Texas Essential Knowledge and Skills for Science, Grade K

		Student Materials	Teacher Materials
(1) Scientific and engineering practices. The student asks questions, identifies problems, and plans and safely conducts classroom, laboratory, and field investigations to answer questions, explain phenomena, or design solutions using appropriate tools and models. The student is expected to:	**(A)** ask questions and define problems based on observations or information from text, phenomena, models, or investigations	**Student Edition:** 8–9, 12, 14, 56, 202, 212, 233, 248 **Simulations:** Terrarium Gazing **Hands-On Investigations:** Make a Noise Maker; Observe Light; Plenty of Plant Parts; Weather Out the Window; Wild World of Rocks	**Teacher Edition:** 8, 56, 62A–62B, 86A–86B, 120A–120B, 198B, 202, 212
	(B) use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems	**Student Edition:** 8–9, 12–13, 202 **All Hands-On Investigations**	**Teacher Edition:** 3E, 3N, 8, 14A, 14B, 49E, 116, 150A, 150B
	(C) identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards	**Student Edition:** 10 **Hands-On Investigations:** One Potato, Two Potato; Weather Watch; Blowing in the Wind; What Is in the Sky?; Plenty of Plant Parts; Life of a Lima Bean; Who Is Your Parent Plant?; Rock and Soil Hunt	**Teacher Edition:** 8, 10A–10B, 164A–164B
	(D) use tools, including hand lenses, goggles, trays, cups, bowls, sieves or sifters, notebooks, terrariums, aquariums, samples (rocks, sand, soil, loam, gravel, clay, seeds, and plants), windsock, demonstration thermometer, rain gauge, straws, ribbons, non-standard measuring items, blocks or cubes, tuning fork, various flashlights, small paper cups, items that roll, noise makers, hot plate, opaque objects, transparent objects, foil pie pans, foil muffin cups, wax paper, Sun-Moon-Earth model, and plant life cycle model to observe, measure, test, and compare	**Student Edition:** 10, 11, 80, 92, 104, 132, 133, 136, 153, 180, 210–211, 212, 234–235 **All Hands-On Investigations**	**Teacher Edition:** 3N, 8, 10A–10B, 74A–74B, 130A–130B
	(E) collect observations and measurements as evidence	**Student Edition:** 10, 11, 31, 42, 44, 53, 58, 64–65, 76–77, 88, 92, 99, 104, 114, 123, 142, 144, 146, 152, 158, 172, 204, 212, 226, 250 **Simulations:** Terrarium Gazing, The Healthy Rabbit **Hands-On Investigations:** One Potato, Two Potato; Bits and Pieces; Mystery Materials; Pick It Up; Observe Light; In the Shadows; Wild World of Rocks; Rock and Soil Hunt; Water Works; Weather Out the Window; Weather Watch; The Seasons I See; Blowing in the Wind; What Is in the Sky?; Night and Day; Plenty of Plant Parts; Life of a Lima Bean; Who Is Your Parent Plant?; Animal Parts	**Teacher Edition:** 8, 11, 25E, 37E, 40A–40B, 71E, 74A–74B, 96A–96B, 108A– 108B, 120A–120B, 127E, 130A, 137E, 140A–140B, 161E, 173E, 185E, 208A–208B, 215E, 218A–218B, 229E, 244A–244B
	(F) record and organize data using pictures, numbers, words, symbols, and simple graphs	**Student Edition:** 9, 11, 16, 17, 44, 90, 134 **Hands-On Investigations:** Bits and Pieces; Mystery Materials; Pick It Up; Observe Light; In the Shadows; Wild World of Rocks; Rock and Soil Hunt; Water Works; Weather Out the Window; Weather Watch; The Seasons I See; Blowing in the Wind; What Is in the Sky?; Plenty of Plant Parts; Life of a Lima Bean; Who Is Your Parent Plant?; Animal Parts	**Teacher Edition:** 8, 17, 25E, 40A–40B, 44, 52A–52B, 74A–74B, 83E, 86A–86B, 93E, 96A–96B, 105E, 117E, 130B, 140A–140B, 147E, 185E, 188A–188B, 195E, 205E, 208A–208B, 215E, 218A–218B, 232A–232B, 244A–244B
	(G) develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem	**Student Edition:** 12–14, 22, 44, 56, 68, 69, 78, 79, 90, 113, 144, 145, 180, 192, 202, 203, 210, 211, 212, 213, 214, 225 **Simulations:** Terrarium Gazing, The Healthy Rabbit **Hands-On Investigations:** Make a Noise Maker; Blowing in the Wind; What Is in the Sky?; Night and Day; Life of a Lima Bean	**Teacher Edition:** 3E, 8, 14A–14B, 37E, 83E, 147E, 150A–150B, 164A–164B, 180, 188A–188B, 215E, 232A–232B

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		Student Materials	Teacher Materials
(2) Scientific and engineering practices. The student analyzes and interprets data to derive meaning, identify features and patterns, and discover relationships or correlations to develop evidence-based arguments or evaluate designs. The student is expected to:	**(A)** identify basic advantages and limitations of models such as their size, properties, and materials	**Student Edition:** 14, 202 **Simulations:** Terrarium Gazing, The Healthy Rabbit **Hands-On Investigation:** Observe Light	**Teacher Edition:** 3E, 14, 202
	(B) analyze data by identifying significant features and patterns	**Student Edition:** 16, 17, 36, 90, 134, 136, 177, 182 **Hands-On Investigations:** Bits and Pieces; The Seasons I See; Night and Day; Who Is Your Parent Plant?	**Teacher Edition:** 17, 28A–28B, 90, 127E, 140A–140B, 173E
	(C) use mathematical concepts to compare two objects with common attributes	**Student Edition:** 11, 17, 90, 134 **Hands-On Investigations:** Wild World of Rocks; Who Is Your Parent Plant?	**Teacher Edition:** 11, 17, 90, 134
	(D) evaluate a design or object using criteria to determine if it works as intended	**Student Edition:** 12, 13, 124, 167, 179, 202 **Simulations:** Terrarium Gazing, The Healthy Rabbit **Hands-On Investigations:** Make a Noise Maker; Observe Light; Blowing in the Wind	**Teacher Edition:** 117E, 124, 150A–150B, 232A–232B
(3) Scientific and engineering practices. The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:	**(A)** develop explanations and propose solutions supported by data and models	**Student Edition:** 12, 13, 14, 53, 70, 76, 77, 90, 123, 126, 133, 134, 178, 180, 202, 212, 240 **Simulations:** Terrarium Gazing, The Healthy Rabbit **Hands-On Investigations:** One Potato, Two Potato; Make a Noise Maker; Bits and Pieces; Observe Light; Rock and Soil Hunt; The Seasons I See; Plenty of Plant Parts; Who Is Your Parent Plant?	**Teacher Edition:** 28A–28B, 62A–62B, 71E, 185E, 198B, 202, 205E
	(B) communicate explanations and solutions individually and collaboratively in a variety of settings and formats	**Student Edition:** 9, 11, 12, 14–16, 18, 21, 29, 31, 35, 42–43, 45, 52–53, 56, 57, 64, 68, 69, 76–77, 78, 79, 87–89, 90, 91, 99, 102, 103, 111, 112, 113, 122–123, 132, 134, 145, 152, 165–167, 170, 171, 176–179, 180, 181, 193, 195, 199, 203, 211, 213, 221, 224, 225, 233, 238, 239, 248, 249 **Simulations:** Terrarium Gazing, The Healthy Rabbit **All Hands-On Investigations**	**Teacher Edition:** 3N, 25E, 37E, 40A–40B, 49E, 59E, 62A–62B, 93E, 96A–96B, 105E, 117E, 137E, 161E, 164A–164B, 173E, 176A–176B, 185E, 195E, 205E, 229E, 241E, 248
	(C) listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion	**Student Edition:** 18, 22, 31, 33, 41, 52, 64, 76, 87, 88, 99, 111, 122, 212 **Hands-On Investigations:** Bits and Pieces; Pick It Up; Water Works; Weather Watch; The Seasons I See; Night and Day	**Teacher Edition:** 25E, 28A–28B, 49E, 52A–52B, 71E, 108A–108B, 127E, 137E, 161E, 173E, 176A–176B, 195E, 205E, 241E, 244A–244B
(4) Scientific and engineering practices. The student knows the contributions of scientists and recognizes the importance of scientific research and innovation on society. The student is expected to:	**(A)** explain how science or an innovation can help others	**Student Edition:** 3, 5–6, 12, 18, 67, 169, 222, 223, 237	**Teacher Edition:** 3E, 49E
	(B) identify scientists and engineers such as Isaac Newton, Mae Jemison, and Ynés Mexía and explore what different scientists and engineers do	**Student Edition:** 4–6, 8–9, 12–14, 18, 21–22, 32–34, 66–68, 168–170, 222–224, 236–238	**Teacher Edition:** 4–6, 8–9, 12–14, 18, 21–22, 32–34, 66–68, 168–170, 222–224, 236–238

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(5) Recurring themes and concepts. The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:	**(A)** identify and use patterns to describe phenomena or design solutions	**Student Edition:** 19, 140–143, 178–179, 181–182, 208–211 **Hands-On Investigations:** Night and Day; Life of A Lima Bean; Who Is Your Parent Plant?	**Teacher Edition:** 138, 142, 174, 178, 206, 210, 216, 219, 220, 230, 234
	(B) investigate and predict cause-and-effect relationships in science	**Student Edition:** 19, 194 **Hands-On Investigation:** In the Shadows	**Teacher Edition:** 50, 53, 54, 72, 76, 77, 118, 122, 148, 152, 153
	(C) describe the properties of objects in terms of relative size (scale) and relative quantity	**Student Edition:** 19, 29, 31, 86, 90, 91–92, 134, 199, 219 **Hands-On Investigations:** Wild World of Rocks; Who Is Your Parent Plant?	**Teacher Edition:** 26, 31, 84, 87, 88
	(D) examine the parts of a whole to define or model a system	**Student Edition:** 20, 155–156, 198–201, 203–204, 244–247, 248, 249–250 **Hands-On Investigations:** Plenty of Plant Parts; Animal Parts	**Teacher Edition:** 8, 162, 166, 186, 190
	(E) identify forms of energy and properties of matter	**Student Edition:** 20, 62–65 **Hands-On Investigations:** Bits and Pieces; Mystery Materials; Pick It Up, Observe Light; In the Shadows; Wild World of Rocks	**Teacher Edition:** 38, 42, 43, 60, 63, 64
	(F) describe the relationship between the structure and function of objects, organisms, and systems	**Student Edition:** 20, 31, 74–77, 155–156, 198–201, 203–204, 244–247, 248, 249–250 **Hands-On Investigations:** Plenty of Plant Parts; Animal Parts	**Teacher Edition:** 94, 98–99, 106, 110, 196, 199–200, 242, 245–246
	(G) describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same	**Student Edition:** 20, 130–133, 135–136, 140–143, 144, 145–146, 208–211 **Hands-On Investigations:** One Potato, Two Potato; Weather Watch; The Seasons I See; Blowing in the Wind; Life of a Lima Bean	**Teacher Edition:** 128, 131, 132
(6) Matter and its properties. The student knows that objects have physical properties that determine how they are described and classified. The student is expected to identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects. The student is expected to:	**(A)** identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects	**Student Edition:** 28–31, 32, 35–36, 40–43, 44, 45–46, 58 **Hands-On Investigations:** Bits and Pieces; Mystery Materials; Wild World of Rocks	**Teacher Edition:** 23H, 28–31, 32, 35–36, 40–43, 44, 45–46, 58
(7) Force, motion, and energy. The student knows that forces cause changes in motion and position in everyday life. The student is expected to describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.	**(A)** describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull	**Student Edition:** 52–55, 57–58 **Hands-On Investigation:** Pick It Up	**Teacher Edition:** 52–55, 57–58
(8) Force, motion, and energy. The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:	**(A)** communicate the idea that objects can only be seen when a light source is present and compare the effects of different amounts of light on the appearance of objects	**Student Edition:** 62–65, 66–68, 69–70 **Hands-On Investigation:** Observe Light	**Teacher Edition:** 47H, 62–65, 66–68, 69–70
	(B) demonstrate and explain that light travels through some objects and is blocked by other objects, creating shadows	**Student Edition:** 74–77, 78, 79–80 **Hands-On Investigation:** In the Shadows	**Teacher Edition:** 74–77, 78, 79–80

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		Student Materials	**Teacher Materials**
(9) Earth and space. The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:	**(A)** identify, describe, and predict the patterns of day and night and their observable characteristics	**Student Edition:** 130, 176–179, 180, 181–182 **Hands-On Investigation:** Night and Day	**Teacher Edition:** 130, 159H, 176–179, 180, 181–182
	(B) observe, describe, and illustrate the Sun, Moon, stars, and objects in the sky such as clouds	**Student Edition:** 120–121, 125, 164–167, 171–172, 180 **Hands-On Investigation:** What Is in the Sky?	**Teacher Edition:** 120–121, 125, 164–167, 171–172, 180
(10) Earth and space. The student knows that the natural world includes earth materials and systems that can be observed. The student is expected to:	**(A)** describe and classify rocks by the observable properties of size, shape, color, and texture	**Student Edition:** 86–89, 90, 91–92 **Hands-On Investigation:** Wild World of Rocks	**Teacher Edition:** 81H, 86–89, 90, 91–92
	(B) observe and describe weather changes from day to day and over seasons	**Student Edition:** 120–123, 125–126, 130–133, 134, 135–136, 140–143, 144, 145–146 **Hands-On Investigations:** Weather Out the Window; Weather Watch; The Seasons I See	**Teacher Edition:** 115H, 120–123, 125–126, 130–133, 134, 135–136, 140–143, 144, 145–146
	(C) identify evidence that supports the idea that air is all around us and demonstrate that wind is moving air using items such as a windsock, pinwheel, or ribbon	**Student Edition:** 150–153, 157–158 **Hands-On Investigation:** Blowing in the Wind	**Teacher Edition:** 150–153, 157–158
(11) Earth and space. The student knows that earth materials are important to everyday life. The student is expected to observe and generate examples of practical uses for rocks, soil, and water.	**(A)** observe and generate examples of practical uses for rocks, soil, and water	**Student Edition:** 96–99, 100–102, 103–104, 108–111, 112, 113–114 **Hands-On Investigations:** Rock and Soil Hunt; Water Works	**Teacher Edition:** 96–99, 100–102, 103–104, 108–111, 112, 113–114
(12) Organisms and environments. The student knows that plants and animals depend on the environment to meet their basic needs for survival. The student is expected to:	**(A)** observe and identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow	**Student Edition:** 188–191, 192, 193–194 **Simulations:** Terrarium Gazing	**Teacher Edition:** 183H, 188–191, 192, 193–194
	(B) observe and identify the dependence of animals on air, water, food, space, and shelter	**Student Edition:** 232–235, 237, 239–240 **Simulation:** The Healthy Rabbit	**Teacher Edition:** 232–235, 237, 239–240
(13) Organisms and environments. The student knows that organisms resemble their parents and have structures and undergo processes that help them interact and survive within their environments. The student is expected to:	**(A)** identify the structures of plants, including roots, stems, leaves, flowers, and fruits	**Student Edition:** 198–201, 203–204, 220, 225–226 **Hands-On Investigation:** Plenty of Plant Parts	**Teacher Edition:** 198–201, 203–204, 220, 225–226
	(B) identify the different structures that animals have that allow them to interact with their environment such as seeing, hearing, moving, and grasping objects	**Student Edition:** 244–247, 248, 249–250 **Hands-On Investigation:** Animal Parts	**Teacher Edition:** 227H, 244–247, 248, 249–250
	(C) identify and record the changes from seed, seedling, plant, flower, and fruit in a simple plant life cycle	**Student Edition:** 208–211, 212, 213–214 **Hands-On Investigation:** Life of a Lima Bean	**Teacher Edition:** 208–211, 212, 213–214
	(D) identify ways that young plants resemble the parent plant	**Student Edition:** 218–221, 225–226 **Hands-On Investigation:** Who Is Your Parent Plant?	**Teacher Edition:** 218–221, 225–226