

Fourth Grade Science

Strand	Big Idea	Concept	GLE code	GLE
ME	1	A	a.	Describe and compare the masses (the amount of matter in an object) of objects to the nearest gram using balances
ME	1	A	b.	Describe and compare the volumes (the amount of space an object occupies) of objects using a graduated cylinder
ME	1	A	c.	Recognize no two objects can occupy the same space at the same time (e.g., water level rises when an object substance, such as a rock, is placed in a quantity of water)
ME	1	A	d.	Classify types of materials (e.g., water, salt, sugar, iron filings, salt water) into “like” substances (materials that have specific physical properties) or mixtures of substances by using their characteristic properties
ME	1	B	a.	Identify water as a solvent that dissolves materials (Do NOT assess the term solvent)
ME	1	B	b.	Observe and describe how mixtures are made by combining solids or liquids, or a combination of these
ME	1	B	c.	Distinguish between the components in a mixture/solution (e.g., trail mix, conglomerate rock, salad, soil, salt water)
ME	1	B	d.	Describe ways to separate the components of a mixture/solution by their properties (i.e., sorting, filtration, magnets, screening)
ME	1	I	a.	Recognize that the total mass of a material remains constant whether it is together, in parts, or in a different state

ME	2	A	b.	Identify sources of light energy (e.g., Sun, bulbs, flames)
ME	2	A	c.	Recognize light transferred from the source to the receiver (eye) through space
ME	2	A	d.	Identify the three things (light source, object, and surface) necessary to produce a shadow
ME	2	A	a.	Construct and diagram a complete electric circuit by using a source (e.g., battery), means of transfer (e.g., wires), and receiver (e.g., resistance bulbs, motors, fans)
ME	2	A	b.	Observe and describe the evidence of energy transfer in a closed series circuit (e.g., lit bulb, moving motor, fan)
ME	2	A	c.	Classify materials as conductors or insulators of electricity when placed within a circuit (e.g., wood, pencil lead, plastic, glass, aluminum foil, lemon juice, air, water)
ME	2	F	a.	Identify the evidence of energy transformations (temperature change, light, sound, motion, and magnetic effects) that occur in electrical circuits
FM	1	A	a.	Classify different types of motion [straight line, curved, vibrating (back and forth)]
FM	1	A	b.	Describe an object's motion in terms of distance and time
FM	2	A	a.	Identify the forces acting on the motion of objects traveling in a straight line (specify that forces should be acting in the same line as the motion, provide examples)
FM	2	A	b.	Describe and compare forces(measured by a spring scale in Newton's) applied to objects in a single line

FM	2	A	c.	Recognize friction as a force that slows down or stops a moving object that is touching another object or surface
FM	2	A	d.	Compare the forces (measured by a spring scale in Newton's) required to overcome friction when an object moves over different surfaces (i.e., rough/smooth)
FM	2	B	a.	Determine the gravitational pull of the Earth on an object (weight) using a spring scale
FM	2	D	a.	Recognize Observe that balanced forces do not affect an object's motion
FM	2	D	b.	Describe how unbalanced forces acting on an object changes its speed (faster/slower), direction of motion, or both
FM	2	D	c.	Predict how the change in speed of an object (i.e., faster/slower/remains the same) is affected by the amount of force applied to an object and the mass of the object
FM	2	D	d.	Predict the effects of an electrostatic force (static electricity) on the motion of objects (attract or repel)
EC	1	A	a.	Identify the ways a specific organism may interact with other organisms or with the environment (e.g., pollination, shelter, seed dispersal, camouflage, migration, hibernation, defensive mechanism)
EC	1	A	b.	Recognize different environments (i.e., pond forest, prairie) support the life of different types of plants and animals
EC	1	D	a.	Identify examples in Missouri where human activity has had a beneficial or harmful effect on other organisms (e.g., feeding birds, littering vs. picking up trash, hunting/conservation of species, paving/restoring green space)
EC	2	A	a.	Classify populations of organisms as producers , consumers, or decomposers by the role they serve in the ecosystem

EC	2	A	b.	Differentiate between the three types of consumers (herbivore, carnivore, omnivore)
EC	2	A	c.	Categorize organisms as predator or prey in a given ecosystem
EC	3	A	a.	Compare and contrast common fossils found in Missouri (i.e., trilobites, ferns, crinoids, gastropods, bivalves, fish, mastodons) to organisms present on Earth today
EC	3	C	a.	Identify specialized structures and describe how they help plants survive in their environment (e.g., root, cactus needles, thorns, winged seed, waxy leaves)
EC	3	C	b.	Identify specialized structures and senses and describe how they help animals survive in their environment (e.g., antennae, body covering, teeth, beaks, whiskers, appendages)
EC	3	C	c.	Recognize internal cues (e.g., hunger) and external cues (e.g., changes in the environment) that cause organisms to behave in certain ways (e.g., hunting, migration, hibernation)
EC	3	C	d.	Predict which plant or animal will be able to survive in a specific environment based on its special structures or behaviors.
ES	1	A	a.	Identify and describe the components of soil (e.g., plant roots and debris, bacteria, fungi, worms, types of rock) and its properties (e.g., odor, color, resistance to erosion, texture, fertility, relative grain size, absorption rate)
ES	1	A	b.	Compare the physical properties (i.e., size, shape, color, texture, layering, presence of fossils) of rocks (mixtures of different Earth materials, each with observable physical properties)
ES	2	A	a.	Observe and describe the breakdown of plant and animal material into soil through decomposition processes (i.e., decay/rotting, composting, digestion)
ES	2	A	b.	Identify the major landforms/bodies of water on Earth (i.e., mountains, plains, river valleys, coastlines, canyons)

ES	2	A	c.	Describe how weathering agents (e.g., water, chemicals, temperature, wind, plants) cause surface changes that create and/or change Earth's surface materials and/or landforms/ bodies of water
ES	2	A	d.	Describe how erosion processes (i.e., action of gravity, waves, wind, rivers, glaciers) cause surface changes that create and/or change Earth's surface materials and/or landforms/ bodies of water
ES	2	A	e	Relate the type of landform/water body to the process by which it was formed
ES	3	A	a.	Identify the ways humans affect the erosion and deposition of Earth's materials (e.g., clearing of land, planting vegetation, paving land construction of new buildings)
ES	3	A	b.	Propose ways to solve simple environmental problems (e.g., recycling, composting, ways to decrease soil erosion) that result from human activity
IN	1	A	a.	Formulate testable questions and explanations (hypotheses
IN	1	A	b.	Recognize the characteristics of a fair and unbiased test
IN	1	A	c.	Conduct a fair test to answer a question
IN	1	B	a.	Make qualitative observations using the five senses
IN	1	B	b.	Make observations using simple tools and equipment (e.g., hand lenses, magnets, thermometers, metric rulers, balances, graduated cylinders, spring scale
IN	1	B	c.	Measure length to the nearest centimeter, mass using grams, temperature using degrees Celsius, volume to the nearest milliliter, force/weight to the nearest Newton

IN	1	B	d.	Compare amounts/measurements
IN	1	B	e	Judge whether measurements and computation of quantities are reasonable
IN	1	C	a.	Use quantitative and qualitative data as support for reasonable explanations
IN	1	C	b.	Use data as support for observed patterns and relationships, and to make predictions to be tested
IN	1	C	c.	Evaluate the reasonableness of an explanation
IN	1	C	d.	Analyze whether evidence supports proposed explanations
IN	1	D	a.	Communicate simple procedures and results of investigations and explanations through: oral presentations, drawings and maps, drawings and maps, data tables, graphs (bar, single line, pictograph), writings
ST	1	A	a.	Design and construct an electrical device, using materials and/or existing objects, that can be used to perform a task (Assess Locally)
ST	1	B	a.	Describe how new technologies have helped scientists make better observations and measurements for investigations (e.g., telescopes, magnifiers, balances, microscopes, computers, stethoscopes, thermometers)
ST	1	C	a.	bulbs, semiconductors/integrated circuits and electronics, satellite imagery, robotics, communication, transportation, generation of energy, renewable materials) may be helpful, harmful, or both (Assess Locally)
ST	2	A	a.	Research biographical information about various scientists and inventors from different gender and ethnic backgrounds, and describe how their work contributed to science and technology (Assess Locally)

ST	3	A	a.	Identify a question that was asked, or could be asked, or a problem that needed to be solved when given a brief scenario (fiction or nonfiction of individuals solving everyday problems or learning through discovery)
ST	3	A	b.	Work with a group to solve a problem, giving due credit to the ideas and contributions of each group member (Assess Locally