

TRB³

Elementary Science Teacher Resource Book

A PROFESSIONAL DEVELOPMENT
RESOURCE FOR TEACHING
CORE CURRICULUM

GRADE 6

LITERACY -- STRATEGIES – ASSESSMENT

Utah State Office of Education

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5. Sixth Grade Language Arts and Math Cores



Sixth Grade Language Arts Core Curriculum

STANDARD 4000-01: ORAL LANGUAGE

Objective 0101: Develop language through listening and speaking.

- Identify specific purpose(s) for listening (e.g., to gain information to be entertained).
- Listen and demonstrate understanding by responding appropriately (e.g., follow multiple-step directions, restate, clarify, question, summarize, elaborate formulating an opinion with supporting evidence, interpret verbal and nonverbal messages, note purpose and perspective, identify tone, mood, and emotion).
- Speak clearly and audibly with expression in communicating ideas (e.g., effective rate, volume, pitch, tone, phrasing, tempo).
- Speak using compound sentences with appropriate subject-verb agreement, correct verb tense, and syntax.

Objective 0102: Develop language through viewing media and presenting.

- Identify specific purpose(s) for viewing media (i.e., to identify main idea and details, to gain information, distinguish between fiction/nonfiction, distinguish between fact/opinion, form an opinion, determine presentation's accuracy/bias, analyze and critique persuasive techniques).
- Use a variety of formats in presenting with various forms of media (e.g., pictures, posters, charts, ads, newspapers, graphs, videos, slide shows).

STANDARD 4000-02: CONCEPTS OF PRINT

Objective 0201: Demonstrate an understanding that print carries "the" message.

- Recognize that print carries different messages. **(Mastered/Maintained)**
- Identify messages in common environmental print (e.g., signs, boxes, wrappers). **(Mastered/Maintained)**

Objective 0202: Demonstrate knowledge of elements of print in a text.

- Identify front/back, top/bottom, left/right of textbook. **(Mastered/Maintained)**
- Discriminate between letters, words, and sentences in text. **(Mastered/Maintained)**
- Match oral words to printed words while reading. **(M/M)**
- Identify where text begins and ends on a page. **(M/M)**
- Identify punctuation in text (i.e., periods, question marks, exclamation points). **(Mastered/Maintained)**

STANDARD 4000-03: PHONOLOGICAL AND PHONEMIC AWARENESS

Objective 0301: Demonstrate phonological awareness.

- Count number of words in a sentence. **(M/M)**
- Count the number of syllables in words. **(Mastered/Maintained)**
- Count the number of syllables in a first name. **(Mastered/Maintained)**
- Identify and create a series of rhyming words orally (e.g., cat, bat, sat ____). **(Mastered/Maintained)**
- Recognize words beginning with the same initial sound in an alliterative phrase or sentence (e.g., Six snakes sold snacks and sodas.) **(Mastered/Maintained)**.

Objective 0302: Recognize like and unlike word parts (oddy tasks)

- Identify words with the same beginning consonant sounds (e.g., man, sat, sick) and ending consonant sounds (e.g., man, sat, ten) in a series of words. **(Mastered/Maintained)**
- Identify words with the same medial sounds in a series of words (e.g., long vowel sound: take, late, feet; short vowel sound: top, cat, pan; middle consonant sound: kitten, missing, lesson). **Mastered/Maintained**

Objective 0303: Orally blend word parts (blending)

- Blend syllables to make words (e.g., /ta/.../ble, table). **(Mastered/Maintained)**
- Blend onset and rime to make words (e.g., /p/.../an/, pan). **(Mastered/Maintained)**
- Blend individual phonemes to make words (e.g., /s/.../a/.../t/ sat). **(Mastered/Maintained)**

Objective 0304: Orally segmenting words into word parts

- Segment words into syllables. (e.g., table, /ta/.../ble). **(Mastered/Maintained)**
- Segment words into onset and rime. (e.g., pan /p/.../an). **(Mastered/Maintained)**
- Segment words into individual phonemes. (e.g., sat, /s/.../a/.../t/). **(Mastered/Maintained)**

Objective 0305: Orally manipulate phonemes in words and syllables.

- Substitute initial and final sounds (e.g., replace first sound in mat to /s/, say **sat**; replace last sound in mat with /p, say **map**). **(Mastered/Maintained)**
- Substitute vowel in words (e.g., replace middle sound in map to /o/, say **mop**). **(Mastered/Maintained)**
- Delete syllable in words (e.g., say sun without the /s/, say **un**; say hit without the /t/, say **hi**).
- Delete initial phoneme and final phoneme in blends (e.g., say step without the /s/; say **tep**; say best without the /t/ say **bes**). **(Mastered/Maintained)**

STANDARD 4000-04: PHONICS AND SPELLING

Objective 0401: Demonstrate an understanding of the relationship between letters and sounds.

- Write letters to represent spoken sounds of all letters of the alphabet in random order. **(Mastered/Maintained)**
- Identify and pronounce all of the vowel diphthongs (e.g., oi, oy, aw, au) and consonant digraphs (e.g., ch, sh, th, wh) accurately in words. **(Mastered/Maintained)**
- Identify and pronounce sounds for short and long vowels, using patterns (e.g. vc, vcv, cvc, cvvc, cvc-silent e), and vowel digraphs (e.g., ea, ee, ie, oa, ai, ay, oo, ow) accurately in two-syllable words. **(Mastered/Maintained)**
- Identify and pronounce r-controlled vowel patterns in words (e.g., ar, or, er). **(Mastered/Maintained)**
- Identify and blend letter sounds to pronounce words. **(M/M)**

Objective 0402: Use knowledge of structural analysis to decode words

- Identify and read grade level contractions and compound words. **(Mastered/Maintained)**
- Identify sound patterns and apply knowledge to decode words (e.g., blends, digraphs, vowel patterns, r-controlled

- c. Demonstrate an understanding of representing same sound with different patterns by decoding these patterns accurately in isolation and in text (e.g., ee, ea, ei, e). (M/M)
- d. Use knowledge of root words and prefixes (e.g., re, un, mis) and suffixes (e.g., s, es, ed, ing, est, ly) to decode words. (M/M)
- e. Use letter and syllable patterns to pronounce multisyllabic words. (Mastered/Maintained)

Objective 0403: Spell words correctly

- a. Write sounds heard in words in correct order. (M/M)
- b. Use knowledge of word families, patterns syllabication, and common letter combinations to spell new words.
- c. Use knowledge of Greek and Latin roots and affixes to spell multisyllabic words.
- d. Spell an increasing number of high-frequency and irregular words correctly (e.g., straight, soldier, property, particular).
- e. Learn the spellings of irregular and difficult words (e.g., feudalism, electricity, parallelogram, microorganism)

Objective 0404: Use spelling strategies to achieve accuracy

- a. Use knowledge about spelling to predict the spelling of new words.
- b. Visualize words while writing.
- c. Associate the spelling of new words with that of known words and word patterns.
- d. Use spelling generalities to assist spelling of new words.

STANDARD 4000-05: FLUENCY

Objective 0501: Read aloud grade level text with speed and accuracy.

- a. Read grade level text at a rate of approximately 120-150 wpm.
- b. Read grade level text with an accuracy rate of 95-100%.

Objective 0502: Read aloud grade level text effortlessly with clarity

- a. Read grade level text in phrases using intonation, expression, and punctuation cues.
- b. Read grade level words with automaticity.

STANDARD 4000-06: VOCABULARY

Objective 0601: Learn new words through listening and reading widely

- a. Use new vocabulary learned by listening, reading, and discussing a variety of genres.
- b. Learn the meaning and properly use a variety of grade level words (e.g., words from literature, social studies, science, math).

Objective 0602: Use multiple resources to learn new words.

- a. Use multiple resources to determine the meanings of unknown words (e.g., dictionaries, glossaries beginning thesauruses).
- b. Determine gradients of meanings between related words and concepts (e.g., colonization: exploration, migrate, settlement).

Objective 0603: Use structural analysis/context clues to determine word meanings.

- a. Identify meanings of words using roots and affixes (i.e., Greek/Latin affixes).
- b. Use words, sentences and paragraphs as context clues to determine meanings of unknown key words, similes, metaphors, idioms, proverbs, and clichés, and literary expressions.
- c. Use context to determine meanings of synonyms, antonyms, homonyms (e.g., your, you're), and multiple-meaning words (e.g., beat)

STANDARD 4000-07: COMPREHENSION

Objective 0701: Identify purposes of text

- a. Identify purpose for reading.
- b. Identify author's purpose

Objective 0702: Apply strategies to comprehend text

- a. Relate prior knowledge to make connections to text (e.g., text to text, text to self, text to world).
- b. Generate questions about text (e.g., factual, inferential, evaluative).
- c. Form mental pictures to aid understanding of text.
- d. Make and confirm predictions while reading using title, picture clues, text, and/or prior knowledge.
- e. Make inferences and draw conclusions from text.
- f. Identify theme/topic/main idea from text; note details.
- g. Summarize important ideas/events; summarize supporting details in sequence.
- h. Monitor and clarify understanding applying fix-up strategies while interacting with text.
- i. Compile, organize and interpret information from text.

Objective 0703: Recognize and use features of narrative and informational text.

- a. Identify characters, setting sequence of events, problem resolution.
- b. Compare and contrast elements of different genres; fairy tales, poems, realistic fiction, fantasy, fables, folk tales, tall tales, biographies, historical fiction, science fiction, myths, legends.
- c. Identify information from text, headings, subheadings, diagrams, charts, captions, graphs, table of contents, index and glossary.
- d. Identify different structures in text (e.g., problem/solution, compare/contrast, cause/effect, order of importance, time, geographic classification).
- e. Locate facts from a variety of informational texts (e.g., newspapers, magazines, books, other resources).

STANDARD 4000-08 WRITING

Objective 0801: Prepare to write by gathering and organizing information and ideas (pre-writing).

- a. Generate ideas for writing by reading, discussing, researching, and reflecting on personal experiences.
- b. Select and narrow a topic from generated ideas.
- c. Identify audience, purpose, and form for writing.
- d. Use simple graphic organizers to organize information from multiple sources.

Objective 0302: Compose a written draft.

- a. Draft ideas on paper in an organized manner utilizing words, sentences, multiple paragraphs (e.g., beginning, middle, end; main idea; details; characterization; setting; plot).
- b. Use voice to fit the purpose and audience.
- c. Use strong verbs and vivid language to convey meaning.
- d. Identify and use effective leads and strong endings.

Objective 0803: Revise by elaborating and clarifying a written draft.

- a. Revise draft to add details, strengthen word choice, clarify main idea, and reorder content.
- b. Enhance fluency by using transitional words, phrases to connect ideas, and a variety of complete sentences (i.e., sentence length, simple and complex sentences).
- c. Revise writing, considering the suggestions of others, form, proportions, and spacing.

Objective 0804: Edit written draft for conventions.

- a. Edit writing for correct capitalization and punctuation (i.e., words in a series, dialogue, complex sentences, singular possessives, abbreviations).
- b. Edit for spelling of grade level-appropriate words.
- c. Edit for standard grammar *e.g., subject-verb agreement, verb tense, irregular verbs).
- d. Edit for appropriate formatting features (e.g., margins, indentations, titles).

Objective 0805: Use fluent and legible handwriting to communicate.

- a. Write upper and lower-case cursive letters using proper form, proportions, and spacing.
- b. Increase fluency in cursive handwriting.
- c. Produce legible documents with manuscript or cursive handwriting.

Objective 0806: Write in different forms and genres.

- a. Produce personal writing (e.g., journals, personal experiences, eye witness accounts, memoirs, literature responses).
- b. Produce traditional and imaginative stories, narrative and formula poetry.
- c. Produce informational text (e.g., books reports, cause, effect reports, compare/contrast essays, observational reports/research reports, content area reports, biographies, historical fiction, summaries).
- d. Produce writing to persuade (e.g., essays, editorials, speeches, TV scripts, responses to various media).
- e. Produce functional texts (e.g., newspaper and newsletter articles, e-mails, simple PowerPoint presentations, memos, agendas, bulletins).
- f. Share writing with others incorporating relevant illustrations, photos, charts, diagrams, and/or graphs to add meaning.
- g. Publish 6-8 individual products.

Sixth Grade Math Core Curriculum

STANDARD 1: Number and Operations: Students will acquire number sense and perform operations with rational numbers.

Objective 1: Represent whole numbers and decimals in a variety of ways.

- Change whole numbers with exponents to standard form (e.g., $2^4=2^4=16$) and recognize that $10^0=1$.
- Read and write *numerals* from thousandths to one billion.
- Write a whole number to 999,999 in *expanded form* using *exponents* (e.g., $876,539 = 8 \times 10^5 + 7 \times 10^4 + 6 \times 10^3 + 5 \times 10^2 + 3 \times 10^1 + 9 \times 10^0$).
- Express numbers in a *scientific notation* using positive powers of ten.
- Classify whole numbers to 100 as *prime*, *composite* or neither.
- Determine the *prime factorization* for a whole number up to 50.

Objective 2: Identify relationships among whole numbers, fractions (rational Numbers), decimals, and percents.

- Find the greatest *common factor* and least *common multiple* for two numbers using a variety of methods (e.g., list of multiples, prime factorization).
- Order and compare *rational numbers*, including mixed numbers, using a variety of methods and symbols.
- Locate positive rational numbers on a number line.
- Convert common fractions, decimals, and percents from one form to another (e.g., $\frac{3}{4} + 0.75 = 75\%$).

Objective 3: Model and illustrate meanings of operations and describe how they relate.

- Represent division of a multi-digit *dividend* by two-digit *divisors*, including decimals, using models, pictures, and symbols.
- Model addition, subtraction, multiplication, and division of fractions and decimals in a variety of ways (e.g., objects, a number line).
- Apply *rules of divisibility*.
- Select or write a number sentence that can be used to solve a multi-step problem and write a word problem when given a two-step expression or equation.

Objective 4: Use fractions and percents to communicate parts of the whole.

- Divide regions, sets of objects, and *line segments* into equal parts using a variety of models and illustrations.
- Name and write a fraction to represent a portion of a unit whole for halves, thirds, fourths, fifths, sixths, eighths, tenths, twelfths, and sixteenths.
- Write a fraction or ratio in simplest form.
- Name equivalent forms for fractions (halves, thirds, fourths, fifths, tenths), ratios, percents, and decimals, including repeating or terminating decimals.
- Relate percents less than 1% or greater than 100% to equivalent fractions, decimals, *whole numbers*, and mixed numbers.

Objective 5: Solve problems using the four operations with whole numbers, decimals, and fractions.

- Determine when it is appropriate to use estimation, mental math strategies, paper and pencil, or a calculator.
- Use estimation strategies to determine whether results obtained using a calculator are reasonable.
- Multiply up to a three-digit *factor* by one or two-digit factors including decimals.

- Divide up to a three-digit *dividend* by a one or two-digit *divisor* including decimals.
- Add and subtract decimals with digits to the thousandths place (e.g., $34.567 + 3.45$; $65.3-5.987$).
- Add, subtract, multiply, and divide fractions and mixed numbers.
- Solve problems using ratios and proportions.
- Simplify *expressions*, with *exponents*, using the order of operations.

Objective 6: Model, illustrate, and perform the operations of addition and subtraction of integers.

- Recognize that the sum of an *integer* and its opposite is zero.
- Model addition and subtraction of integers using manipulatives and a number line.
- Add and subtract integers.

STANDARD II: Algebra: Students will use patterns, relations, and functions to represent and analyze mathematical situations using algebraic symbols.

Objective 1: Recognize, analyze, and use multiple representations of patterns and functions describe their attributes.

- Analyze patterns on graphs and tables and write a generalization to predict how the patterns will continue.
- Create tables and graphs to represent given patterns and algebraic *expressions*.
- Draw a graph from a table of values or to represent an equation.
- Write an algebraic expression from a graph or a table of values.

Objective 2: Represent, solve, and analyze mathematical situations using algebraic symbols.

- Recognize that a number in front of a variable indicates multiplication (e.g., $3y$ means 3 times the quantity y).
- Solve two-step equations involving *whole numbers* and a single variable (e.g., $3x + 4 = 19$).
- Recognize that “ \approx ” indicates a relationship in which the quantities on each side are approximately of equal value (e.g., $\pi \approx 3.14$).
- Recognize that an *exponent* can be represented in the following ways: 4^3 or 4^3 .
- Evaluate *expressions* and formulas, substituting given values for the variables (e.g., $2x + 4$; $x=2$; therefore, $2(2) + 4 = 8$).
- Recognize that if the *product* is zero, then one or more *factors* equal zero (i.e., if $a \cdot b = 0$ then either $a=0$ or $b=0$ or a and $b = 0$).

STANDARD III: Geometry: Students will use spatial and logical reasoning to recognize, describe, and identify geometric shapes and principles.

Objective 1: Describe, identify, and analyze characteristics and properties of geometric shapes.

- Identify the *midpoint* of a *line segment*.
- Identify *concave* and *convex polygons*,
- Identify the *center*, *radius*, *diameter*, and *circumference* of a circle.

Objective 2: Specify locations and describe spatial relationships using coordinate geometry.

- Graph point defined by ordered pairs in all four quadrants.
- Write the ordered pair for all points in any quadrant.
- Identify the number of *faces*, *edges*, and *vertices* of *pyramids* and *prisms*.

Objective 3: Visualize and identify geometric shapes after applying transformations.

- a. *Turn (rotate)* a shape round a point and identify the location of the new vertices.
- b. *Slide (translate)* a polygon either horizontally or vertically on a coordinate grid and identify the location of the new vertices.
- c. *Flip (reflect)* a shape across either the x or y axis and identify the location of the new vertices.

STANDARD IV: Measurement: Students will understand and apply measurement tools and techniques.

Objective 1: Identify and describe measurable attributes of objects and units of measurement.

- a. Compare a meter to a yard, a liter to a quart, and a kilometer to a mile.
- b. Identify π as the ratio of the *circumference* to *diameter* of a circle.
- c. Explain how the size of the unit used in measuring affects the precision.
- d. Estimate length, volume, weight, and area using *metric* and *customary* units.

Objective 2: Determine measurements using appropriate tools and formulas.

- a. Measure length to the nearest $\frac{1}{16}$ of an inch and to the nearest millimeter.
- b. Estimate and measure an angle to the nearest degree.
- c. Calculate the *circumference* of a circle using a given formula.
- d. Calculate *elapsed time* across a.m. and p.m. time periods.
- e. Calculate the *areas* of triangles, rectangles, and parallelograms using given formulas.
- f. Calculate the *surface area* and *volume* of right, rectangular prisms using given formulas.

STANDARD V: Data Analysis and Probability: Students will collect, analyze, and draw conclusions from data and apply basic concepts of probability.

Objective 1: Design investigations to reach conclusions using statistical methods to make inferences based on data.

- a. Design investigations to answer questions by collecting and organizing data in a variety of ways (e.g., bar graphs, line graphs, frequency tables, stem and leaf plots).
- b. Collect, compare, and display data using an appropriate format (i.e., bar graphs, line graphs, line plots, circle graphs, scatter plots).
- c. Compare two similar sets of data on the same graph and compare two graphs representing the same set of data.
- d. Recognize that changing the scale influences the appearance of a display of data.
- e. Develop and evaluate inferences and predictions based on data.

Objective 2: Apply basic concepts of probability.

- a. Describe the results of investigations involving random outcomes using a variety of notations (e.g., 4 out of 9, $\frac{4}{9}$, 4:9).
- b. Recognize that outcomes of experiments and samples are fractions between 0 and 1.
- c. Predict the probability of an outcome in a simple experiment.