



**KENOSHA UNIFIED SCHOOL DISTRICT NO. 1
CURRICULUM AND INSTRUCTIONAL SERVICES
STANDARDS AND BENCHMARKS
SCIENCE**

GRADE 2

STANDARD A: SCIENCE CONNECTIONS—STUDENTS WILL UNDERSTAND AND DESCRIBE THE UNIFYING CONCEPTS AND PROCESSES AMONG SCIENCE TOPICS WHICH LEAD TO CONNECTIONS BETWEEN PHYSICAL SCIENCE, EARTH/SPACE SCIENCE, AND LIFE SCIENCE.

A-1: Systems

Most things are made of parts, and some things may not work if parts are missing.

When parts are put together, they can do things that they couldn't do alone.

A-2: Models

A model of something is different from the real thing but can be used to learn something about the real thing.

A-3: Change and Constancy

Things change in some ways and stay the same in some ways.

People can keep track of change.

Things can change in different ways, such as in size, weight, color, and movement. Some small changes can be detected by taking measurements.

Some changes are so slow or so fast that they are hard to see.

A-4: Scale

Things in nature and things people make have very different sizes, weights, ages, and speeds.

A-5: Connections

The general domains of science, which are physical, earth, and life, are connected.

STANDARD B: NATURE OF SCIENCE—STUDENTS WILL UNDERSTAND THAT THE STUDY OF SCIENCE IS ONGOING, AND THEORIES AND CONCEPTS IN SCIENCE CHANGE OVER TIME AS NEW EVIDENCE IS FOUND. SCIENTIFIC EXPLANATIONS MUST ADHERE TO CRITERIA SUCH AS: A PROPOSED EXPLANATION MUST BE LOGICALLY CONSISTENT, IT MUST ABIDE BY THE RULES OF EVIDENCE, IT MUST BE OPEN TO QUESTIONS AND POSSIBLE MODIFICATION, AND IT MUST BE BASED ON HISTORICAL AND CURRENT SCIENTIFIC KNOWLEDGE.

B-1: Science is a Human Endeavor, and There are Many Commonly Known Careers in Science.

Men and women from many cultures have contributed to science and technology throughout history, but much more remains to be understood. Science will never be finished.

Many people choose science as a career and devote their lives to studying it.

In science it is helpful to work with a team and share findings with others.

B-2: Nature of Scientific Process and Knowledge

Science is based on questions.

The job of a scientist is to construct ideas and explanations.

Scientific knowledge may change when new things are learned.

*Most essential benchmarks
appear in bold, italicized print.*

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Science experiments will usually work the same way when repeated under similar conditions.

Scientists make the results of their investigations public; they describe the investigations in ways that enable others to repeat the investigations.

Scientists use different kinds of investigations depending on the questions they are trying to answer.

B-3: History of Science
(No Second Grade Benchmarks)

STANDARD C: SCIENCE INQUIRY—STUDENTS WILL INVESTIGATE QUESTIONS USING SCIENTIFIC METHODS AND TOOLS, REVISE THEIR PERSONAL UNDERSTANDING TO ACCOMMODATE KNOWLEDGE, AND COMMUNICATE THOSE UNDERSTANDINGS TO OTHERS.

C-1: Ask Questions about Objects, Organisms, and Events in the Everyday World.
Ask testable questions and attempt reasonable answers based on observations and investigations.

C-2: Make Connections to Prior Knowledge.
Use prior knowledge to make predictions and help answer the question being investigated.

C-3: Gather Background Knowledge Related to the Questions Being Investigated.
Locate and access data and scientific knowledge in age-appropriate information sources and reference materials. (See English/ Language Arts and Information and Technology Literacy Standards.)

C-4: Design and Conduct Responsible and Safe Investigations to Help Answer Questions.
Demonstrate knowledge of age-appropriate safe laboratory procedures.

Participate in teacher-directed activities, and conduct simple investigations.

C-5: Safely Use Appropriate Senses, Equipment and Tools to Make Observations and Gather Data.
Use simple equipment to make observations and describe similarities and differences in objects, events, and organisms, in terms of number, shape, texture, size, weight, color, and motion.

Use appropriate standard and nonstandard measuring tools.

C-6: Collecting and Representing Qualitative and Quantitative Data
(See Math Standard E.)
Communicate, compare, and classify observations and results in a journal, record sheet, response sheet, calendar, or by using media and technology appropriate to purpose and content.

Create and interpret bar graphs, pictographs, tables, and charts to display data.

C-7: Summarizing, Synthesizing, Inferring, and Building Explanations
Compare observations with previously studied evidence, models, or explanations.
Use patterns, evidence, and observations to build explanations and ask new questions.

Interpret bar graphs, pictographs, tables, and charts.

C-8: Communicating Results
Report the results of scientific investigations by using precise vocabulary to complete an appropriate lab report, journal, or response sheet or by using media and technology appropriate to purpose and content.

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STANDARD D: PHYSICAL SCIENCE —STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE PHYSICAL AND CHEMICAL PROPERTIES OF MATTER, THE FORMS AND PROPERTIES OF ENERGY, AND THE WAYS IN WHICH MATTER AND ENERGY INTERACT.

D-1: Properties of Matter

Objects and materials have many observable and measurable properties such as color, size, shape, weight, texture, hardness, flexibility, reactivity with other materials, etc.

Objects and materials can be sorted and ordered in terms of their properties.

Solids, liquids, and gases have different properties.

D-2: Structure of Matter

All things are made of matter, which can exist as solids, liquids, or gases and some materials are mixtures of different types of matter.

Air is a gas that surrounds us and takes up space.

Living things are made of matter and have properties.

D-3: Physical, Chemical and Nuclear Changes in Matter

Things can be done to materials to change some of their properties, but not all materials respond the same way to what is done to them.

Objects can be broken into smaller pieces, which changes the appearance of the material but does not change what it is made of.

Water can be changed from one state to another, but when this occurs the amount of water is the same as before the change.

D-4: Position and Motion of Objects

The position of an object or organism can be described by locating it relative to another object or the background.

D-5: Forces of Nature

(No Second Grade Benchmarks)

D-6: Interactions of Energy and Matter

The sun warms the land, air, and water.

D-7: Conservation of Energy

(No Second Grade Benchmarks)

STANDARD E: EARTH SCIENCE—STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE STRUCTURE AND SYSTEMS OF EARTH AND THE UNIVERSE AND OF THEIR INTERACTIONS.

E-1: Properties and Structures of the Earth and its Materials

Earth materials are solid rocks and soils, water, and the gases of the atmosphere.

Chunks of rocks come in many sizes and shapes, from boulders to grains of sand and even smaller.

Soil is made partly from weathered rock, partly from plant remains, and also contains many living organisms.

Different types of earth materials have different properties (e.g., color, texture, capacity to retain water, ability

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to support plant growth), which make them useful in different ways (e.g., building materials, sources of fuel, growing plants).

Water is a very important earth material that can be liquid or solid and can be made to change from one form to another.

Air surrounds us and can move and cause changes.

Weather happens in the air that surrounds the earth.

E-2: History and Changes of the Earth

The surface of the earth changes. Some changes are due to slow processes, such as erosions and weathering.

E-3: Cycles in the Earth System

The appearance of the moon changes in a pattern that can be observed, compared, and predicted. The pattern repeats approximately once a month.

The objects in the sky—the sun, moon, stars and clouds—all have locations and movements that can be observed and described.

Water can be a liquid or a solid and can change from one form to another.

Weather changes from day to day and over the seasons. Weather can be described by measurable quantities, such as temperature, wind direction and speed, and precipitation.

Seasonal changes occur in living things in the schoolyard.

E-4: The Earth, Our Solar System, and Space

The objects in the sky—the sun, moon, stars and clouds—all have properties which can be observed and described.

The sun provides the light and heat the earth needs.

The sun can be seen only in the daytime, but the moon can be seen sometimes at night and sometimes during the day.

STANDARD F: LIFE AND ENVIRONMENTAL SCIENCE —STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE CHARACTERISTICS AND STRUCTURES OF LIVING THINGS, THE PROCESSES OF LIFE, AND HOW LIVING THINGS INTERACT WITH ONE ANOTHER AND THEIR ENVIRONMENT.

F-1: Characteristics, Structure, and Function in Living Things

Each kind of living thing has unique structures and behaviors, but different kinds of living things can have similar structures and behaviors.

Living things have structures and behaviors that help them live in different environments.

Living things have basic needs: food, water, air, light, and an appropriate environment in which to live.

The behaviors of living things are influenced by internal and external cues.

F-2: Life Cycles and Heredity of Living Things

Living things have life cycles that include being born, developing into adults, reproducing, and dying.

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Living things are very much, but not exactly, like their parents.

There is variation among individuals of one kind.

Many characteristics of an organism are inherited from the parents of the organism, but other characteristics result from interactions with the environment.

F-3: Organisms, Populations, and Ecosystems

Living things are found almost everywhere in the world, and different environments support the life of different types of organisms.

The behavior of living things is influenced by conditions in the environment.

F-4: Matter and Energy in Living Systems

All animals depend on plants. Some animals eat plants for food. Other animals eat animals that eat the plants.

STANDARD G: SCIENCE APPLICATIONS—STUDENTS WILL DEMONSTRATE AN UNDERSTANDING OF THE RELATIONSHIP BETWEEN SCIENCE AND TECHNOLOGY AND THE WAYS IN WHICH THAT RELATIONSHIP INFLUENCES HUMAN ACTIVITIES.

G-1: The Process of Technological Design

Explain a simple problem; propose a product or design to solve the problem; implement the proposed solution; evaluate the product or design; and communicate the problem, design, and solution.

G-2: Abilities to Distinguish Between Natural Objects and Objects Made by Humans

Some objects occur in nature; others have been designed and made by people to solve human problems and enhance the quality of life.

G-3: Understanding About Science and Technology

People have always invented tools and ways of doing things to solve problems.

Tools are used to do things better or more easily and to do some things that could not otherwise be done at all. Tools are used to observe, measure, and make things.

STANDARD H: SCIENCE IN SOCIAL AND PERSONAL PERSPECTIVES—STUDENTS WILL USE SCIENCE INFORMATION AND SKILLS TO MAKE INFORMED DECISIONS ABOUT THEMSELVES, THEIR COMMUNITY, AND THE WORLD IN WHICH THEY LIVE.

H-1: Personal and Community Health

(No Second Grade Benchmarks)

H-2: Human Population Growth

Human populations are groups of people living in a particular location.

H-3: Types of Resources

Resources are things we get from the living and nonliving environment to meet the needs and wants of a population.

Some resources are basic materials, such as air, water, and soil; some are produced from basic resources, such as food, fuel, and building materials.

The supply of many resources is limited, but their availability can be extended through recycling and decreased use.

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H-4: Quality of and Changes in Environments

Environments are the space, conditions, and factors that affect an individual's and a population's ability to survive and their quality of life.

Changes in environments can be natural or influenced by humans. Some changes are good; and some, like pollution, can influence the health, survival, or activities of living things, including humans.

H-5: Science and Technology in Society

Science and technology have improved our food quality and quantity, transportation, health, sanitation, and communication; but these benefits are not equally available to all people in the world.