

Irving Independent School District
Scope and Sequence for Elementary Science
I: Introduce, D: Develop, R: Revisit, M: Master, E: Extend

| Objective | Student Expectations | K | 1 | 2 | 3 | 4 | 5 | 6 |
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Strand: Scientific Principles

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| (1) Classroom & Field Investigations | (A) demonstrate safe practices during field and laboratory investigations; | I | D | D | D | D | D | D |
| | (B) make wise choices in the use and conservation of resources and the disposal or recycling of materials. | I | D | D | D | D | D | D |
| (2) Scientific Inquiry: Classroom & Field | (A) plan and implement descriptive and simple experimental investigations including asking well-defined questions, formulating testable hypotheses, and selecting and using equipment and technology; | I | D | D | D | D | D | D |
| | (B) collect information by observing and measuring; | I | D | D | D | D | D | D |
| | (C) analyze and interpret information to construct reasonable explanations from direct and indirect evidence; | I | D | D | D | D | D | D |
| | D) communicate valid conclusions | I | D | D | D | D | D | D |
| | (E) construct simple graphs, tables, maps, and charts using tools including computers to organize, examine, and evaluate information. | I | D | D | D | D | D | D |

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| (3) Critical Thinking & Decision Making | (A) analyze, review, and critique scientific explanations, including hypotheses and theories, as to their strengths and weaknesses using scientific evidence and information; | I | D | D | D | D | D | D |
| | (B) draw inferences based on information related to promotional materials for products and services; | I | D | D | D | D | D | D |
| | (C) represent the natural world using models and identify their limitations; | I | D | D | D | D | D | D |
| | (D) evaluate the impact of research on scientific thought, society, and the environment | I | D | D | D | D | D | D |
| | (E) connect Grade 5 science concepts with the history of science and contributions of scientists. | I | D | D | D | D | D | D |
| (4) Tools | (A) collect and analyze information using tools including calculators, microscopes, cameras, sound recorders, computers, hand lenses rulers, thermometers, compasses, balances, hot plates, meter sticks, timing devices, magnets, collecting nets, and safety goggles; | I | D | D | D | D | D | D |
| | (B) demonstrate that repeated investigations may increase the reliability of results. | I | D | D | D | D | D | D |

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Strand: Systems

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|---|---|---|---|---|---|---|---|---|
| (5.5) The student knows that a system is a collection of cycles, structures, and processes that interact. | (A) describe some cycles, structures, and processes that are found in a simple system; | I | | | D | R | M | E |
| | (B) describe some interactions that occur in a simple system. | I | | | D | R | M | E |
| (5.6) The student knows that some change occurs in cycles. | (A) identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles; | I | D | D | | R | M | E |
| | (B) identify the significance of the water carbon, and nitrogen cycles; | I | D | D | | R | M | E |
| | C) describe and compare life cycles of plants and animals. | | | | | | | |
| | (E) manipulate parts of objects such as toys, vehicles, or construction sets that, when put together, can do things they cannot do by themselves. | I | | | | | | |
| (5.8) The student knows that energy occurs in many | (A) differentiate among forms of energy including light, heat, electrical, and solar energy; | | I | D | D | R | M | E |

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| forms. | | | | | | | | |
| | (B) identify and demonstrate everyday examples of how light is reflected, such as from tinted windows, and refracted, such as in cameras, telescopes, and eyeglasses; | | I | R | D | D | M | E |
| | (C) demonstrate that electricity can flow in a circuit and can produce heat, light, sound, and magnetic effects; | | | | I | D | M | E |
| | (D) verify that vibrating an object can produce sound. | | | | I | | M | E |
| (5.9) The student knows that adaptations may increase the survival of members of a species. | (A) compare the adaptive characteristics of species that improve their ability to survive and reproduce in an ecosystem; | I | D | D | R | R | M | E |
| | (B) analyze and describe adaptive characteristics that result in an organism's unique niche in an ecosystem; | I | D | D | R | R | M | E |
| | (C) predict some adaptive characteristics required for survival and reproduction by an organism in an ecosystem. | I | | | | | R | M |
| (5.10) The student knows that likenesses between offspring and parents can be | (A) identify traits that are inherited from parent to offspring in plants and animals; | | | I | D | | M | E |

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| inherited or learned. | | | | | | | | |
| | (B) give examples of learned characteristics that result from the influence of the environment. | | | I | D | | M | E |
| (5.11)The student knows that certain past events affect present and future events. | (A) identify and observe actions that require time for changes to be measurable, including, growth, erosion, dissolving, weathering, and flow; | | | | I | D | | M |
| | (B) draw conclusions about "what happened before" using data such as from tree-growth rings and sedimentary rock, sequences; | | | | I | D | | M |
| | (C) identify past events that led to the formation of the Earth's renewable, non-renewable, and inexhaustible resources. | | | | I | D | | M |
| | (D) describe the characteristics of the Sun. | | | | I/D | | | |
| (5.12) Science concepts. The student knows that the natural world includes earth materials and objects in the sky. | (A) interpret how land forms are the result of combination of constructive and destructive forces | | | | | | I/M | |
| | (B) describe processes responsible for the formation of coal, oil, gas, and minerals; | | | | | | I/M | |
| | © identify the physical characteristics of the | | | | | | I/M | |

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| | Earth and compare them to the physical characteristics of the moon; | | | | | | | |
| | (D) identify gravity as the force that keeps planets in orbit around the Sun and the moon in orbit around the Earth. | | | | | | I/M | |

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|---|--|----------|----------|----------|----------|----------|----------|----------|
| Strand: <u>Properties and Patterns</u> | | | | | | | | |
| (5.5) The student knows that a system is a collection of cycles, structures, and processes that interact. | (A) describe some cycles, structures, and processes that are found in a simple system | I | D | D | | | | M |
| | (B) describe some interactions that occur in a simple system. | I | D | D | | | | M |
| | (C) recognize and copy patterns seen in charts and graphs. | I/D | | | | | | |
| (5.7) The student knows that matter has physical properties | (A) classify matter based on its physical properties including magnetism, physical state, and the ability to conduct or insulate heat, electricity, and sound; | | | | I | D | M | E |
| | (B) demonstrate that some mixtures maintain the physical properties of their ingredients; | | | | I | D | M | E |
| | (C) identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving sugar in water | | | | I | D | M | E |

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| | (D) observe and measure characteristic properties of substances that remain constant such as boiling points and melting points. | | | | I | D | M | E |
| (5.8) The student knows that energy occurs in many forms. | (A) differentiate among forms of energy including light, heat, electrical, and solar energy; | I | D | D | | R | R | M |
| | (B) identify and demonstrate everyday examples of how light is reflected, such as from tinted windows, and refracted, such as in cameras, telescopes, and eyeglasses; | I | D | D | | R | R/M | E |
| | (C) demonstrate that electricity can flow in a circuit and can produce heat, light, sound, and magnetic effects; | | | | | I | D/R/M | |
| | (D) verify that vibrating an object can produce sound. | | | | | | M | |
| (5.9) The student knows that adaptations may increase the survival of members of a species. | (A) compare the adaptive characteristics of species that improve their ability to survive and reproduce in an ecosystem; | I | D | D | | R | R/M | E |
| | (B) analyze and describe adaptive characteristics that result in an organism's unique niche in an ecosystem; | I | D | D | | R | R/M | E |

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| | (C) predict some adaptive characteristics required for survival and reproduction by an organism in an ecosystem. | I | | | | | R/M | |
| (5.10) The student knows that likenesses between offspring and parents can be inherited or learned. | (A) identify traits that are inherited from parent to offspring in plants and animals; | I | D | D | R | | R/M | |
| | (B) give examples of learned characteristics that result from the influence of the environment. | I | D | D | R | | R/M | |
| (5.11). The student knows that certain past events affect present and future events. | (A) identify and observe actions that require time for changes to be measurable, including growth, erosion, dissolving, weathering, and flow; | | | | I | D/R/M | | |
| | (B) draw conclusions about "what happened before" using data such as from tree-growth rings and sedimentary rock sequences; | | | | I | D/R/M | | |
| | (C) identify past events that led to the formation of the Earth's renewable, non-renewable, and inexhaustible resources. | | | | I | D/R/M | | |
| (5.12) The student knows that the natural world | (A) interpret how land forms are the result of a combination of constructive and destructive | | | | | | D/R/M | |

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| includes earth materials and objects in the sky. | forces such as deposition of sediment and weathering; | | | | | | | |
| | (B) describe processes responsible for the formation of coal, oil, gas, and minerals; | | | | | | D/R/M | |
| | (C) identify the physical characteristics of the Earth and compare them to the physical characteristics of the moon; | | | | | | D/R/M | |
| | D) identify gravity as the force that keeps planets in orbit around the Sun and the moon in orbit around the Earth. | | | | | | D/R/M | |

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Strand: Constancy and Change

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| (5.5) The student knows that a system is a collection of cycles, structures, and processes that interact. | (B) describe some cycles, structures, and processes that are found in a simple system | I | D | D | | | | |
| | (C) recognize and copy patterns seen in charts and graphs. | I | D | D | | | | |
| (5.6) The student knows that some change occurs in cycles. | (A) identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles; | | | | I | D/R | R/M | |
| | (B) identify the significance of the water, carbon, and nitrogen cycles; | | | | I | D/R | R/M | |
| | (C) describe and compare life cycles of plants and animals. | | | | I | D/R | R/M | |
| (5.7) The student knows that matter has physical properties | (A) classify matter based on its physical properties including magnetism, physical state, and the ability to conduct or insulate heat, electricity, and sound; | I | D | D/R | | | | |
| | (B) demonstrate that some | I | D | D/R | | | | |

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| | mixtures maintain the physical properties of their ingredients; | | | | | | | | |
| | (C) identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving sugar in water | I | D | D/R | | | | | |
| | (D) observe and measure characteristic properties of substances that remain constant such as boiling points and melting points. | I | D | D/R | | | | | |
| (5.8) The student knows that energy occurs in many forms. | (A) differentiate among forms of energy including light, heat, electrical, and solar energy; | | | | I | D/R | R/M | E | |
| | (B) identify and demonstrate everyday examples of how light is reflected, such as from tinted windows, and refracted, such as in cameras, telescopes, and eyeglasses; | | | | I | D/R | R/M | E | |
| | (C) demonstrate that electricity can flow in a circuit and can produce heat, light, sound, and magnetic effects; | | | | I | D/R | R/M | E | |
| | (D) verify that vibrating an object can produce sound. | | | | I | D/R | R/M | E | |
| (5.9) The student knows that adaptations may increase | (A) compare the adaptive characteristics of species that improve their ability to survive and reproduce in an | | | | I | D | R/M | E | |

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| the survival of members of a species. | ecosystem; | | | | | | | | |
| | (B) analyze and describe adaptive characteristics that result in an organism's unique niche in an ecosystem; | | | | I | D | R/M | E | |
| | (C) predict some adaptive characteristics required for survival and reproduction by an organism in an ecosystem. | | | | I | D | R/M | E | |
| (5.10) The student knows that likenesses between offspring and parents can be inherited or learned. | (A) identify traits that are inherited from parent to offspring in plants and animals; | | | | I | D | R/M | E | |
| | (B) give examples of learned characteristics that result from the influence of the environment. | | | | I | D | R/M | E | |
| (5.11). The student knows that certain past events affect present and future events. | (A) identify and observe actions that require time for changes to be measurable, including growth, erosion, dissolving, weathering, and flow; | | | | I | D | R/M | E | |
| | (B) draw conclusions about "what happened before" using data such as from tree-growth rings and sedimentary rock sequences; | | | | I | D | R/M | E | |
| | (C) identify past events | | | | I | D | R/M | E | |

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| | that led to the formation of the Earth's renewable, non-renewable, and inexhaustible resources. | | | | | | | | |
| (5.12) The student knows that the natural world includes earth materials and objects in the sky. | (A) interpret how land forms are the result of a combination of constructive and destructive forces such as deposition of sediment and weathering; | | | | | | I/D/M | | |
| | (B) describe processes responsible for the formation of coal, oil, gas, and minerals; | | | | | | I/D/M | | |
| | (C) identify the physical characteristics of the Earth and compare them to the physical characteristics of the moon; | | | | | | I/D/M | | |
| | D) identify gravity as the force that keeps planets in orbit around the Sun and the moon in orbit around the Earth. | | | | | | I/D/M | | |

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|---|--|----------|----------|----------|----------|----------|----------|----------|
| Strand: <u>Form and Function</u> | | | | | | | | |
| (5.5) The student knows that a system is a collection of cycles, structures, and processes that interact. | (A) describe some cycles, structures, and processes that are found in a simple system | | | | | D | | |
| | (B) describe some interactions that occur in a simple system. | | | | | D | | |
| (5.6) The student knows that some change occurs in cycles. | (A) identify events and describe changes that occur on a regular basis such as in daily, weekly, lunar, and seasonal cycles; | | | | | | I/D | |
| | (B) identify the significance of the water, carbon, and nitrogen cycles; | | | | | | I/D | |
| | (C) describe and compare life cycles of plants and animals. | | | | | | I/D | |
| (5.8) The student knows that energy occurs in many forms. | (A) differentiate among forms of energy including light, heat, electrical, and solar energy; | | | | I | D/R | | |
| | (B) identify and demonstrate everyday examples of how light is reflected, such as from tinted windows, and | | | | I | D/R | | |

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| | refracted, such as in cameras, telescopes, and eyeglasses; | | | | | | | |
| | (C) demonstrate that electricity can flow in a circuit and can produce heat, light, sound, and magnetic effects; | | | | I | D/R | | |
| | (D) verify that vibrating an object can produce sound. | | | | I | | R/M | |
| (5.9) Science concepts. The student knows that adaptations may increase the survival of members of a species. | (A) compare the adaptive characteristics of species that improve their ability to survive and reproduce in an ecosystem; | I | D | D | R | | R/M | |
| | (B) analyze and describe adaptive characteristics that result in an organism's unique niche in an ecosystem; | I | D | D | R | | R/M | |
| | (C) predict some adaptive characteristics required for survival and reproduction by an organism in an ecosystem. | I | D | D | R | | R/M | |
| (5.10) The student knows that likenesses between offspring and parents can be inherited or learned. | (A) identify traits that are inherited from parent to offspring in plants and animals; | | | | I | | R/M | |
| | (B) give examples of learned characteristics that result from the | | | | I | | R/M | |

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| | influence of the environment. | | | | | | | |
| (5.11). The student knows that certain past events affect present and future events. | (A) identify and observe actions that require time for changes to be measurable, including growth, erosion, dissolving, weathering, and flow; | | | | I | D/R | | |
| | (B) draw conclusions about "what happened before" using data such as from tree-growth rings and sedimentary rock sequences; | | | | I | D/R | | |
| | (C) identify past events that led to the formation of the Earth's renewable, non-renewable, and inexhaustible resources. | | | | I | D/R | | |
| (5.12) The student knows that the natural world includes earth materials and objects in the sky. | (A) interpret how land forms are the result of a combination of constructive and destructive forces such as deposition of sediment and weathering; | | | | | | R/M | E |
| | (B) describe processes responsible for the formation of coal, oil, gas, and minerals; | | | | | | R/M | E |
| | (C) identify the physical characteristics of the Earth and compare them to the physical characteristics of the moon; | | | | | | R/M | E |
| | D) identify gravity as the force that keeps | | | | | | R/M | E |

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| | planets in orbit around the Sun and the moon in orbit around the Earth. | | | | | | | |
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May 21, 2001