

<p style="text-align: center;">SALINE AREA SCHOOLS SCIENCE</p>
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GRADE LEVEL OUTCOMES

PRESCHOOL

1. Demonstrate an awareness of the different types of weather and the four seasons.
 - a. Describe clothing that is worn in different weather climates.
 - b. Demonstrate an awareness that weather changes with each season.
 - c. Identify indoor and outdoor activities that occur with each season.

2. Demonstrate an awareness of their five senses and how they work.
 - a. Identify the five senses.
 - b. Demonstrate an awareness between the body part and the sense.

3. Demonstrate an awareness of plants and animals.
 - a. Develop an awareness of how plants change as they grow.
 - demonstrate an awareness of different plants for different seasons (i.e., pumpkins-fall, flowers-spring, trees-all seasons).
 - demonstrate an awareness of basic plant parts (seeds, leaves, branches, fruit).
 - b. Develop an awareness of living/non-living animals.
 - match baby animals with their parents.
 - identify animals and their environment (i.e., horse-farm, elephant-zoo).

4. Demonstrate an awareness of how to take care of the earth.

5. Demonstrate an awareness of how to live healthy.

SALINE AREA SCHOOLS SCIENCE

GRADE LEVEL OUTCOMES

KINDERGARTEN

Animals 2 x 2

1. Develop an interest and curiosity in the living world around them.
2. Observe and compare interactions of animals with their surroundings.
 - a. Goldfish/guppies
 - b. Red Worms/Earth Worms
3. Observe and describe the structures of a variety of common animals.
(Scientific Method Skills: Observe & Predict)
4. Understand that animals grow, change and die over time.

5 Senses

1. Identify 5 senses (hearing, seeing, touching, smelling and tasting).
 - a. Develop an awareness of how we use each sense.
 - b. Identify the 5 body parts we use with each sense.
(Scientific Method Skills: Observe & Predict)

Weather/Seasons

1. Identify types of weather (sunny, rainy, cloudy, snowy, windy, foggy).
 - a. Identify appropriate clothing for weather.
 - b. Discuss how weather changes daily and affects us.
2. Identify 4 seasons.
 - a. Develop an awareness of how weather changes with the seasons.
 - b. Identify specific activities related to each season.
(Scientific Method Skills: Observe & Predict)

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GRADE LEVEL OUTCOMES

GRADE 1

Plants and Animals

1. Identify the specific needs of an organism.
 - a. Plants – water, light, space, air.
 - b. Animals – water, food, space, shelter.
2. Understand that organisms grow, change, and die over time.
(Scientific Method Skills – Observe & Record Data)

Weather

1. Identify features of weather.
 - Cloud cover
 - Precipitation
 - Wind
 - Temperature
2. Use or identify tools to measure features of weather.
 - Wind scales
 - Thermometers
 - Rain Gauge
3. Understand how weather changes affect our lives.
(Scientific Method Skills – Observe, Record Data, Conclusion)

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GRADE LEVEL OUTCOMES

GRADE 2

Changes

1. Classify substances as solids, liquids or gases and explain their choices.
 - a. Solids, liquids and gases can be described by their properties – color, size shape, odor, texture, and weight.
 - b. A solid has a definite shape and size, which means it has definite volume.
 - c. A liquid also has definite volume, which means it takes up a particular amount of space. It does not have a definite shape; it takes the shape of the container that holds it.
 - d. A gas has no definite shape or volume. It spreads out to fill the surrounding space.
2. Know that changes constantly occur in the world around us at different rates.
 - a. Water can change through the states of matter through evaporation, condensation and freezing.
 - b. Mixtures can be made by combining solids, liquids or gases.
 - 1) A mixture is a blend of two or more substances, each of which, retains its properties and can be separated from the other by physical means without changing its chemical makeup.
 - 2) Some physical means of separating a mixture are a sieve, a filter, evaporation or chromatography.
 - c. Chemical reactions occur when substances encounter each other and form new substances.
 - 1) Indicators are change in color, change in temperature or production of a new substance such as rust or gas.

Soils

1. Describe and identify soil components.
 - a. Soil may contain animals, plants and their remains.
 - b. Over time, dead plants become part of the soil.
 - c. Composting – especially with worms is an effective way to recycle old plants and other discarded organic matter into soil.
2. Understand that every soil component has unique properties.
 - a. Soil contains particles of different sizes.
 - b. Sand, clay and humus are three of the basic components in soil that can be identified using simple tests.
 - c. Different soils absorb water at different rates.
 - d. Many factors, including soil, affect plant and root growth.

Butterflies

1. Understand the life cycle of the butterfly.
 - a. Describe the four stages of development (metamorphosis).
 - Egg
 - Larva/caterpillar
 - Pupa/chrysalis
 - Adult
2. Know the basic requirements for all living things.
 - Sun
 - Food
 - Shelter
 - Water
 - Air

SALINE AREA SCHOOLS SCIENCE

GRADE LEVEL OUTCOMES

GRADE 3

Plant Growth and Development

1. Life Cycle of a Plant
 - a. Understand that a plant begins with a seed and proceeds through production of seeds.
 - b. Identify the different stages of the plants life cycle.
 - c. Identify what a plant needs to live and grow.
 - d. Understand that one seed produces one plant; one plant can produce many seeds.
2. Pollination
 - a. Understand how plants are pollinated.
 - b. Identify basic parts of a bee.
 - c. Identify parts of a flower.

Chemical Tests

1. Physical and Chemical Properties
 - a. Understand that chemicals can change form, color, and texture when they are mixed together, separated or heated.
 - b. Identify chemicals by their interaction with water, vinegar, iodine, red cabbage, juice and heat.
 - c. Identify chemicals which can be classified as acids, bases or neutral substances.
 - d. Explain how different types of mixtures are created when solids are combined with water.
2. Methods of Separating Chemicals
 - a. Explain that evaporation and filtration are methods for separating liquids and solids.

Sound

1. Characteristics of Sound
 - a. Understand that sounds are produced by vibrating objects and vibrating columns of air.
 - b. Demonstrate how pitch and volume can change.
 - c. Demonstrate that pitch is determined by frequency of vibrations and volume is determined by amplitude of vibrations.
2. Human Body and Sound
 - a. Understand how the human ear translates vibrations into sound.
 - b. Understand how sound is produced by the human vocal chord.

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M.E.G.O.S.E. Grade Level Objectives

Grade 3

Plants

1. Compare and contrast food, energy and environmental needs of similar organisms.
2. Describe the functions of selected seed plants.
3. Describe the life cycle of a flowering plant.
4. Describe evidence that plants make and store food.
5. Describe the basic requirements for all living things to maintain their existence.
6. Design systems that encourage growing of particular plants or animals.
7. Describe positive and negative effects of humans on the environment.

Chemical Tests

1. Classify substances as mixtures.
2. Describe common physical changes in matter (size, shape, dissolving) and the heat energy.
3. Prepare mixtures and separate them into their component parts.

Sound

1. Describe sounds in terms of their properties. (pitch, loudness)
2. Explain how sounds are made.
3. Explain how sound travels through different media.
4. Describe the motion of vibrating objects (frequency, amplitude)
5. Explain how waves transmit energy.
6. Relate characteristics of sounds that we hear to properties of sound waves.
7. Describe waves in terms of frequency.

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GRADE 4

Life - Animal Studies

1. Compare & contrast food, energy and environmental needs of similar organisms (52 Life) (p. 12 Teaching Animal Studies).
 - a. Compare the 3 animal habitats to identify each animal's basic and special survival needs (p. 25).
2. Explain how physical and/or behavioral characteristics of organisms help them to survive in their environments.
 - a. Select a specific animal behavior to study in detail (p. 137).
 - b. Research a particular animal's specific behavior (p. 137).

Earth Science - Land & Water

1. Recognize and describe different types of earth materials (165 Earth Sci) (p. 14 Teaching Land & Water).
 - a. Design landscapes for stream tables.
 - b. Predict how their landscapes will be affected by local run-off.
2. Describe natural changes in the earth's surface (167 Earth) (p. 14 Teaching Land and Water).
 - a. Test effect of flowing water on stream table landscape (p. 191).
3. Know and use the scientific process.
 - a. Will form hypothesis on the basis of facts at hand and past experiences and select home sites on the basis of these hypotheses (p. 191).

Electric Circuits

1. Predicting, observing, describing and recording results of experiments with electricity.
 - a. Wiring simple electric circuits.
 - b. Building and use a simple circuit tester.
 - c. Building a simple switch.

SALINE AREA SCHOOLS SCIENCE

GRADE LEVEL OUTCOMES

GRADE 5

Microworlds

1. Understand how to use a microscope.
 - a. Identify parts of a microscope.
 - b. Learn to focus microscope, prepare slides.
2. Understand the relationship between cells and organisms.
 - a. Observe onion skin cells.
 - b. Observe, describe and compare microorganisms.

Ecosystems

1. Understand that an ecosystem is a community of dependent and interdependent organisms that interact with the environment.
 - a. Create land and water ecosystems.
2. Understand that light, water, temperature and soil factors that affect the growth and reproduction of organisms in an ecosystem.
3. Understand that natural and human events and pollutants can disturb and harm ecosystems.
 - a. Plan, conduct and evaluate pollution experiments.

Sound & Light

In this unit, all students will:

1. Explain how sound travels through different media.
2. Explain how echoes occur and how they are used.
3. Explain how light is required to see objects.
4. Describe ways in which light interacts with matter.
5. Describe the motion of vibrating objects.
6. Explain how mechanical waves transfer energy.

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Michigan Core Curriculum

Fifth Grade

1. Construct new personal and scientific knowledge.
 - a. Generate scientific questions about the world, based on observation.
 - b. Design and conduct simple investigations.
 - c. Investigate toys/simple appliances and explain how they work using instructions and appropriate safety precautions.
 - d. Use measurement devices to provide consistency in an investigation.
 - e. Use sources of information to help solve problems.
 - f. Write and follow procedures in the form of step-by-step instructions, recipes, formulas, flow diagrams, and sketches.

2. Use knowledge about cells in real-world contexts.
 - a. Describe similarities/differences between single-celled and multicellular organisms.
 - b. Explain why specialized cells are needed by plants and animals.
 - c. Explain how cells use food as a source of energy.

3. Use knowledge about living things in real-world contexts.
 - a. Compare and classify organisms into major groups on the basis of their structure.
 - b. Describe the life cycle of a flowering plant.
 - c. Explain how selected systems and processes work together in animals and plants.

4. Use knowledge about heredity in real-world contexts.
 - a. Describe how the characteristics of living things are passed on through generations.
 - b. Describe how heredity and environment may influence/determine characteristics of an organism.

5. Use knowledge about evolution in real-world contexts.
 - a. Describe how biologists might trace possible evolutionary relationships around present and past life forms.

6. Use knowledge about ecosystems in real-world contexts.
 - a. Describe common patterns of relationships among populations.
 - b. Predict the effects of change in one population in a food web on other populations.
 - c. Describe how all organisms in an ecosystem acquire energy directly or indirectly from sunlight.
 - d. Identify some common materials that cycle through the environment.
 - e. Describe ways in which humans alter the environment.
 - f. Explain how humans use and benefit from plant and animal materials.

7. Use knowledge about matter and energy in real-world contexts.
 - a. Measure physical properties of objects or substances (mass, weight, temperature, dimensions, area, volume).
 - b. Describe when length, mass, weight, area, or volume are appropriate to describe the size of an object or the amount of substance.
 - c. Classify substances as elements, compounds, or mixtures.
 - d. Describe matter as consisting of extremely small particles (atoms) that bond together to form molecules.
 - e. Describe the arrangement and motion of molecules in solids, liquids, and gases.
 - f. Describe energy and the many common forms it takes (mechanical, heat, light, sound, electrical, magnetic, chemical, nuclear).
 - g. Describe how common forms of energy can be converted, one to another.
 - h. Describe electron flow in simple electrical circuits.
 - i. Use electric currents to create magnetic fields.

8. Use knowledge about changes in matter in real-world contexts.
 - a. Describe common chemical changes in terms of properties of reactants and products.
 - b. Describe how waste products accumulating from natural and technological activities create pollution.
 - c. Explain physical changes in terms of the arrangement and motion of atoms and molecules.

9. Use knowledge about motion of objects in real-world contexts.
 - a. Relate changes in speed or direction to unbalanced forces in two dimensions.
 - b. Describe the forces exerted by magnets, electrically charged objects, and gravity.
 - c. Design strategies for moving objects by means of the application of forces, including the use of simple machines.

10. Use knowledge about waves and vibrations in real-world contexts.
 - a. Explain how sound travels through different media.
 - b. Explain how light helps us to see.
 - c. Explain how objects or media reflect, refract, transmit, or absorb light.
 - d. Explain how waves transmit energy.

11. Use knowledge about the geosphere in real-world contexts.
 - a. Describe and identify surface features using maps.
 - b. Explain how rocks and minerals are formed.
 - c. Explain how rocks and fossils are used to determine the age and geological history of the earth.
 - d. Explain how rocks are broken down, how soil is formed, and how surface features change.
 - e. Explain how technology changes the surface of the earth.

12. Use knowledge about the hydrosphere in real-life world contexts.
 - a. Describe various forms that water takes on the earth's surface and conditions under which they exist.
 - b. Describe how rain water in Michigan reaches the oceans.
 - c. Describe the origins of pollution in the hydrosphere.

13. Use knowledge about the atmosphere and weather in real-world contexts.
 - a. Describe health effects of polluted air. (Lung - MI Model at Houghton)

14. Use knowledge about the solar system, galaxy and universe in real-world contexts.
 - a. Compare the earth to other planets in terms of supporting life.
 - b. Describe, compare, and explain the motions of planets, moons, and comets in the solar system.
 - c. Describe and explain common observations of the day and skies.
 - d. Explain how the solar system formed.

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GRADE LEVEL OUTCOMES

GRADE 6

Nutrition

1. Recognize the importance of good nutrition.
2. Evaluate student's diet for balanced nutrition.
3. Plan a balanced meal.
4. Compare food intake to RDA.
5. Understand the Food Pyramid and its implications to good eating .
6. Will become familiar with the food terms (carbohydrates, water, vitamins, minerals, fat, protein) and the food sources for each.

Electricity

1. Describe the interaction of electrically charged material with other charged or uncharged material.
2. Describe possible electrical shock hazards to be avoided at home and at school.
3. Describe how common forms of energy can be converted, one to another.
4. Describe electron flow in simple electrical circuits.

Biomes

1. Describe the likely succession of a given ecosystem over time.
2. Describe ways in which humans alter the environment.
3. Explain how humans use and benefit from plant and animal materials.
4. Describe and identify surface features using maps.
5. Explain how technology changes the surface of the earth.
6. Describe the origins of pollution in the hydrosphere.
7. Explain the water cycle and its relationship to weather patterns.
8. Describe health effects of polluted air.

Atoms & Molecules

(Chemical Building Blocks - Prentice Hall)

1. Measure physical properties of objects or substances (mass, weight, temperature dimensions, area, volume).
2. Describe when length, mass, weight, area or volume are appropriate to describe the size of an object or the amount of a substance.
3. Classify substances as elements, compounds, or mixtures.

4. Describe matter as consisting of extremely small particles that bond together to form molecules.
5. Describe the arrangement and motion of molecules in solids, liquids, and gases.
6. Describe energy and the many common forms it takes (mechanical, heat, light, sound, electrical, magnetic, chemical, nuclear).
7. Describe common physical changes in material: evaporation, condensation, thermal expansion and contraction.
8. Distinguish between physical and chemical changes in natural and technological systems.
9. Describe the forces exerted by magnets, electrically charged objects and gravity.

A.I.D.S.

1. Recognize myths about AIDS.
2. Explain how to avoid AIDS.
3. Discuss what the AIDS virus does to the human body.

Drugs and Alcohol

1. Distinguish between use and abuse in our society.
2. Select proper response to social pressures.
3. Discuss effects of substances on the human body, both long and short term.

Astronomy

1. Compare the earth to other planets and moons in terms of supporting life.
2. Describe, compare and explain the motions of solar system objects.
3. Describe and explain common observations of the night skies.