



# **Alliance for Curriculum Enhancement**

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Under the direction of the ACE Board, this booklet has been developed as a reference guide in order to inform ACE member schools, Board of Trustees, administrators, teachers, parents, and students as to the minimum standards and abilities required in Communication Arts (including Reading), Math, Social Studies and Science. Other subject areas and grade levels are available on the ACE website: [www.mtace.org](http://www.mtace.org)., under the Curriculum link.

**MISSION STATEMENT:**

Through cooperative efforts of participating schools, the ACE consortium will develop and implement a meaningful curriculum and related assessments that meet the academic needs of our students, and the state and national requirements.

The ACE consortium will provide training and direction to promote curriculum development and assessment that maximizes student learning.

**GOALS:**

The ACE consortium will promote and provide training opportunities that focus on areas of curriculum, assessment, and best practice methods that maximize student learning.

Through cooperative efforts of the participating schools, the ACE consortium will provide curriculum templates that align with state and national standards.

Through cooperative efforts of the participating schools, the ACE consortium will provide rubric, performance assessment, and other assessment models that relate to the curriculum templates and fulfill the state and national requirements.

The ACE consortium will provide centralized resources for participating schools that include, but are not limited to, best practice materials, textbook resources, human resources, and professional development materials.

The ACE consortium will consistently evaluate and re-evaluate past practices, national and state requirements, and school improvement methods in an effort to provide its member schools with timely and reliable resources, which maximize student learning.

# Fifth Grade Communication Arts

## State Standards

### Speaking and Listening

Standard 1: Students know and understand the role of the communication process and demonstrate effective speaking and listening skills.

### Reading

Standard 2: Students read by applying foundational skills and strategies to comprehend, interpret, analyze, and evaluate texts.

### Literature

Standard 3: Students select, interpret, and respond to a range of literature

### Media Literacy

Standard 4: Students effectively evaluate and create media messages.

### Writing

Standard 5: Students will write to communicate effectively for a variety of purposes and audiences.

**Course Abilities for Fifth Grade Communication Arts** (Apply the following to each content standard of each area of Communication Arts: literature, reading, speaking and listening, writing).

### **Develop abilities in Communication Arts.**

1. Higher thinking (analyze, evaluate, classify, predict, decide, generalize, solve, relate, interpret, simplify).
2. Communications (present, persuade, collaborate, explain, recommend).
3. Goal setting/attainment (brainstorm, envision, research, plan, organize, persist).
4. The quality process (plan, draft, analyze, revise) when producing products).

### **Read, write, speak, and listen for a variety of purposes.**

1. Read and discuss literature (poetry, narratives).
2. Use mass media (newspapers, magazines, radio, television, movies, internet, current technology).
3. Conduct research (locate, observe/gather, analyze, conclude).
4. Possess technical skills:  
Read/write/present: instructions, table, chart, thank you letter, letter of request, letter of response, inquiry, proposal, lab report checklist, research report, summary.  
Use technology: word processing, database, desktop publishing  
Internet, current technology.

# **Course Content for Fifth Grade Communication Arts**

## **Fifth Grade Comm. Arts by Standards/Benchmarks & ELEs**

### **(Essential Learner Expectations)**

**CONTENT STANDARD 1: Speaking and Listening —Students know and understand the role of the communication process and demonstrate effective speaking and listening skills.**

**Analyze and explain how the components of the communication process affect communication.**

1. Explain what happens in the communication process when there are multiple speakers.
2. Explain the responsibility of the speaker to communicate the message clearly.
3. Explain the responsibility of the listener to provide feedback to the speaker.
4. Explain the responsibility of the listener to avoid interference behaviors while listening.

**Essential Vocabulary:** responsibility, communication process, interference behaviors (i.e.: looking away, not sitting still)

**Analyze and explain how the components of the communication process affect communication.**

1. Adjust volume appropriately to match the topic, audience, and speaking setting.
2. Adjust speed appropriately for emphasis and for understanding.
3. Adjust facial expression to match the purpose and audience in a communication situation.

**Essential Vocabulary:** emphasis

**Apply effective listening strategies to fit the purpose, situation, and setting of the communication.**

1. Distinguish among listening strategies for formal and informal listening situations.
2. Practice applying listening strategies in a variety of classroom situations, including informative, persuasive, or entertaining messages.

**Essential Vocabulary:** informative, persuasive, entertaining, formal, informal

**Select and narrow topics for specific occasions and develop an appropriate introduction, body and conclusion to deliver speeches.**

1. Select and narrow topics to report or present an opinion for the specific occasion of a speech.
2. Organize a speech sequencing ideas logically with an effective introduction, body and conclusion.

**Essential Vocabulary:** opinion

**Adapt communication to a variety of formal and informal audiences, settings and purposes.**

1. Adapt communication to audience – peer groups, older students and adults.
2. Adapt communication to setting – classroom, grade level and school.
3. Adapt communication to purpose – inform and discuss.

**Use feedback to monitor and adjust speaking and listening effectiveness.**

1. Gauge the level of audience attentiveness by eye contact and body language and adjust accordingly.
2. Review ideas expressed and draw conclusions based on the information presented orally.
3. Summarize information presented orally.

**Essential Vocabulary:** conclusions

**Compare and contrast the verbal and nonverbal aspects of storytellers, the behaviors of audiences, and the settings and purposes of stories in the oral traditions of different cultures, including Montana American Indians.**

1. Observe the verbal and nonverbal aspects of storytellers.
2. Identify expected behaviors of audiences in different cultures' oral traditions, including those of Montana American Indians (e.g., passive vs. active participation, audience gender roles, choral responses, use of rhythmic responses, use of props,
3. Describe the purpose of writing down traditionally oral stories.
4. Tell what happens when a story that came from the oral tradition is written.

**Essential Vocabulary:** oral traditions

**Explain the importance of communicating ethically, including effectively referencing sources and displaying respectful communication to individuals and groups.**

1. Explore and discuss the consequences of plagiarism.
2. Read and discuss what respectful communication looks like in different settings.

**Essential Vocabulary:** plagiarism, respectful communication

**CONTENT STANDARD 2: Reading— Students read by applying foundational skills and strategies to comprehend, interpret, analyze, and evaluate texts.**

**Apply knowledge of word and sentence structure, analysis of word parts and context to decode unknown words.**

1. Decode increasingly difficult words using elements of phonics, word parts, and context clues.

1. Label parts of speech to assist in identifying unknown words.

**Essential Vocabulary:** word parts (roots, prefix, suffix, affix), parts of speech (noun, verb, adjective, adverb, interjection, pronoun, conjunction, preposition)

**Expand and apply general and specialized vocabulary through the use of context clues, analysis of word parts, and reference sources.**

1. Use context clues to develop general and content specific vocabulary.
2. Use word parts (affixes and roots) to develop general and content specific vocabulary.
3. Use reference sources (dictionary, thesaurus) to develop general and content specific vocabulary.

**Essential Vocabulary:** thesaurus

**Adjust fluency based on purpose and content.**

1. Read grade level text fluently and with expression.

**Essential Vocabulary:** fluency, expression

**Identify when comprehension breaks down, analyze causes and self correct using effective strategies.**

1. Monitor for meaning and identify when comprehension breaks down.
2. Use appropriate self-correction strategies to aid comprehension: reread, read ahead, strategies for word meaning (see 52.2).
3. Identify and use text features to aid comprehension (e.g. title, graphs, charts, maps, headings, subheadings, italics, bold-faced print, index, captions, illustrations, photographs, diagrams).

**Essential Vocabulary:** caption

**Activate prior knowledge to connect text to self, text to text, and text to world.**

1. Activate prior knowledge to make self-to-text connections.
2. Activate prior knowledge to make text-to-text connections between two selections.
3. Activate prior knowledge to make text-to world connections.

**Make, revise, and explain predictions.**

1. Use prior knowledge to make predictions about text.
2. Identify context clues and/or background knowledge used to make predictions.
3. Use text to confirm or revise predictions.

**Generate and answer literal, inferential, critical, and interpretive questions.**

1. Locate key information from the text and text features (see 2.4) to answer questions.
2. Generate literal questions to clarify text.

**Essential Vocabulary:** literal, inferential, critical, and interpretive questions

**Recall and explain a series of events or the sequence of information to draw conclusions.**

1. Identify main events and/or key concepts.
2. Sequence the main events and/or key concepts using key words (signal words) in the text, and explain the process.
3. Explain strategy used to sequence events.

**Essential Vocabulary:** signal words, key words

**Summarize by stating main ideas and supporting details.**

1. Identify multiple main ideas and/or key concepts in a text.
2. Identify the details that support each main idea and/or key concept.
3. Prioritize the supporting details.

**Essential Vocabulary:** prioritize

**Make and justify inferences based on context clues and/or background knowledge.**

1. Make inferences based on both prior knowledge and context clues.
2. Select information from the text that supports inferences.
3. Explain the context clues and prior knowledge used to develop the inference.

**Essential Vocabulary:** inference

**Analyze text features to enhance comprehension.**

1. Identify and use text features to enhance comprehension.

**Identify and explain the impact of the organizational structure of a selection, including order of importance, spatial, problem-solution, and cause-effect.**

1. Identify the organizational structures of informational text: sequential, problem-solution, cause-effect, spatial, and order of
2. Identify the organizational structures of various genres (e.g. poem, play, tall tale, legend, fairy tale, how-to, journals and traditional literature {including selections by and about Montana American Indians}).

**Essential Vocabulary:** sequential, problem-solution, cause-effect, order of importance, spatial genre

**Compare and contrast information to explain relationships and draw conclusions within and/or across texts.**

1. Compare and contrast information within and across texts:

Character	Text organization
Setting	Genre
Plot	Main idea

- B. Explain the similarities and differences of literary elements, organizational structures and main ideas within and across texts.

**Analyze author's purpose, point of view, language use, and credibility in culturally diverse texts, including those by and about Montana American Indians.**

1. Read a variety of culturally diverse texts including those by and about Montana American Indians.
2. Recognize author's purpose: entertain, inform, persuade.
3. Recognize point of view: first person, third person.
4. Participate in teacher-led discussions about author's perspective.
5. Recognize that author's word choice is influenced by culture.

**Essential Vocabulary:** persuade, perspective

**Set and monitor goals and reading progress.**

1. Identify reading strengths and weaknesses (e.g. fluency, word learning skills, lack of practice, vocabulary, comprehension).
2. Select targets for improvement.
3. Monitor and record progress toward reaching goals.

**Essential Vocabulary:** fluency

**CONTENT STANDARD 3: Literature — Students select, interpret, and respond to a range of literature.**

**Compare and contrast the literary elements (setting, plot, character, conflict, resolution, point of view, mood) across texts).**

1. Compare and contrast character, setting, plot, problem/solution across texts.
2. Identify conflict/resolution across texts.

**Essential Vocabulary:** conflict, resolution

**Analyze how authors' choices of words, uses of figurative language and stylistic devices contribute to the meaning of literary works.**

1. Describe how the author's choice of words and literary devices enhance the meaning of the story.
2. Determine how similes, metaphors, personification and onomatopoeia enhance the meaning of the text.

**Essential Vocabulary:** literary devices, personification, onomatopoeia, simile, metaphor

**Understand and define the characteristics of literary genres.**

1. Identify the characteristics of science fiction, traditional literature, historical fiction, poetry (limerick, quatrain).

**Essential Vocabulary:** science fiction, myth, historical fiction, limerick, quatrain

**Interpret how literature influences societies and, conversely, how factors such as history and culture influence literature, including works of Montana American Indians.**

1. Explain how culture and history influence literature including works

by and about Montana American Indians.

**Essential Vocabulary:** history

**Compare and contrast a variety of perspectives among culturally diverse literary works, including the works of Montana American Indians.**

1. Identify author's perspective in culturally diverse literary works including those by and about Montana American Indians.

**Essential Vocabulary:** cultural, perspective, diverse

**Express personal ideas and feelings generated as a result of engaging with literature and offer justification.**

1. Express and justify personal responses to literature in increasingly complex texts.

**CONTENT STANDARD 4: Media Literacy — Students effectively evaluate and create media messages.**

**Interpret and differentiate how techniques and technologies impact media messages.**

1. View multiple media messages. (i.e.: digital media, print media and audio media [TV, internet, newspaper/magazine, radio])
2. Identify specific techniques used in the media message.
3. Classify media messages according to purpose and based on techniques.

**Essential Vocabulary:** media messages

**Analyze the credibility of the sources of media messages.**

- A. Recognize if the media message is relevant, appropriate, detailed, current, authoritative, or biased.

**Analyze the purpose of and recognize the effects of fact, fiction, opinion, bias and stereotypes in media messages on diverse groups of people, including Montana American Indians.**

1. Identify the purpose of facts in media messages.
2. Identify the purpose of fiction in media messages.
3. Identify the purpose of opinion in media messages.
4. Identify purposes in relation to diverse groups of people.

**Apply appropriate norms, rules, laws and etiquette in the use and creation of media messages.**

1. Use District Policy and Technology Use Agreements in the creation of media messages.

**Analyze the inherent consequences to self and others in the use and creation of media messages.**

1. Examine consequences to self when using and creating any and all media messages.

2. Examine consequences to others when using and creating any and all media messages.

**Create and analyze media messages for specific audiences and purposes.**

1. Create media messages for specific audiences.
2. Create media messages for specific purposes.
3. Analyze the created messages for appropriateness of purpose.

**Identify how media messages embed values and influence individuals, cultures and societies.**

1. Identify embedded values in media messages.
2. Examine the embedded values in media messages.

**Essential Vocabulary:** embedded

**CONTENT STANDARD 5: Writing — Students will write to communicate effectively for a variety of purposes and audiences.**

**Apply the steps of the writing process in a variety of written work.**

1. Produce written opinion/argument, informative/explanatory and narrative/creative works using the steps of the writing process.
2. Seek feedback from a variety of sources.
3. Recognize a variety of revision techniques.

**Select appropriate topics and generate thesis statements that indicate the writer's purpose for writing.**

1. Determine and narrow topic according to purpose.
2. Write a topic sentence indicating topic and purpose.

**Generate and develop main ideas using a variety of relevant supporting details.**

1. Develop the topic with appropriate facts, definitions, concrete details, quotations or other information and examples related to the topic.
2. Use a variety of techniques such as dialogue and description to develop narrative writing.
3. Support opinions/arguments with appropriate reasons.

**Organize writing using transitions and a logical progression of ideas.**

1. Organize related information logically (e.g., headings, paragraphs).
2. Use a variety of transitional words, phrases, and clauses to manage the sequence of events.

**Essential Vocabulary:** clauses, main idea, paragraph, supporting details, conclusion, transition

**Demonstrate knowledge of language choices and their impact on writing through control of voice, strong sentence fluency, and effective word**

**choice.**

1. Select powerful words and begin to use figurative language.
2. Write using simple, compound, and complex sentences.
3. Recognize various techniques to show voice in writing.

**Apply conventions of standard written English (e.g., usage, punctuation, spelling) appropriate for purpose, audience, and form.**

1. Write legibly using cursive or manuscript.
2. Practice keyboarding skills.
3. Spell grade level words correctly.
4. Use appropriate punctuation in compound and complex sentences.
5. Use commas, quotations marks, and apostrophes correctly.
6. Apply knowledge of parts of speech to own writing.
7. Demonstrate correct use of paragraphing conventions.
8. Use underlining or italics to indicate titles of works.
9. Use correlative conjunctions (either/or, neither/nor, not only/but also).

**Identify and describe the purpose, audience, format, and tone in one's own writing.**

1. Write using various formats for a variety of purposes and audiences.
2. Identify the format, purpose, and audience in one's own writing.

**Analyze the characteristics of different writing forms and genres and write in a variety of forms and genres.**

1. Define characteristics of different forms/genres/mode.
2. Write texts in a variety of forms/genres/mode.
3. Write routinely single sitting or extended time frames (time for research, reflection, revision) and shorter time frames (single sitting or a day or two) for a range of discipline.

**Compose written works demonstrating ability to sustain focus throughout a variety of forms and genres.**

1. Establish and maintain focus when writing extended works in a variety of forms and genres.
2. Select appropriate organizational patterns to establish and maintain focus.

**Use information problem solving process to collect and utilize information to research a topic.**

1. Recognize the problem or task.
2. Identify the topic.
3. Discuss the steps needed to solve the problem or task.
4. Generate research questions.
5. Construct a list of possible resources that include print and digital.
6. Determine relevant, credible resources to solve the problem or task.

7. Take notes and compile a list of sources used.
8. Summarize or paraphrase information in notes and finished work.
9. Share results of the research with others.

**Obtain and use information legally and respectfully, and appropriately credit ideas and works of others, including those of Montana American Indians.**

1. Credit all non-original material in appropriate manner.
2. Identify consequences of plagiarism.

**Set goals, seek feedback and monitor writing progress.**

1. Set appropriate goals for writing progress.
2. Consider time constraints when setting goals.
3. Seek feedback to determine appropriateness of goals.

**Use writing as a means of clarifying thought and reflecting on learning.**

1. Use guided writing activities to clarify and check comprehension of new concepts and ideas.
2. Use writing activities to reflect on learning.
3. Use writing to reflect on personal experiences.

# Fifth Grade Math

## State Standards

**Standard 1: Number Sense and Operation** – A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.

**Standard 2: Data Analysis Mathematics** – A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.

**Standard 3: Geometric Reasoning** – A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant and cultural contexts, including those of Montana American Indians.

**Standard 4: Algebraic and Functional Reasoning** – A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes.

**Course Abilities for Fifth Grade** to be applied to Content Standards as appropriate to grade level:

### Develop abilities in math.

1. Higher thinking (analyze, evaluate, classify, predict, decide, estimate, generalize, solve, relate, interpret, simplify).
2. Communications (present, persuade, collaborate, explain, recommend).
3. Goal setting/attainment (brainstorm, envision, research, plan, organize, persist).
4. The quality process (plan, draft, analyze, and revise when producing products).
5. To use and understand vocabulary words and symbols.

### Apply math knowledge and skills to a variety of purposes.

1. Solve complex problems with whole numbers using the five-step method (read problem, properly label, select operations, estimate solution, apply operations) and explain process.
2. Conduct research (locate, observe/gather, present).
3. Use graphs, charts, tables, calculators, and computers to solve multi-step problems (safely, effectively, efficiently, accurately).
4. Possess technical skills:
  - read/write/present: instructions, table, chart, proposal, lab report, research report, summary
  - technology: word processing, spreadsheet, database

# **Course Content for Fifth Grade Math**

## **Fifth Grade Math by Standards/Benchmarks & ELEs**

### **(Essential Learner Expectations)**

**CONTENT STANDARD 1: Number Sense and Operation – A student, applying reasoning and problem solving, will use number sense and operations to represent numbers in multiple ways, understand relationships among numbers and number systems, make reasonable estimates, and compute fluently within a variety of relevant cultural contexts, including those of Montana American Indians.**

**Essential Vocabulary:** unit fraction, equivalent, integers, exponents, rounding, estimation, common factors, common multiples, composite numbers, prime numbers, dividend, divisor, divisible, common denominator, simplify, lowest terms, compute, place value, thousandths, cup, pint, quart, gallon, mass, meter, cm, mm, km, gram, kg, ft, yd, measure, acre, compute

**Rational Number Relationships: Recognize, model, and compare different forms of integers and rational numbers including percents, fractions, decimals, and numbers using exponents and scientific notation.**

1. Compare and order fractions using area, set, and linear models.
2. Compare and order decimals using area and linear models.

**51.2 Estimation and Reasonableness: Select and apply appropriate estimation strategies to judge the reasonableness of solutions to problems including those computed on a calculator. Demonstrate correct use of order of operations.**

1. Use multiple strategies to estimate operations on whole numbers.
2. Explain whether or not a solution is reasonable based on the context.

**Number Theory: Use number theory concepts such as prime factorization, greatest common factor, and least common multiple in problem situations.**

1. Determine and explain common factors and common multiples.
2. Solve problems using prime factorization

**Rational Number Operations: Compute fluently and solve multi-step problems using integers, fractions, decimals, and numbers in exponential form.**

1. Use models, place value, properties, and the relationship of division to multiplication to represent multi-digit division.
2. Divide multi-digit whole numbers, by 1 digit and 2 digit divisors fluently including invented strategies or standard algorithms.
3. Use models, place value or properties to represent addition and subtraction of fractions and decimals.

4. Add and subtract fractions fluently with like and unlike denominators including contextual situations.
5. Add and subtract decimals fluently to the thousandths including contextual situations.

**Metric and Standard Measurement: Use metric and standard units of measurement in relevant scientific and cultural situations, including those of Montana American Indians, compare and convert within systems, and use appropriate technology.**

1. Estimate, measure and label length, capacity, and mass in relevant scientific and cultural situations, including those of Montana American Indians.

**CONTENT STANDARD 2: Data Analysis Mathematics – A student, applying reasoning and problem solving, will use data representation and analysis, simulations, probability, statistics, and statistical methods to evaluate information and make informed decisions within a variety of relevant cultural contexts, including those of Montana American Indians.**

**Essential Vocabulary:** double bar graph, coordinate grid, ordered pairs, x-axis, y-axis, origin, scatter plot, scale, interval, range, survey, experiment, theoretical probability, experimental probability, event, outcome, trend, conclusions, compare question, circle graphs, plotted, points, randomly, trial

**Representing and Comparing Data: Collect data from a variety of contexts (e.g., science, history, and culture, including Montana American Indians). Organize and represent data in box plots, scatter plots, histograms, and circle graphs using technology when appropriate.**

1. Collect, organize, and represent data using a double bar graph.
2. Organize and represent data using a line graph and ordered pairs in the first quadrant on a coordinate grid with the appropriate

**Evaluating Data and Making Conjectures: Interpret, analyze, and evaluate data using mean, median, range, and quartiles to identify trends and make decisions and predictions about data within scientific and cultural contexts, including those of Montana American Indians**

1. Analyze double bar graphs and line graphs to solve problems within daily life, scientific, and cultural contexts including those of

**Finding Probability and Predicting: Create sample spaces and simulations from events found in different cultures, including those of Montana American Indians, determine experimental and theoretical probabilities, and use probability to make predictions.**

1. Determine the experimental and theoretical probability of a simple

situation. (e. g., probability of rolling a three on one roll of a six-sided die)

**CONTENT STANDARD 3: Geometric Reasoning – A student, applying reasoning and problem solving, will understand geometric properties, spatial relationships, and transformation of shapes, and will use spatial reasoning and geometric models to analyze mathematical situations within a variety of relevant and cultural contexts, including those of Montana American Indians.**

**Essential Vocabulary:** rectangular, 3 dimensional, quadrilateral, triangular prism, height, base, circle, circumference, diameter, radius, heptagon, nonagon, decagon, dodecagon, net, scalene, isosceles, equilateral, vertices, vertex, edges, face, prism pyramid, polyhedron, rotational symmetry, surface area, volume, cubic units (cm<sup>3</sup>, in.<sup>3</sup>), degree, protractor, right, acute, obtuse, straight angle, justify, formula, transformation, supplementary and complimentary angles, vertical, adjacent, congruence, reflection, translated

**Properties of Solids and Figures: Define, classify and compare properties of solids and plane figures, including lines and angles.**

1. Describe, compare, and classify two-dimensional shapes, including regular and irregular polygons.
2. Describe polyhedrons by the number of edges, faces, and/or vertices as well as the types of faces.
3. Unfold a rectangular prism to a net and compose a net into a rectangular prism.

**Congruence and Similarity: Use spatial reasoning to determine congruence, similarity, and symmetry of objects in mathematics, art, science, and culture, including Montana American Indians.**

1. Model and determine if a two-dimensional figure has rotational symmetry.

**Transformations including Dilations: Define, identify, and execute transformations including translations, rotations, reflections, and dilations with appropriate technology.**

1. Execute and identify basic transformations (i.e., flips, slides).

**Angles, Surface Area, and Volume: Measure and compute angles, perimeter, area, surface area, and volume including the use of formulas and choosing appropriate units.**

1. Describe angle as a measure of rotation.
2. Estimate, measure, identify, and draw angles using the appropriate tools.
3. Use models to find the surface area of rectangular prisms and label with appropriate units.
4. Make a logical argument for volume being the number of unit cubes required to fill a solid without gaps or overlaps.

5. Select appropriate units, strategies and tools for solving problems that involve estimating or measuring volume of rectangular prisms.

**Justifying Relationships: Develop informal arguments to verify geometric relationships and solve problems such as an informal justification of the Pythagorean Theorem in a variety of contexts.**

1. Develop and justify a formula for the area of a parallelogram and triangle.
2. Determine and justify the areas of complex shapes made from rectangles, parallelograms, and triangles..
3. Determine and justify the formula for the perimeter of a rectangle.

**CONTENT STANDARD 4: Algebraic and Functional Reasoning – A student, applying reasoning and problem solving, will use algebraic concepts and procedures to understand processes involving number, operation, and variables and will use procedures and function concepts to model the quantitative and functional relationships that describe change within a variety of relevant cultural contexts, including those of Montana American Indians.**

**Essential Vocabulary:** equations, terms, expressions, input, output, linear equations, equivalence

**Representing and Generalizing Patterns: Create and use tables, graphs or diagrams, symbolic expressions, and verbal descriptions to represent, analyze, and generalize a variety of patterns involving numbers and operations.**

1. Use patterns, models, and relationships to write simple equations and expressions.

**Multi-step equations and inequalities: Use number properties and inverse operations to solve multi-step equations and inequalities involving a single variable.**

1. Model, estimate, and solve one-step equations and verify the solution.

# Fifth Grade Social Studies

## (United States History)

### State Standards

Content Standard 1—Students access, synthesize, and evaluate information to communicate and apply social studies knowledge to real world situations.

Content Standard 2—Students analyze how people create and change structures of power, authority, and governance to understand the operation of government and to demonstrate civic responsibility.

Content Standard 3—Students apply geographic knowledge and skills (e.g., location, place, human/environment interactions, movement, and regions).

Content Standard 4—Students demonstrate an understanding of the effects of time, continuity, and change on historical and future perspectives and relationships.

Content Standard 5—Students make informed decisions based on an understanding of the economic principles of production, distribution, exchange, and consumption.

Content Standard 6—Students demonstrate an understanding of the impact of human interaction and cultural diversity on societies.

### Course Abilities for Fifth Grade (Apply the following to each content standard.)

#### Develop abilities in social studies.

1. Higher thinking (analyze, evaluate, classify, predict, decide, estimate, generalize, solve, relate, interpret, simplify).
2. Communications (present, persuade, collaborate, explain, recommend).
3. Goal setting/attainment (brainstorm, envision, research, plan, organize, persist).
4. The quality process (plan, draft, analyze, revise) when producing products.

#### Apply social studies knowledge and skills to a variety of purposes.

1. Conduct and present research (locate and organize information, write, support, and present).
2. Relate social studies to your life.
  - View life from other perspectives and others' point of view.
  - Understand key forces (inventions, discoveries, people, events, moments) which have shaped our world.
  - Explain the causes and effects key forces have on you, the present, the future.
  - Use the past and present (other cultures, other places) to solve problems and make decisions.

Relate current events to your life (know sources related to current events, be able to talk about current events).

3. Possess technical skills.

Read/write/present: instructions, table, chart, thank you letter, letter of request, letter of response, inquiry, proposal, lab report, checklist, research report, summary.

Use technology: word processing, database, desktop publishing, Internet, current technology.

## **Course Content for Fifth Grade Social Studies** (U.S. History)

### **Understand key influences in United States history and how they shape our lives today.**

1. Examine key people and events throughout United States history.
2. Examine key discoveries and inventions throughout United States history.
3. Examine current and past cultures of the United States.
4. Describe key influences from the perspectives in which they occurred.
5. Relate key influences to your life.
6. State and support opinions regarding key events, people, inventions, and discoveries.
7. Tell about the organization of the U.S. government and its Constitution.
8. Compare the Constitutions of the Crow and Cheyenne to our Constitution.

### **Possess a mental timeline of key influences on United States history.**

1. Place key influences on a timeline.
2. Possess a logical sense of what life was like when key influences occurred.
3. Relate the causes and effects of key influences.

### **Understand the life of the first Americans.**

1. Show/tell where various Native American tribes lived.
2. Tell about the food, clothing, and shelter of various tribes.
3. Tell about the culture of Native Americans.
4. Tell about the life of Native Americans from their perspective.
5. Tell about the Native Americans who live in your region, particularly those who are our neighbors, the Crow and Cheyenne.
6. Relate the Indian issues that lead to conflict within and among the tribes and their white neighbors.
7. Compare and contrast Native American societies and European societies.
8. Know the impact the Europeans had on indigenous people of the Americas and vice versa.

### **Use visual skills to help you in understanding United States history.**

1. Use charts and maps which show key information such as population, resources, movement, and battles.
2. Create charts and maps to depict change over time.
3. Relate charts and maps to your life.
4. Explain why the geography of the United States has changed through history.

# Fifth Grade Science

## State Standards

- Content Standard 1—Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations.
- Content Standard 2—Students, through the inquiry process, demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.
- Content Standard 3—Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.
- Content Standard 4—Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.
- Content Standard 5—Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.
- Content Standard 6—Students understand historical developments in science and technology.

## **ACE Teachers will use the inquiry process as a basis for learning across the curricula (the 5 E's).**

1. Engagement: Object, event or question used to engage students; connections facilitated between what students know and can do.
2. Exploration: Objects and phenomena are explored; hands-on activities, with guidance.
3. Explanation: Students explain their understanding of concepts and processes; new concepts and skills are introduced as conceptual clarity and cohesion are sought.
4. Elaboration: Activities allow students to apply concepts in context, and build on or extend understanding and skill.
5. Evaluation: Students assess their knowledge, skills and abilities. Activities permit evaluation of student development and lesson effectiveness.

**Course Abilities for Fifth Grade Science** to be applied to Content Standards as appropriate to grade level:

## **Develop abilities in science.**

1. Higher thinking (analyze, evaluate, predict, decide, relate, interpret).
2. Communications (present, demonstrate, explain, defend).
3. Goal setting/attainment (brainstorm, envision, research, plan, organize).
4. The planning process (draft, analyze, revise when producing products).

## **Apply science knowledge and skills to a variety of purposes.**

1. Solve problems using the scientific method.
2. Conduct research (field research, library research, experimentation).
3. Use scientific equipment appropriately (safely).
4. Apply knowledge of the relationship between humans, the environment and the earth's resources to improve the environment.
5. Possess technical skills:
  - Read/write/present: instructions, table, chart, reports (progress, research, lab), proposal, letters (complaint, request, response), manual, checklist, pamphlet, technical research, bid, technical analysis, summary.
  - Technology: word processing, spreadsheet, database, desktop publishing, Internet, search tools, current technology.
  - Measurement practice in standard and metric.

## **Course Content for Fifth Grade Science** **Fifth Grade Science by Standards/Benchmarks & ELEs** **(Essential Learner Expectations)**

**\*\* NOTE: Under each “Essential Vocabulary” those words in bold are words found on OPI’s Science Vocabulary list for 5<sup>th</sup> Grade**

**CONTENT STANDARD 1: Students, through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate results and reasonable conclusions of scientific investigations.**

**Identify a question, determine relevant variable and a control, formulate a testable hypothesis, plan and predict the outcome of an investigation, safely conduct scientific investigation, and compare and analyze data.**

1. Recognize and select a testable question when presented with multiple choices
2. Write a testable question for an investigation
3. Identify a hypothesis
4. Explain the relationship between a testable question and a hypothesis
5. Plan an investigation to test a hypothesis
6. Identify the independent and dependent variable
7. Identify a control group and explain its purpose
8. List and follow appropriate safety procedures
9. Conduct the investigation

**Essential Vocabulary: control, prediction, hypothesis, variable, testable question, independent variable, dependent variable, Scientific method, data table**

**Select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations.**

1. Collect data using observation and tools such as scale, balances, thermometer, beaker, digital probes, stop watch, graduated cylinder in metric units
2. Record data using data tables

### 3. Represent data using graphs

**Essential Vocabulary :** graduated cylinder, scales, Celsius thermometers, beaker, digital probes, stop watch, balances, metric, units, data tables, graphs

**Review, communicate and defend results of investigations, including considering alternative explanations.**

1. Compare data to hypothesis with guidance
2. Determine if hypothesis is supported or not supported with guidance
3. Communicate findings in written or oral format.

**Essential Vocabulary:** hypothesis, supported, not supported, prediction

**Create models to illustrate scientific concepts and use the model to predict change. (e.g., computer simulation, stream table, graphic representation).**

1. Explain the purpose of a model
2. List various types of models including 2-D, 3-D and computer simulations
3. Follow step-by-step directions to build a model

**Essential Vocabulary:** 2-D, 3-D, computer simulations, legend/key, Model

**Compare how observations of nature form an essential base of knowledge among the Montana American Indians.**

1. Identify examples of Montana American Indians using observation to create knowledge of nature
2. Explain how Montana American Indians have used observation to explain processes of nature

**Essential Vocabulary:** Crow, Blackfeet, Salish, Kootenai, Assiniboine Sioux, Little Shell, Northern Cheyenne, Chippewa Cree, Pend'd Orelle, and Gros Vetnre

**CONTENT STANDARD 2: Students, through the inquiry process, demonstrate the knowledge of properties, forms, changes and interactions of physical and chemical systems.**

**Classify, describe, and manipulate the physical models of matter in terms of: elements, and compounds, pure substances and mixtures, atoms, and molecules.**

1. Identify common elements
2. Define elements and compounds as pure substances
3. Identify common compounds (water, carbon dioxide, salt)
4. Distinguish between substances and mixtures
5. Explain the relationship between elements, compounds and mixtures.

**Essential Vocabulary:** element, compound, mixture, pure substance

**Examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties.**

1. Define physical properties as properties that do not change the chemical nature of matter (i.e., color, smell, freezing point, boiling point, melting point, magnetism)
2. Define chemical properties as properties that do change the chemical nature of matter (i.e., combustion, rust, decompose)
3. Identify examples of chemical change (generating a gas, color change, rust)

**Essential Vocabulary:** mass, volume, chemical change, physical change, physical property, chemical property, chemical reaction

**Describe energy and compare and contrast the energy transformations and the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.**

1. Identify that most matter can exist as a solid, liquid or gas depending on temperature
2. Describe the processes of sublimation, condensation, and evaporation
3. Explain how sound is produced, transmitted, and received
4. Describe how sound can be changed
5. Design and construct instruments that produce sound
6. Define electricity as the flow of energy
7. Distinguish the differences between simple, series, and parallel circuits
8. Model series and parallel circuits
9. Explain the flow of energy in a circuit
10. Explain the three types of heat transfer

**Essential Vocabulary:** sublimation, evaporation, condensation, freezing point, melting point, energy, boiling point, solid, liquid, gas, matter, frequency, amplitude, pitch, wavelength, vibration, tension, medium, transmit, instrument energy, electricity, circuits (simple, parallel, series), battery, positive and negative charge, conduction, convection, radiant energy (light), heat transfer, temperature, heat

**Describe and explain the motion of an object in terms of its position, direction, & speed as well as the forces acting upon it.**

1. Experiment with potential and kinetic energy, (i.e., cars/balls on ramp)
2. Explain the differences between kinetic and potential energy
3. Identify that work is movement following application of a force
4. Demonstrate an example of work

**Essential Vocabulary:** potential, kinetic, speed, force, mass, work, force

**CONTENT STANDARD 3: Students, through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.**

**Compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal, etc.) including the levels of organization of the structure and function, particularly with humans.**

1. Describe the basic structure and function of a cell
2. Observe plant and animal cells using a microscope
3. Compare plant and animals cells
4. Create model/diagram of an animal and/or plant cells

**Essential Vocabulary:** cell membrane, cell wall, nucleus, vacuoles, cytoplasm, mitochondria, chloroplast, organelle

**Explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions (e.g., food webs, photosynthesis, respiration).**

1. Identify plant structures involved in photosynthesis and transpiration
2. Identify the compounds involved in photosynthesis and transpiration
3. Explain the process of photosynthesis and transpiration in terms of the key structures and compounds that are utilized
4. Explain the relationship between photosynthesis and transpiration

**Essential Vocabulary:** chlorophyll, photosynthesis, oxygen, carbon dioxide, sugar, water, light energy, transpiration, water vapor, roots, leaves, xylem, phloem, vascular, non vascular, carbon cycle

**Investigate and explain the interdependent nature of populations and communities in the environment and describe how species in these populations adapt by evolving.**

1. Explore and compare symbiotic relationships
2. Define symbiosis
3. Identify the key characteristics of an ecosystem
4. Describe the interdependence between the parts of an ecosystem

**Essential Vocabulary:** symbiosis, ecosystems, population, community, environment, interdependence, diversity, abiotic, biotic, biosphere

**Create and use a basic classification scheme to identify plants and animals.**

1. Employ dichotomous key to separate a collection of basic objects
2. Identify the kingdoms
3. Know the difference between kingdom, phylum and class
4. Define vertebrate/invertebrate, warm blooded/cold blooded
5. Compare and contrast key characteristics of organisms in the animal kingdom
6. Classify plants by flowering, non-flowering, mosses, ferns

**Essential Vocabulary:** dichotomous key, kingdom, phylum, class, vertebrate, invertebrate, cold-blooded, warm-blooded, mosses, ferns, flowering, non-flowering, monocot, dicot, endotherm, ectotherm

**CONTENT STANDARD 4: Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.**

**Model and explain the internal structure of the earth and describe the formation and composition of earth's external features in terms of the rock cycle and plate tectonics and constructive and destructive forces.**

1. Describe Earth's physical features
2. Explain glaciations and weathering effects on the Earth's surface
3. Define the role that plate tectonics play in changing Earth's features
4. Explain the rock cycle

**Essential Vocabulary: glaciations, erosion, deposition, plate tectonics, continental drift, mountain, earthquake, volcano, mantle, inner core, outer core, crust, igneous, sedimentary, metamorphic, mineral, rock, rock cycle.**

**Differentiate between rocks types and minerals types and classify both by how they are formed and the utilization by humans.**

1. Differentiate between igneous, sedimentary, and metamorphic rocks
2. Identify that rock is composed of different kinds of minerals
3. Define minerals as the building blocks of rocks
4. Compare and contrast the differences between rocks and minerals.

**Essential Vocabulary: igneous, sedimentary, metamorphic, mineral, rock**

**Use fossils to describe the geological timeline.**

1. Explain how sedimentary rock layers represent a progression of time
2. Describe how the relative age of fossils can be determined from their position in sedimentary rock layers

**Essential Vocabulary: sedimentary, fossil, relative age**

**Describe the water cycle, the composition and structure of the atmosphere and the impact of oceans on large-scale weather patterns.**

1. Explain the water cycle and its application to weather
2. Identify different types of clouds and how they can be used to predict weather
3. Describe properties of air masses moving across the earth's surface
4. Discuss how interactions of air masses are used to forecast the weather
5. Interpret a weather map using correct symbols

**Essential Vocabulary: water cycle, condensation, evaporation, precipitation, forecast, meteorologist, air mass, front, air pressure, warm front, cold front, precipitation, air currents**

**Describe and model the motion and tilt of earth in relation to the sun, and explain the concepts of day, night, seasons, year, and climatic changes.**

1. Compare and contrast revolution and rotation
2. Illustrate/model Earth's rotation in relation to the sun

3. Explain how the Earth's rotation causes day and night
4. Illustrate and model Earth's revolution in relation to the sun
5. Describe and model the causes of seasons and year due to the revolution and tilt of the Earth in relation to the sun

**Essential Vocabulary:** revolution, rotation, tilt, axis, seasons, orbit, year, solstice, equinox

**Describe the earth, moon, planets and other objects in space in terms of size, force of gravity, structure, and movement in relation to the sun.**

1. Identify the relationship between the Earth, the sun, and the moon
2. Explain how the moon is lighted by the sun
3. Model the relative movements of the moon, Earth and sun
4. Identify phases of the moon by how much of the lighted part of moon can be seen from Earth

**Essential Vocabulary:** Earth, planet, sun, moon, relative, phases of the moon, light, orbit

**CONTENT STANDARD 5: Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.**

**Describe the specific fields of science and technology as they relate to occupations within those fields.**

1. Identify specific fields of science
2. Identify occupations within specific fields of science
3. Identify uses of technology unique to specific occupations within each field of science

**Essential Vocabulary:** life science, earth science, physical science, engineering, technology, occupations, science

**Apply scientific knowledge and process skills to understand issues and everyday events.**

1. Identify a local current event or problem involving science
2. Research and summarize the scientific issues relevant to that local current event or problem

**Essential Vocabulary:** current event, issue, problem

**Use scientific knowledge to investigate problems and their proposed solutions and evaluate those solutions while considering environmental impacts.**

1. Identify a local issue with an environmental impact
2. List possible environmental impacts
3. Research and discuss proposed solutions

**Essential Vocabulary:** environmental impact

**Describe how the knowledge of science and technology influences the development of the Montana American Indian cultures.**

1. Investigate how science and technology have an impact on Montana American Indians
2. Explain the impact of science and technology on Montana American Indians

**CONTENT STANDARD 6: Students understand historical developments in science and technology.**

**Give examples of scientific discoveries and describe the interrelationship between technological advances and scientific.**

1. Identify examples of technological advances throughout history, including Montana American Indian examples
2. Technologies
3. Discuss how technology advances science understanding

**Essential Vocabulary: technology, scientific discoveries, advances**

**Identify major milestones in science that have impacted science, technology, and society.**

1. Chart the history of scientific milestones
2. Discuss how milestones have impacted society over time

**Essential Vocabulary: milestones**

**Describe and explain science as a human endeavor and an ongoing process.**

1. Investigate occupations that use science
2. Identify the features of science that make it a human endeavor and an ongoing process.

**Essential Vocabulary: occupation, human endeavor**