

Alliance for Curriculum Enhancement

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Under the direction of the ACE Board, this booklet has been developed as a reference guide 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.mface.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.

Kindergarten 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 Kindergarten Communication Arts (Apply the following to each content standard of each area of Communication Arts: literature, reading, speaking and listening, writing).

Apply abilities to Communication Arts.

1. Think clearly and solve problems about language (classify, decide, solve, compare).
2. Talk clearly about language (present, persuade, collaborate, explain, recommend).
3. Make careful plans and use them (brainstorm, envision, research, plan, organize, persist).
4. Use the quality process (plan, draft, analyze, revise) when producing products.

Read, write, speak, and listen for many purposes.

1. Listen to and enjoy literature (rhyme, fairy tale, story).
2. Use mass media (newspapers, radio, television, CD-ROM).
3. Conduct research (locate, observe/gather, analyze, conclude).
4. Possess technical skills:
Listen/dictate/write/present
Technology: interact with technology: internet Smartboard, Power Point and current technology.

Course Content for Kindergarten in Communication Arts

Kindergarten 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.

Identify and describe the components of the communication process (sender/speaker, receiver/listener, message, medium/channel, feedback, interference/noise).

1. Speaker – Identify the person who is talking as the speaker and describe him/her.
2. Listener – Identify the person addressed by the speaker as the listener and describe him/her.
3. Message – Identify the topic of the message.
4. Feedback – Identify the verbal and nonverbal response of the listener as feedback.

Essential Vocabulary: speaker, listener, topic, verbal, nonverbal

Identify and use verbal and nonverbal techniques to deliver oral messages.

1. Use the “appropriate voice” volume for the situation.
2. Speak clearly.
3. Be aware of personal space and practice using the appropriate space for the situation.
4. Be aware of facial expressions and what they communicate.

Essential Vocabulary: volume, personal space, facial expressions

Identify and use effective listening strategies.

1. Use eye contact when listening.
2. Be aware of the signs of being attentive.

Essential Vocabulary: eye contact

Choose topics and organize information to present effective oral messages.

1. Select topics about familiar people, places, things and events with guidance.
2. Organize by categorizing (with guidance).

Essential Vocabulary: categorizing

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

1. Adapt communication to audience – peers and adults.
2. Adapt communication to setting –classmates.
3. Adapt communication to purpose – share.

Essential Vocabulary: audience

Use feedback to monitor speaking and listening effectiveness.

1. Use turn taking feedback when speaking.
2. Repeat information to check listening accuracy.

Essential Vocabulary: taking turns

Use appropriate strategies to listen and respond to stories from the oral traditions of different cultures, including Montana American Indians.

1. Listen to oral traditional stories from a variety of different cultures, including Montana American Indians.
2. Share the storytelling traditions from students' families.
3. Tell a story from their family.

Essential Vocabulary: folktales, fairy tales, myths, creation stories, legends, fables, proverbs, storytelling: traditional stories

Display respectful behavior when speaking and listening.

1. Practice respectful behavior including looking at the audience when speaking.
2. Practice respectful behavior when listening including tracking the speaker (i.e.: eyes on the speaker).

Essential Vocabulary: respectful, tracking

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

Decode unknown words combining the elements of phonics, use of word parts, and context clues.

1. Demonstrate phonemic awareness skills by hearing and orally manipulating sounds:
 - Phonemic isolation
 - Phonemic identification
 - Phonemic blending
 - Phonemic segmentation
 - Phonemic addition, deletion/substitution
2. Demonstrate concepts of print:
 - One-to-one correspondence
 - Left to right
 - Front to back
 - Top to bottom
 - Tracking
3. Identify and generate oral rhymes.
4. Identify upper and lower case letters.
5. Identify letter/sound correspondence.
6. Demonstrate letter sound blending.
7. Use common consonants with short vowels to decode three and four letter words.

Essential Vocabulary: Uppercase, lowercase, blending, segmenting, beginning, middle, end, letter, sound, consonant, vowel, decode

Develop and apply general and content specific vocabulary through the use of context clues, analysis of word parts, and reference sources.

1. Read basic sight word list (of 25 words).

Essential Vocabulary: sight words

Read sight words and materials fluently, applying word accuracy, phrasing, rate and expression.

1. Use sight words correctly in oral sentences.
2. Use content area words correctly in oral sentences.

Essential Vocabulary: sentence

Use appropriate strategies (reread, read ahead, use decoding and context clues, recognize media features) to monitor comprehension and self correct when comprehension breaks down.

1. Use picture clues to aid in story comprehension and in decoding words.
2. Read decodable text cvc (consonant, vowel, consonant) and recall/retell details.

Essential Vocabulary: text, picture clue, print

Activate prior knowledge to make connections to text.

1. Listen to read alouds (fiction and nonfiction, traditional literature to include Montana American Indian stories).
2. Build background knowledge through concrete experiences and exposure to text.

Essential Vocabulary: American Indian

Make and revise predictions.

- A. Make predictions about stories using cover and book illustrations.
- B. Make predictions during read alouds.

Essential Vocabulary: predict, illustration

Generate and answer questions to clarify meaning by locating specific information in text.

1. Demonstrate ability to ask questions.
2. Generate questions based on illustrations during read alouds.

Essential Vocabulary: statement, question

Recall and explain a series of events or the sequence of information.

1. Know first and last event in a read aloud.
2. Make mental images of the events in a story.

Essential Vocabulary: images

Identify main ideas and supporting details.

1. Make mental images about what a story is about.

2. Develop an understanding that some parts of the story are more important than others.
1. Identify a simple topic.

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

1. Activate prior knowledge related to text.
2. Make connections from self to text.
3. Make inferences based on illustrations and prior knowledge.

Identify and use text features to enhance comprehension.

1. Demonstrate concepts of print:

- Cover
- Back of book
- Illustrations
- Top and bottom
- Photograph
- Title
- Tracking (left to right)
- A letter
- A word

2. Use cover, title, illustrations and photographs to enhance comprehension.

Essential Vocabulary: title, tracking, photograph

Identify the organizational structure of a selection, including sequential, problem-solution and cause-effect.

1. Demonstrate an understanding of real and make believe.
2. Identify a story as real or make believe.
3. Recall some events of the story.

Essential Vocabulary: real, make believe

Compare and contrast information to explain and explore relationships within and across texts.

1. Identify characters in a story.
2. Understand similarities and differences in characters.
3. Compare similarities and differences of two characters.

Essential Vocabulary: character, same, different, compare

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

1. Listen to and participate in discussions about a variety of culturally diverse texts including those by and about Montana American Indians.

Essential Vocabulary: culture

Set goals for reading progress.

1. Explain that practice improves performance.

2. Demonstrate an understanding that practice increases reading proficiency.

Essential Vocabulary: fluency

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

Identify basic literary elements (setting, plot, problem/solution, character).

1. Define character.
2. Identify main characters in a read-aloud.
3. Identify beginning, middle, and ending events in a read-aloud.

Essential Vocabulary: main characters, beginning, middle, end

Explain how authors' choices of language and use of devices contribute to the meaning of literary works.

1. Define feeling words and phrases.
2. Identify feeling words and phrases within text, including illustrations.

Essential Vocabulary: feelings, happy, sad, ad, afraid/scary, excited, illustrations

Identify the characteristics of select literary genres.

1. Listen to read-alouds including those of Montana American Indians and other multicultural literature.
2. Define real and make-believe.
3. Recognize if events are real or make-believe.

Essential Vocabulary: real, make-believe/fantasy

Identify how culture and history are represented in literary works, including works of Montana American Indians.

- A. Listen to and discuss culturally diverse stories including those of Montana American Indians.
- B. Look at and discuss illustrations.

Essential Vocabulary: different, culture, American Indians, Montana

Identify similarities and differences between personal experiences and literary works, including the works of Montana American Indians.

1. Listen to read-alouds including those of Montana American Indians, and identify similarities or differences between personal experiences and the text.

Essential Vocabulary: same, different, personal

Express and justify personal responses to literature.

1. Listen to a variety of literature and discuss personal response (e.g., feelings) to the text, including illustrations.

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

Recognize that media messages are constructed using specific techniques for specific purposes (e.g., entertain, persuade, inform).

1. View examples of media messages.
2. Identify the creators of the media messages.

Essential Vocabulary: media

Identify the sources of media messages.

1. Name author and illustrator of a book.

Essential Vocabulary: author, illustrator

Identify fact, fiction and opinion in various media messages, including messages about Montana American Indians.

1. Locate examples of facts in various media messages.
2. Locate examples of fiction in various media messages.
3. Recognize opinion in various media messages.

Recognize the norms, rules, laws and etiquette that govern the use and creation of media messages.

1. Understand that there are rules for media message use and creation.

Recognize consequences to self and others when using and creating media.

- A. Recognize consequences to self when using any media message.

Create a media message for specific audiences and purposes (e.g., inform, entertain, or persuade).

- A. Create media messages.

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

Identify and demonstrate the steps used in the writing process: prewriting, planning, drafting, revising, editing, publishing.

1. Plan written works by drawing, dictating, and/or writing.
2. Draft written works by drawing, dictating, and/or writing to create opinion/argument, informative/explanatory and narrative/creative texts.
3. Publish written works by drawing, dictating, and/or writing.

Essential Vocabulary: draw, write, plan, publish

Select appropriate topics and generate topic sentences that indicate the writer's purpose for writing.

1. Generate ideas through group discussion.
2. Generate ideas independently.

Essential Vocabulary: ideas

Generate and develop main ideas using supporting details.

1. Generate supporting details for topics through pictures, words, and group discussion.

Essential Vocabulary: details

Organize writing using a logical progression of ideas.

1. Understand that writing is organized on one topic.
2. Organize ideas on one topic.
3. Tell about events in the order in which they occurred.

Essential Vocabulary: organize, topic

Demonstrate awareness of language choices and their impact on writing through use of voice, sentence fluency, and word choice when writing.

1. Recognize language choice in writing through read-alouds.
2. Use a variety of descriptive words and images in drawing, writing, and telling.

Identify and practice conventions of standard written English (e.g., usage, punctuation, spelling) appropriate purpose, audience, and form.

1. Use manuscript to write upper and lowercase letters and words.
2. Use capital letters to begin sentences and proper nouns.
3. Demonstrate knowledge of left-right and up-down directionality of writing and spacing.
4. Represent one or more sounds in a word with one or more letters.
5. Recognize and name basic punctuation marks.
6. Spell simple words phonetically.

Essential Vocabulary: punctuation, period, exclamation point, question mark, comma

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

1. Recognize that writers compose for a purpose.
2. Recognize that writers compose for a particular audience.
3. Recognize that writing can take many formats.

Identify and write using different writing forms and genres.

1. Use language experience approach to create texts.
2. Write, draw, or dictate opinion/argument, informative/explanatory and narrative/creative writing.

Demonstrate ability to maintain topical focus throughout written work.

1. Write, draw, dictate maintaining focus on a single idea.

Use information problem solving process to research a topic.

1. Pose questions with guidance.
2. Recognize the problem or task with guidance.
3. Discuss steps needed to solve the problem or task with guidance.

4. Discuss possible resources.
5. Choose resources from a limited selection with guidance.
6. Write (with guidance) a shared research project.

Essential Vocabulary: research, resource, facts

Identify the owner of ideas and information, with respect to all forms of information (e.g., oral resources), including Montana American Indians.

1. Understand that ideas come from a variety of sources and people, including themselves.
2. Differentiate between their own ideas and others' ideas.
3. Understand that authors, artists, and composers create products.

Set goals for writing progress.

1. Use guided goal-setting activities.
2. Recognize writing accomplishments.

Recognize and use writing as a means of clarifying thinking and reflecting.

1. Recognize ways writing/drawing/dictating can represent information.

Math Kindergarten

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 Kindergarten Math (Apply the following to each content standard.)

Develop abilities in math.

1. Think clearly and solve problems in math (classify, decide, estimate, solve, compare).
2. Talk and write clearly about math (present, persuade, collaborate, explain, recommend).
3. Make careful plans and use them (brainstorm, envision, research, plan, organize, persist).
4. Use the quality process (plan, draft, analyze, revise) when producing products.

Apply math knowledge and skills to a variety of purposes.

1. Use math to solve problems in a step-by-step manner.
2. Conduct research (locate, observe/gather, present).
3. Sort, graph, measure and use manipulatives, clocks, money, calendars and shapes to solve problems.
4. Possess technical skills:
 - Listen/dictate/write/present: instructions, charts and graphs, and summary
 - Technology: Internet, interact with technology, Smartboard, Power Point, etc.

Course Content for Kindergarten Math

Kindergarten 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: count, before, after, between, first, second, third, last, add, subtract, addition, subtraction, equal to, plus, minus, whole, half, equal parts, heavier, lighter, shorter, longer, shortest, longest, ruler, inch, day, night, taller, tallest, week, month, morning, analog, tomorrow, afternoon, digital, hour, today, o'clock, days of the week, months of the year

Whole Number Relationships: Demonstrate relationships among whole numbers; identify place value up to 100,000 and compare numbers (e.g., greater than, less than, and equal to).

1. Represent quantities with numbers up to 10; verbally, with manipulatives, and in writing.
2. Compare and order sets of objects or numerals by both cardinal and ordinal meanings (i.e., first, second, third, last).

Estimation and Operations: Estimate sums, differences, products, and quotients when solving problems. Add, subtract, multiply (three-digit by two-digit factors), and divide (two-digit dividends by one-digit divisors) to solve problems. Demonstrate fluency with basic facts.

1. digit addition and subtraction up to the sum and difference of 10.

Whole Number Concepts: Develop multiplication and division concepts, apply number and operation models and strategies, and reason and justify using properties of operations.

1. Use objects to show joining and separating problems.

Common Fractions and Decimals: Identify and model common fractions such as; tenths, fourths, thirds, and halves; and decimals such as money and place value to 0.001; and recognize and compare equivalent representations.

1. Recognition of whole/half.

Length, Time, and Temperature: Select and apply appropriate standard units and tools to measure length, time, and temperature within relevant scientific and cultural situations, including those of Montana American Indians.

1. Order and compare objects by length or weight using both direct and indirect methods.

2. Identify time to the hour on analog and digital clock.
3. Name days of the week and months of the year.

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: different, same, more, less, fewer, greater than, less than, larger, equal to

Representing Data: Collect, represent, and organize data in tables, dot plots, bar graphs, pictographs, and stem-and-leaf plots using technology when appropriate.

1. Sort data by one or more attributes using manipulatives (e.g., Large, small; color; Does it roll? Does it stack?)
2. Use objects to display data in teacher made bar graphs or pictographs.

Evaluating Data: Solve problems and make decisions using data descriptors such as minimum, maximum, median, and mode within scientific and cultural contexts, including those of Montana American Indians.

1. Describe one or more attributes in a set of data to solve problems.
2. Solve problems by counting and making comparisons of objects.

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: shape, square, triangle, circle, rectangle, side, inside, outside, touching, next to, far apart, corners, geoboard, kite, solid, sphere, cube, cylinder, cone, estimate, measure

Two-Dimensional Attributes: Describe, compare, and analyze attributes of two-dimensional shapes.

1. Visually identify, describe and draw squares, triangles, circles, rectangles, and kite.
2. Use two-dimensional shapes to represent objects in their environment.
3. Create shapes on geoboard.

Three-Dimensional Attributes: Describe attributes of three-dimensional shapes such as cubes and other rectangular prisms, pyramids, cylinders, cones, and spheres.

1. Using concrete models, visually identify and describe spheres, cubes, and cylinders, etc.
2. Use three-dimensional shapes to identify spheres, cubes, cylinders, etc. in their environment.

Linear Measurement: Estimate and measure linear attributes of objects in metric units such as centimeters and meters and customary units such as inch, foot, and yard.

1. Estimate and measure the length of objects using non-standard units (i.e.: # of paperclips, toothpicks, etc.).

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

Essential Vocabulary: pattern, zero, even, odd, penny, nickel, dime, quarter, value, scale

Patterns and Relations: Describe, extend, and make generalizations about geometric or numeric patterns.

1. Identify, duplicate, create, and extend simple repeating and growing (e.g., AB, ABB, ABBB...) patterns using models.

Symbols and Expressions: Use letters, boxes, or symbols to represent numbers in simple expressions or equations to demonstrate a basic understanding of variables.

1. Identify missing numbers to 10 (missing number replaced by a blank, box, or symbol)

Properties of Number and Operation: Use number patterns to investigate properties of numbers such as even or odd and properties of operations such as commutative, associative, distributive, and the multiplicative and additive identities.

1. Count by 1's to 100.
2. Count by 2's to 20.
3. Count by 5's to 50.
4. Count by 10's to 100.

Equivalent Expressions: Develop an understanding of equivalence by expressing numbers, measures, and numerical expressions involving operations in a variety of ways.

1. Demonstrate equivalence with multiple representations (e.g., manipulatives, scales, coins).
2. Recognize coins and their value.

Kindergarten Social Studies (Understand Yourself)

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 Kindergarten Social Studies (Apply the following to each content standard.)

Develop abilities in social studies.

1. Think clearly and solve problems about social studies (classify, decide, estimate, solve, compare).
2. Talk and write clearly about social studies (present, persuade, collaborate, explain, recommend).
3. Make careful plans and use them (brainstorm, envision, research, plan, organize, persist).
4. Use 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, present).
2. Relate social studies to your life.
 - View life from other perspectives and others' point of view.
 - Explain the effects of important inventions, events, people, and moments on you.
 - Think about other people and other places to solve problems and make decisions.
 - Relate current events to your life (be able to talk about current events).
3. Possess technical skills:

Listen/dictate/write/present: instructions, chart, thank you letter, letter of request, proposal, report, summary.
Use technology: word processing, Internet, current technology.

Course Content for Kindergarten Social Studies

Identify where you live.

1. Tell where you live.
2. Tell what it is like where you live.
3. Tell how you are unique and special.

Describe things in your life, which could change.

1. Define families.
2. Tell that families move.
3. Recognize that families change in size and how they live.
4. Recognize that parents have to work so you can have food, clothing, and shelter.

Understand that other people don't live like you do.

1. Tell how others in the class live.
2. Describe life in other places (rural, urban) and what is important to them.
3. Tell about life in other places in the United States and what is important to them.
4. Tell about life in other places in the world and what is important to them.
5. Recognize that others lived in the past and what was important to them.
6. Explain that Indian tribes are considered nations and have their own government.

Understand your responsibilities now and in the future.

1. Respect (social, rights of others, property, authority).
2. Responsibilities (learn, grow, develop potential).
3. Citizenship (participate, abide by the laws).
4. Family (love, relationships, satisfaction).
5. Career (reward, job satisfaction).
6. Environment (effects on the world, individual responsibilities).

Explain days that are important to you.

1. Identify your birthday.
2. Explain about important holidays and why they are important.

Use maps to identify land and water.

Kindergarten 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).

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

Course Abilities for Kindergarten Science to be applied to Content Standards as appropriate to grade level:

Develop abilities in science.

1. Higher thinking (analyze, evaluate, classify, predict, decide, estimate, generalize, solve, compare, 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 science knowledge and skills to a variety of purposes.

1. Solve problems using the scientific method (research, hypothesis, experimentation, analysis, conclusion).
2. Conduct research (field research, library research, experimentation, technological research).
3. Use scientific equipment appropriately (safely, effectively, efficiently, accurately).
4. Preserve the earth (reuse, reduce, recycle, refuse).
5. Possess technical skills:
Listen/read/dictate/write/present: instructions, chart, report, proposal, letter of request, summary.
Use technology: word processing, Internet, PowerPoint, SmartBoard, digital equipment, current technology.
Measurement practice in standard and metric.

Demonstrate and apply the scientific method

1. Identify a question and formulate a hypothesis.
2. Identify variables involved with an experiment.
3. Carry out a designed experiment based on a hypothesis.
4. Observe and collect data related to the hypothesis.
5. Show results by creating graphs and data tables.
6. Analyze data and formulate a conclusion.

Course Content for Kindergarten Science

Kindergarten 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 Kindergarten**

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

Essential Vocabulary: observe, scientist, same/different, color, size, sight, sound, touch, taste, smell, sort, record, question, experiment, clock, thermometer, magnifying glass, ruler, scale, beaker, nature, environment, scientific method

Develop the abilities necessary to safely conduct scientific inquiry, including (a step-by-step sequence is not implied): (a) asking questions about objects, events, and organisms in the environment, (b) planning and conducting simple investigations).

1. Make observations using the five senses
2. Record observations by drawing or orally explaining

3. Ask a question based on their observations
4. Follow appropriate safety rules
5. Conduct teacher guided scientific inquiry

Select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations.

1. Identify measurement tools
2. Choose the appropriate tool to measure time, temperature, mass, length, and liquid volume

Use data to describe and communicate the results of scientific investigations.

1. Communicate observations made during inquiry process.

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

1. Identify objects found in nature
2. Make observations of objects found in nature
3. Identify examples of Montana American Indians making use of nature

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

Essential Vocabulary: color, shape, size, group, light, dark, shadow, motion, magnet, magnetism, liquid, solid, gas

Examine, measure, describe, compare and classify objects in terms of common physical properties.

1. Identify objects based on their color, shape and size
2. Sort objects based on their color, shape, and size

Identify the basic characteristics of light, heat, motion, magnetism, electricity, and sound.

1. Identify light vs. dark
2. Identify the different ways in which objects move (such as zig zag, round and round, back and forth, and fast and slow)
3. Identify objects that are attracted by a magnet
4. Describe the basic characteristics of light, magnetism, and motion

Model and explain that matter exists as solids, liquids, and gases and can change from one form to another.

1. Identify liquids, solids, and gases

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.

Essential Vocabulary: plant, animal, living, nonliving, life cycle, food, energy, change, make new ones (reproduce), make waste (respire, excrete), respond, classify, similar, different

Identify that plants and animals have structures and systems that serve different functions for growth, survival, and reproduction.

1. List characteristics of living things
2. List characteristics of nonliving things
3. Compare living and nonliving things

Create and use a classification system to group a variety of plants and animals according to their similarities and differences.

1. Identify similarities and differences among a group of objects
2. Group objects using a simple classification system

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.

Essential Vocabulary: mountain, lake, hill, valley, volcano, ocean, land, water, planet

Describe and give examples of earth's changing features

1. Define Earth as a planet
2. List earth's features
3. Identify local land and water features
4. Construct a teacher-guided model of a local earth feature

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

Essential Vocabulary: technology, tool

Describe and discuss examples of how people use science and technology.

1. Identify examples of technology (products and processes)
2. Demonstrate uses of technology
3. Identify tools as a form of technology

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

1. Identify examples of tools that have been influenced by Montana American Indian culture

2. Identify examples of tools that have been developed or are being developed by Montana American Indians

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

Essential Vocabulary: question, observe, knowledge, senses, sight, touch, taste, smell, hearing, natural world

Describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.

1. Recognize that knowledge is gained through questioning and observations

Describe science as a human endeavor and an ongoing process

1. Recognize that humans use their senses to learn about the natural world