

7<sup>th</sup>  
Grade

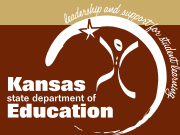


# Pocket PALS

*Priority Assessed Learning Standards*

Mathematics & Reading

2009-2010



[www.ksde.org](http://www.ksde.org)  
September 2009



## Kansas State Board of Education

120 S.E. 10th Avenue • Topeka, Kansas 66612-1182

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- Redesign the delivery system to meet our students' changing needs.
- Provide an effective educator in every classroom.
- Ensure a visionary and effective leader in every school.
- Improve collaboration with families and communities, constituent groups and policy partners.

Kansas State Board of Education  
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As the Kansas Commissioner of Education, I am committed to the Kansas State Board of Education's mission "to ensure that all students meet or exceed high academic standards and are prepared for their next steps, e.g., the world of work and/or postsecondary education."



To that end, the Kansas Priority Assessed Learning Standards (PALS) booklet is to give you—as educators—a quick reference to the 2009-10 assessed standards in reading and mathematics. Please know that the standards, benchmarks and indicators included in this document are just a small part of what you teach. The complete list of standards for reading, mathematics, writing, science, and history/government as well as the non-assessed models standards (communication, dance and creative movement, driver education, environmental education, health education, library media and technology, music, physical education, school counseling, theatre, visual arts, and world languages) can be accessed at: <http://www.ksde.org/Default.aspx?tabid=1678>.

It is imperative that we focus on these essential skills, which is why we created "Pocket PALS." You are the most valuable asset of a school and your relentless and effective teaching of each and every student ensures that all children in Kansas will and do succeed. I am hopeful that "Pocket PALS" will assist you in the development of well-planned, thoughtful, research-based methods of instruction for your classes. It is important to build on what students already know and can do as you continue to expand student knowledge and skill mastery in all curricular areas.

What an awesome responsibility you have as educators! I hope this tool will assist you as you prepare your students for the future. There has never been a more important time to focus on the students of tomorrow, than today.

A handwritten signature in brown ink, appearing to read "Alexa".

Dr. Alexa Posny  
Kansas Commissioner of Education



## Mathematics Overview

### Mission Statement

The mission of Kansas mathematics education is for all Kansas students to learn mathematical content and skills that are used to solve a variety of problems.

### Vision Statement

The vision of mathematics education in Kansas is to work toward the following:

- Kansas mathematics education will be recognized as one of the premier programs in the United States.
- Kansas mathematics education will be equally effective for all students, irrespective of gender, race, or socioeconomic background.
- Kansas families will broadly recognize the importance of and be encouraged to participate actively in their child(ren)'s mathematics learning.
- Technology will be a fundamental part of mathematics teaching and learning.

### The Purpose of this Document\*

The standards, benchmarks, and indicators in this document<sup>1</sup> have been created to assist Kansas educators in developing local curricula and assessments, as well as to serve as the basis for the development of the state assessments in mathematics. The committee<sup>2</sup> strove to recommend high, yet reasonable expectations for all students. High, yet reasonable expectations for all students are components of fairness in education. All students include: those who choose to attend college, those who choose technical preparation, those who will enter the workforce, those from various socioeconomic backgrounds, those who have been identified as gifted in the area of mathematics, those who have been identified with learning disabilities, those who have previously been successful with mathematics, and those who have struggled with mathematics sometime in the past.

Students may need additional support both within and outside the regular classroom to meet those expectations. Teachers should be given the professional development and

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\* From the Introduction to the Kansas Curricular Standards for Mathematics, July 2003

<sup>1</sup> Kansas Curricular Standards for Mathematics, July 2003

<sup>2</sup> Refers to the Kansas Curricular Standards for Mathematics Committee, Kansas Curricular Standards for Mathematics, July 2003

resources necessary to enable them to help all students strive to meet or exceed these expectations. This may seem a daunting task, but the alternative is not acceptable.

*(Source: Kansas Curricular Standards for Mathematics, July 2003)*

### Math Standards Key

**M.7.1.1.K1** = Math Grade 7, Standard 1, Benchmark 1, Knowledge indicator 1

**N** = Non-calculator portion of the assessment.

**(\$)** = Correlated with Personal Finance standards.

**(2.4.K1a-b)** = Indicator numbers in parentheses cross reference an indicator that can be used to model the concept referenced or, for a “model” indicator, reference indicators that can be explained using the model indicator.

## Mathematics Standards & Benchmarks

**Standard 1:** Number and Computation – The student uses numerical and computational concepts and procedures in a variety of situations.

**Benchmark 1:** Number Sense – The student demonstrates number sense for rational numbers, the irrational number pi, and simple algebraic expressions in one variable in a variety of situations.

M.7.1.1.A1a

Generates and/or solves real-world problems using (2.4.A1a) (**\$**): equivalent representations of rational numbers and simple algebraic expressions, e.g., you are in the mountains. Wilson Mountain has an altitude of  $5.28 \times 10^3$  feet. Rush Mountain is 4,300 feet tall. How much higher is Wilson Mountain than Rush Mountain?

**Benchmark 4:** Computation – The student models, performs, and explains computation with rational numbers, the irrational number pi, and first-degree algebraic expressions in one variable in a variety of situations.

M.7.1.4.K2a-d

Performs and explains these computational procedures (2.4.K1a):

- N** Adds and subtracts decimals from ten millions place through hundred thousandths place;
- N** Multiplies and divides a four-digit number by a two-digit number using numbers from thousands place through thousandths place;
- N** Multiplies and divides using numbers from thousands place through thousandths place by 10; 100; 1,000; .1; .01; .001; or single-digit multiples of each; e.g.,  $54.2 \div .002$  or  $54.3 \times 300$ ;
- N** Adds, subtracts, multiplies, and divides fractions and expresses answers in simplest form.

M.7.1.4.K5

Finds percentages of rational numbers (2.4.K1a,c) (**\$**), e.g.,  $12.5\% \times \$40.25 = n$  or 150% of 90 is what number? (For the purposes of assessment, percents will not be between 0 and 1.)



**Standard 2: Algebra** – The student uses algebraic concepts and procedures in a variety of situations.

**Benchmark 1: Patterns** – The student recognizes, describes, extends, develops, and explains the general rule of a pattern in a variety of situations.

M.7.2.1.K1a-b

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 using these **attributes**:

- Counting numbers including perfect squares, cubes, and factors and multiples (number theory) (2.4.K1a);
- Positive rational numbers including arithmetic and geometric sequences (arithmetic: sequence of numbers in which the difference of two consecutive numbers is the same, geometric: a sequence of numbers in which each succeeding term is obtained by multiplying the preceding term by the same number) (2.4.K1a),  
e.g.,  $2, \frac{1}{2}, \frac{1}{8}, \frac{1}{32}, \dots$

M.7.2.1.K4

States the rule to find the  $n^{\text{th}}$  term of a pattern with one operational change (addition or subtraction) between consecutive terms (2.4.K1a), e.g., given 3, 5, 7, and 9; the  $n^{\text{th}}$  term is  $2n + 1$ . (This is the explicit rule for the pattern.)

**Benchmark 2: Variable, Equations, and Inequalities** – The student uses variables, symbols, rational numbers, and simple algebraic expressions in one variable to solve linear equations and inequalities in a variety of situations.

M.7.2.2.K7

Knows the mathematical relationship between ratios, proportions, and percents and how to solve for a missing term in a proportion with positive rational number solutions and monomials (2.4.K1a,c) (**\$**), e.g.,  $\frac{5}{6} = \frac{2}{x}$

M.7.2.2.K8

Evaluates simple algebraic expressions using positive rational numbers (2.4.K1c) (**\$**), e.g., if  $x = \frac{3}{2}$ ,  $y = 2$ , then  $5xy + 2 = 5(\frac{3}{2})(2) + 2 = 17$ .

## M.7.2.2.A1

Represents real-world problems using variables and symbols to write linear expressions, one- or two-step equations (2.4.A1e) (**\$**), e.g., John has three times as much money as his sister. If  $M$  is the amount of money his sister has, what is the equality that represents the amount of money that John has? To represent the problem situation,  $J = 3M$  could be written.



**Standard 3: Geometry – The student uses geometric concepts and procedures in a variety of situations.**

**Benchmark 1: Geometric Figures and Their Properties – The student recognizes geometric figures and compares their properties in a variety of situations.**

## M.7.3.1.K3a–g

Identifies angle and side properties of triangles and quadrilaterals (2.4.K1h):

- Sum of the interior angles of any triangle is  $180^\circ$ ;
- Sum of the interior angles of any quadrilateral is  $360^\circ$ ;
- Parallelograms have opposite sides that are parallel and congruent;
- Rectangles have angles of  $90^\circ$ , opposite sides are congruent;
- Rhombi have all sides the same length, opposite angles are congruent;
- Squares have angles of  $90^\circ$ , all sides congruent;
- Trapezoids have one pair of opposite sides parallel and the other pair of opposite sides are not parallel.

**Benchmark 2: Measurement and Estimation – The student estimates, measures, and uses measurement formulas in a variety of situations.**

## M.7.3.2.K4

Knows and uses perimeter and area formulas for circles, squares, rectangles, triangles, and parallelograms (2.4.K1h).

## 7th Grade Curricular Standards for Mathematics

### M.7.3.2.K6a-b

Uses given measurement formulas to find (2.4.K1h):

- Surface area of cubes,
- Volume of rectangular prisms.

### M.7.3.2.A1c

Solves real-world problems by **(\$)**: finding perimeter and area of two-dimensional composite figures of squares, rectangles, and triangles (2.4.A1h), e.g., the front of a barn is rectangular in shape with a height of 10 feet and a width of 48 feet. Above the rectangle is a triangle that is 7 feet high with sides 25 feet long. What is the area of the front of the barn?

**Benchmark 3: Transformational Geometry – The student recognizes and performs transformations on two- and three-dimensional geometric figures in a variety of situations.**

### M.7.3.3.A3

Determines the actual dimensions and/or measurements of a two-dimensional figure represented in a scale drawing (2.4.A1i).



**Standard 4: Data – The student uses concepts and procedures of data analysis in a variety of situations.**

**Benchmark 2: Statistics – The student collects, organizes, displays, and explains numerical (rational numbers) and non-numerical data sets in a variety of situations with a special emphasis on measures of central tendency.**

### M.7.4.2.K1a-g

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 (2.4.K1j) **(\$)**:

- Frequency tables;
- Bar, line, and circle graphs;
- Venn diagrams or other pictorial displays;

- d. Charts and tables;
- e. Stem-and-leaf plots (single);
- f. Scatter plots;
- g. Box-and-whiskers plots.

M.7.4.2.A3a-b

Recognizes and explains (2.4.A1k):

- a. Misleading representations of data;
- b. The effects of scale or interval changes on graphs of data sets.



## Overview for Reading

### Mission Statement:

Kansas reading education is for all Kansas students to be given an equal opportunity to become competent and strategic readers.

### Purpose

The reading and literature standards, benchmarks, and indicators for the Kansas Curricular Standards for Communication Arts (1999) were revised in 2003. The Kansas Curricular Standards for Reading (2003) will assist Kansas teachers in planning local curricula and assessment for reading, and literature, and will serve as the basis for the development of state assessments in reading. However, the Kansas Curricular Standards for Reading (2003) is not intended to be a state-mandated curriculum. Local curricula should further refine and shape the way that students demonstrate their development in the communication arts. Kansas Curricular Standards for Reading (2003) was developed with an understanding that **all** students will be given an equal opportunity to become competent and strategic readers.

Following are the reading indicators selected for assessment. The full document can be found on the Kansas State Department of Education's website on the Reading Standards webpage at [www.ksde.org/Default.aspx?tabid=142](http://www.ksde.org/Default.aspx?tabid=142).

**Reading Standards Key**

**R.7.1.1.1** = Reading Grade 7, Standard 1, Benchmark 1, Indicator 1

## **Reading Standards & Benchmarks**

**Standard 1: Reading: The student reads and comprehends text across the curriculum.**

**Benchmark 3: The student expands vocabulary.**

R.7.1.3.1

Determines meaning of words or phrases using context clues (e.g., definitions, restatements, examples, descriptions, comparison-contrast, clue words) from sentences or paragraphs.

Instructional Example:

Choose a text or an article that contains unfamiliar text that can be supported through the contextual information. The student reads the article and highlights unfamiliar text. Read the text to the student and brainstorm with student which context helped him/her to understand the unfamiliar text. The student is asked to underline the text used for understanding the unfamiliar word.

R.7.1.3.3

Determines meaning of words through structural analysis, using knowledge of Greek, Latin, roots, prefixes, and suffixes to understand complex words, including words in science, mathematics, and social studies.

Instructional Example:

The student uses a list of root words and various prefixes and suffixes with their meanings. The student forms words and then uses the dictionary to determine the correctness of their words or write a definition for his/her invented word.

R.7.1.3.4

Identifies and determines the meaning of figurative language, similes, metaphors, analogies, hyperbole, onomatopoeia, and personification.

Instructional Example:

The student reads poems containing examples of figurative language such as analogies, similes, metaphors, hyperbole, onomatopoeia, and personification. The student then creates his/her own examples of figurative language modeled after the poets.

## 7th Grade Curricular Standards for Reading

**Benchmark 4:** The student comprehends a variety of texts (narrative, expository, technical, and persuasive).

### R.7.1.4.2

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, topic 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.

Instructional Example:

The student uses a news magazine and locates as many text features as possible. The student discusses why the text feature was selected for that information.

### R.7.1.4.5

Uses information from the text to make inferences and draw conclusions.

Instructional Example:

Provide sentences with statements that require inferences from the student, such as “When the light went out, the room was completely dark”. After reading the sentence, ask the student, “Where are you?”. The student supports his/her guesses with evidence from the sentence.

### R.7.1.4.6

Analyzes how text structure (e.g., sequence, problem-solution, comparison-contrast, description, cause-effect) helps support comprehension of text.

Instructional Example:

The student uses key words to identify the kind of text structure and why the author selected that particular type for that specific information.

### R.7.1.4.7

Compares and contrasts varying aspects (e.g., characters’ traits and motives, themes, problem-solution, cause-effect relationships, ideas and concepts, procedures, viewpoints, authors’ purposes) in one or more appropriate-level texts.

## Instructional Example:

Ask the student to use a chart with two different familiar topics, such as the crusts from two different pizza parlors, or two different types of sodas to show a comparison. Then encourage the student to use the chart to compare the traits or motives of two characters within a single text or across multiple texts. The student may also compare the themes between two texts or movies, or may compare the author's purpose between two texts.

## R.7.1.4.8

Explains cause-effect relationships in appropriate-level narrative, expository, technical, and persuasive texts.

## Instructional Example:

The student uses both fiction and nonfiction texts and highlights the causes in one color and the effects in another color and explains the relationship between the two.

## R.7.1.4.9

Uses paraphrasing and organizational skills to summarize information (e.g., stated and implied main ideas, main events, and important details) from appropriate-level narrative, expository, technical, and persuasive texts in logical order.

## Instructional Example:

The student highlights key concepts that aides in giving an oral summary of the text.

## R.7.1.4.10

Identifies the topic, main idea(s), supporting details, and theme(s) in text across the content areas and from a variety of sources in appropriate-level texts.

## Instructional Example:

The student answers the questions "Who?", "What?", "When?", "Where?", "How?", and "Why?". The student reads to find the main idea and to find answers to the questions. The student writes the main idea of the story and answers the questions "Who is the author talking about?", "What did they do?", "When did they do it?", "Where did they do it?", "How did they do it?", and "Why did they do it?"

## 7th Grade Curricular Standards for Reading

### R.7.1.4.11

Explains the relationship between elements of an author's style in a text (e.g., word choice, sentence structure) and his or her purpose for writing the text.

#### Instructional Example:

The student makes a text-to-text connection by comparing two pieces of text by the same author. The student compares both pieces to determine the author's style. The student discusses how the author's style supports their purpose for writing.

### R.7.1.4.14

Identifies the author's position in a persuasive text and describes techniques the author uses to support that position (e.g., bandwagon approach, glittering generalities, testimonials, citing statistics, and other techniques that appeal to reason or emotion).

#### Instructional Example:

Provide the student with a copy of a speech. Discuss how the speech made him/her feel and how the speech appeals to emotion.

### R.7.1.4.15

Distinguishes between fact and opinion, and recognizes propaganda (e.g., advertising, media, politics, and warfare), bias, and stereotypes in various types of appropriate-level texts.

#### Instructional Example:

Provide the student with various newspaper clippings and ask him/her to distinguish between the factual stories and the editorial opinions. The student highlights any opinions that may be included in the factual stories.



**Standard 2: Literature: The student responds to a variety of text.**

**Benchmark 1: The student uses literary concepts to interpret and respond to text.**

### R.7.2.1.1

Describes different aspects of major and minor characters (e.g., their physical traits, personality traits, feelings, actions, motives) and explains how those aspects influence

characters' interactions with other characters and elements of the plot, including resolution of the major conflict.

Instructional Example:

The student selects a favorite character from a book or a movie and discusses how the character's traits, feelings, actions, and motives impact other characters and the story.

R.7.2.1.2

Identifies and describes the setting (e.g., environment, time of day or year, historical period, situation, place) and analyzes connections between the setting and other story elements (e.g., character, plot).

Instructional Example:

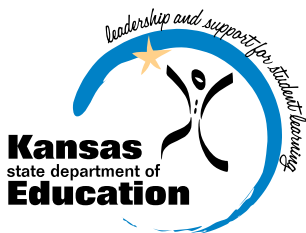
The student invents an alternative setting for the story and describes how that might impact the outcome of the story.

R.7.2.1.3

Identifies major and minor elements of the plot (e.g., problem or conflict, climax, resolution, rising action, falling action, subplots, parallel episodes) and explains how these elements relate to one another.

Instructional Example:

The student draws the major events related to the conflict in a story and explains how one event leads to another.



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