

Arizona Academic Standards That Match Population Connection Activities

Grades K - 5

Math

❖ **Strand 1: Numbers and Operations**

- Concept 1: Number Sense- Understand and apply numbers, ways of representing numbers, and the relationships among numbers and different number systems.
 - Grade K
 - PO 1. Express whole numbers 0 to 20 using and connecting multiple representations.
 - PO 4. Compare and order whole numbers through 20.
 - Grade 1
 - PO 1. Express whole numbers 0 to 100, in groups of tens and ones using and connecting multiple representations.
 - Grade 3
 - PO 1. Express whole numbers through six digits using and connecting multiple representations.
 - PO 5. Express benchmark fractions as fair sharing, parts of a whole, or parts of a set
 - PO 6. Compare and order benchmark fractions.
 - Grade 4
 - PO 1. Express whole numbers, fractions, decimals, and percents using and connecting multiple representations.
 - PO 3. Express fractions as fair sharing, parts of a whole, parts of a set, and locations on a real number line.
 - PO 5. Use simple ratios to describe problems in context.
 - Grade 5
 - PO 1. Determine equivalence by converting between benchmark fractions, decimals, and percents
 - PO 4. Compare and order positive fractions, decimals, and percents.
 - PO 5. Use ratios and unit rates to model, describe and extend problems in context.
 - PO 6. Express or interpret positive and negative numbers in context.
- Concept 2: Numerical Operations- Understand and apply numerical operations and their relationship to one another.
 - Grade K
 - PO 1. Solve contextual problems by developing, applying, and recording strategies with sums and minuends to 10 using objects, pictures, and symbols.
 - PO 2. Develop and use multiple strategies to determine sums to 10 and differences with minuends to 10.
 - Grade 1

- PO 1. Solve contextual problems using multiple representations for addition and subtraction facts.
- Grade 2
 - PO 3. Demonstrate fluency of addition and subtraction facts.
 - PO 7. Describe the effect of operations (addition and subtraction) on the size of whole numbers.
- Grade 3
 - PO 1. Add and subtract whole numbers to four digits.
 - PO 3. Demonstrate the concept of multiplication and division using multiple models.
 - PO 6. Describe the effect of operations (multiplication and division) on the size of whole numbers.
- Grade 4
 - PO 2. Use multiple strategies to multiply whole numbers two-digit by two-digit and multi-digit by one-digit.
 - PO 4. Use multiple strategies to divide whole numbers.
 - PO 6. Apply order of operations with whole numbers.
- Grade 5
 - PO 2. Multiply multi-digit whole numbers.
 - PO 3. Divide multi-digit whole numbers by whole number divisors with and without remainders.

❖ **Strand 2: Data Analysis, Probability, and Discrete Mathematics**

- Concept 1: Data Analysis (Statistics)- Understand and apply data collection, organization, and representation to analyze and sort data.
 - Grade K
 - PO 1. Construct simple displays of data using objects or pictures.
 - PO 2. Ask and answer questions by counting, comparing quantities, and interpreting simple displays of data.
 - Grade 1
 - PO 1. Collect, record, organize, and display data using tally charts or pictographs.
 - PO 2. Ask and answer questions by interpreting simple displays of data, including tally charts or pictographs.
 - Grade 2
 - PO 1. Collect, record, organize, and display data using pictographs, frequency tables, or single bar graphs.
 - PO 2. Formulate and answer questions by interpreting displays of data, including pictographs, frequency tables, or single bar graphs.
 - Grade 3
 - PO 1. Collect, record, organize, and display data using frequency tables, single bar graphs, or single line graphs.
 - PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including frequency tables, single bar graphs, or single line graphs.
 - Grade 4

- PO 1. Collect, record, organize, and display data using double bar graphs, single line graphs, or circle graphs.
 - PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including double bar graphs, single line graphs, or circle graphs.
 - PO 4. Compare two sets of related data.
 - Grade 5
 - PO 1. Collect, record, organize, and display data using multi-bar graphs or double line graphs.
 - PO 2. Formulate and answer questions by interpreting and analyzing displays of data, including multi-bar graphs or double line graphs.
- ❖ **Strand 3: Patterns, Algebra, and Functions**
- Concept 1: Patterns- Identify patterns and apply pattern recognition to reason mathematically while integrating content from each of the other strands.
 - Grade K
 - PO 2. Recognize, describe, extend, and record simple growing patterns.
 - Grade 1
 - PO 2. Recognize, describe, extend, create, and record growing patterns.
 - Grade 2
 - PO 1. Recognize, describe, extend, create, and find missing terms in a numerical or symbolic pattern.
 - Grade 3
 - PO 1. Recognize, describe, extend, create, and find missing terms in a numerical sequence.
 - Grade 4
 - PO 1. Use benchmarks as meaningful points of comparison for whole numbers, decimals, and fractions.
 - Concept 2: Functions and Relationships- Describe and model functions and their relationships.
 - Grade 3
 - PO 1. Recognize and describe a relationship between two quantities, given by a chart, table or graph, in which the quantities change proportionally, using words, pictures, or expressions.
 - Concept 4: Analysis of Change -Analyze how changing the values of one quantity corresponds to change in the values of another quantity.
 - Grade 4
 - PO 1. Identify the change in a quantity over time and make simple predictions.
 - Grade 5
 - PO 1. Describe patterns of change including constant rate and increasing or decreasing rate.
- ❖ **Strand 4: Geometry and Measurement**
- Concept 4: Measurement- Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.
 - Grade 5
 - PO 1. Solve problems using elapsed time.

❖ **Strand 5: Structure and Logic**

➤ Concept 2: Logic, Reasoning, Problem Solving, and Proof

- Grade K
 - PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
 - PO 5. Explain and clarify mathematical thinking.
- Grade 1
 - PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
 - PO 5. Explain and clarify mathematical thinking.
- Grade 2
 - PO 4. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
 - PO 5. Explain and clarify mathematical thinking.
- Grade 3
 - PO 3. Select and use one or more strategies to efficiently solve the problem and justify the selection.
 - PO 4. Determine whether a problem to be solved is similar to previously solved problems, and identify possible strategies for solving the problem.
 - PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
- Grade 4
 - PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
 - PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.
- Grade 5
 - PO 5. Represent a problem situation using any combination of words, numbers, pictures, physical objects, or symbols.
 - PO 6. Summarize mathematical information, explain reasoning, and draw conclusions.

Science

❖ **Strand 1**

➤ Concept 1: Observations, Questions and Hypotheses- Observe, ask questions, and make predictions.

- Kindergarten
 - PO 1. Observe common objects using multiple senses.
- Grade 1
 - PO 1. Compare common objects using multiple senses
 - PO 2. Ask questions based on experiences with objects, organisms, and events in the environment.
- Grade 2
 - PO 1. Formulate relevant questions about the properties of objects, organisms, and events in the environment.

- Grade 3
 - PO 1. Formulate relevant questions about the properties of objects, organisms, and events of the environment using observations and prior knowledge.
 - PO 2. Predict the results of an investigation based on observed patterns, not random guessing
- Grade 4
 - PO 3. Formulate predictions in the realm of science based on observed cause and effect relationships.
- Grade 5
 - PO 2. Formulate predictions in the realm of science based on observed cause and effect relationships.
- Concept 2: Scientific Testing (Investigating and Modeling)-Design and conduct controlled investigations.
 - Grade 3
 - PO 5. Record data in an organized and appropriate format (e.g., t-chart, table, list, written log).
 - Grade 4
 - PO 4. Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary). (See M04-S4C4-03 and M04-S4C4-07)
 - PO 5. Record data in an organized and appropriate format (e.g., t-chart, table, list, written log). (See W04-S3C2-01 and W04-S3C3-01)
 - Grade 5
 - PO 4. Measure using appropriate tools (e.g., ruler, scale, balance) and units of measure (i.e., metric, U.S. customary). (See M05-S4C4-01)
 - PO 5. Record data in an organized and appropriate format (e.g., t-chart, table, list, written log). (See W05-S3C2-01 and W05-S3C3-01)
- Concept 3: Analysis and Conclusions- Organize and analyze data; compare to predictions.
 - Grade 3
 - PO 1. Organize data using the following methods with appropriate labels: bar graphs, pictographs, and tally charts
 - PO 2. Construct reasonable interpretations of the collected data based on formulated questions.
 - PO 3. Compare the results of the investigation to predictions made prior to the investigation.
 - Grade 5
 - PO 3. Evaluate the reasonableness of the outcome of an investigation.
 - PO 5. Identify possible relationships between variables in simple investigations (e.g., time and distance; incline and mass of object).
- Concept 4: Communication- Communicate results of investigations.
 - Kindergarten
 - PO 1. Communicate observations with pictographs, pictures, models, and/or words.

- PO 2. Communicate with other groups to describe the results of an investigation.
- Grade 1
 - PO 1. Communicate the results of an investigation using pictures, graphs, models, and/or words.
 - PO 2. Communicate with other groups to describe the results of an investigation.
- Grade 2
 - PO 1. Communicate the results and conclusions of an investigation (e.g., verbal, drawn, or written).
 - PO 2. Communicate with other groups to describe the results of an investigation.
- Grade 3
 - PO 3. Communicate with other groups to describe the results of an investigation.
- Grade 4
 - PO 2. Choose an appropriate graphic representation for collected data: bar graph, line graph, Venn diagram, model. (See M04-S2C1-02)
- Grade 5
 - PO 2. Choose an appropriate graphic representation for collected data: bar graph, line graph, Venn diagram, model. (See M05-S2C1-02)

❖ **Strand 3: Science in Personal and Social Perspectives**

- Concept 1: Changes in Environments. Describe the interactions between human populations, natural hazards, and the environment.
 - Grade 3
 - PO 2. Describe the beneficial and harmful impacts of natural events and human activities on the environment (e.g., forest fires, flooding, pesticides).
 - Grade 4
 - PO 1. Describe how natural events and human activities have positive and negative impacts on environments (e.g., fire, floods, pollution, dams).
 - PO 2. Evaluate the consequences of environmental occurrences that happen either rapidly (e.g., fire, flood, tornado) or over a long period of time (e.g., drought, melting ice caps, the greenhouse effect, erosion).
 - Grade 5
 - PO 2. Propose a solution, resource, or product that addresses a specific human, animal, or habitat need.
- Concept 2: Science and Technology in Society. Understand the impact of technology.
 - Grade 1
 - PO 1. Identify various technologies (e.g., automobiles, radios, refrigerators) that people use.

- Grade 2
 - PO 1. Analyze how various technologies impact aspects of people's lives (e.g., entertainment, medicine, transportation, communication).
- ❖ **Strand 4: Life Science**
 - Concept 3: Organisms and Environments. Understand the relationships among various organisms and their environment.
 - Grade 4
 - PO 1. Describe ways various resources (e.g., air, water, plants, animals, soil) are utilized to meet the needs of a population.
 - PO 2. Differentiate renewable resources from nonrenewable resources.
 - PO 4. Describe ways in which resources can be conserved (e.g., by reducing, reusing, recycling, finding substitutes).
- ❖ **Strand 6: Earth and Space Science**
 - Concept 1: Properties of Earth Materials. Identify the basic properties of Earth materials.
 - Grade K
 - PO 1. Identify rocks, soil, and water as basic Earth materials.
 - PO 4. Identify ways some natural or man-made materials can be reused or recycled (e.g., efficient use of paper, recycle aluminum cans).
 - Grade 1
 - PO 1. Describe the following basic Earth materials: rocks, soil, water.
 - PO 3. Identify common uses (e.g., construction, decoration) of basic Earth materials (i.e., rocks, water, soil).
 - PO 4. Identify the following as being natural resources: air, water, soil, trees, wildlife.
 - PO 5. Identify ways to conserve natural resources (e.g., reduce, reuse, recycle, find alternatives).
 - Grade 3
 - PO 6. Describe ways humans use Earth materials (e.g., fuel, building materials, growing food).
 - Concept 3:
 - Grade 4
 - PO 1. Identify the sources of water within an environment (e.g., ground water, surface water, atmospheric water, glaciers).
 - PO 2. Describe the distribution of water on the Earth's surface.

Social Studies

- ❖ **Strand 1: American History**
 - Concept 1: Research Skills for History.
 - Grade K

- PO 2. Listen to recounts of historical events and people and discuss how they relate to present day.
- Grade 1
 - PO 2. Retell stories to describe past events, people, and places
- Grade 2
 - PO 5. Retell stories to describe past events, people and places.
- Grade 3
 - PO 1. Use timelines to identify the time sequence of historical data.
 - PO 4. Retell stories to describe past events, people and places.
- Concept 2: Early Civilizations. The geographic, political, economic, and cultural characteristics of early civilizations made significant contributions to the later development of the United States.
 - Grade K
 - PO 1. Recognize that Native Americans are the original inhabitants of North America.
 - Grade 1
 - PO 2. Recognize that settlement led to developments in farming techniques (e.g., irrigation), government, art, architecture, and communication in North America.
- Concept 3: Exploration & Colonization. The varied causes and effects of exploration, settlement, and colonization shaped regional and national development of the U.S.
 - Grade 1
 - PO 5. Compare the way people lived in Colonial times with how people live today (e.g., housing, food transportation, school).
 - Grade 5
 - PO 1. Recognize that Native American tribes resided throughout North America before the period of European exploration and colonization.
- ❖ **Strand 3: Civics/Government**
 - Concept 4: Rights, Responsibilities, and Roles of Citizenship. The rights, responsibilities and practices of United States citizenship are founded in the Constitution and the nation's history.
 - Grade 4
 - PO 1. Discuss ways an individual can contribute to a school or community.
 - Grade 5
 - PO 1. Describe ways an individual can contribute to a school or community.
- ❖ **Strand 4: Geography**
 - Concept 2: Places and Regions. Places and regions have distinct physical and cultural characteristics.
 - Grade K
 - PO 1. Recognize through images how people live differently in other places and times.
 - Grade 1

- PO 1. Discuss human features (e.g., cities, parks, railroad tracks, hospitals, shops, schools) in the world.
- PO 2. Discuss physical features (e.g., mountains, rivers, deserts) in the world.
- PO 4. Discuss the ways places change over time.
- Grade 2
 - PO 2. Discuss human features (e.g., cities, parks, railroad tracks, hospitals, shops, schools) in the world.
 - PO 3. Discuss physical features (e.g., mountains, rivers, deserts) in the world.
 - PO 4. Discuss the ways places change over time.
- Grade 3
 - PO 2. Describe how physical and human characteristics of places change from past to present.
- Concept 4: Human Systems. Human culture, their nature, and distribution affect societies and the Earth.
 - Grade K
 - PO 2. Discuss how land in the students' community is used for industry, housing, business, agriculture, and recreation.
 - Grade 1
 - PO 2. Discuss how land in the students' community is used for industry, housing, business, agriculture, and recreation.
 - Grade 3
 - PO 6. Discuss the major economic activities and land use (e.g., harvesting natural resources, agricultural, industrial, residential, commercial, recreational) of areas studied.
 - Grade 5
 - PO 2. Explain the effects (e.g., economic, cultural, environmental, political) of human migration on places. Connect with: Strand 1 Concept 5, Strand 2 Concept 5, Strand 5 Concept 1
- Concept 5: Environment and Society. Human and environmental interactions are interdependent upon one another. Humans interact with the environment – they depend upon it, they modify it, and they adapt to it. The health and well-being of all humans depends upon an understanding of the interconnections and interdependence of human and physical systems.
 - Grade K
 - PO 1. Identify the origin of natural resources (e.g., fish from sea, minerals from the ground, wood from trees, food from farms).
 - PO 2. Recognize that resources are renewable, recyclable, and non-renewable.
 - Grade 2
 - PO 1. Identify ways (e.g., agriculture, structures, roads) in which humans depend upon, adapt to, and impact the earth.
 - PO 2. Recognize ways of protecting natural resources.
 - Grade 3

- PO 1. Identify ways (e.g., farming, building structures and dams, creating transportation routes, overgrazing, mining, logging) in which humans depend upon, adapt to, and impact the earth.
- PO 2. Describe ways of protecting natural resources.
- PO 3. Identify resources that are renewable, recyclable, and non-renewable.
- Grade 4
 - PO 1. Describe human dependence on the physical environment and natural resources to satisfy basic needs
 - PO 3. Describe the impact of human modifications (e.g., dams, mining, air conditioning, irrigation, agricultural) on the physical environment and ecosystems.
- Grade 5
 - PO 1. Describe the ways European colonists and Native Americans viewed, adapted, and used the environment. Connect with: Strand 1 Concept 3, 6
- Concept 6: Geographic Applications. Geographic thinking (asking and answering geographic questions) is used to understand spatial patterns of the past, the present, and to plan for the future.
 - Grade 4
 - PO 1. Describe the impact of geographic features (e.g., rivers, mountains, resources, deserts, climate) on migration and the location of human activities (e.g., exploration, mining, transportation routes, settlement patterns).
- ❖ **Strand 5: Economics**
 - Concept 1: Foundations of Economics. The foundations of economics are the application of basic economic concepts and decision-making skills. This includes scarcity and the different methods of allocation of goods and services.
 - Grade K
 - PO 4. Discuss differences between needs and wants.
 - Grade 1
 - PO 1. Discuss the difference between basic needs and wants.
 - PO 2. Recognize that people need to make choices because of limited resources.

Language Arts

- ❖ **Strand 2: Comprehending Literary Text**
 - Concept 1: Elements of Literature. Identify, analyze, and apply knowledge of the structures and elements of literature.
 - Grade K
 - PO 1. Participate (e.g., react, speculate, join in, read along) when predictably patterned selections of fiction and poetry are read aloud.
 - Grade 2
 - PO 4. Identify cause and effect of specific events in a literary selection.
 - Grade 3

- PO 4. Make relevant connections (e.g., relationships, cause/effect, comparisons) between earlier events and later events in text.

❖ **Strand 3: Comprehending Informational Text**

- Concept 1: Expository Text. Identify, analyze, and apply knowledge of the purpose, structures, and elements of expository text.
 - Grade 1
 - PO 2. Answer questions (e.g., who, what, where, when, why, how) about expository text, heard or read.
 - Grade 3
 - PO 3. Respond appropriately to questions based on facts in expository text, heard or read.
 - Grade 4
 - PO 7. Distinguish cause and effect.
 - Grade 5
 - PO 7. Identify cause and effect relationships (stated and implied).