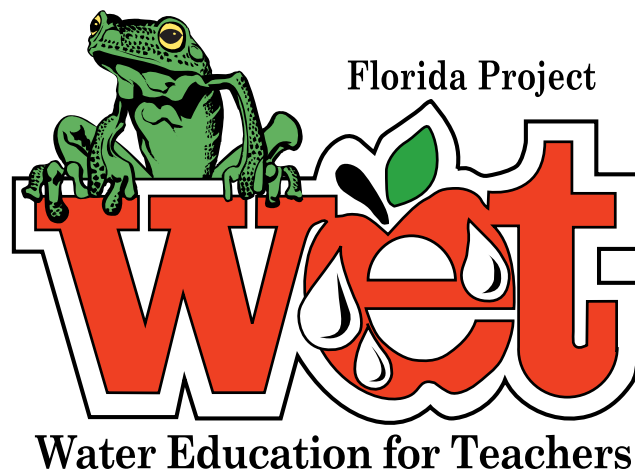


Healthy Water Healthy People



St. Johns River Water Management District
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October 2003

A Snapshot in Time

Grades 3–5

Mathematics

MA.D.1.2.1 — The student describes a wide variety of patterns and relationships through models, such as manipulative, tables, graphs, rules using algebraic symbols

MA.D.1.2.2 — The student generalizes a pattern, relation, or function to explain how a change in one quantity results in a change in another

MA.E.1.2.2 — The student determines range, mean, median, and mode from sets of data

MA.E.1.2.3 — The student analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers

MA.E.1.2.3 — The student analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers

MA.E.2.2.1 — The student uses models, such as tree diagrams, to display possible outcomes and to predict events

MA.E.2.2.2 — The student predicts the likelihood of simple events occurring

MA.E.3.2.2 — The student uses statistical data about life situations to make predictions and justifies reasoning

Science

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.2.2.1 — The student knows that natural events are often predictable and logical

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

Grades 6–8

Mathematics

MA.D.1.3.1 — The student describes a wide variety of patterns, relationships, and functions through models, such as manipulative, tables, graphs, expressions, equations, and inequalities

MA.D.1.3.2 — The student creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships

MA.E.1.3.1 — The student collects, organizes, and displays data in a variety of forms, including

tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations

MA.E.1.3.2 — The student understands and applies the concepts of range and central tendency (mean, median, and mode)

MA.E.1.3.3 — The student analyzes real-world data by applying appropriate formulas for measure of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers

MA.E.2.3.2 — The student determines odds for and odds against a given situation

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

MA.E.3.3.2 — The student identifies the common uses and misuses of probability or statistical analysis in the everyday world

Science

SC.D.1.3.3 — The student knows how conditions that exist in one system influence the conditions that exist in other systems

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.2.3.1 — The student recognizes that patterns exist within and across systems

Grades 9–12

Mathematics

MA.D.1.4.1 — The student describes, analyzes, and generalizes relationships, patterns, and functions using words, symbols, variable, tables and graphs

MA.D.1.4.2 — The student determines the impact when changing parameters of given functions

MA.D.2.4.1 — The student represents real-world problem situations using finite graphs, matrices, sequences, series, and recursive relations

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

MA.E.1.4.2 — The student calculates measures of central tendency (mean, median, and mode) and dispersion (range, standard deviation, and variance) for complex sets of data and determines the most meaningful measure to describe the data

MA.E.1.4.3 — The student analyzes real-world data and makes predictions of larger populations by applying formulas to calculate measures of central tendency and dispersion using the sample population data, and using appropriate technology, including calculators and computers

MA.E.2.4.1 — The student determines probabilities using counting procedures, tables, tree diagrams, and formulas for permutations and combinations

MA.E.2.4.2 — The student determines the probability for simple and compound events as well

as independent and dependent events

MA.E.3.4.1 — The student designs and performs real-world statistical experiments that involve more than one variable, then analyzes results and reports findings

MA.E.3.4.2 — The student explains the limitations of using statistical techniques and data in making inferences and valid arguments

Science

SC.D.2.4.1 — The student understands the interconnectedness of the systems on Earth and the quality of life

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

A Tangled Web Conducting Internet Research

Grades 3–5

Language Arts

LA.A.2.2.2 — The student identifies the author’s purpose in a simple text

LA.A.2.2.3 — The student recognizes when a text is primarily intended to persuade

LA.A.2.2.6 — The student recognizes the difference between fact and opinion presented in a text

LA.D.2.2.1 — The student understands that work choices can shape reactions; perceptions, and beliefs

LA.D.2.2.3 — The student recognizes different techniques used in media messages and their purposes

Grades 6–8

Language Arts

LA.A.2.3.3 — The student recognizes logical, ethical, and emotional appeals in texts

LA.A.2.3.5 — The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task

LA.A.2.3.8 — The student checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws

LA.D.2.3.3 — The student distinguishes between emotional and logical argument

LA.D.2.3.6 — The student understands specific ways that mass media can potentially enhance or manipulate information

Science

SC.H.3.3.6 — The student knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone

Grades 9–12

Language Arts

LA.A.2.4.2 — The student determines the main idea and identifies relevant details, methods of

development, and their effectiveness in a variety of types of written material

LA.A.2.4.4 — The student locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement

LA.A.2.4.5 — The student identifies devices of persuasion and methods of appeal and their effectiveness

LA.A.2.4.6 — The student selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services

LA.A.2.4.7 — The student analyzes the validity and reliability of primary source information and uses the information appropriately

LA.A.2.4.8 — The student synthesizes information from multiple sources to draw conclusions

LA.B.2.4.4 — The student selects and uses a variety of electronic media, such as the Internet, information services, and desktop publishing software programs to create, revise, retrieve, and verify information

LA.D.2.4.1 — The student understands specific ways in which language has shaped the reactions, perceptions, and beliefs of the local, national, and global communities

LA.D.2.4.2 — The student understands the subtleties of literacy devices and techniques in the comprehension and creation of communication

LA.D.2.4.5 — The student critically analyzes specific elements of mass media with regard to the extent to which they enhance or manipulate information

Science

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

SC.H.3.4.4 — The student knows that funds for science research come from federal government agencies, industry, and private foundations and that this funding often influences the areas of discovery

SC.H.3.4.4 — The student knows that funds for science research come from federal government agencies, industry, and private foundations and that this funding often influences the areas of discovery

Benthic Bugs and Bioassessment

Grades 3–5

Language Arts

LA.B.2.2.3 — The student writes for a variety of occasions, audiences, and purposes

LA.A.2.2.8 — The student selects and uses a variety of appropriate reference materials, including multiple representations of information, such as maps, charts, and photos, to gather information for research projects

LA.B.2.2.6 — The student creates expository responses in which ideas and details follow an organizational pattern and are relevant to the purpose

Mathematics

MA.B.2.2.1 — The student uses direct (measured) and indirect (not measured) measures to

calculate and compare measurable characteristics

MA.D.1.2.2 — The student generalizes a pattern, relation, or function to explain how a change in one quantity results in a change in another

MA.D.2.2.2 — The student uses informal methods, such as physical models and graphs to solve real-world problems involving equations and inequalities

MA.E.1.2.1 — The student solves problems by generating, collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts

MA.E.1.2.2 — The student determines range, mean, median, and mode from sets of data

MA.E.1.2.3 — The student analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers

MA.E.2.2.1 — The student uses models, such as tree diagrams, to display possible outcomes and to predict events

MA.E.2.2.2 — The student predicts the likelihood of simple events occurring

MA.E.3.2.2 — The student uses statistical data about life situations to make predictions and justifies reasoning

Science

SC.G.1.2.1 — The student knows ways that plants, animals, and protist interact

SC.G.1.2.7 — The student knows that variations in light, water, temperature, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem

SC.G.2.2.1 — The student knows that all living things must compete for Earth's limited resources; organisms best adapted to compete for the available resources will be successful and pass their adaptations (traits) to their offspring

SC.G.2.2.2 — The student knows that the size of a population is dependent upon the available resources within its community

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

Grades 6–8**Language Arts**

LA.A.2.3.5 — The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task

LA.A.2.3.6 — The student uses a variety of reference materials, including indexes, magazines, newspapers, and journals, and tools, including card catalogs and computer catalogs, to gather information for research topics

LA.B.2.3.1 — The student writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media

LA.B.2.3.3 — The student selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion

LA.B.2.3.4 — The student uses electronic technology including databases and software to gather information and communicate new knowledge

Mathematics

MA.B.2.3.1 — The student used direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units

MA.B.4.3.2 — The student selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation

MA.D.1.3.1 — The student describes a wide variety of patterns, relationships, and functions through models, such as manipulative, tables, graphs, expressions, equations, and inequalities

MA.D.1.3.2 — The student creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships

MA.D.2.3.1 — The student represents and solves real-world problems graphically, with algebraic expressions, equations, and inequalities

MA.D.2.3.2 — The student uses algebraic problem-solving strategies to solve real-world problems involving linear equations and inequalities

MA.E.1.3.1 — The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations

MA.E.1.3.2 — The student understands and applies the concepts of range and central tendency (mean, median, and mode)

MA.E.1.3.3 — The student analyzes real-world data by applying appropriate formulas for measure of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers

MA.E.2.3.1 — The student compares experimental results with mathematical expectations of probabilities

MA.E.2.3.2 — The student determines odds for and odds against a given situation

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

Science

SC.G.1.3.2 — The student knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment

SC.G.1.3.3 — The student understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

Grades 9–12**Language Arts**

LA.A.2.4.6 — The student selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services

LA.A.2.4.7 — The student analyzes the validity and reliability of primary source information and uses the information appropriately

LA.A.2.4.8 — The student synthesizes information from multiple sources to draw conclusions

LA.B.2.4.1 — The student writes text, notes, outlines, comments, and observations that demonstrate comprehension and synthesis of content, processes, and experiences from a variety of media

LA.B.2.4.3 — The student writes fluently for a variety of occasions, audiences, and purposes, making appropriate choices regarding style, tone, level of detail, and organization

LA.B.2.4.4 — The student selects and uses a variety of electronic media, such as the Internet, information services, and desktop publishing software programs to create, revise, retrieve, and verify information

Mathematics

MA.B.1.4.3 — The student relates the concepts of measurement to similarity and proportionality in real-world situations

MA.B.2.4.1 — The student selects and uses direct (measured) or indirect (not measured) methods of measurements as appropriate

MA.B.4.4.1 — The student determines the level of accuracy and precision, including absolute and relative errors or tolerance, required in real-world measurement situations

MA.B.4.4.2 — The student selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation

MA.D.1.4.1 — The student describes, analyzes, and generalized relationships, patterns, and functions using words, symbols, variable, tables and graphs

MA.D.1.4.2 — The student determines the impact when changing parameters of given functions

MA.D.2.4.1 — The student represents real-world problem situations using finite graphs, matrices, sequences, series, and recursive relations

MA.D.2.4.2 — The student uses systems of equations and inequalities to solve real-world problems graphically, algebraically, and with matrices

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

MA.E.1.4.2 — The student calculates measures of central tendency (mean, median, and mode) and dispersion (range, standard deviation, and variance) for complex sets of data and determines the most meaningful measure to describe the data

MA.E.1.4.3 — The student analyzes real-world data and makes predictions of larger populations by applying formulas to calculate measures of central tendency and dispersion using the sample population data, and using appropriate technology, including calculators and computers

MA.E.3.4.1 — The student designs and performs real-world statistical experiments that involve more than one variable, then analyzes results and reports findings

Science

SC.F.1.4.2 — The student knows that body structures are uniquely designed and adapted for their function

SC.G.1.4.1 — The student knows of the great diversity and interdependence of living things

SC.G.2.4.2 — The student knows that changes in a component of an ecosystem will have unpredictable effects on the entire system but that the components of the system tend to react in a way that will restore the ecosystem to its original condition

SC.G.2.4.3 — The student understands how genetic variation of offspring contributes to population control in an environment and that natural selection ensures that those who are best adapted to their surroundings survive to reproduce

SC.G.2.4.4 — The student knows that the world ecosystems are shaped by physical factors that limit their productivity

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

Carts & Horses

Grades 3–5

Language Arts

LA.A.2.2.8 — The student selects and uses a variety of appropriate reference materials, including multiple representations of information, such as maps, charts, and photos, to gather information for research projects

LA.C.3.2.3 — The student speaks for specific occasions, audiences, and purposes, including conversations, discussions, projects, and informational or imaginative presentations

Science

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to

provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

Grades 6–8

Language Arts

LA.A.2.3.5 — The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task

LA.A.2.3.6 — The student uses a variety of reference materials, including indexes, magazines, newspapers, and journals, and tools, including card catalogs and computer catalogs, to gather information for research topics

LA.A.2.3.7 — The student synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheets, and outlines

LA.A.2.3.8 — The student checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws

LA.C.3.3.3 — The student speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations

Science

SC.H.1.3.1 — The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way

SC.H.1.3.2 — The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

Grades 9–12**Language Arts**

LA.A.2.4.8 — The student synthesizes information from multiple sources to draw conclusions

LA.A.2.4.4 — The student locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement

LA.A.2.4.6 — The student selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services

LA.A.2.4.7 — The student analyzes the validity and reliability of primary source information and uses the information appropriately

LA.C.3.4.2 — The student selects and uses a variety of speaking strategies to clarify meaning and to reflect understanding, interpretation, application, and evaluation of content, processes, or experiences, including asking relevant questions when necessary, making appropriate and meaningful comments, and making insightful observations

LA.C.3.4.3 — The student uses details, illustrations, analogies, and visual aids to make oral presentations that inform, persuade, or entertain

LA.C.3.4.4 — The student applies oral communication skills to interviews, group presentations, formal presentations, and impromptu situations

LA.C.3.4.5 — The student develops and sustains a line of argument and provides appropriate support

Science

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.1.4.2 — The student knows that from time to time, major shifts occur in the scientific view of how the world works, but that more often the changes that take place in the body of scientific knowledge are small modifications of prior knowledge

SC.H.1.4.3 — The student understands that no matter how well one theory fits observations, a new theory might fit them as well or better, or might fit a wider range of observations, because in science, the testing, revising, and occasional discarding of theories, new and old, never ends and leads to an increasingly better understanding of how things work in the world, but not to absolute truth

SC.H.1.4.4 — The student knows that scientists in any one research group tend to see things alike and that therefore scientific teams are expected to seek out the possible sources of bias in the design of their investigations and in their data analysis

SC.H.1.4.5 — The student understands that new ideas in science are limited by the context in which they are conceived, are often rejected by the scientific establishment, sometimes spring from unexpected findings, and usually grow slowly from many contributors

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

SC.H.2.4.2 — The student knows that scientists control conditions in order to obtain evidence, but when that is not possible for practical or ethical reasons, they try to observe a wide range of natural occurrences to discern patterns

SC.H.2.4.1 — The student knows that scientists assume that the universe is a vast system in which basic rules exist that may range from very simple to extremely complex, but that scientists operate on the belief that the rules can be discovered by careful, systemic study

SC.H.3.4.1 — The student knows that performance testing is often conducted using small-scale models, computer simulations, or analogous systems to reduce the chance of system failure

SC.H.3.4.2 — The student knows that technological problems often create a demand for new scientific knowledge and that new technologies make it possible for scientists to extend their research in a way that advances science

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

Footprints on the Sand

Grades 3–5

Language Arts

LA.B.2.2.3 — The student writes for a variety of occasions, audiences, and purposes

Science

SC.G.2.2.2 — The student knows that the size of a population is dependent upon the available resources within its community

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Language Arts

LA.B.2.3.3 — The student selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion

Science

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.3.3.3 — The student knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate

Grades 9–12**Language Arts**

LA.B.2.4.3 — The student writes fluently for a variety of occasions, audiences, and purposes, making appropriate choices regarding style, tone, level of detail, and organization

Science

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.G.2.4.2 — The student knows that changes in a component of an ecosystem will have unpredictable effects on the entire system but that the components of the system tend to react in a way that will restore the ecosystem to its original condition

From H to OH**Grades 3–5****Mathematics**

MA.A.3.2.1 — The student understands and explains the effects of addition, subtraction, and multiplication on whole numbers, decimals, and fractions, including mixed numbers, and the effects of division on whole numbers, including the inverse relationship of multiplication and division

MA.A.3.2.2 — The student selects the appropriate operation to solve specific problems involving addition, subtraction, and multiplication of whole numbers, decimals, and fractions, and division of whole numbers

MA.A.3.2.3 — The student adds, subtracts, and multiplies whole numbers, decimals, and fractions, including mixed numbers, and divides whole numbers to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator

MA.A.5.2.1 — The student understands and applies basic number theory concepts, including primes, composites, factors, and multiples

MA.B.2.2.1 — The student uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics

MA.B.4.2.2 — The student selects and uses appropriate instruments and technology, including scales, rulers, thermometers, measuring cups, protractors, and gauges, to measure in real-world situations

MA.D.1.2.2 — The student generalizes a pattern, relation, or function to explain how a change in one quantity results in a change in another

MA.E.1.2.1 — The student solves problems by generating, collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts

MA.E.2.2.2 — The student predicts the likelihood of simple events occurring

MA.E.3.2.1 — The student designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs

MA.E.3.2.2 — The student uses statistical data about life situations to make predictions and justifies reasoning

Science

SC.A.1.2.1 — The student determines that the properties of materials (e.g. density and volume) can be compared and measured (e.g. using rulers, balances, and thermometers)

SC.A.2.2.1 — The student knows that materials may be made of parts too small to be seen without magnification

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

Health & Physical Education

HE.A.1.2.5 — The student knows the ways in which the environment impacts health

Grades 6–8

Health & Physical Education

HE.A.1.3.5 — The student understands the relationship between environment and personal health

Mathematics

MA.A.3.3.1 — The student understands and explains the effects of addition, subtraction, multiplication, and division on whole numbers, fractions, including mixed numbers, and decimals, including the inverse relationships of positive and negative numbers

MA.A.3.3.2 — The student selects the appropriate operation to solve problems involving addition, subtraction, multiplication, and division of rational numbers, ratios, proportions, and percents, including the appropriate application of the algebraic order of operations

MA.A.3.3.3 — The student adds, subtracts, multiplies, and divides whole numbers, decimals, and fractions, including mixed numbers, to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator

MA.A.5.3.1 — The student uses concepts about numbers, including prime, factors, and multiples, to build number sequences

MA.B.4.3.2 — The student selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation

MA.D.1.3.2 — The student creates and interprets tables, graphs, equations, and verbal descriptions to explain cause-and-effect relationships

MA.E.1.3.1 — The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations

MA.E.2.3.1 — The student compares experimental results with mathematical expectations of probabilities

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

Science

SC.A.1.3.1 — The student identifies various ways in which substances differ (e.g. mass, volume, shape, density, texture, and reaction to temperature and light)

SC.A.1.3.5 — The student knows the difference between a physical change in a substance (e.g. altering the shape, form, volume, or density) and a chemical change (I.e. producing new substances with different characteristics)

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

Grades 9–12**Health & Physical Education**

HE.A.1.4.4 — The student understands how the environmental conditions of the community influence the health of individuals

HE.A.2.4.2 — The student knows resources from home, school, and community that provide valid health information

Mathematics

MA.A.3.4.1 — The student understands and explains the effects of addition, subtraction, multiplication, and division on real numbers, including square roots, exponents, and appropriate inverse relationships

MA.A.3.4.2 — The student selects and justifies alternative strategies, such as using properties of numbers, including inverse, identity, distributive, associative, transitive, that allow operational shortcuts for computational procedures in real-world or mathematical problems

MA.A.3.4.3 — The student adds, subtracts, multiplies, and divides real numbers, including square roots and exponents, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator

MA.A.5.4.1 — The student applies special number relationships such as sequences and series to real-world problems

MA.B.1.4.3 — The student relates the concepts of measurement to similarity and proportionality in real-world situations

MA.B.2.4.1 — The student selects and uses direct (measured) or indirect (not measured) methods of measurements as appropriate

MA.B.4.4.1 — The student determines the level of accuracy and precision, including absolute and relative errors or tolerance, required in real-world measurement situations

MA.B.4.4.2 — The student selects and uses appropriate instruments, technology, and techniques to measure quantities in order to achieve specified degrees of accuracy in a problem situation

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

Going Underground**Grades 3–5****Science**

SC.D.2.2.1 — The student knows that reusing, recycling, and reducing the use of natural resources improve and protect the quality of life

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.2.2.1 — The student knows that natural events are often predictable and logical

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Science

SC.D.1.3.3 — The student knows how conditions that exist in one system influence the conditions that exist in other systems

SC.D.2.3.1 — The student understands that quality of life is relevant to personal experience

SC.D.2.3.2 — The student knows the positive and negative consequences of human action on the Earth's systems

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.2.3.1 — The student recognizes that patterns exist within and across systems

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

Grades 9–12

Science

SC.D.2.4.1 — The student understands the interconnectedness of the systems on Earth and the quality of life

SC.G.2.4.2 — The student knows that changes in a component of an ecosystem will have

unpredictable effects on the entire system but that the components of the system tend to react in a way that will restore the ecosystem to its original condition

SC.G.2.4.4 — The student knows that the world ecosystems are shaped by physical factors that limit their productivity

SC.G.2.4.5 — The student understands that the amount of life any environment can support is limited and that human activities can change the flow of energy and reduce the fertility of the Earth

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.3.4.1 — The student knows that performance testing is often conducted using small-scale models, computer simulations, or analogous systems to reduce the chance of system failure

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

SC.H.3.4.6 — The student knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account

Grab a Gram

Grades 3–5

Health

HE.A.1.2.5 — The student knows the ways in which the environment impacts health

HE.A.2.2.2 — The student knows how to locate resources from home, school, and community that provide valid health information

HE.B.2.2.3 — The student knows the ways in which technology can influence personal health

Mathematics

MA.A.1.2.2 — The student understands the relative size of whole numbers, commonly used fractions, decimals, and percents

MA.A.1.2.3 — The student understands concrete and symbolic representations of whole numbers, fractions, decimals, and percents in real-world situations

MA.A.2.2.1 — The student uses place-value concepts of grouping based upon powers of ten (thousandths, hundredths, tenths, ones, tens, hundreds, thousands) within the decimal number system

MA.B.1.2.1 — The student uses concrete and graphic models to develop procedures for solving problems related to measurement including length, weight, time, temperature, perimeter, area, volume, and angle

MA.B.1.2.2 — The student solves real-world problems involving length, weight, perimeter, area, capacity, volume, time, temperature, and angles

MA.B.2.2.1 — The student uses direct (measured) and indirect (not measured) measures to calculate and compare measurable characteristics

MA.B.2.2.2 — The student selects and used appropriate standard and nonstandard units of measurement, according to type and size

MA.B.4.2.1 — The student determines which units of measurement, such as seconds, square inches, dollars per tankful, to use with answers to real-world problems

Science

SC.A.2.2.1 — The student knows that materials may be made of parts too small to be seen without magnification

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.3.2.1 — The student understands that people, alone or in groups, invent new tools to solve problems and do work that affects aspects of life outside of science

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Health

HE.A.1.3.5 — The student understands the relationship between environment and personal health

HE.A.1.3.8 — The student knows how lifestyle, pathogens (germs), family history, and other risk factors are related to the cause or prevention of disease and other health problems

HE.A.1.3.9 — The student knows various methods of health promotion and disease prevention

HE.A.2.2.2 — The student knows how to locate resources from home, school, and community that provide valid health information

HE.A.2.2.3 — The student knows how the media influence the selection of health information, products, and services

HE.C.1.3.2 — The student understands the role that individual, family, community, and cultural attitudes play when people make health-related decisions (e.g. when making food choices)

Mathematics

MA.A.1.3.1 — The student associates verbal names, written word names, and standard numerals with integers, fractions, decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios

MA.A.1.3.2 — The student understands the relative size of integers, fractions, and decimals; numbers expressed as percents; numbers with exponents; numbers in scientific notation; radicals; absolute value; and ratios

MA.A.1.3.3 — The student understands concrete and symbolic representations of rational numbers and irrational numbers in real-world situations

MA.A.1.3.4 — The student understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notations, exponents, radicals, and absolute value

MA.A.2.3.1 — The student understands and uses exponential and scientific notation

MA.B.2.3.2 — The student solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system

MA.B.4.3.1 — The student selects appropriate units of measurement and determines and applies significant digits in a real-world context. (Significant digits should relate to both instrument precision and to the least precise unit of measurement).

Science

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.1 — The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

SC.H.3.3.6 — The student knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone

Grades 9–12

Health

HE.A.1.4.4 — The student understands how the environmental conditions of the community influence the health of individuals

HE.A.1.4.5 — The student knows how the social environment influences the health of the community

HE.A.1.4.7 — The student understands how public health policies and government regulations influence health conditions

HE.A.1.4.8 — The student knows how the prevention and control of health problems are influenced by research and medical advances

HE.A.2.4.1 — The student understands potential controversy regarding the validity of health information, products, and services

HE.A.2.4.2 — The student knows resources from home, school, and community that provide valid health information

HE.B.2.4.2 — The student understands the role of governmental agencies in regulating advertising claims related to health

HE.B.2.4.3 — The student knows how information from peers, family, and the community influences personal health

HE.C.1.4.2 — The student knows the health concerns that require collaborative decision making (e.g. community violence and water pollution)

Mathematics

MA.A.1.4.1 — The student associates verbal names, written word names, and standard numerals with integers, rational numbers, irrational numbers, real numbers, and complex numbers

MA.A.1.4.2 — The student understands the relative size of integers, rational numbers, irrational numbers, and real numbers

MA.A.1.4.3 — The student understands concrete and symbolic representations of real and complex numbers in real-world situations

MA.A.1.4.4 — The student understands that numbers can be represented in a variety of equivalent forms, including integers, fractions, decimals, percents, scientific notation, exponents, radicals, absolute value, and logarithms

MA.A.2.4.2 — The student understands and uses the real number system

MA.A.2.4.3 — The student understands the structure of the complex number system

MA.B.1.4.3 — The student relates the concepts of measurement to similarity and proportionality in real-world situations

MA.B.2.4.1 — The student selects and uses direct (measured) or indirect (not measured) methods of measurements as appropriate

MA.B.4.4.1 — The student determines the level of accuracy and precision, including absolute and relative errors or tolerance, required in real-world measurement situations

Science

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

SC.H.3.4.2 — The student knows that technological problems often create a demand for new scientific knowledge and that new technologies make it possible for scientists to extend their research in a way that advances science

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

SC.H.3.4.5 — The student knows that the value of a technology may differ for different people and at different times

SC.H.3.4.6 — The student knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account

Hitting the Mark

Grades 3–5

Mathematics

MA.E.3.2.1 — The student designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs

MA.E.3.2.2 — The student uses statistical data about life situations to make predictions and justifies reasoning

Science

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Mathematics

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

Science

SC.H.1.3.2 — The student knows that the study of the events that led scientists to discoveries can provide information about the inquiry process and its effects

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

Grades 9–12

Mathematics

MA.E.3.4.1 — The student designs and performs real-world statistical experiments that involve more than one variable, then analyzes results and reports findings

Science

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

Invertebrates as Indicators**Grades 3–5****Language Arts**

LA.A.2.2.8 — The student selects and uses a variety of appropriate reference materials, including multiple representations of information, such as maps, charts, and photos, to gather information for research projects

LA.C.3.2.3 — The student speaks for specific occasions, audiences, and purposes, including conversations, discussions, projects, and informational or imaginative presentations

LA.C.3.2.5 — The student participates as a contributor and occasionally acts as a leader in a group discussion

Mathematics

MA.E.1.2.1 — The student solves problems by generating, collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts

MA.E.1.2.2 — The student determines range, mean, median, and mode from sets of data

MA.E.1.2.3 — The student analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers

MA.E.2.2.1 — The student uses models, such as tree diagrams, to display possible outcomes and to predict events

MA.E.2.2.2 — The student predicts the likelihood of simple events occurring

MA.E.3.2.1 — The student designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs

MA.E.3.2.2 — The student uses statistical data about life situations to make predictions and justifies reasoning

Science

SC.G.1.2.2 — The student knows that living things compete in a climatic region with other living things and that structural adaptations make them fit for an environment

SC.G.1.2.7 — The student knows that variations in light, water, temperature, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem

SC.G.2.2.1 — The student knows that all living things must compete for Earth's limited resources; organisms best adapted to compete for the available resources will be successful and

pass their adaptations (traits) to their offspring

SC.G.2.2.2 — The student knows that the size of a population is dependent upon the available resources within its community

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.2.2.1 — The student knows that natural events are often predictable and logical

SC.G.2.2.3 — The student knows that changes in the habitat of an organism may be beneficial or harmful

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Language Arts

LA.A.2.3.6 — The student uses a variety of reference materials, including indexes, magazines, newspapers, and journals, and tools, including card catalogs and computer catalogs, to gather information for research topics

LA.A.2.3.7 — The student synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheets, and outlines

LA.A.2.3.8 — The student checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws

LA.C.3.3.3 — The student speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations

Mathematics

MA.E.1.3.1 — The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations

MA.E.1.3.2 — The student understands and applies the concepts of range and central tendency (mean, median, and mode)

MA.E.1.3.3 — The student analyzes real-world data by applying appropriate formulas for

measure of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers

MA.E.2.3.1 — The student compares experimental results with mathematical expectations of probabilities

MA.E.2.3.2 — The student determines odds for and odds against a given situation

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

Science

SC.F.2.3.2 — The student knows the patterns and advantages of sexual and asexual reproduction in plants and animals

SC.G.1.3.2 — The student knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

Grades 9–12

Language Arts

LA.A.2.4.6 — The student selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services

LA.A.2.4.7 — The student analyzes the validity and reliability of primary source information and uses the information appropriately

LA.A.2.4.8 — The student synthesizes information from multiple sources to draw conclusions

Mathematics

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

MA.E.1.4.2 — The student calculates measures of central tendency (mean, median, and mode)

and dispersion (range, standard deviation, and variance) for complex sets of data and determines the most meaningful measure to describe the data

MA.E.1.4.3 — The student analyzes real-world data and makes predictions of larger populations by applying formulas to calculate measures of central tendency and dispersion using the sample population data, and using appropriate technology, including calculators and computers

MA.E.2.4.1 — The student determines probabilities using counting procedures, tables, tree diagrams, and formulas for permutations and combinations

MA.E.2.4.2 — The student determines the probability for simple and compound events as well as independent and dependent events

MA.E.3.4.1 — The student designs and performs real-world statistical experiments that involve more than one variable, then analyzes results and reports findings

Science

SC.F.1.4.2 — The student knows that body structures are uniquely designed and adapted for their function

SC.F.2.4.3 — The student understands the mechanisms of change (e.g. mutation and natural deletion) that lead to adaptations in a species and their ability to survive naturally in changing conditions and to increase species diversity

SC.G.1.4.1 — The student knows of the great diversity and interdependence of living things

SC.G.2.4.2 — The student knows that changes in a component of an ecosystem will have unpredictable effects on the entire system but that the components of the system tend to react in a way that will restore the ecosystem to its original condition

SC.G.2.4.3 — The student understands how genetic variation of offspring contributes to population control in an environment and that natural selection ensures that those who are best adapted to their surroundings survive to reproduce

SC.G.2.4.5 — The student understands that the amount of life any environment can support is limited and that human activities can change the flow of energy and reduce the fertility of the Earth

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.2.4.2 — The student knows that scientists control conditions in order to obtain evidence, but when that is not possible for practical or ethical reasons, they try to observe a wide range of natural occurrences to discern patterns

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

It's Clear to Me

Grades 3–5

Science

SC.A.1.2.1 — The student determines that the properties of materials (e.g. density and volume)

can be compared and measured (e.g. using rulers, balances, and thermometers)

SC.A.1.2.2 — The student knows that common materials (e.g. water) can be changed from one state to another by heating and cooling

SC.A.1.2.4 — The student knows that different materials are made by physically combining substances and that different objects can be made by combining different materials

SC.A.1.2.5 — The student knows that materials made by chemically combining two or more substances may have properties that differ from the original materials

SC.A.2.2.1 — The student knows that materials may be made of parts too small to be seen without magnification

SC.A.2.4.2 — The student knows the difference between an element, a molecule, and a compound

Grades 6–8

Science

SC.A.1.3.1 — The student identifies various ways in which substances differ (e.g. mass, volume, shape, density, texture, and reaction to temperature and light)

SC.A.1.3.5 — The student knows the difference between a physical change in a substance (e.g. altering the shape, form, volume, or density) and a chemical change (i.e. producing new substances with different characteristics)

Grades 9–12

Science

SC.A.2.4.2 — The student knows the difference between an element, a molecule, and a compound

Life and Death Situation

Grades 3-5

Health

HE.A.1.2.2 — The student knows how personal health behaviors influence individual well-being

HE.A.1.2.3 — The student knows the indicators of physical, mental, emotional, and social health during childhood

HE.A.1.2.5 — The student knows the ways in which the environment impacts health

HE.A.1.2.7 — The student knows why health problems should be detected and treated early

HE.B.1.2.1 — The student knows the importance of assuming responsibility for personal health habits

HE.B.2.2.3 — The student knows the ways in which technology can influence personal health

Science

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Health

HE.A.1.3.2 — The student understands the relationship between positive health behaviors and the prevention of injury, illness, disease, and other health problems

HE.A.1.3.5 — The student understands the relationship between environment and personal health

HE.A.1.3.7 — The student knows the benefits of positive health practices and appropriate health-care measures necessary to prevent accidents, illnesses, and death

HE.A.1.3.8 — The student knows how lifestyle, pathogens (germs), family history, and other risk factors are related to the cause or prevention of disease and other health problems

HE.A.1.3.9 — The student knows various methods of health promotion and disease prevention

HE.B.1.3.1 — The student knows the importance of assuming responsibility for personal health behaviors

HE.B.2.3.3 — The student knows the ways in which technology can influence personal health

Science

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

Grades 9–12

Health

HE.A.1.4.1 — The student understands the impact of personal health behaviors on body systems

HE.A.1.4.5 — The student knows how the social environment influences the health of the community

HE.A.1.4.6 — The student knows how to delay the onset of and reduce the risk for potential health problems during adulthood

HE.A.1.4.7 — The student understands how public health policies and government regulations influence health conditions

HE.A.1.4.8 — The student knows how the prevention and control of health problems are influenced by research and medical advances

HE.B.1.4.1 — The student understands the role of individual responsibility regarding personal risk behaviors

HE.A.1.4.4 — The student understands how the environmental conditions of the community influence the health of individuals

Science

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.2.4.2 — The student that scientists control conditions in order to obtain evidence, but when that is not possible for practical or ethical reasons, they try to observe a wide range of natural occurrences to discern patterns.

Looks Aren't Everything

Grades 3–5

Health & Physical Education

HE.A.1.2.5 — The student knows the ways in which the environment impacts health

Language Arts

LA.B.2.2.3 — The student writes for a variety of occasions, audiences, and purposes

LA.B.2.2.5 — The student creates narratives in which ideas, details, and events are in logical order and are relevant to the story line

Mathematics

MA.A.3.2.3 — The student adds, subtracts, and multiplies whole numbers, decimals, and fractions, including mixed numbers, and divides whole numbers to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator

MA.B.1.2.2 — The student solves real-world problems involving length, weight, perimeter, area, capacity, volume, time, temperature, and angles

Science

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

The Arts

TH.A.1.2.1 — The student creates imagined characters, relationships, and environments, using basic acting skills (e.g. breath control, diction, concentration, and control of isolated body parts)

Grades 6–8**Health & Physical Education**

HE.A.1.3.5 — The student understands the relationship between environment and personal health

HE.A.1.3.8 — The student knows how lifestyle, pathogens (germs), family history, and other risk factors are related to the cause or prevention of disease and other health problems

Language Arts

LA.B.2.3.2 — The student organizes information using alphabetical, chronological and numerical systems

Mathematics

MA.A.3.3.3 — The student adds, subtracts, multiplies, and divides whole numbers, decimals, and fractions, including mixed numbers, to solve real-world problems, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator

MA.B.2.3.2 — The student solves problems involving units of measure and converts answers to a larger or smaller unit within either the metric or customary system

The Arts

TH.A.1.3.1 — The student develops characters, relationships, and environments from written sources (e.g. plays, stories, poems, and history)

TH.A.2.3.1 — The student uses the elements of dramatic form (e.g. plot, character, dialogue, conflict and resolution, and setting) to stage a play

Grades 9–12**Health & Physical Education**

HE.A.1.4.7 — The student understands how public health policies and government regulations influence health conditions

HE.A.1.4.7 — The student understands how public health policies and government regulations influence health conditions

HE.B.2.4.1 — The student understands the impact of technology on personal, family, and community health

Language Arts

LA.B.2.4.3 — The student writes fluently for a variety of occasions, audiences, and purposes, making appropriate choices regarding style, tone, level of detail, and organization

Mathematics

MA.A.3.4.3 — The student adds, subtracts, multiplies, and divides real numbers, including square roots and exponents, using appropriate methods of computing, such as mental mathematics, paper and pencil, and calculator

Mapping It Out: Concept Mapping for Water Quality

Grades 3–5

Language Arts

LA.A.2.2.5 — The student reads and organizes information for a variety of purposes, including making a report, conducting interviews, taking a test, and performing an authentic task

LA.A.2.3.5 — The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task

Grades 6–8

Language Arts

LA.A.2.3.7 — The student synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheets, and outlines

LA.B.2.3.1 — The student writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media

LA.A.2.4.4 — The student locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement

Grades 9–12

Language Arts

LA.B.2.4.1 — The student writes text, notes, outlines, comments, and observations that demonstrate comprehension and synthesis of content, processes, and experiences from a variety of media

Multiple Perspectives

Grades 3–5

Language Arts

LA.A.2.2.5 — The student reads and organizes information for a variety of purposes, including making a report, conducting interviews, taking a test, and performing an authentic task

LA.A.2.2.8 — The student selects and uses a variety of appropriate reference materials, including multiple representations of information, such as maps, charts, and photos, to gather information for research projects

LA.A.2.2.6 — The student recognizes the difference between fact and opinion presented in a text

LA.A.2.2.5 — The student reads and organizes information for a variety of purposes, including making a report, conducting interviews, taking a test, and performing an authentic task

LA.C.1.2.1 — The student listens and responds to a variety of oral presentations, such as stories, poems, skits, songs, personal accounts, informational speeches

LA.C.1.2.5 — The student responds to speakers by asking questions, making contributions, and paraphrasing what is said

LA.C.3.2.3 — The student speaks for specific occasions, audiences, and purposes, including conversations, discussions, projects, and informational or imaginative presentations

LA.C.3.2.5 — The student participates as a contributor and occasionally acts as a leader in a group discussion

LA.C.3.2.6 — The student organizes a speech using a basic beginning, middle, and ending

Science

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Social Studies

SS.B.2.2.2 — The student understands how the physical environment supports and constrains human activities

SS.B.2.2.3 — The student understands how human activity affects the physical environment

SS.B.2.2.4 — The student understands how factors such as population growth, human migration, improved methods of transportation and communication, and economic development affect the use and conservation of natural resources

Grades 6–8

Language Arts

LA.A.2.3.5 — The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task

LA.A.2.3.6 — The student uses a variety of reference materials, including indexes, magazines, newspapers, and journals, and tools, including card catalogs and computer catalogs, to gather information for research topics

LA.A.2.3.7 — The student synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheets, and outlines

LA.A.2.3.8 — The student checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws

LA.C.1.3.1 — The student listens and uses information gained for a variety of purposes, such as gaining information from interviews, following directions, and pursuing a personal interest

LA.C.1.3.4 — The student uses responsive listening skills, including paraphrasing, summarizing, and asking questions for elaboration and clarification

LA.C.2.3.2 — The student uses movement, placement, juxtaposition, gestures, silent periods, facial expressions, and other nonverbal cues to convey meaning to an audience

LA.C.3.3.1 — The student understands how volume, stress, pacing, and pronunciation can positively or negatively affect an oral presentation

LA.C.3.3.2 — The student asks questions and makes comments and observations that reflect understanding and application of content, processes and experiences

LA.C.3.3.3 — The student speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations

Science

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.3.3.5 — The student understands that contributions to the advancement of science, mathematics, and technology have been made by different kinds of people, in different cultures, at different times, and are an intrinsic part of the development of human culture

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

Social Studies

SS.B.2.3.6 — The student understands the environmental consequences of people changing the physical environment in various world locations

SS.B.2.3.9 — The student understands ways the interaction between -physical and human systems affects current conditions on Earth

Grades 9-12

Language Arts

LA.A.2.4.4 — The student locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement

LA.A.2.4.6 — The student selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services

LA.A.2.4.7 — The student analyzes the validity and reliability of primary source information and uses the information appropriately

LA.A.2.4.8 — The student synthesizes information from multiple sources to draw conclusions

LA.C.1.4.1 — The student selects and uses appropriate listening strategies according to the intended purpose, such as solving problems, interpreting and evaluating the techniques and intent of a presentation, and taking action in career-related situations

LA.C.1.4.3 — The student uses effective strategies for informal and formal discussions, including listening actively and reflectively, connecting to and building on the ideas of a previous speaker, and respecting the viewpoints of others

LA.C.3.4.1 — The student uses volume, stress, pacing, enunciation, eye contact, and gestures

that meet the needs of the audience and topic

LA.C.3.4.2 — The student selects and uses a variety of speaking strategies to clarify meaning and to reflect understanding, interpretation, application, and evaluation of content, processes, or experiences, including asking relevant questions when necessary, making appropriate and meaningful comments, and making insightful observations

LA.C.3.4.3 — The student uses details, illustrations, analogies, and visual aids to make oral presentations that inform, persuade, or entertain

LA.C.3.4.4 — The student applies oral communication skills to interviews, group presentations, formal presentations, and impromptu situations

LA.C.3.4.5 — The student develops and sustains a line of argument and provides appropriate support

Science

SC.G.2.4.2 — The student knows that changes in a component of an ecosystem will have unpredictable effects on the entire system but that the components of the system tend to react in a way that will restore the ecosystem to its original condition

SC.G.2.4.5 — The student understands that the amount of life any environment can support is limited and that human activities can change the flow of energy and reduce the fertility of the Earth

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

SC.H.3.4.6 — The student knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account

Social Studies

SS.B.2.4.1 — The student understands how social, cultural, economic, and environmental factors contribute to the dynamic nature of regions

SS.B.2.4.4 — The student understands the global impact of human changes in the physical environment

SS.B.2.4.5 — The student knows how humans overcome "limits to growth" imposed by physical systems

SS.B.2.4.7 — The student understands the concept of sustainable development

Picking Up the Pieces

Grades 6–8

Language Arts

LA.A.2.3.5 —

The student locates, organizes, and interprets written information for a variety of purposes, including classroom research, collaborative decision making, and performing a school or real-world task

LA.A.2.3.6 — The student uses a variety of reference materials, including indexes, magazines, newspapers, and journals, and tools, including card catalogs and computer catalogs, to gather information for research topics

LA.A.2.3.7 — The student synthesizes and separates collected information into useful components using a variety of techniques, such as source cards, note cards, spreadsheets, and outlines

LA.A.2.3.8 — The student checks the validity and accuracy of information obtained from research in such ways as differentiating fact and opinion, identifying strong vs. weak arguments, recognizing that personal values influence the conclusions an author draws

LA.C.3.3.3 — The student speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations

Science

SC.D.1.3.1 — The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them another areas, sometimes in seasonal layers

SC.D.1.3.3 — The student knows how conditions that exist in one system influence the conditions that exist in other systems

SC.D.1.3.4 — The student knows the ways in which plants and animals reshape the landscape (e.g., Bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion)

SC.D.2.3.1 — The student understands that quality of life is relevant to personal experience

SC.D.2.3.2 — The student knows the positive and negative consequences of human action on the Earth's systems

SC.G.1.3.4 — The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.1 — The student knows that scientific knowledge is subject to modification as new information challenges prevailing theories and as a new theory leads to looking at old observations in a new way

SC.H.2.3.1 — The student recognizes that patterns exist within and across systems

SC.H.3.3.3 — The student knows that in research involving human subjects, the ethics of science require that potential subjects be fully informed about the risks and benefits associated with the research and of their right to refuse to participate

SC.H.3.3.6 — The student knows that no matter who does science and mathematics or invents things, or when or where they do it, the knowledge and technology that result can eventually become available to everyone

Social Studies

SS.B.2.3.2 — The student knows the human and physical characteristics of different places in the world and how these characteristics change over time

SS.B.2.3.3 — The student understands ways cultures differ in their use of similar environments and resources

SS.B.2.3.4 — The student understands ways the landscape and society change as a consequence of shifting from a dispersed to a concentrated settlement form

Grades 9–12

Language Arts

LA.A.2.4.4 — The student locates, gathers, analyzes, and evaluates written information for a variety of purposes, including research projects, real-world tasks, and self-improvement

LA.A.2.4.6 — The student selects and uses appropriate study and research skills and tools according to the type of information being gathered or organized, including almanacs, government publications, microfiche, news sources, and information services

LA.A.2.4.7 — The student analyzes the validity and reliability of primary source information and uses the information appropriately

LA.A.2.4.8 — The student synthesizes information from multiple sources to draw conclusions

LA.C.3.4.4 — The student applies oral communication skills to interviews, group presentations, formal presentations, and impromptu situations

Science

SC.D.2.4.1 — The student understands the interconnectedness of the systems on Earth and the quality of life

SC.G.1.4.1 — The student knows of the great diversity and interdependence of living things

SC.G.2.4.2 — The student knows that changes in a component of an ecosystem will have unpredictable effects on the entire system but that the components of the system tend to react in a way that will restore the ecosystem to its original condition

SC.G.2.4.5 — The student understands that the amount of life any environment can support is limited and that human activities can change the flow of energy and reduce the fertility of the Earth

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental

degradation, and resource depletion)

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.1.4.2 — The student knows that from time to time, major shifts occur in the scientific view of how the world works, but that more often the changes that take place in the body of scientific knowledge are small modifications of prior knowledge

SC.H.1.4.3 — The student understands that no matter how well one theory fits observations, a new theory might fit them as well or better, or might fit a wider range of observations, because in science, the testing, revising, and occasional discarding of theories, new and old, never ends and leads to an increasingly better understanding of how things work in the world, but not to absolute truth

SC.H.3.4.2 — The student knows that technological problems often create a demand for new scientific knowledge and that new technologies make it possible for scientists to extend their research in a way that advances science

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

SC.H.3.4.4 — The student knows that funds for science research come from federal government agencies, industry, and private foundations and that this funding often influences the areas of discovery

SC.H.3.4.5 — The student knows that the value of a technology may differ for different people and at different times

SC.H.3.4.6 — The student knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account

Social Studies

SS.B.2.4.4 — The student understands the global impact of human changes in the physical environment

SS.B.2.4.5 — The student knows how humans overcome "limits to growth" imposed by physical systems

SS.B.2.4.7 — The student understands the concept of sustainable development

Pollution - Take It or Leave It

Grades 3–5

Science

SC.A.1.2.2 — The student knows that common materials (e.g. water) can be changed from one state to another by heating and cooling

SC.A.2.2.1 — The student knows that materials may be made of parts too small to be seen without magnification

SC.D.1.2.3 — The student knows that the water cycle is influenced by temperature, pressure, and the topography of the land

SC.G.1.2.3 — The student knows that green plants use carbon dioxide, water, and sunlight energy to turn minerals and nutrients into food for growth, maintenance, and reproduction

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.2.2.1 — The student knows that natural events are often predictable and logical

Grades 6–8

Science

SC.A.1.3.3 — The student knows that temperature measures the average energy of motion of the particles that make up the substance

SC.A.1.3.4 — The student knows that atoms in solids are close together and do not move around easily; in liquids, atoms tend to move farther apart; in gas, atoms are quite far apart and move around freely

SC.A.1.3.5 — The student knows the difference between a physical change in a substance (e.g. altering the shape, form, volume, or density) and a chemical change (I.e. producing new substances with different characteristics)

SC.G.1.3.5 — The student knows that life is maintained by a continuous input of energy from the sun and by the recycling of the atoms that make up the molecules of living organisms

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.2.3.1 — The student recognizes that patterns exist within and across systems

Grades 9–12

Science

SC.A.1.4.3 — The student knows that a change from one phase of matter to another involves a gain or loss of energy

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

Setting the Standard

Grades 6–8

Health

HE.A.2.3.2 — The student knows how to use resources from the home, school and community that provide valid health information

HE.A.1.3.5 — The student understands the relationship between environment and personal health

HE.A.1.3.8 — The student knows how lifestyle, pathogens (germs), family history, and other risk factors are related to the cause or prevention of disease and other health problems

HE.C.1.3.1 — The student knows how to apply a decision-making process to health issues and problems individually and collaboratively (e.g. nutritional food choices at home, restaurants, and school)

HE.C.1.3.2 — The student understands the role that individual, family, community, and cultural attitudes play when people make health-related decisions (e.g. when making food choices)

HE.C.1.3.3 — The student understands the various consequences of health-related decisions

HE.C.2.3.1 — The student knows methods for conveying accurate health information and ideas

to both individuals and groups using a variety of methods (e.g. through dialogue, oral reports, and posters)

HE.C.2.3.1 — The student knows methods for conveying accurate health information and ideas to both individuals and groups using a variety of methods (e.g. through dialogue, oral reports, and posters)

HE.C.2.3.6 — The student knows how to access community agencies that advocate healthy individuals, families, and communities

Science

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

Social Studies

SS.B.1.3.1 — The student uses various map forms (including thematic maps) and other geographic representations, tools, and technologies to acquire, process, and report geographic information including patterns of land use, connections between places, and patterns and processes of migration and diffusion

SS.B.2.3.9 — The student understands ways the interaction between -physical and human systems affects current conditions on Earth

Grades 9–12

Health

HE.A.1.4.4 — The student understands how the environmental conditions of the community influence the health of individuals

HE.A.1.4.7 — The student understands how public health policies and government regulations influence health conditions

HE.A.2.4.2 — The student knows resources from home, school, and community that provide valid health information

HE.B.2.4.1 — The student understands the impact of technology on personal, family, and community health

HE.C.1.4.2 — The student knows the health concerns that require collaborative decision making (e.g. community violence and water pollution)

HE.C.2.4.1 — The student knows oral, written, audio, and visual communications methods to accurately express health messages (e.g. through an audiovisual public service announcement)

HE.C.2.4.2 — The student knows methods for effectively expressing feelings and opinions on health issues

HE.C.2.4.5 — The student knows methods for working cooperatively with others to advocate for healthy communities (e.g. community service projects and health careers)

HE.C.2.4.6 — The student knows effective techniques for supporting community, state, and federal agencies that advocate healthier communities

Science

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

SC.H.3.4.6 — The student knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account

Social Studies

SS.B.1.4.1 — The student used a variety of maps, geographic technologies including geographic information systems (GIS) and satellite-produced imagery, and other advanced graphic representations to depict geographic problems

SS.B.2.4.7 — The student understands the concept of sustainable development

SS.C.2.4.7 — The student understands the concept of sustainable development

Stone Soup

Grades 3–5

Mathematics

MA.E.1.2.3 — The student analyzes real-world data to recognize patterns and relationships of the measures of central tendency using tables, charts, histograms, bar graphs, line graphs, pictographs, and circle graphs generated by appropriate technology, including calculators and computers

MA.E.2.2.2 — The student predicts the likelihood of simple events occurring

MA.E.3.2.1 — The student designs experiments to answer class or personal questions, collects information, and interprets the results using statistics (range, mean, median, and mode) and pictographs, charts, bar graphs, circle graphs, and line graphs

MA.E.3.2.2 — The student uses statistical data about life situations to make predictions and justifies reasoning

Science

SC.A.2.2.1 — The student knows that materials may be made of parts too small to be seen without magnification

SC.D.1.2.4 — The student knows that the surface of the Earth is in a continuous state of change as waves, weather, and shifts of the land constantly change and produce many new features

SC.G.1.2.7 — The student knows that variations in light, water, temperature, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

Grades 6–8**Mathematics**

MA.E.1.3.3 — The student analyzes real-world data by applying appropriate formulas for measure of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers

MA.E.2.3.1 — The student compares experimental results with mathematical expectations of probabilities

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

Science

SC.A.1.3.1 — The student identifies various ways in which substances differ (e.g. mass, volume, shape, density, texture, and reaction to temperature and light)

SC.D.1.3.1 — The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them another areas, sometimes in seasonal layers

SC.D.2.3.2 — The student knows the positive and negative consequences of human action on the Earth's systems

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are

essential to maintaining an investigator's credibility with other scientists and society

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

Grades 9–12

Mathematics

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

Science

SC.A.1.4.4 — The student experiments and determines that the rates of reaction among atoms and molecules depend on the concentration, pressure, and temperature of the reactants and the presence or absence of catalysts

SC.A.1.4.5 — The student knows that connections (bonds) form between substances when outer-shell electrons are either transferred or shared between their atoms, changing the properties of substances

SC.D.2.4.1 — The student understands the interconnectedness of the systems on Earth and the quality of life

SC.F.1.4.7 — The student knows that organisms respond to internal and external stimuli

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

There is No Point to this Pollution!

Grades 6–8

Science

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

Social Studies

SS.B.1.3.1 — The student uses various map forms (including thematic maps) and other geographic representations, tools, and technologies to acquire, process, and report geographic information including patterns of land use, connections between places, and patterns and processes of migration and diffusion

SS.B.1.3.2 — The student uses mental maps to organize information about people, places, and environments

SS.B.1.3.6 — The student understands ways in which regional systems are interconnected

SS.B.2.3.6 — The student understands the environmental consequences of people changing the physical environment in various world locations

SS.B.2.3.9 — The student understands ways the interaction between -physical and human systems affects current conditions on Earth

Grades 9–12**Science**

SC.G.2.4.5 — The student understands that the amount of life any environment can support is limited and that human activities can change the flow of energy and reduce the fertility of the Earth

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

Social Studies

SS.B.2.4.7 — The student understands the concept of sustainable development

SS.B.1.4.1 — The student used a variety of maps, geographic technologies including geographic information systems (GIS) and satellite-produced imagery, and other advanced graphic representations to depict geographic problems

SS.B.1.4.4 — The student understands how cultural and technological characteristics can link or divide regions

SS.B.2.4.1 — The student understands how social, cultural, economic, and environmental factors contribute to the dynamic nature of regions

Turbidity or Not Turbidity: That is the Question**Grades 3–5****Mathematics**

MA.B.2.2.1 — The student uses direct (measured) and indirect (not measured) measures to

calculate and compare measurable characteristics

MA.E.1.2.1 — The student solves problems by generating. Collecting, organizing, displaying, and analyzing data using histograms, bar graphs, circle graphs, line graphs, pictographs, and charts

MA.E.2.2.1 — The student uses models, such as tree diagrams, to display possible outcomes and to predict events

Science

SC.A.1.2.1 — The student determines that the properties of materials (e.g. density and volume) can be compared and measured (e.g. using rulers, balances, and thermometers)

SC.D.1.2.2 — The student knows that 75 percent of the surface of the Earth is covered by water

SC.D.1.2.4 — The student knows that the surface of the Earth is in a continuous state of change as waves, weather, and shifts of the land constantly change and produce many new features

SC.G.1.2.2 — The student knows that living things compete in a climatic region with other living things and that structural adaptations make them fit for an environment

SC.G.1.2.3 — The student knows that green plants use carbon dioxide, water, and sunlight energy to turn minerals and nutrients into food for growth, maintenance, and reproduction

SC.G.1.2.7 — The student knows that variations in light, water, temperature, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem

SC.G.2.2.2 — The student knows that the size of a population is dependent upon the available resources within its community

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Mathematics

MA.B.2.3.1 — The student used direct (measured) and indirect (not measured) measures to compare a given characteristic in either metric or customary units

MA.E.1.3.1 — The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations

Science

SC.D.1.3.1 — The student knows that mechanical and chemical activities shape and reshape the Earth's land surface by eroding rock and soil in some areas and depositing them another areas, sometimes in seasonal layers

SC.D.1.3.3 — The student knows how conditions that exist in one system influence the conditions that exist in other systems

SC.D.1.3.4 — The student knows the ways in which plants and animals reshape the landscape (e.g., Bacteria, fungi, worms, rodents, and other organisms add organic matter to the soil, increasing soil fertility, encouraging plant growth, and strengthening resistance to erosion)

SC.D.2.3.1 — The student understands that quality of life is relevant to personal experience

SC.D.2.3.2 — The student knows the positive and negative consequences of human action on the Earth's systems

SC.F.1.3.7 — The student knows that behavior is a response to the environment and influences growth, development, maintenance, and reproduction

SC.G.1.3.2 — The student knows that biological adaptations include changes in structures, behaviors, or physiology that enhance reproductive success in a particular environment

SC.G.1.3.4 — The student knows that the interactions of organisms with each other and with the non-living parts of their environments result in the flow of energy and the cycling of matter throughout the system

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.3 — The student knows that a brief change in the limited resources of an ecosystem may alter the size of a population or the average size of individual organisms and that long-term change may result in the elimination of animal and plant populations inhabiting the Earth

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

Grades 9–12**Mathematics**

MA.B.2.4.1 — The student selects and uses direct (measured) or indirect (not measured) methods of measurements as appropriate

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

MA.E.2.4.2 — The student determines the probability for simple and compound events as well as independent and dependent events

Science

SC.D.2.4.1 — The student understands the interconnectedness of the systems on Earth and the quality of life

SC.G.2.4.5 — The student understands that the amount of life any environment can support is limited and that human activities can change the flow of energy and reduce the fertility of the Earth

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

Wash It Away

Grades 3–5

Health

HE.A.1.2.2 — The student knows how personal health behaviors influence individual well-being

HE.A.1.2.1 — The student understands the functions of human body systems

HE.B.1.2.1 — The student knows the importance of assuming responsibility for personal health habits

HE.B.1.2.4 — The student uses strategies for improving or maintaining personal health

HE.C.1.2.1 — The student knows how to apply a decision-making process to health issues and problems (e.g. decision not to use tobacco products)

HE.C.1.2.3 — The student knows various methods for predicting outcomes of positive health decisions (e.g. life expectancy)

HE.C.2.2.2 — The student knows ways to effectively express feelings and opinions on health issues

HE.C.2.2.3 — The student knows the community agencies that advocate healthy individuals, families, and communities (e.g. health department and volunteer agencies)

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

Science

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

Grades 6–8

Health

HE.A.1.3.1 — The student knows how body systems work together and influence each other

HE.A.1.3.2 — The student understands the relationship between positive health behaviors and the prevention of injury, illness, disease, and other health problems

HE.A.1.3.6 — The student knows ways in which to reduce risks related to health problems of adolescents

HE.A.1.3.7 — The student knows the benefits of positive health practices and appropriate health-care measures necessary to prevent accidents, illnesses, and death

HE.A.1.3.8 — The student knows how lifestyle, pathogens (germs), family history, and other risk factors are related to the cause or prevention of disease and other health problems

HE.A.1.3.9 — The student knows various methods of health promotion and disease prevention

HE.B.1.3.1 — The student knows the importance of assuming responsibility for personal health behaviors

HE.B.1.3.4 — The student knows strategies for improving and maintaining personal and family health

HE.C.1.3.1 — The student knows how to apply a decision-making process to health issues and problems individually and collaboratively (e.g. nutritional food choices at home, restaurants, and school)

HE.C.1.3.2 — The student understands the role that individual, family, community, and cultural attitudes play when people make health-related decisions (e.g. when making food choices

HE.C.1.3.3 — The student understands the various consequences of health-related decisions

HE.C.1.3.5 — The student knows how priorities, changing abilities, and responsibilities influence setting health goals (e.g. conducting a needs assessment)

HE.C.1.3.6 — The student knows the outcomes of good personal health habits

HE.C.2.3.1 — The student knows methods for conveying accurate health information and ideas to both individuals and groups using a variety of methods (e.g. through dialogue, oral reports, and posters)

Grades 9–12

Health

HE.A.1.4.1 — The student understands the impact of personal health behaviors on body systems

HE.A.1.4.6 — The student knows how to delay the onset of and reduce the risk for potential health problems during adulthood

HE.A.1.4.7 — The student understands how public health policies and government regulations influence health conditions

HE.A.1.4.8 — The student knows how the prevention and control of health problems are influenced by research and medical advances

HE.B.1.4.2 — The student knows strategies for health enhancement and risk reduction

HE.B.1.4.4 — The student knows strategies for improving or maintaining personal, family, and community health

HE.C.1.4.1 — The student knows various strategies when making decisions related to health needs and risks of young adults (e.g. support-and-reward system)

HE.C.1.4.3 — The student knows methods for predicting immediate and long-term impact of health decisions on the individuals who make them

HE.C.1.4.4 — The student knows how to implement a plan for attaining personal health goals for the school year and knows methods for evaluating progress

HE.C.1.4.6 — The student knows various strategies when applying the decision-making process regarding healthy habits (e.g. ways to avoid junk foods)

HE.C.2.4.1 — The student knows oral, written, audio, and visual communications methods to accurately express health messages (e.g. through an audiovisual public service announcement)

HE.C.2.4.5 — The student knows methods for working cooperatively with others to advocate for healthy communities (e.g. community service projects and health careers)

Washing Water

Grades 3–5

Language Arts

LA.B.2.2.1 — The student writes notes, comments, and observations that reflect comprehension

of content and experiences from a variety of media

LA.B.2.2.3 — The student writes for a variety of occasions, audiences, and purposes

LA.B.2.2.6 — The student creates expository responses in which ideas and details follow an organizational pattern and are relevant to the purpose

Science

SC.A.1.2.1 — The student determines that the properties of materials (e.g. density and volume) can be compared and measured (e.g. using rulers, balances, and thermometers)

SC.A.1.2.5 — The student knows that materials made by chemically combining two or more substances may have properties that differ from the original materials

SC.A.2.2.1 — The student knows that materials may be made of parts too small to be seen without magnification

SC.D.2.2.1 — The student knows that reusing, recycling, and reducing the use of natural resources improve and protect the quality of life

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.1 — The student knows that it is important to keep accurate records and descriptions to provide information and clues on causes of discrepancies in repeated experiments

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.3 — The student knows that to work collaboratively, all team members should be free to reach, explain, and justify their own individual conclusions

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.2.5 — The student knows that a model of something is different from the real thing, but can be used to learn something about the real thing

SC.H.3.2.2 — The student knows that data are collected and interpreted in order to explain an event or concept

SC.H.3.2.3 — The student knows that before a group of people build something or try something new, they should determine how it may affect other people

SC.H.3.2.4 — The student knows that, through the use of science processes and knowledge, people can solve problems, make decisions, and form new ideas

Grades 6–8

Language Arts

LA.B.2.3.1 — The student writes text, notes, outlines, comments, and observations that demonstrate comprehension of content and experiences from a variety of media

LA.B.2.3.3 — The student selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion

LA.B.2.4.3 — The student writes fluently for a variety of occasions, audiences, and purposes, making appropriate choices regarding style, tone, level of detail, and organization

Science

SC.A.1.3.5 — The student knows the difference between a physical change in a substance (e.g.

altering the shape, form, volume, or density) and a chemical change (I.e. producing new substances with different characteristics)

SC.D.2.3.2 — The student knows the positive and negative consequences of human action on the Earth's systems

SC.G.2.3.1 — The student knows that some resources are renewable and others are nonrenewable

SC.G.2.3.2 — The student knows that all biotic and abiotic factors are interrelated and that if one factor is changed or removed, it impacts the availability of other resources within the system

SC.G.2.3.4 — The student understands that humans are a part of an ecosystem and their activities may deliberately or inadvertently alter the equilibrium in ecosystems

SC.H.3.3.4 — The student knows that technological design should require taking into account constraints such as natural laws, the properties of the materials used, and economic, political, social, ethical, and aesthetic values

Grades 9–12

Language Arts

LA.B.2.4.1 — The student writes text, notes, outlines, comments, and observations that demonstrate comprehension and synthesis of content, processes, and experiences from a variety of media

Science

SC.D.2.4.1 — The student understands the interconnectedness of the systems on Earth and the quality of life

SC.G.2.4.6 — The student knows the ways in which humans today are placing their environmental support systems at risk (e.g. rapid human population growth, environmental degradation, and resource depletion)

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.3.4.2 — The student knows that technological problems often create a demand for new scientific knowledge and that new technologies make it possible for scientists to extend their research in a way that advances science

SC.H.3.4.3 — The student knows that scientists can bring information, insights, and analytical skills to matters of public concern and help people understand the possible causes and effects of events

SC.H.3.4.6 — The student knows that scientific knowledge is used by those who engage in design and technology to solve practical problems, taking human values and limitations into account

Water Quality Monitoring: From Design to Data

Grades 6–8

Mathematics

MA.D.1.3.1 — The student describes a wide variety of patterns, relationships, and functions through models, such as manipulative, tables, graphs, expressions, equations, and inequalities

MA.D.1.3.2 — The student creates and interprets tables, graphs, equations, and verbal

descriptions to explain cause-and-effect relationships

MA.E.1.3.1 — The student collects, organizes, and displays data in a variety of forms, including tables, line graphs, charts, bar graphs, to determine how different ways of presenting data can lead to different interpretations

MA.E.1.3.2 — The student understands and applies the concepts of range and central tendency (mean, median, and mode)

MA.E.1.3.3 — The student analyzes real-world data by applying appropriate formulas for measure of central tendency and organizing data in a quality display, using appropriate technology, including calculators and computers

MA.E.3.3.1 — The student formulates hypotheses, designs experiments, collects and interprets data, and evaluates hypotheses by making inferences and drawing conclusions based on statistics (range, mean, median, and mode) and tables, graphs, and charts

MA.E.3.3.2 — The student identifies the common uses and misuses of probability or statistical analysis in the everyday world

Science

SC.H.1.3.4 — The student knows that accurate record keeping, openness, and replication are essential to maintaining an investigator's credibility with other scientists and society

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

SC.H.1.3.7 — The student knows that when similar investigations give different results, the scientific challenge is to verify whether the differences are significant by further study

SC.H.2.3.1 — The student recognizes that patterns exist within and across systems

Grades 9–12

Mathematics

MA.D.1.4.1 — The student describes, analyzes, and generalized relationships, patterns, and functions using words, symbols, variable, tables and graphs

MA.D.1.4.2 — The student determines the impact when changing parameters of given functions

MA.D.2.4.1 — The student represents real-world problem situations using finite graphs, matrices, sequences, series, and recursive relations

MA.E.1.4.1 — The student interprets data that has been collected, organized, and displayed in charts, tables, and plots

MA.E.1.4.2 — The student calculates measures of central tendency (mean, median, and mode) and dispersion (range, standard deviation, and variance) for complex sets of data and determines the most meaningful measure to describe the data

MA.E.1.4.3 — The student analyzes real-world data and makes predictions of larger populations by applying formulas to calculate measures of central tendency and dispersion using the sample population data, and using appropriate technology, including calculators and computers

MA.E.2.4.1 — The student determines probabilities using counting procedures, tables, tree diagrams, and formulas for permutations and combinations

MA.E.2.4.2 — The student determines the probability for simple and compound events as well as independent and dependent events

MA.E.3.4.1 — The student designs and performs real-world statistical experiments that involve

more than one variable, then analyzes results and reports findings

MA.E.3.4.2 — The student explains the limitations of using statistical techniques and data in making inferences and valid arguments

Science

SC.H.1.4.1 — The student knows that investigations are conducted to explore new phenomena, to check on previous results, to test how well a theory predicts, and to compare different theories

SC.H.1.4.3 — The student understands that no matter how well one theory fits observations, a new theory might fit them as well or better, or might fit a wider range of observations, because in science, the testing, revising, and occasional discarding of theories, new and old, never ends and leads to an increasingly better understanding of how things work in the world, but not to absolute truth

SC.H.1.4.7 — The student understands the importance of a sense of responsibility, a commitment to peer review, truthful reporting of the methods and outcomes of investigations, and making the public aware of the findings.

Water Quality Windows

Grades 3–5

Language Arts

LA.B.2.2.3 — The student writes for a variety of occasions, audiences, and purposes

LA.B.2.2.6 — The student creates expository responses in which ideas and details follow an organizational pattern and are relevant to the purpose

LA.C.3.2.3 — The student speaks for specific occasions, audiences, and purposes, including conversations, discussions, projects, and informational or imaginative presentations

Science

SC.G.2.2.2 — The student knows that the size of a population is dependent upon the available resources within its community

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.G.1.2.2 — The student knows that living things compete in a climatic region with other living things and that structural adaptations make them fit for an environment

SC.G.1.2.7 — The student knows that variations in light, water, temperature, and soil content are largely responsible for the existence of different kinds of organisms and population densities in an ecosystem

SC.G.1.3.3 — The student understands that the classification of living things is based on a given set of criteria and is a tool for understanding biodiversity and interrelationships

SC.G.2.2.1 — The student knows that all living things must compete for Earth's limited resources; organisms best adapted to compete for the available resources will be successful and pass their adaptations (traits) to their offspring

SC.G.2.2.3 — The student understands that changes in the habitat of an organism may be beneficial or harmful

SC.H.1.2.2 — The student knows that a successful method to explore the natural world is to observe and record, and then analyze and communicate the results

SC.H.1.2.4 — The student knows that to compare and contrast observations and results is an essential skill in science

SC.H.1.3.5 — The student knows that a change in one or more variables may alter the outcome of an investigation

Grades 6–8

Language Arts

LA.B.2.3.3 — The student selects and uses appropriate formats for writing, including narrative, persuasive, and expository formats, according to the intended audience, purpose, and occasion

LA.C.3.3.3 — The student speaks for various occasions, audiences, and purposes, including conversations, discussions, projects, and informational, persuasive, or technical presentations

Science

SC.F.2.3.2 — The student knows that the variation in each species is due to the exchange and interaction of genetic information as it is passed from parent to offspring

Grades 9–12

Language Arts

LA.B.2.4.3 — The student writes fluently for a variety of occasions, audiences, and purposes, making appropriate choices regarding style, tone, level of detail, and organization

LA.C.3.4.4 — The student applies oral communication skills to interviews, group presentations, formal presentations, and impromptu situations

Science

SC.F.1.4.2 — The student knows that body structures are uniquely designed and adapted for their function

SC.F.2.4.3 — The student understands the mechanisms of change (e.g. mutation and natural deletion) that lead to adaptations in a species and their ability to survive naturally in changing conditions and to increase species diversity

SC.G.2.4.3 — The student understands how genetic variation of offspring contributes to population control in an environment and that natural selection ensures that those who are best adapted to their surroundings survive to reproduce