

Kansas City, Kansas Public Schools Unified District #500
Grade 3 Science Standards

Standard - 1: Science as Inquiry

Formulate research questions, conduct experimental investigations, analyze data, use appropriate technology, communicate results, defend conclusions, and propose further investigations.

Grade 3 Benchmarks

- 3.1.1 **S** All students will be involved in group activities that develop skills necessary to do scientific inquiry. (These activities will involve asking a simple question, completing an investigation, and presenting the results to others.) *(Use the grade three science kits: **Plant Growth and Development, Physics of Sound, Ideas and Inventions**).*
- 3.1.1.1 **S** Ask questions that they can answer by seeking information through observation and investigation.
- 3.1.1.1.1 Examples: How do changes in light affect plant growth? Does sound travel better through a solid, liquid or gas? Do people in the same family have the same fingerprint patterns on their hands?
- 3.1.1.2 **S** Plan and conduct a simple investigation in cooperative groups.
- 3.1.1.2.1 Example: Design an investigation to find out what kinds of pencils make the best rubbings. Investigate to find out if temperature affects the growth and development of Wisconsin Fast Plants.
- 3.1.1.3 Use appropriate equipment and tools to record and gather data.
- 3.1.1.3.1 Example: Use a ruler to measure and graph plant growth. Use hand lenses to observe kitchen powders. Use thermometers measure temperature.
- 3.1.2 **S** Effectively communicate the results of their investigation and interpret the work of others using the language of science. *(Use the grade three science kits: **Count Down for Earth, AIMS Primarily Earth, Structures of Life, Kitchen Chemistry, Measurement, Plant Growth and Development, Physics of Sound, Ideas and Inventions**).*
- 3.1.2.1 **S** As a class or in small groups, collect and organize information from a variety of sources, and effectively communicate information using appropriate scientific language.
- 3.1.2.1.1 Example: Use books, videos, and other media, to gather information to conduct experiments then write summaries, create graphs, or charts to share what they have learned.

Standard - 2: Physical Science

Analyze (quantitatively and qualitatively) the structures, properties, forms, and patterns in matter and energy, predict changes and interactions, and evaluate theories and structures using knowledge of chemistry and physics.

Grade 3 Benchmarks

- 3.2.1 **S** Develop the skills to describe objects. (Through observation and manipulation of common objects, children identify the similarities and differences of the objects.) *(Use the grade three science kits: **Kitchen Chemistry, Measurement, Physics of Sound, Ideas and Inventions**).*
- 3.2.1.1 **S** Observe and measure properties of objects using appropriate tools.
- 3.2.1.1.1 Examples: Use rulers to measure various objects found in the classroom; use eyedroppers to apply liquids to kitchen powders.
- 3.2.1.2 **S** Observe and record how one object or substance reacts with another object

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or substance.

- 3.2.1.2.1 Examples: Observe and record how different liquids affect the separation of ink pigments on filter paper; how baking soda reacts to vinegar.
- 3.2.1.3 **S** Observe and recognize the differences between solids, liquids.
 - 3.2.1.3.1 Examples: A liquid takes the shape of its container and a solid has a shape of its own. Discuss observations of how a liquid moves through a filter paper strip during a color chromatography activity.
- 3.2.2 **S** Describe the movement of objects. *(Use the grade three science kit: **Physics of Sounds**)*
 - 3.2.2.1 **S** Observe and compare how sound travels through solids, liquids, and air. *(Use the grade three science kit: **Physics of Sounds**)*
 - 3.2.2.1.1 Example: Observe sound waves when a vibrating tuning fork touches a container of water. Discuss and illustrate what is observed.
- 3.2.3 **S** Recognize and demonstrate what makes sounds. *(Use the grade three science kit: **Physics of Sounds**)*
 - 3.2.3.1 **S** Discriminate between sounds made by different objects. *(Use the grade three science kit: **Physics of Sounds**)*
 - 3.2.3.1.1 Example: Listen and compare the sounds made by objects that are dropped behind a barrier. Discriminate between the sounds of drums and other musical instruments or items such as cans, gourds, plastic spoons, pennies, and plastic disks when blindfolded, or from a tape recorder.

Standard - 3: Life Science

Analyze the characteristics, structure, and processes of living systems (e.g., molecular, cellular, organism, and populations) and describe how living systems interact with each other and their environment.

Grade 3 Benchmarks

- 3.3.1 **S** Identify parts of systems and cycles of living things in their environment. *(Use the grade three science kit: **Plant Growth and Development, Structures of Life**)*
 - 3.3.1.1 **S** Recognize structural characteristics and functions of plants and animals.
 - 3.3.1.1.1 Example: Observe and record changes in plant structures as they appear during a plant's life cycle. Compare structures, functions, and behaviors of crayfish.
 - 3.3.1.2 **S** Identify the life cycle of a plant.
 - 3.3.1.2.1 Example: Grow plants from seed to harvest under controlled conditions; illustrate the different stages in that plants life cycle.
 - 3.3.1.3 **S** Identify the basic needs of various organisms.
 - 3.3.1.3.1 Example: Discuss basic needs of a plants, and animals, such as crayfish. Discuss plant and animal basic needs with human needs.
- 3.3.2 Observe and illustrate the life cycle of various organisms. *(Use the grade three science kit: **Plant Growth and Development, Structures of Life**)*

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3.3.2.1 **S** Compare, contrast and ask questions about the life cycles of various organisms.

3.3.2.1.1 Example: Plant a variety of seeds, observe and record the growth rates in a science journal. Draw and label the life cycles of butterflies or other insects. Compare these cycles with other animals or with plants. Discuss similarities and differences.

Standard - 4: Earth and Space Science

Analyze interrelationships of geology, astronomy, oceanography, meteorology, and how the interrelationships affect the systems, processes, and cycles of the earth, the solar system, and the universe (e.g., tides, seasons, water cycle).

Grade 3 Benchmarks

3.4.1 **S** Observe and describe properties of earth materials. Earth materials may include water, soil, sand, pebbles, rock and minerals. The playground is an excellent area to find samples for study. *(Use the grade three science kits: **Count Down for Earth and AIMS Primarily Earth**)*

3.4.1.1 Observe and sort a variety of earth materials from the environment.

3.4.1.1.1 Examples: Bring soil samples from home and the playground for a soil study to determine what is in soil and how do soils differ.

3.4.1.1.2 Observe several different types of sand to discover what the sand is made of. Students may have samples from trips they have taken or from areas around their homes.

3.4.1.2 **S** Collect and describe how earth materials are alike and different.

3.4.1.2.1 Example: Collect a variety of earth materials such as different types of soil, various types of sand and rock. Sort the materials according to their observable properties.

3.4.2 **S** Observe and describe objects in the sky.

3.4.2.1 Observe the moon and stars.

3.4.2.1.1 Example: Sketch the position of the moon in relation to a tree, rooftop, or building. Visit a planetarium.

3.4.2.2 Observe and compare the length of shadows.

3.4.2.2.1 Example: Students can observe the movement of an object's shadow during the course of a day or construct a simple sundial.

3.4.2.3 **NS** Discuss that the sun provides light and heat to maintain the temperature of the Earth.

3.4.2.3.1 Example: Discuss why it seems cooler on the playground when the sun goes behind a cloud, and then measure and record playground temperatures in the sun and shade.

3.4.3 **S** Develop skills necessary to observe and describe changes in the earth and weather

3.4.3.1 **S** Describe changes observed in the surface of the earth.

3.4.3.1.1 Examples: Students will observe erosion that occurs on the playground or area near the school.

3.4.3.1.2 Design experiments to demonstrate how wind, water or ice can cause soil to erode. Students can conduct experiments or demonstrations to show ways erosion can be controlled.

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Standard - 5: Science, Technology, and Society

Analyze and evaluate the interrelationships between science, technology, and society; past, present, and future. (This standard should be integrated with physical science, life science, and earth and space science standards.)

Grade 3 Benchmarks

- 3.5.1 **S** Develop problem-solving skills to answer questions. *(Use the grade three science kit: **Ideas and Inventions**)*
- 3.5.1.1 **S** Identify a problem and propose a solution.
- 3.5.1.1.1 Examples: In small groups have students design plans to investigate which black marker was used to write the secret message. Each group will test their plan and submit their results. Analyze the results as a class to determine which plan worked the best.
- 3.5.1.1.2 Use various tests to determine what is in the mystery powder mixture.
- 3.5.2 **S** Explore the connection between science and technology. *(Use the grade three science kit: **Ideas and Inventions**)*
- 3.5.2.1 Discuss that science is a way of investigating questions about their world.
- 3.5.2.1.1 Example: Students in cooperative groups can discuss or illustrate how they think a periscope works; discuss how they think a can opener works.
- 3.5.2.2 **S** Work together to invent a product to solve problems. *(Use the grade three science kit: **Ideas and Inventions**)*
- 3.5.2.2.1 Example: Share ideas about solving a simple problem in the classroom or school; test the ideas to see which solution comes closest to solving the problem. Problems might be related to pollution, recycling, or making something work better.
- 3.5.2.3 **S** Sort human-made versus natural objects.
- 3.5.2.3.1 Examples: Sort real flowers and compare them to silk flowers recording likeness and differences. Use Venn diagrams to compare the flowers.
- 3.5.2.4 Use appropriate tools when observing natural and human-made objects.
- 3.5.2.5 Ask questions about natural or human-made objects and discuss the reasoning behind the answers.
- 3.5.2.5.1 Example: The teacher will ask, "Is this a human-made objects? Why do you think so?"

Standard - 6: Science In Personal and Environmental Perspectives

Develop and understanding of personal and community health, population growth, natural resources, environmental quality, natural and human induced hazards, and science and technology in local, national and global settings. (This standard should be integrated with physical science, life science, and Earth and space science standards.)

Grade 3 Benchmarks

- 3.6.1 **S** Develop an understanding of personal health.
- 3.6.1.1 **S** Discuss that safety involves freedom from danger, risk or injury.

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- 3.6.1.1.1 Example: Classroom discussions could include bike safety, water safety, or weather safety.
- 3.6.1.2 Assume some responsibility for their personal health.
 - 3.6.1.2.1 Example: Practice good dental hygiene, cleanliness and exercise.
- 3.6.1.3 **S** Discuss that various foods contribute to health.
 - 3.6.1.3.1 Example: Read and compare nutrition information found on labels; discuss healthy snacks; make a healthy snack.
- 3.6.2 **S** Demonstrate an awareness of changes in the environment. *(Use the grade three science kit: **Count Down for Earth**)*
 - 3.6.2.1 Define pollution. *(Use the grade three science kit: **Count Down for Earth**)*
 - 3.6.2.1.1 Example: Take a pollution walk, gathering examples of litter and trash.
 - 3.6.2.2 Practice reducing, reusing and recycling. *(Use the grade three science kit: **Count Down for Earth**)*
 - 3.6.2.3 **S** Design plans as a group to solve pollution problems in and around the school. *(Use the grade three science kit: **Count Down for Earth**)*
 - 3.6.2.3.1 Example: Present the problem that paper is being wasted in the classroom. Students could meet and write a plan to resolve this problem.
 - 3.6.2.3.2 Have groups of students observe and record data on areas in the classroom or around the school that are littered or have other environmental Problems. Each group can submit a plan of action to correct the problems, implement their plan and record the results. Discuss each group's plans and their results to determine the one that was most effective.

Standard - 7: History and Nature of Science

Develop an understanding of science as a human endeavor, the nature of scientific knowledge, and historical perspectives. (This standard should be integrated with physical science, life science, and earth space science.)

Grade 3 Benchmarks

- 3.7.1 Develop an awareness that people practice science by asking questions.
 - 3.7.1.1 Recognize the contributions made in science by people of various cultures, genders and ethnic backgrounds.
 - 3.7.1.1.1 Examples: Read short stories, view films or videos and discuss contributions made by these scientists.
 - 3.7.1.2 Observe various media presentations and written historical samples of people in science who have made contributions.
 - 3.7.1.2.1 Example: Read short stories, view films or videos; discuss contributions made by people in the fields of astronomy biology, botany, ecology, oceanography, physics, and chemistry.
 - 3.7.1.3 Explore how science is used in various careers.
 - 3.7.1.3.1 Example: Read short selections about science. Invite parents and community members who are involved in science as guest

Legend: S:State N:National L:Local

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speakers. Recognize scientific contributions that have been made by people of various cultures, genders, and ethnic backgrounds.