

KINDERGARTEN TOPICS LIST

<u>Skill Taught</u>	<u>State Standard</u>
SCIENTIFIC INVESTIGATIONS	
Experiments	1.1 1.3 1.4 1.6 5.2
Safety	1.1 1.3
Construct Models	1.5
Measurement	1.2
PHYSICAL SCIENCE	
Matter	2.1 2.3 2.4
Magnets	2.6
Measurement	1.2
Mixtures	2.2
LIFE SCIENCE	
Plants	3.1 3.3 3.5
Nutrition	3.2
Animals	3.1 3.3 3.4 3.5
EARTH SCIENCE	
Weather/Seasons	4.4 4.5
Prehistoric Life	4.3
Sun, Moon, Stars	4.6
Physical properties of Earth's materials (soil, rocks, water, and gases)	4.2
TECHNOLOGY	
Technological benefits	5.1 5.2 5.3 5.4
HISTORY	
Historical benefits	6.1 6.2

Helena Public Schools
Teacher Desk Reference
FIRST GRADE TOPIC LIST

Skill taught

State Standard

SCIENTIFIC INVESTIGATIONS:

Experiments	1.1	1.3	1.4	1.6
Safety	1.1			
Construct Models	1.5			

PHYSICAL SCIENCE:

Magnets	2.6			
Measurement / tools (metric)	1.2			
Matter (properties- solid, liquid, gas)	2.3	2.4		
Sorting / Classifying	2.1	2.2		

LIFE SCIENCE:

Animals - living and nonliving	3.1	3.3	3.5	4.3
Plants	3.1	3.3	3.5	
Nutrition	3.2			
Life Cycles	3.3			
Habitats	3.4			

EARTH SCIENCE:

Landforms	4.1	4.2		
Prehistoric life / rocks, fossils	4.3			
Earth, sun, moon	4.6			
Weather	4.4			
Seasons	4.5			
Conservation of the environment	4.2			

TECHNOLOGY

Technological benefits	5.1	5.2	5.3	5.4
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HISTORY

Historical benefits	6.1	6.2		
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Helena Public Schools
Teacher Desk Reference
SECOND GRADE TOPIC LIST

<u>Skill taught</u>	<u>State Standard</u>
SCIENTIFIC INVESTIGATIONS:	
Experiments	1.1 1.3 1.4 1.6
Safety	1.1
Construct Models	1.5
Measurement	1.2
PHYSICAL SCIENCE:	
Sound	2.6
Matter	2.1 2.2 2.3 2.4
LIFE SCIENCE:	
Animals	3.1 3.3 3.4 3.5
Plants	3.1 3.5
Nutrition	3.2
Life Cycles	3.3
Habitats	3.5
EARTH SCIENCE:	
Conservation	5.3
Weather	4.4 4.5
Earth, sun, moon, planets	4.6
Prehistoric life / fossils	4.3
Landforms	4.1
Rocks	4.2
TECHNOLOGY	
Technological benefits	5.1 5.2 5.4
HISTORY	
Historical benefits	6.1 6.2

THIRD GRADE TOPICS LIST

<u>Skill Taught</u>	<u>State Standard</u>
SCIENTIFIC INVESTIGATIONS	
Experiments	1.1 1.2 1.3 1.4 1.6 5.2
Safety	1.1
Construct Models	1.5
PHYSICAL SCIENCE	
Matter	2.3 2.4
Simple Machines	2.5
Light	2.6
Sound	2.6
Magnetism	2.6
LIFE SCIENCE	
Plants	3.1 3.3 3.4 3.5
Habitat/Environment	3.4 5.3
Nutrition	3.2
Animals	3.3 3.4 3.5
EARTH SCIENCE	
Weather/Climate/Seasons	4.1 4.4 4.5
Water Cycle	4.4
Landforms/Natural Forces	2.1 2.2 4.1 4.2 4.3
Earth, sun, moon	4.6
Environmental Problems/Fossil Fuels	4.3 5.3
TECHNOLOGY	
Technological developments	5.1 5.4
HISTORY	
Historical developments	6.1 6.2

FOURTH GRADE TOPIC LIST

<u>Skill Taught</u>	<u>State Standard</u>
SCIENTIFIC INVESTIGATIONS	
Experiments	1.1 1.3 1.6 5.2
Safety	1.1
Construct Models	1.5
PHYSICAL SCIENCE	
Mixtures (create and separate)	2.2
Measurement/tools (metric)	1.2
Matter (properties-solid, liquid, gas)	2.1 2.3
Simple/complex Machines	1.4 1.5
Heat/light (sun)	2.4 2.6 4.6
LIFE SCIENCE	
Plant classifications	3.1 3.5
Animal classificaitons (Mammal, fish, bird, amphibian, reptile)	3.1 3.5
Body Systems (digestive, respiratory)	1.4 3.2
Adaptations of plants and animals	3.3
Food Web	3.4
EARTH SCIENCE	
Water Cycle	4.2
Solar System	1.4 4.6
Natural forces (volcanoes, earthquakes, water)	4.1
Weather/climate	4.4 4.5
Natural resources (conservation)	4.3 5.3
Physical Properties of earth (soil, rocks, water, gases)	4.2
TECHNOLOGY	
Technological benefits	5.1 5.2 5.3 5.4
HISTORY	
Historical benefits	6.1 6.2

Helena Public Schools
Teacher Desk Reference
FIFTH GRADE TOPIC LIST

Skill taught

State Standard

SCIENTIFIC INVESTIGATIONS:

Experiments	1.1 1.3 1.6
Safety	1.1
Construct Models	1.5

PHYSICAL SCIENCE:

Physical Energy	2.6
Force	2.6
Simple Machines	2.4 2.5 2.6
Atoms	2.2
Molecules	2.2
Compounds	2.2

LIFE SCIENCE:

Reproductive Processes and Principles	
Plants / Animals	3.3 3.5
Living Organisms Structures and Functions	
Plant /Animal Cells	3.1
Body Systems	1.4 3.2 3.4
Plant Systems	3.2

EARTH SCIENCE:

Rocks	4.1 4.2
Minerals	4.1 4.2
Crystals	4.1 4.2

TECHNOLOGY

Technological benefits	3.4 5.1 5.2 5.3
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HISTORY

Historical benefits	6.1 6.2
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KINDERGARTEN DESK REFERENCE OF STANDARDS

Scientific investigation:

- 1.1, 1.3, 1.6 Observe and tell about teacher directed scientific investigations
- 1.1, 1.3 Develop respect for classroom equipment and safe lab procedures
- 1.2 Explore types of measurements using different manipulative and standard measuring tools
- 1.4 Recognize parts of a familiar system (identify parts of a plant)
- 1.5 Construct a model to illustrate a simple concept

Physical science:

- **Matter**
 - 2.1 Sort tangible items
 - 2.3 Develop and awareness of matter in its different forms
 - 2.4 Observe and predict changes in matter resulting from external forces.
- **Mixtures**
 - 2.2 Observe mixtures with different properties
- **Magnets**
 - 2.6 Explore magnets

Life science:

3.1, 3.5 Discuss similarities/differences between living and nonliving

- **Animals**
 - 3.3 Life cycle of a selected insect
 - 3.4 Explore different habitats
 - 3.5 Develop an appreciation for all living things
- **Plants**
 - 3.3 Observe the life cycle of a plant
- **Nutrition**
 - 3.2 Develop an awareness of the food groups and proper nutrition

Earth science:

4.1 Develop an awareness of planet earth

- 4.2 Introduce the terms: solid, liquid, gas
- 4.3 Discuss prehistoric life
- 4.4 Observe daily weather
- 4.5 Identify the seasons
- 4.6 Name the sun, moon, and stars

Technology:

- 5.1 Explore how science and technology are used in daily living
- 5.2 Communicate ideas and solutions in a variety of cooperative settings
- 5.3 Introduce environmental terms and develop a sense of responsibility for the environment
- 5.4 Identify scientific or technological innovations that benefit the community

History

- 6.1 Give historical examples of scientific and technological contributions to society
- 6.2 Discuss examples of past and present scientific technological contributions to society
- 6.2 Model scientific inquiry

FIRST GRADE DESK REFERENCE OF STANDARDS

Scientific Investigations:

- 1.1 Observe/tell and record scientific investigations. Develop respect for classroom equipment and safe laboratory procedures
- 1.3 Communicate scientific data via illustrations or verbal discussions
- 1.4 Describe the parts of a familiar system
- 1.5 Construct a model to illustrate a simple concept (e.g. parts of a plant)
- 1.6 Discuss the results from a controlled experiment

Physical Science:

- **Magnets**
- 2.6 Explore basic characteristics of magnets
- **Measurement/ Tools (metric)**
- 1.2 Identify appropriate measurement tools
- **Sorting/ classifying**
- 2.1 2.2 Examine and describe tangible objects in terms of common physical properties
- **Matter**
- 2.3 2.4 Use appropriate vocabulary to identify properties of matter. Describe changes in matter resulting from application of external forces. (solids, liquids, gases)

Life Science:

- **Animals**
- 3.1 Identify the characteristics of living and non-living things. Investigate the characteristics of animals
 - 3.3 Observe and record models of the life cycles an animal (e.g. insect, frog)
 - 3.5 Classify animals according to their similarities and differences
 - 3.5 Compare and identify animals with respect to size, shape, needs and uses
 - 4.3 Introduce prehistoric life through investigation of fossils
- **Plants**
- 3.1 Identify the characteristics of living and non-living things. Investigate the characteristics of plants.
 - 3.3 Observe and record a model of a life cycle of a plant habitats
 - 3.4 Compare and contrast different habitats
 - 3.5 Compare and identify plants with respect to size, shape, needs and uses
- **Nutrition**
- 3.2 Recognize the importance of proper nutrition
- **Life Cycles**
- 3.3 Observe and record models of the life cycle of a plant
 - 3.3 Observe and record models of the life cycle of an animal (e.g. insect, frog)

FIRST GRADE DESK REFERENCE OF STANDARDS Continued

Earth Science:

- **Landforms**
 - 4.1 Identify landforms
 - 4.2 Recognize the importance of air and water to living things
- **Prehistoric life/ rocks, fossils**
 - 4.3 Introduce prehistoric life through investigation of fossils
- **Earth, sun, moon**
 - 4.6 Explore relationships of the sun, moon and Earth including evidence of the sun as a source of light and heat; explore differences between night and day
- **Weather**
 - 4.4 Observe, discuss and record weather. Observe the water cycle
- **Seasons**
 - 4.5 Observe and record physical changes due to the seasons
- **Describe the need for conservation of the environment.**
 - 4.2 Recognize the importance of air and water to living things

Technology

- 5.1 Explore how science and technology are used within the community
- 5.2 Collaborate in a group to perform a simple investigation
- 5.3 Describe the need for conservation of the environment
- 5.4 Discuss a scientific or technological innovation that has benefited the community

History

- 6.1 Recognize historical examples of scientific and technological contributions to society
- 6.2 Ask relevant questions relating to specific scientific knowledge

SECOND GRADE DESK REFERENCE OF STANDARDS

Scientific Investigation:

- 1.1 Through teacher directed scientific investigations, students begin to identify variables
- 1.1 Develop respect for classroom equipment and safe laboratory procedures
- 1.2 Demonstrate correct use of measurement tools
- 1.3 Communicate scientific data via illustrations, verbal discussions and written form
- 1.4 Describe and identify relationships among parts of a familiar system
- 1.5 Construct a model to illustrate a simple concept
- 1.6 Discuss and illustrate results from a controlled experiment

Physical Science:

- **Sound**

- 2.6 – Observe and describe basic characteristics of sound

- **Matter**

- 2.1 Compare tangible objects in terms of common physical properties
- 2.2 Identify patterns of mixtures based on different properties
- 2.3 Classify and record properties of matter
- 2.4 Identify patterns that occur when external stimuli are applied to matter

Life Science

- **Animals/plants**

- 3.1 Distinguish the differences between plants and animals. Investigate the structure of plants
- 3.3 Recognize and identify the different stages of development in the life cycles of amphibians and/or birds
- 3.4 Observe, identify and classify selected animals with respect to characteristics and habitats
- 3.5 Observe, identify and classify selected plants and animals with respect to characteristics and habitats

- **Nutrition**

- 3.2 Discuss the need of proper nutrition for energy and growth

- **Life cycle**

- 3.3 Recognize and identify the different stages of development in the life cycles of plants and animals

SECOND GRADE DESK REFERENCE OF STANDARDS

Continued

- **Habitats**

3.5 Observe, identify and classify selected plants and animals with respect to characteristics and habitat

Earth Science:

- **Conservation**

5.3 Develop ideas for conservation of the environment

- **Weather**

4.6 Explore influences of weather on the environment

4.7 Identify and describe weather conditions typical of various seasons across the country

- **Earth, sun, moon, planets**

4.6 Identify relationships of the sun, moon, and planets and celestial bodies

- **Prehistoric life/fossils**

4.3 Develop an understanding of prehistoric life

- **Landforms**

4.1 Explore and compare various Earth features

- **Rocks**

4.2 Explore properties of rocks

Technology

5.1 Discuss the benefits of using science and technology

5.2 Begin to record and share scientific investigations in cooperative groups

5.4 Explain how technological innovations impact their lives

History

6.1 Compare past and present scientific and technological developments

6.2 Explore the progression of inventions

THIRD GRADE DESK REFERENCE OF STANDARDS

Scientific investigations

- **Experiments**

- 1.1 Conduct safe, simple experiments: identify variables, record data, formulate hypothesis, predict outcomes
- 1.2 Use appropriate tools of measurement (metric) accurately
- 1.3 Communicate and provide evidence to support results
- 1.4 Describe relationships among parts of a familiar system and recognize changes
- 1.5 Construct/ create models to illustrate scientific concepts
- 1.6 Report results of a controlled experiment
- 5.2 Collaborate and communicate ideas and solutions in a variety of cooperative settings

Physical science

- **Matter**

- 2.4 Model and explain states of matter (liquid, solids, and gases)
- 2.5 Predict and identify what changes and what does not change in matter due to an external force

- **Simple Machines**

- 2.6 Identify, build, and describe mechanical systems

- **Light**

- 2.7 Investigate properties of light

- **Sound**

- 2.6 Investigate pitch and vibration

- **Heat**

- 2.6 Describe the characteristics of magnets

Life science

- **Plants**

- 3.1 Identify parts and functions of plants.
- 3.3 Trace life cycles of different plants.
- 3.4 Explain relationship of living/non-living things in an ecosystem.
- 3.4 Explore characteristics of plants and their relationship to their environment.
- 3.5 Classify plants according to their similarities and differences.

- **Habitat/ Environment**

- 3.4 Explain relationship of living/ nonliving things in an ecosystem.
- 5.3 Use current scientific knowledge to propose solutions for local environmental problems.
- 5.3 Investigate how humans have affected their environment.

THIRD GRADE DESK REFERENCE OF STANDARDS

Continued

- **Nutrition**

- 3.2 Describe basic nutritional needs for each human body system.
- 3.2 Describe food groups and effects on human body.

- **Animals**

- 3.3 Discuss the differences of species.
- 3.4 Explain relationship of living/ nonliving things in an ecosystem.
- 3.5 Classify animals according to their similarities and differences.

Earth science

- **Weather**

- 4.1 Investigate the effects of natural forces on the earth's surface.
- 4.4 Demonstrate how weather conditions are measured.
- 4.4 Observe and record collective data about weather conditions.
- 4.4 Investigate the components of the water cycle.
- 4.5 Explain differences between weather and climate and their effects.
- 4.5 Explain the concept of day, night, seasons and year.
- 4.6 Explain the relationship between the sun and earth.

- **Landforms**

- 2.1 Examine, describe, compare, and classify physical properties of tangible objects.
- 2.2 Separate mixtures based on different properties (soil and water).
- 4.1 Describe the earth's changing features.
- 4.2 Describe the physical properties of earth's basic materials.
- 4.3 Investigate the importance of conserving fossil fuels.
- 4.3 Make inferences about life and the environment long ago.

- **Earth, Sun, Moon**

- 4.8 Explain the relationship between the sun, earth, and moon

Technology

- **History/Benefits**

- 5.1 Research the benefits of using science and technology.
- 5.4 Identify a scientific or technological innovation that benefits the community.

History

- 6.1 Give historical examples of scientific and technological contributions to society.
- 6.2 Discuss how inventions have impacted the world.

FOURTH GRADE DESK REFERENCE OF STANDARDS

Scientific investigations

• Experiments

- 1.1 Be given a testable question, plan, design and safely conduct a scientific investigation with identified variables. Develop respect for classroom equipment and safe laboratory procedures.
- 1.3 Represent, communicate and provide supporting evidence of scientific investigations.
- 1.6 Communicate results from a controlled experiment, which are reproducible.
- 5.2 Model scientific collaboration by sharing and communicating ideas and solutions in a variety of cooperative settings.

• Safety

- 1.1 Be given a testable question, plan, design and safely conduct a scientific investigation with identified variables. Develop respect for classroom equipment and safe laboratory procedures.

• Construct Models

- 1.5 Construct models to illustrate simple concepts and compare those models to what they represent.

Physical Science

• Mixtures (create and separate)

- 2.2 Create mixtures and separate them based on different properties (e.g. salt and sand, iron filings and soil, oil and water).

• Measurements / tools (metric)

- 1.2 Select and accurately use appropriate equipment and technology to measure (in metric units), gather, process and analyze data from a scientific investigation.

• Matter (properties – solid, liquid, gas)

- 2.1 Examine, describe, compare and classify tangible objects in terms of common physical properties.
- 2.3 Model and explain that matter exists as solids, liquids and gases and can change from one form to another.

• Simple / complex machines

- 1.4 Describe relationships among parts of a familiar system (e.g., digestive system, simple machines) and identify and record changes and patterns of changes in the system.
- 2.5 Identify, build, and describe mechanical systems (e.g., simple and complex machines).

• Heat / light (sun)

- 2.4 Identify and predict what changes and what remain unchanged when matter experiences external influences.
- 2.6 Describe the basic characteristics of light, heat, magnetism and sound.
- 4.6 Describe objects in the sky and explain that light and heat comes from a star called the Sun.

FOURTH GRADE DESK REFERENCE OF STANDARDS Continued

Life science

- **Plant and Animal classification**

- 3.1 Identify that plants and animals have structures and systems, which serve different functions.
- 3.5 Create and use a classification system to group a variety of plants and animals according to their similarities and differences.

- **Body systems (digestive, respiratory)**

- 1.4 Describe relationships among parts of a familiar system (e.g. digestive system, simple machines) and identify and record changes and patterns of changes in the system.
- 3.2 Identify and describe basic requirements of energy needed and nutritional needs for each human body system.

- **Adaptations of plants and animals**

- 3.3 Develop models that trace the life cycles of different plants and animals and discuss how they differ from species to species.

- **Food web**

- 3.4 Explain cause and effect relationships in living systems and nonliving components within ecosystems.

Earth Science

- **Water Cycle**

- 4.2 Describe the physical properties of Earth's basic materials (including soil, rocks, water and gases).

- **Solar system**

- 1.4 Describe relationships among parts of the solar system.
- 4.6 Describe sun, planets, moons, comets, meteors and meteorites.

- **Natural forces (volcanoes, earthquakes, water)**

- 4.1 Describe and give examples of Earth's changing features.

- **Weather / Climate**

- 4.4 Observe and describe local weather and demonstrate how weather conditions are measured.
- 4.5 Identify seasons and explain the difference between weather and climate.

- **Natural resources (conservation)**

- 4.3 Investigate fossils and make inferences about life and the environment long ago.
- 5.3 Use current scientific knowledge to make inferences and propose solutions for local environmental problems (recycling, waste management).

- **Physical Properties of earth (soil, rocks, water, gases)**

- 4.2 Describe the physical properties of Earth's basic materials.

FOURTH GRADE DESK REFERENCE OF STANDARDS

Continued

Technology

- 5.1 Give examples of how people use science and technology.
- 5.2 Model scientific collaboration by sharing and communicating ideas and solutions in a variety of cooperative settings.
- 5.3 Use current scientific knowledge to make inferences and propose solutions for local environmental problems (recycling, waste management).
- 5.4 Identify a scientific or technological innovation that benefits the community.

History

- 6.1 Give historical examples of scientific and technological contributions to society.
- 6.2 Describe how scientific inquiry has produced much knowledge about the world.