

DOING SCIENCE: THE PROCESS OF SCIENTIFIC INQUIRY		
Kansas Science Standards: Grades 5 – 7		
Lesson	Standard	Indicator
All lessons	1.1.1	Identifies questions that can be answered through scientific investigations.
All lessons	1.1.2	Designs and conducts scientific investigations safely using appropriate tools, mathematics, technology, and techniques to gather, analyze, and interpret data. a. designs and conducts an investigation on a question. Components of the investigation may include background and hypothesis, identification of variables (independent variable, dependent variable, variables to be held constant), list of materials, procedures, collection and analysis of data, and conclusions. Given an investigative question, determines what to measure and how to measure. Displays data collected from performing in investigation using tables, graphs, diagrams and other graphic organizers.
1, 3, 4	1.1.3	Identifies the relationship between evidence and logical conclusions.
1, 3, 4	1.1.4	Communicates scientific procedures, results and explanations.
All lessons	1.2.1	Develops questions and adapts (frames) the inquiry process to guide the appropriate type of investigation.
1, 3, 4	1.2.2	Differentiates between qualitative and quantitative data in an investigation.
All lessons	1.3.1	After completing an investigation, generates alternative methods of investigation and/or further questions for inquiry.
1, 3, 4	1.3.2	Evaluates the work of others to determine evidence which scientifically supports or contradicts the results, identifying faulty reasoning or conclusions that go beyond evidence and/or are not supported by data.
3, 4	3.1.4	Concludes that breakdowns in structure or function may be caused by disease, damage, heredity, or aging.
1, 3, 4	7.1.1	Practices intellectual honesty, demonstrates skepticism appropriately, displays open-mindedness to new ideas, and bases decisions on evidence.
All lessons	7.2.1	Recognizes that new knowledge leads to new questions and new discoveries, replicates historic experiments to understand principles of science, and relates contributions of men and women to the fields of science.
Kansas Mathematics Standards: Grades 6 – 8		
Grade 6		
Lesson	Standard	Knowledge Base Indicator
3, 4	1.4.1	Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
3, 4	2.4.1	Knows, explains, and uses mathematical models to represent mathematical concepts, procedures, and relationships.
3, 4	2.4.2	Uses one or more mathematical models to show the relationship between two or more things.
1	3.2.1	Determines and uses whole number approximations (estimations) for length, width, weight, volume, temperature, time, perimeter, and area using standard and nonstandard units of measure.

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1	3.2.2	Selects, explains the selection of, and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, and angle measurements.
3, 4	4.2.1	Organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: <ul style="list-style-type: none"> a. graphs using concrete objects; b. frequency tables and line plots; c. bar, line, and circle graphs; d. Venn diagrams or other pictorial displays; e. charts and tables; f. single stem-and-leaf plots; g. scatter plots.
Grade 7		
3, 4	1.1.1	Knows, explains, and uses equivalent representations for rational numbers and simple algebraic expressions including integers, fractions, decimals, percents, and ratios; integer bases with whole number exponents; positive rational numbers written in scientific notation with positive integer exponents; time; and money.
3, 4	1.4.1	Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
3, 4	2.1.1	Identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written.
3, 4	2.2.1	Knows and explains that a variable can represent a single quantity that changes, e.g., daily temperature.
3, 4	2.2.3	Shows and explains how changes in one variable affect other variables.
3, 4	2.2.4	Knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships.
1	3.2.2	Selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate rational number representations for length, weight, volume, temperature, time, perimeter, area, and angle measurements.
3, 4	4.2.1	Organizes, displays, and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: <ul style="list-style-type: none"> a. frequency tables; b. bar, line, and circle graphs; c. Venn diagrams or other pictorial displays; d. charts and tables; e. stem-and-leaf plots (single); f. scatter plots; g. box-and-whiskers plots.
Grade 8		

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3, 4	1.1.1	Knows, explains, and uses equivalent representations for rational numbers and simple algebraic expressions including integers, fractions, decimals, percents, and ratios; rational number bases with integer exponents; rational numbers written in scientific notation with integer exponents; time; and money.
3, 4	1.4.1	Computes with efficiency and accuracy using various computational methods including mental math, paper and pencil, concrete objects, and appropriate technology.
3, 4	1.4.2	Performs and explains computational procedures with rational numbers.
3, 4	2.1.1	Identifies, states, and continues a pattern presented in various formats including numeric (list or table), algebraic (symbolic notation), visual (picture, table, or graph), verbal (oral description), kinesthetic (action), and written.
3, 4	2.2.1	Identifies independent and dependent variables within a given situation.
3, 4	2.4.1	Knows, explains, and uses mathematical models to represent and explain mathematical concepts, procedures, and relationships.
1	3.2.2	Selects and uses measurement tools, units of measure, and level of precision appropriate for a given situation to find accurate real number representations for length, weight, volume, temperature, time, perimeter, area, surface area, and angle measurements.
3, 4	4.2.1	Organizes, displays and reads quantitative (numerical) and qualitative (non-numerical) data in a clear, organized, and accurate manner including a title, labels, categories, and rational number intervals using these data displays: <ul style="list-style-type: none"> a. frequency tables; b. bar, line, and circle graphs; c. Venn diagrams or other pictorial displays; d. charts and tables; e. stem-and-leaf plots (single and double); f. scatter plots; g. box-and-whiskers plots; h. histograms.

Kansas Reading Standards: Grades 6 – 8

Lesson	Standard	Knowledge Base Indicator
3, 4	1.3.1	Determines the meaning of words or phrases using context clues (e.g., <i>definitions, restatements, examples, descriptions, comparison-contrast, clue words, cause-effect</i>) from sentences or paragraphs.
3, 4	1.4.2	Understands the purpose of text features (e.g., title, graphs/charts and maps, table of contents, pictures/illustrations, boldface type, italics, glossary, index, headings, subheadings, <i>topic</i> and summary sentences, captions, sidebars, underlining, numbered or bulleted lists) and uses such features to locate information in and to gain meaning from appropriate-level texts.
3, 4	1.4.4	Generates and responds logically to literal, inferential, and <i>critical thinking</i> questions before, during, and after reading the text.
3, 4	1.4.5	Uses information from the text to make inferences and draw conclusions.
3, 4	1.4.8	Explains cause-effect relationships in appropriate-level <i>narrative, expository, technical, and persuasive texts</i> .

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3, 4	1.4.9	Uses <i>paraphrasing</i> and organizational skills to <i>summarize</i> information (e.g., stated and implied <i>main ideas</i> , main events, important details) from appropriate-level <i>narrative, expository, persuasive, and technical texts</i> in logical order.
3, 4	1.4.10	Identifies the <i>topic, main idea(s)</i> , supporting details, and <i>theme(s)</i> in text across the content areas and from a variety of sources in appropriate-level texts.
3, 4	1.4.13	Follows directions explained in <i>technical text</i> .

Kansas Writing Standards: Grades 6 – 8

Lesson	Standard	Knowledge Base Indicator
All lessons	1.2.2	Clarifies the main idea by selecting logical details that are accurate and helpful (6 th & 7 th). Clearly identifies the main idea with selection of relevant, logical details that meet the reader's informational needs (8 th).
All lessons	1.2.3	Practices/uses writing using (1) personal experience (2) observations (3) prior knowledge (4) research to provide information using an appropriate point of view for the piece (e.g. 3 rd person pronouns in research).
All lessons	1.2.4	Expresses information in own words using evidence and examples (6 th & 7 th). Expresses information in own words and uses explicit techniques to appeal to the backgrounds and interests of the audience (8 th).
3, 4	1.2.9	Writes a complete piece that contains a clear introduction, reasonable body, and satisfying conclusion (6 th & 7 th). Develops a cohesive piece that contains an engaging introduction, a body that provides information, and a conclusions that reinforces the thesis statement and leaves the reader with a sense of completion (8 th).
All lessons	1.2.14	Practices/selects specialized vocabulary that is appropriate for expository writing and provides for ease of understanding.
All lessons	1.2.19	Demonstrates/uses correct use of mechanics and simple punctuation.
All lessons	1.2.21	Spells familiar and most unfamiliar words correctly and uses available resources (e.g. dictionary, spell check).
All lessons	1.3.10	Writes with an awareness of purpose and audience (e.g. letters, simple reports, directions, graphics, brochures, electronic presentation, newsletters).
All lessons	1.3.13	Selects words appropriate for the intended task/format (e.g. persuasive, if persuading; informational, if informing, etc.).
All lessons	1.3.14	Writes compact sentences or phrases that make the point clear.
3, 4	1.3.18	Uses graphic devices that are supportive of the text (e.g. charts, graphs, illustrations).

Kansas Health Education Standards: Grades 5 – 8

Lesson	Standard	Descriptor
3, 4	1.1	Explain the relationship between positive health behaviors and wellness.
3, 4	1.4	Describe ways to reduce risks related to adolescent growth and development.
3	2.3	Describe situations requiring professional health services.
4	3.1	Explain the importance of assuming responsibility for health behaviors.

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3, 4	3.3	Recognize risky and harmful health behaviors.
All lessons	5.2	Demonstrate communication skills to build and maintain a variety of healthy relationships.
4	7.2	Share information and express opinions about current issues in health.