

THE SCIENCE OF ENERGY BALANCE: CALORIE INTAKE AND PHYSICAL ACTIVITY

Tennessee Science Curriculum Standards– Grades 6, 7, 8

Lesson	Standard	Learning Expectation
3, 5	5.1	Understand how organisms are adapted for surviving in certain environments. (6)
All lessons	14.4	Understand that one form of energy can be transformed into another form of energy. (6)
3	1.1	Recognize the differences among cells, tissues, organs, and systems. (7)
2, 3	12.2	Identify and measure the simple properties of common substances. (7)
3	4.3	Investigate the relationship among DNA, genes, chromosomes, and the genetic code of life. (8)

Tennessee Mathematics Curriculum Standards – Grades 6, 7, 8

Grade 6

Lesson	Standard	Learning Expectation
1, 2, 3, 4	6.1.1.b	Read, write, and represent whole numbers and decimals in expanded notation.
2, 3	6.1.1.c	Develop understanding of equivalent number representations (i.e., fractions, decimals, and percents).
3	6.1.1.g	Develop meaning for ratios using real-world models and/or situations.
3	6.1.1.h	Use a variety of representations for ratios (e.g., 3 to 5; 3/5; 3:5).
2, 3	6.1.2.a	Understand the meaning and effects of arithmetic operations on fractions and decimals.
1, 2, 3, 4	6.1.2.b	Apply the associative and commutative properties of addition and multiplication to simplify computations with integers, fractions, and decimals.
1, 2, 3, 4	6.1.2.c	Use the distributive property to simplify computations with integers, fractions, and decimals.
2, 3	6.1.2.e	Understand and use the inverse relationships of addition and subtraction and multiplication and division to simplify computations and solve problems.
1, 2, 3, 4	6.1.3.a	Select and use appropriate methods and tools for computing with whole numbers, fractions, decimals, and percents in problem-solving situations (e.g., mental computation, estimation, calculators, computers, paper and pencil).

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1, 2, 3, 4	6.1.3.b	Analyze procedures for computing with fractions, decimals, and integers.
1, 2, 3, 4	6.1.3.c	Solve one-step real-world problems involving whole numbers, fractions, and decimals.
All lessons	6.2.1.b	Use tables and graphs to generalize patterns in data.
All lessons	6.2.3.a	Model simple real-world problems using graphs.
1, 3, 4, 5	6.2.4.a	Describe how changes in one quantity or variable result in changes in another.
1, 2, 4	6.4.1.a	Understand both metric and customary systems of measurement.
1, 2	6.4.1.b	Understand relationships among units and convert from one unit to another within the same system.
2	6.4.1.c	Understand, select, and use units of appropriate size and type to measure angles, perimeter, area, surface area, and volume.
2	6.4.2.h	Recognize the need for measurement precision
1, 2, 3, 4	6.5.1.a	Formulate questions, design studies, and collect real-world data.
1, 2, 3, 4	6.5.1.b	Understand how data-collection methods affect the nature of the data set.
1, 3, 4	6.5.1.c	Examine various representations of data to evaluate how accurately the data is depicted.
1, 4, 5	6.5.1.d	Construct, interpret, and use single-bar and single-line graphs to answer questions and solve real-world problems.
All lessons	6.5.3.a	Make conjectures and predictions based on data.
1	6.5.3.b	Explain the importance of sample size in investigations.
1	6.5.3.d	Determine whether or not a sample is biased.
1, 2, 3, 4	6.5.3.e	Make conjectures to formulate new questions for future studies.
Grade 7		
Lesson	Standard	Learning Expectation
1, 2, 3, 4	7.1.1.f	Represent equivalent numbers using a variety of forms (i.e., whole numbers, fraction, decimals, percents).
2, 3	7.1.1.j	Understand and use ratios and proportions to represent quantitative relationships.
2, 3	7.1.2.a	Understand the meaning and effects of arithmetic operations with fractions and decimals.

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1, 2, 3, 4	7.1.2.c	Apply the associative and commutative properties of addition and multiplication to simplify computations with integers, fractions, and decimals.
1, 2, 3, 4	7.1.3.a	Select and use appropriate methods and tools for computing with whole numbers, fractions, decimals, percents, and integers in problem solving situations (e.g., mental computation, estimation, calculators, computers, paper and pencil).
1, 2, 3, 4	7.1.3.d	Judge the reasonableness of the results of rational number estimates and computations.
1, 2, 3, 4	7.1.3.e	Solve two-step real-world problems involving whole numbers, fraction, decimals, and percents.
2, 3	7.1.3.f	Develop methods for solving problems involving proportions (e.g., scaling, finding equivalent ratios).
All lessons	7.2.1.c	Use tables, graphs, and symbolic rules to generalize patterns in data.
1, 3, 4	7.2.4.a	Describe how changes in one quantity or variable result in changes in another.
1, 2, 4	7.4.1.a	Understand both metric and customary systems of measurement.
1, 2	7.4.1.b	Convert from one unit to another within the same system.
2	7.4.1.c	Understand, select, and use units of appropriate size and type to measure angles, perimeter, areas, surface area, and volume.
1, 2, 3, 4	7.5.1.a	Formulate questions, design studies, and collect real-world data.
1, 3, 4, 5	7.5.1.b	Construct, interpret, and use multiple-bar graphs, multiple-line graphs, and circle graphs displaying real-world data.
1	7.5.2.b	Recognize misleading representations of data.
1, 4	7.5.2.c	Discuss and understand the relationship between data sets and their graphical representations (e.g., bar graphs, line graphs, circle graphs, histograms, stem-and-leaf plots, box plots, and scatterplots).
All lessons	7.5.3.a	Make conjectures and predictions based on data.
1, 2, 3, 4	7.5.3.b	Make conjectures to formulate new questions for future studies.
Grade 8		
Lesson	Standard	Learning Expectation
2, 3	8.1.1.e	Work flexibly with fractions, decimals, and percents to solve problems.
2, 3	8.1.1.f	Compare and order fractions, decimals, and percents.

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2, 3	8.1.1.j	Understand and use ratios and proportions to represent quantitative relationships.
1, 2, 3, 4	8.1.2.a	Understand the meaning and effects of arithmetic operations with fractions, decimals, and integers.
1, 2, 3, 4	8.1.2.b	Apply the associative and commutative properties of addition and multiplication to simplify computations with integers, fractions, and decimals.
1, 2, 3, 4	8.1.2.c	Use the distributive property to simplify computations with integers, fractions, and decimals.
1, 2, 3, 4	8.1.3.a	Select and use appropriate methods and tools for computing with whole numbers, fractions, decimals, percents, and integers in problem-solving situations (e.g., mental computation, estimation, calculators, computers, paper and pencil).
1, 2, 3, 4	8.1.3.b	Develop and analyze procedures for computing with fractions, decimals, and integers.
1, 2, 3, 4	8.1.3.d	Judge the reasonableness of the results of rational number estimates and computations.
1, 2, 3, 4	8.1.3.e	Solve one-step real-world problems involving whole numbers, fractions, decimals, and percents.
1, 2, 3, 4	8.1.3.g	Solve multi-step real-world problems involving whole numbers, fractions, decimals, and percents.
2, 3	8.1.3.h	Develop, analyze, and explain methods for solving problems involving proportions (e.g., scaling, finding equivalent ratios).
All lessons	8.2.1.a	Represent, analyze, and generalize a variety of patterns with tables, graphs, words, and when possible symbolic rules.
1, 2, 3, 4	8.2.2.i	Apply given formulas to solve real-world problems.
1, 2, 3, 4	8.2.3.a	Use a variety of representations to solve real-world problems (e.g., graphs, tables, equations).
1, 2, 4	8.4.1.a	Understand both metric and customary systems of measurement.
1, 2	8.4.1.b	Convert from one unit to another within the same system.
2	8.4.1.c	Understand, select, and use units of appropriate size and type to measure angles, perimeter, areas, surface area, and volume.
1, 2, 3, 4	8.5.1.a	Formulate questions, design studies, and collect real-world data for investigations using a variety of collection methods (e.g., random sampling, simulations).
1, 3, 4, 5	8.5.1.b	Select, create, and use appropriate graphical representations of real-world data (e.g., histograms, box plots, scatterplots).
1, 3, 4	8.5.2.c	Discuss and understand the relationship between data sets and their graphical representations (e.g., bar graphs, line graphs, circle graphs, histograms, stem-and-leaf plots, box plots, scatterplots).

All lessons	8.5.3.a	Make conjectures and predictions based on data.
1	8.5.3.b	Recognize misleading presentations of data.
1, 4	8.5.3.d	Determine an appropriate sample to test a hypothesis.

Tennessee English/Language Arts Curriculum Standards – Grades 6, 7, 8

Lesson	Standard	Learning Expectation
All lessons	6.1.01.a 7.1.01.a 8.1.01.a	Model active listening in both formal and informal settings.
All lessons	6.1.01.b 7.1.01.b 8.1.01.b	Know and use rules for conversations.
All lessons	6.1.01.c 7.1.01.c 8.1.01.c	Formulate and respond to questions from teachers and classmates.
All lessons	6.1.01.d 7.1.01.d 8.1.01.d	Organize and share information, stories, experiences, ideas, and feelings with others in both formal and informal situations.
All lessons	6.1.02.c 7.1.02.c	Continue to recognize that print format varies/Identify the differences among print formats according to purpose and genre (e.g., prose, poetry, newspaper/magazine, letters, dramas, technical manuals, textbooks).
All lessons	6.1.04.c 7.1.04.c 8.1.04.d	Decode unknown grade level words utilizing previously learned strategies to verify the word's meaning within the context of the selection.
All lessons	6.1.06.a 7.1.06.a 8.1.06.a	Build vocabulary by listening to literature, participating in class discussions, and reading self-selected and/or assigned texts.
All lessons	6.1.07.a 7.1.07.a 8.1.07.a	Continue to establish a purpose for reading (e.g., to understand, to interpret, to enjoy, to solve problems, to answer specific questions, to identify information/facts, to discover models of writing).

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All lessons	6.1.07.b 7.1.07.b 8.1.07.b	Utilize reference sources and personal experiences to build background knowledge for reading.
All lessons	6.1.07.h 7.1.07.h 8.1.07.h	Relate text to prior personal experiences or opinions as well as previously read print and non-print texts. (6) Relate text to prior personal experiences or opinions, historical knowledge, and current events as well as previously read print and non-print texts. (7 & 8)
All lessons	6.1.08.a 7.1.08.a 8.1.08.a	Derive meaning while reading by: continuing to formulate clarifying questions while reading, predicting outcomes, state reasonable generalizations, and draw conclusions from the reading selection based on prior knowledge and information, using metacognitive and self-monitoring strategies while reading (e.g. pausing, rereading, recognizing miscues, consulting other sources, reading ahead, asking for help), engaging in reading between the lines (i.e. stating implied information), continuing to create mental pictures from abstract information, continuing to relate text to prior personal experiences or opinions as well as previously read print and non-print texts, and continuing to make inferences.
All lessons	6.1.08.b 7.1.08.b 8.1.08.b	Derive meaning after reading by: indicating the sequence of events, recognizing and stating the main idea/central element in a given reading selection noting details that support the main idea/central element, finding contextual support for responses to questions, for assistance in formulating ideas and opinions, and for supporting personal responses (i.e. grounding students in the text), determining cause and effect relationships, determining whether a given statement is a fact or an opinion, making connections among various print (e.g. other stories) and non-print texts (e.g., movies, photographs, artwork).
1, 2, 3, 5	6.1.09.a 7.1.09.a 8.1.09.a	Use/ discern/determine appropriate reference sources in various formats (e.g., encyclopedias, card/electronic catalogs, almanacs, periodicals, Internet).
3, 4	6.1.09.b 7.1.09.b 8.1.09.b	Recognize/use media (e.g., on-line catalog, non-fiction books, encyclopedias, CD-ROM, references, Internet) as resources for viewing, reading, and representing information.
1, 3, 4	6.1.09.c 7.1.09.c 8.1.09.c	Use current technology (e.g., the Internet, CD-ROMs, online catalogs) as a research communication tool.
All lessons	8.1.09.h	Retrieve, organize, represent, analyze, and evaluate information to demonstrate knowledge effectively acquired.
All lessons	6.1.10.a 7.1.10.a 8.1.10.a	Develop/increase/expand and maintain vocabulary specific to content areas and to current events.

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All lessons	6.1.10.c 7.1.10.c 8.1.10.c	Continue to apply/Apply and analyze/Apply, analyze, and evaluate comprehension skills and strategies to informational text in the content areas.
All lessons	6.2.01.b 7.2.01.b 8.2.01.b	Use print and non-print materials along with prior knowledge to provide background for writing. (6) Use print and non-print materials, along with prior knowledge and content area knowledge, to provide background for writing. (7 & 8)
All lessons	6.2.01.e 7.2.01.e 8.2.01.e	Determine appropriate audience (i.e., personal or formal).
All lessons	6.2.01.f 7.2.01.f 8.2.01.f	Establish/Evaluate/Analyze a purpose for writing (e.g., to inform, to describe, to explain, to persuade).
2, 3, 5	6.2.02.e 7.2.02.e 8.2.02.e	Write in response to expository prompts.
1, 2	6.2.02.f 7.2.02.f 8.2.02.g	Write personal reflections to experiences and events (6) for self and others. (7) Write personal reflections to situations, experiences, and events for self and others. (8)
1, 2, 4	6.2.02.h 7.2.02.i 8.2.02.i	Write to acquire knowledge (e.g., express, organize, and clarify thinking, take notes, synthesize information, enhance communication).
1, 3, 4, 5	6.2.07.a 7.2.07.a 8.2.07.a	Produce a variety of written works/a final draft suitable for publication and/or sharing. Publish a final draft. (8)
1, 3, 4	6.2.07.b 7.2.07.b 8.2.07.b	Use multiple technological resources to prepare and present work (6) and to add graphs, tables, and/or illustrations (7) to support the focus of the work. (8)
1, 2, 3, 4	6.2.09.b 7.2.09.b 8.2.09.b	Produce a variety of technical works utilizing knowledge from the content areas (e.g., explanations of projects, science experiment projects, demonstrations, editorials, documents).

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1, 3, 4	6.2.09.c 7.2.09.c 8.2.09.c	Research topics and organize gathered information from the content areas into presentable documents.
All lessons	6.2.09.d 7.2.09.d 8.2.09.d	Compose and respond to original questions and/or problems from all content areas.
1, 3, 4	6.2.13.e 6.2.13.e 6.2.13.d	Use computer technology to find information and to create reports and presentations (6) and to support research. (7 & 8)
All lessons	6.2.13.f 7.2.13.f 8.2.13.e	Use examples and details collected from available resources (6 & 7) available and reliable resources. (8)

Tennessee Healthful Living Standards – Grades 6 - 8

Lesson	Standard	Learning Expectation
2, 3, 5	2.1	Describe and analyze the basic body systems and functions of the human body.
1, 2, 3, 5	2.2	Explain the functions of the human body.
1, 2, 3, 5	2.3	Explain the impact of personal health behaviors on the functioning of human body systems.
3, 4, 5	3.2	Determine the benefits of exercise in relation to improved health during all stages of life.
1, 3, 4, 5	3.3	Assess the relationship of physical activity to other areas of personal health (social, mental, and emotional well-being).
2, 3, 4, 5	4.1	Explain the relationship of a balanced nutrition program and essential nutrients to appropriate weight, appearance, energy level and total wellness.
2, 3, 5	4.2	Evaluate how individual food choices are influenced by multiple factors.
1, 2, 3, 5	5.1	Identify family influences in the development of personal values and beliefs and how they will affect future decisions.
2, 3, 5	7.1	Analyze the effectiveness of personal decision-making as it relates to future health and wellness outcomes.
2, 3, 5	7.2	Describe individual goals and aspirations for healthful living.

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2, 3, 5	7.3	Determine how setting healthful living goals can promote lifetime wellness.
1, 2, 3, 5	9.3	Evaluate attitudes and behaviors as related to personal and mental health.
2, 3	10.1	Describe signs, symptoms, and risk factors related to communicable and non-communicable diseases.
1, 2, 3, 5	10.2	Evaluate how heredity, environment and lifestyle impact both the wellness and disease process.
2, 3, 5	15.2	Practice decision-making and refusal skills.
All lessons	15.3	Explain how choices relate to consequences.
3	17.1	Assess various health care facilities and services.
2, 3	17.2	Analyze the importance of community organizations to healthful living.
1, 2, 3	18.2	Evaluate the effect of media and technology on individual, family, and community health.
1, 2, 3, 5	19.1	Identify and analyze valid reliable health information.
2	19.2	Analyze the use of various health products.