line plots, and circle graphs.
Grade 7		
Lesson	**Standard**	**Description**
1, 2, 3	7.N.1	Compare, order, estimate, and translate among integers, fractions and mixed numbers (i.e., rational numbers), decimals, and percents.
2, 3	7.N.2	Use ratios and proportions in the solution of problems involving unit rates, scale drawings, and reading of maps.
1, 2, 3	7.N.6	Use the inverse relationships of addition and subtraction, and of multiplication and division, to simplify computations and solve problems, e.g., multiplying by 1/2 or 0.5 is the same as dividing by 2.
1, 2, 3	7.N.7	Estimate and compute with fractions (including simplification of fractions), integers, decimals, and percents (including those greater than 100 and less than 1).
1, 2	7.N.8	Determine when an estimate rather than an exact answer is appropriate and apply in problem situations.
1, 2, 3	7.N.9	Select and use appropriate operations—addition, subtraction, multiplication, division, and positive integer exponents—to solve problems with rational numbers (including negatives).
1, 2, 3, 4	7.P.1	Extend, represent, analyze, and generalize a variety of patterns with tables, graphs, words, and, when possible, symbolic expressions. Include arithmetic and geometric progressions, e.g., compounding.
2, 3, 4	7.P.6	Use linear equations to model and analyze problems involving proportional relationships. Use technology as appropriate.
1, 2	7.M.1	Select, convert (within the same system of measurement), and use appropriate units of measurement or scale.
All lessons	7.D.1	Select, create, interpret, and utilize the following tabular and graphical representations of data: circle graphs, Venn diagrams, stem-and-leaf plots, tables, and charts.
Grade 8		
Lesson	**Standard**	**Description**
1, 2, 3	8.N.1	Compare, order, estimate, and translate among integers, fractions and mixed numbers (i.e., rational numbers), decimals, and percents.
2, 3	8.N.3	Use ratios and proportions in the solution of problems, in particular, problems involving unit rates, scale factors, and

Lesson	Standard	Description
		rate of change.
1, 2	8.N.11	Determine when an estimate rather than an exact answer is appropriate and apply in problem situations.
1, 2, 3	8.N.12	Select and use appropriate operations—addition, subtraction, multiplication, division, and positive integer exponents—to solve problems with rational numbers (including negatives).
1, 2	8.M.1	Select, convert (within the same system of measurement), and use appropriate units of measurement or scale.
1, 2, 3, 4	8.D.1	Describe the characteristics and limitations of a data sample. Identify different ways of selecting a sample, e.g., convenience sampling, responses to a survey, random sampling.
All lessons	8.D.2	Select, create, interpret, and utilize various tabular and graphical representations of data, e.g., circle graphs, Venn diagrams, scatterplots, stem-and-leaf plots, box-and-whisker plots, histograms, tables, and charts. Differentiate between continuous and discrete data and ways to represent them.
Massachusetts English Language Arts Learning Standards: Grades 6, 7, 8		
Lesson	**Standard**	**Description**
All lessons	1.3	Apply understanding of agreed-upon rules and individual roles in order to make decisions.
All lessons	4.17	Determine the meaning of unfamiliar words using context clues *(definition, example).*
All lessons	4.20	Determine the meaning of unfamiliar words using context clues *(contrast, cause and effect).*
1, 3, 4	8.10	Restate main ideas.
1, 3, 4	8.15	Locate facts that answer the reader's questions.
1, 3, 4	8.16	Distinguish cause from effect.
1, 3, 4, 5	8.17	Distinguish fact from opinion or fiction.
1, 3, 4, 5	8.22	Identify and analyze main ideas, supporting ideas, and supporting details.
1, 3, 4, 5	13.21	Recognize use of arguments for and against an issue.
1, 3, 4, 5	13.22	Identify evidence used to support an argument.
1, 3, 4	19.16	Write brief research reports with clear focus and supporting detail.
1, 2, 3, 4	19.17	Write a short explanation of a process that includes a topic statement, supporting details, and a conclusion.
5	19.22	Write and justify a personal interpretation of literary, informational, or expository reading that includes a topic statement, supporting details from the literature, and a conclusion.
All lessons	20.2	Use appropriate language for different audiences *(other students, parents)* and purposes *(letter to a friend, thank you note, invitation).*
All lessons	22.7	Use additional knowledge of correct mechanics *(apostrophes, quotation marks, comma use in compound sentences, paragraph indentations),* correct sentence structure *(elimination of fragments* and *run-ons),* and correct standard English spelling *(commonly used homophones)* when writing, revising, and editing.
All lessons	22.8	Use knowledge of types of sentences *(simple, compound, complex),* correct mechanics *(comma after introductory structures),* correct usage *(pronoun reference),* sentence structure *(complete sentences, properly placed modifiers),* and standard English spelling when writing and editing.

All lessons	23.7	Group related ideas and place them in logical order when writing summaries or reports.
All lessons	23.8	Organize information about a topic into a coherent paragraph with a topic sentence, sufficient supporting detail, and a concluding sentence.
All lessons	24.4	Apply steps for obtaining information from a variety of sources, organizing information, documenting sources, and presenting research in individual projects: differentiate between primary and secondary source materials; differentiate between paraphrasing and using direct quotes in a report; and organize and present research using the grade 7–8 Learning Standards in the Composition Strand as a guide for writing.

Massachusetts Comprehensive Health Learning Standards: Grade 8		
Lesson	**Standard**	**Description**
2	1.7	Explain the function of human body systems and how body systems work together.
All lessons	1.8	Describe the influence of health habits on growth and development.
3, 5	1.9	Apply skills that increase immediate peak functioning of body systems (vigorous exercise, eating nutritious foods, adequate rest).
3, 4	1.10	Define genes and the concept of heredity.
1, 2, 3, 5	2.13	Explain the personal benefits of making positive health decisions and monitor progress towards personal wellness.
2, 3	3.8	List the functions of key nutrients and describe how the United States Dietary Guidelines relate to health and the prevention of chronic disease throughout the life span.
2, 3	3.9	Describe a healthy diet and adequate physical activity during the adolescent growth spurt.
2, 3, 4, 5	3.11	Analyze dietary intake and eating patterns.
All lessons	7.5	Apply attentive listening, feedback, and assertiveness skills to enhance positive interpersonal communication.
2, 3	7.6	Explain how peer pressure influences choices and apply strategies for managing negative peer pressure and encouraging positive peer pressure.
2, 3, 5	8.5	Identify ways individuals can reduce risk factors related to communicable and chronic diseases.
3, 5	8.6	Describe the importance of early detection in preventing the progression of disease.
3, 5	8.7	Explain the need to follow prescribed health care procedures given by parents and health care providers.
1, 2, 3, 5	12.6	Describe how allowing time for healthy activities (such as exercise, preparing nutritious meals, getting adequate sleep) can improve health.
2, 3, 5	12.8	Identify ways consumer decisions and actions can influence physical and mental health.
2	12.a	Identify the contribution of state and federal public health laws and of government agencies for the protection of the consumer.
2, 3, 5	14.5	Identify the origins and accuracy of facts in social messages that promote healthy and unhealthy behaviors.