

- required to be taught to meet state standards in Science
- ✓ Information introduced for the next grade level
- + Brookings School District additional requirements

Second Grade Nature of Science

Indicator 1: Understand the nature and origin of scientific knowledge.

Note: These skills should be taught and practiced in grade-level study of Physical, Life, and Earth/Space Science although mastery is not expected at these grade levels.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
	Technology—2.IL.5.1 Select from several teacher-selected internet sites to locate information.	<ul style="list-style-type: none"> ✓ Explore scientific contributions made by people. <p>Example: Share a presentation with the class on Alexander Graham Bell, Ben Franklin, Rachel Carson, Thomas Edison, George Washington Carver, Wright brothers.</p>		

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Indicator 2: Apply the skills necessary to conduct scientific investigations.

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Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
		<ul style="list-style-type: none"> ✓ Use scientific thinking skills of observing, communicating, classifying, and comparing. • Measure length, volume, mass, and temperature in appropriate units. 		

		<p>Examples: Use rulers to measure plant growth. Use balance scales to compare the pull of gravity on object (weight) of rocks.</p> <p>+Discuss the mass and space an object takes up.</p> <p>Example: Read thermometers on a daily basis to record outside temperature as part of a daily weather log.</p> <ul style="list-style-type: none"> ▪ Make predictions based on observations rather than random guesses ▪ Record and interpret observations and data <p>Example: Given a collection of objects, predict which will sink and which will float.</p> <ul style="list-style-type: none"> ✓ Write descriptions and/or draw pictures to represent sequences of steps, events, and observations. <p>Example: Use data from weather journal to create a monthly weather graph.</p> <p>Example: Make a timeline to illustrate the life cycle of an insect.</p> <p>Examples: Create scientific diagrams illustrating a life cycle; write the steps for doing an experiment with magnets.</p> <ul style="list-style-type: none"> ✓ Recognize importance of safety procedures and equipment. <p>Example: Direct projectiles away from peers when flying gliders.</p>		
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**Second Grade Nature of Science
Performance Descriptors**

Note: At the K-2 level, the teachers need to focus on observing and collecting information about the progress students are making related to the checkmark statements. The skills and concepts addressed in this goal are to be included across the other goals. Appropriate scientific instruction should provide students the opportunity to actively engage in scientific investigations.

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Second Grade Physical Science

Indicator 1: Describe structures and properties of, and changes in, matter.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
(Application)	2.P.1.1. Students are able to classify solids in terms of the materials they are made of and their physical properties.	<p>Examples of materials: cloth, paper, wood, metal, plastic, etc.</p> <p>Examples of physical properties: color, size, shape, opacity, mass, texture, flexibility, etc.</p> <ul style="list-style-type: none"> • Define a solid. 		<p><u>Kitchen Chemistry</u> –</p> <p>- mystery powders</p>
(Comprehension)	2.P.1.2. Students are able to describe visually observable properties of liquids and classify liquids by their physical properties.	<p>Examples: translucent, transparent, opaque, color, foamy, bubbly, viscous, etc.</p> <ul style="list-style-type: none"> • Define a liquid ✓ Explore properties of gases. <p>Example: Use a balloon to demonstrate air taking the shape of the container.</p> <p>Visually observable properties – characteristics that can be seen</p> <p>Liquids – matter with a definite volume but not a definite shape</p> <p>Physical properties – any characteristic of a material that can be observed without changing it</p>		
(Application)	2.P.1.3. Students are able to identify mixtures of solid substances and ways to separate them.	<p>Examples: Separate trail mix, rocks and sand, types of beans.</p> <p>Students are able to identify (to tell in words and/or numbers)</p>		

		<p>mixtures (two or more substances that are physically combined) of solid substances (a material that has a definite shape and volume) and ways to separate them.</p>		
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Indicator 2: Analyze forces, their forms, and their effects on motions.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
(Application)	2.P.2.1. Students are able to demonstrate how moving objects exhibit different types of motion.	<p>Examples: straight, circular, back and forth</p> <ul style="list-style-type: none"> • Describe motions of common objects in terms of change in position or direction (e.g., up-down, left- right, fast- slow). <p>✓ Students identify simple machines Example: introduce: pulleys, levers, inclined planes, wheel axle, screw, and wedges.</p> <p>+ Describe how pushes or pulls can change motion of an object.</p>		
(Application)	2.P.2.2. Students are able to predict the effects of magnets on other magnets and other objects.	<ul style="list-style-type: none"> • Attracting and repelling <p>Example: Stack donut magnets on a pencil.</p> <p>Example: Use classroom objects to test which objects are attracted to the magnet.</p> <p>✓ Explore magnetic poles.</p> <p>Example: Use a bar magnet to move another bar magnet.</p>		

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Indicator 3: Analyze interactions of energy and matter.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessment	Resources
(Comprehension)	<p>2.P.3.1. Students are able to compare sounds in terms of high pitch, low pitch, loud and soft (volume).</p>	<p>Example: Use a variety of rubber band widths and sizes to compare the pitch and volume when the band is plucked.</p> <p>See Key above Indicator 3!!</p> <ul style="list-style-type: none"> ✓ Describe ways heat can be produced. <p>Example: Create heat by rubbing hands together.</p> <p>Example: Heat lamp on restaurants warming tables.</p> <ul style="list-style-type: none"> ✓ Demonstrate how light can pass through some objects and not others. • Predict the casting of shadows <p>Example: Use 2- and 3-dimensional objects at different distances from light source to cast a variety of shadows.</p> <ul style="list-style-type: none"> ✓ Explore sources of energy. <p>Examples: Discuss moving water, food, wind, sun, rubber bands, and batteries as sources of energy.</p>		

**Second Grade Physical Science
Performance Descriptors**

Advanced	<p>Second grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • predict the casting of shadows;
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	<ul style="list-style-type: none"> • select materials based on physical properties to solve a task; • identify ways to separate mixtures, including solids and liquids; • describe interactions of magnetic poles; • demonstrate ways to change pitch; • describe ways heat can be produced.
Proficient	<p>Second grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • describe and classify solids and liquids in terms of physical properties; • identify and separate mixtures; • demonstrate different ways objects move and affect other objects; • compare sounds in terms of pitch and volume.
Basic	<p>Second grade students performing at the basic level:</p> <ul style="list-style-type: none"> • describe solids and liquids in terms of physical properties; • demonstrate ways objects move; • compare sounds in terms of volume.

Second Grade Life Science

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Indicator 1: Understand the fundamental structures, functions, classifications, and mechanisms found in living things.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
(Application)	2.L.1.1. Students are able to classify plants according to similarities and differences.	Examples: Classify plants by kinds of seeds, color, size, shape, and structure		
(Application)	2.L.1.2. Students are able to classify people and animals according to similarities and differences.	<ul style="list-style-type: none"> ✓ Introduce classes of animals Examples: Classify animals by color, size, shape, body parts, gender, and offspring. Examples: Insects, birds, amphibians, reptiles, and mammals.		

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Indicator 2: Analyze various patterns and products of natural and induced biological change.

Bloom's Taxonomy	Standard	Supporting Skills and Examples	Assessments	Resources
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Level				
(Comprehension)	2.L.2.1. Students are able to describe how flowering plants go through a series of orderly changes in their life cycle.	Example: Illustrate ways flowering plants undergo many changes from the formation of a flower to the development of the fruit.		From Seed to Plant by Gail Gibbons (Trophies Reading Series)
(Comprehension)	2.L.2.2. Students are able to compare life cycles of various living things.	Example: Diagram life cycles using tadpoles to frogs and kittens to cats. Example: butterfly Example: apple tree		

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Indicator 3: Analyze how organisms are linked to one another and the environment.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
(Comprehension)	2.L.3.1. Students are able to describe ways that plants and animals depend on each other.	Example: Illustrate ways seeds are dispersed in the environment. Example: Describe how cattle need grass in order to survive.		
(Comprehension)	2.L.3.2. Students are able to associate adaptations in plants and animals in response to seasonal changes.	Adaptations – change in species over time Examples: Find examples of animals and plants that migrate, hibernate, use camouflage, or go dormant. Example: habitats and adaptations		
(Knowledge)	2.L.3.3. Students are able to recognize what it means for a species to be extinct or endangered.	Extinct – the species no longer exists Endangered – the species has so few numbers that it may soon be extinct Species – related organisms that can produce offspring ✓ Recognize ways fossils provide		

		<p>evidence about plants and animals that lived long ago.</p> <p>Example: Looking at fossilized teeth, determine if animal ate plants or meat.</p> <p>Examples: Discuss dinosaurs, black-footed ferret, and mammoth.</p>		
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**Second Grade Life Science
Performance Descriptors**

Advanced	<p>Second grade students performing at the advanced level:</p> <ul style="list-style-type: none"> • illustrate and label examples of plant and animal life cycles; • explain how plants and animals depend on each other and respond to seasonal changes in the environment; • identify possible reasons for the disappearance of a species.
Proficient	<p>Second grade students performing at the proficient level:</p> <ul style="list-style-type: none"> • given illustrations, classify plants and animals according to their similarities and differences; • sequence a plant life cycle and an animal life cycle; • describe ways plants and animals depend on each other and respond to seasonal changes in the environment; • identify a species that is extinct and one that is endangered.
Basic	<p>Second grade students performing at the basic level:</p> <ul style="list-style-type: none"> • given illustrations, describe similarities between plants or between animals; • describe an example of a life cycle of a plant or of an animal; • identify a species that is extinct.

Second Grade Earth/Space Science

- Required to be taught to meet state standards in Science
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Indicator 1: Analyze the various structures and processes of the Earth system.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
(Comprehension)	<p>2.E.1.1. Students are able to describe types and patterns of weather during different seasons.</p>	<p>Students are able to describe (to tell in words and/or numbers) types and patterns of weather (wind, precipitation, cloudy, sunny, temperature) during different seasons.</p> <p>+ Measure and record weather data such as high and low temperature, wind, precipitation, clouds using tools</p>		

		such as a rain gauge, anemometer, wind sock, etc. ✓ Practice reading thermometers.		
(Knowledge)	2.E.1.2. Students are able to identify and locate geological features using maps and globes.	Examples: Locate mountains, plains, valleys, and bodies of water on a globe or map. • Recognize most of the Earth's surface is covered with water.		
(Comprehension)	2.E.1.3. Students are able to recognize and distinguish between forms of water in the Earth system.	Examples: snow, ice, fresh water, salt water		

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Indicator 2: Analyze essential principles and ideas about the composition and structure of the universe.

Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
		<ul style="list-style-type: none"> ✓ Identify the basic components of space. ✓ Examples: Label Sun, Moon, planets, stars. ✓ Sun and how it affects our environment ✓ Rotation of earth day and night ✓ Introduce phases of moon 		

**Second Grade Earth/Space Science
Performance Descriptors**

Advanced	Second grade students performing at the advanced level: <ul style="list-style-type: none"> • identify the basic components of space; • read a thermometer.
Proficient	Second grade students performing at the proficient level: <ul style="list-style-type: none"> • describe types and patterns of weather during different seasons; • identify and locate geological features using maps and globes; • recognize and distinguish between forms of water in the Earth system.
Basic	Second grade students performing at the basic level: <ul style="list-style-type: none"> • describe the weather associated with a season; • identify land and water on maps and globes.

**Second Grade Science
Technology, Environment, and Society**

- Required to be taught to meet state standards in Science
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Indicator 1: Analyze various implications/effects of scientific advancement within the environment and society.

Note: These skills should be taught and practiced in grade-level study of Physical, Life, and Earth/Space Science although mastery is not expected at these grade levels.



Bloom's Taxonomy Level	Standard	Supporting Skills and Examples	Assessments	Resources
	2.NC.1.1 Describe the progression of technology. Example: Social Studies 2.US.1.1 Example: Social Studies 2.US.1.2 • Communication technology Example: Quill to pencil to keyboard • Transportation technology Example: Wagon to car to airplane • Health technology Example: Leeches to surgery • Agricultural technology Example: Oxen to tractor • Energy technology Example: Fire to solar power 2.NC.3.1 Classify whether technologies are used in the home, school, or	✓ Explore how technology has changed daily life. Examples: Compare and contrast: email/postal service, computers/pencils, light bulb/candles, microwave/wood- burning stove, etc. ✓ Recognize ways to recycle, reuse, renew, and reduce Examples: Generate ideas on ways to reuse, renew, or reduce the use of water, trees, soil, and other natural resources.		

	<p>community. Example: toaster-home; fax machine-school; cell phone-community</p> <p>2.NC.3.3 Identify responsible digital citizenship relative to technology and its use. Identify each of the following components as elements that comprise digital citizenship.</p> <ul style="list-style-type: none"> • Etiquette: electronic standards of conduct or procedure <p>Example: Using caps lock appears to be shouting.</p> <p>Example: Different audiences use different terms (LOL- laugh out loud) to communicate the same information.</p> <ul style="list-style-type: none"> • Communication: electronic exchange of information • Education: the process of teaching and learning about technology and the use of technology • Access: full electronic participation in society • Commerce: electronic buying and selling of goods <p>Example: Buying and selling on the internet</p> <ul style="list-style-type: none"> • Responsibility: electronic responsibility for actions and deeds <p>Example: Following copyright laws when copying and pasting from websites.</p> <ul style="list-style-type: none"> • Rights: those freedoms extended to everyone in a digital world <p>Example: Freedom of speech has created lots of information on the internet.</p> <p>Example: Students own their own work</p> <ul style="list-style-type: none"> • Safety: physical well-being in a digital technology world <p>Example: Practicing child protection measures when communicating</p> <p>2.SI.2.1 Identify advantages of tools/technology in the community. Examples: cable TV, bar code scanners</p>			
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Indicator 2: Analyze the relationships/interactions among science, technology, environment, and society.

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Bloom's Taxonomy Level	Standard	Supporting Skill and Examples	Assessments	Resources
	<p>2.NC.3.2 Recognize that technology has an interrelationship with the environment. Example: M&M Color Graphing activity in Excel. Example: Science 2.NC.2.checkmark</p>	<p>✓ Investigate and describe ways science/technology is used to solve problems. Examples: Describe ways wheels and ramps make it easier to do work; there are handicap-accessible modifications for public buildings.</p> <p>✓ Explain how scientific findings have generated solutions to various environmental and social concerns. Example: Discuss water pollution, air pollution, West Nile, germs, and diseases.</p>	<p></p>	<p></p>

Second Grade Science, Technology, Environment, and Society Performance Descriptors

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