



Correlation of *Science K–5*
to the State Science Standards of
Texas

KINDERGARTEN

Knowledge and Skills:

K.1 Scientific investigation and reasoning.

The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:

K.1.A identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately; and

NLS–KA (6), KB (16), KD (30, 35, 37); 1A(7), 1B (13, 15), 1C (30, 35), 1F (59); 2A (1, 13, 15, 16), 2D (44, 45), 2E(56), 2F (73, 77)

K.1.B demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reusing or recycling paper, plastic, and metal.

NLS–1C (36), 2D (53)

K.2 Scientific investigation and reasoning.

The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:

K.2.A ask questions about organisms, objects, and events observed in the natural world;

NLS–KA (5, 6, 7, 9, 10), KC (19, 20, 21, 23), KF (49, 52), KG (55, 56, 57), KH (58, 59, 60, 61); 1A (2, 4, 8), 1B (13, 15, 16, 20, 23–25, 27), 1C (30–32, 37), 1D (45), 1E (48–50), 1F (60–62, 67, 69); 2A (2, 3, 7, 8, 11–17), 2B (20–25), 2C (28–31, 36–39), 2E (54, 55, 57–59, 61–63), 2F (68–73, 75–77)

K.2.B plan and conduct simple descriptive investigations;

In Nancy Larson Science, lessons are designed to be developmentally appropriate for students, providing a balance of guided direct instruction as well as hands-on investigations.

NLS–KA (5, 6, 7), KC (23), KD (27, 28–32, 37, 38), KE (40, 41, 43–45), KF (48, 49, 52, 54), KG (56); 1B (15, 16, 20, 24, 25, 27), 1C (30, 31, 34, 37), 1E (52), 1F (59–69); 2A (4–6, 11–17), 2B (20–25), 2C (28–32, 35–39), 2D (42–46, 49), 2E (54, 55, 60–63), 2F (71, 73, 77)

K.2.C collect data and make observations using simple tools;

NLS–KD (30–32, 35–37, 39), KE (44), KF (47, 54); 1B (25, 27), 1C (34, 37), 1E (52); 2A (8, 11, 13, 15–17), 2B (21, 24, 25), 2C (30, 36–39), 2D (42), 2E (62), 2F (77)

K.2.D record and organize data and observations using pictures, numbers, and words; and

NLS–KA (10), KB (11), KC (23), KD (28, 29, 32, 33), KE (42), KF (47), KG (56, 57); 1A (2–11), 1B (24, 26–28), 1C (30, 34–37), 1D (40–45), 1E (49, 51–55), 1F (59–69); 2A (2, 3, 7, 8, 13, 15, 17), 2B (20–25), 2C (28, 29, 31, 32, 35, 38), 2D (42, 43, 45–50, 53), 2E (55, 56, 58, 60–62), 2F (73–75, 77, 78)

K.2.E communicate observations about simple descriptive investigations.

***Key: NLS–KA and KD refer to Nancy Larson® Science K, topics A and D.**

NLS–KA (5–7), KC (23), KD (26–38), KE (40–43, 45), KF (47–52, 54), KG (56, 57);
 1A (7, 8, 11), 1B (15, 16, 18, 20, 24–27), 1C (30, 31, 34, 37), 1E (48, 49, 52, 54,
 55), 1F (59–69); 2A (4–6, 11–17), 2B (20–25), 2C (28–32, 35–39), 2D (42–46, 49,
 50), 2E (54, 55, 57, 59–63), 2F (71, 73, 77, 78)

K.3 Scientific investigation and reasoning.

The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

K.3.A identify and explain a problem such as the impact of littering and propose a solution;

NLS–1C (36); 2D (53)

K.3.B make predictions based on observable patterns in nature; and

NLS–KE (43); 2C (29, 38)

K.3.C explore that scientists investigate different things in the natural world and use tools to help in their investigations.

NLS–KD (30, 32), KE (44); 1A (1); 2A (1, 2), 2B (21, 23), 2C (28, 29), 2D (42), 2E (54, 62), 2F (66)

K.4 Scientific investigation and reasoning.

The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

K.4.A collect information using tools, including computing devices, hand lenses, primary balances, cups, bowls, magnets, collecting nets, and notebooks; timing devices; non-standard measuring items; weather instruments such as demonstration thermometers; and materials to support observations of habitats of organisms such as terrariums and aquariums; and

NLS–KD (30–32, 35–37, 39), KE (44), KF (47, 54); 1B (25, 27), 1C (34, 37), 1E (52), 1F (59–69); 2A (8, 11, 13, 15–17), 2B (21, 24, 25), 2C (30, 35–39), 2D (42, 44), 2E (59), 2F (71, 77)

K.4.B use the senses as a tool of observation to identify properties and patterns of organisms, objects, and events in the environment.

NLS–KA (5–8, 10), KD (28–31, 36), KF (47, 54); 1B (15, 25, 27), 1E (52); 2A (6–8, 11, 12), 2B (21, 24, 25), 2C (28, 29), 2D (42–44, 46, 47, 49), 2E (54–60, 63)

K.5 Matter and energy.

The student knows that objects have properties and patterns. The student is expected to:

K.5.A observe and record properties of objects, including bigger or smaller, heavier or lighter, shape, color, and texture; and

NLS–KD (28, 32, 36); 1B (20, 27), 1E (52); 2A(5–8, 14–17), 2B (20–25), 2D (43, 44, 48), 2E (61, 63)

K.5.B observe, record, and discuss how materials can be changed by heating or cooling.

NLS–KD (38); 1C (34); 2A (13), 2E (63)

K.6 Force, motion, and energy.

The student knows that energy, force, and motion are related and are a part of their everyday life. The student is expected to:

K.6.A use the senses to explore different forms of energy such as light, thermal, and sound;

NLS-KA (5); 1C (30); 2E (54–63)

K.6.B explore interactions between magnets and various materials;

NLS-KE (44); 2A (15–17)

K.6.C observe and describe the location of an object in relation to another such as above, below, behind, in front of, and beside; and

NLS-KB (11–17), KD (25, 28, 30, 33, 35, 37, 39), KE (40–45), KF (48); 1C (30–32), 1E (48, 49, 51, 52, 54, 55); 2A (8, 14, 16, 17), 2C (28–32, 35–39), 2D (42–49), 2E (54, 55, 57, 58), 60–62), 2F (74)

K.6.D observe and describe the ways that objects can move such as in a straight line, zigzag, up and down, back and forth, round and round, and fast and slow.

NLS-KE (40–45); 1C (32); 2A (17), 2C (28, 29, 35–39), 2D (42–44, 46–49), 2E (55, 61, 62)

K.7 Earth and space.

The student knows that the natural world includes earth materials. The student is expected to:

K.7.A observe, describe, and sort rocks by size, shape, color, and texture;

NLS-KD (36); 2B (20–25); 3E (60, 62)

K.7.B observe and describe physical properties of natural sources of water, including color and clarity; and

NLS-1C (34), 1D (39, 41)

K.7.C give examples of ways rocks, soil, and water are useful.

NLS-KF (48); 1B (13), 1C (36, 37), 1E (57); 2B (20, 22–25)

K.8 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:

K.8.A observe and describe weather changes from day to day and over seasons;

NLS-KA (1), KH (58–61); 1B (22, 23), 1C (30); 3D (47)

K.8.B identify events that have repeating patterns, including seasons of the year and day and night; and

NLS-KH (58–61); 1B (22), 1C (32)

K.8.C observe, describe, and illustrate objects in the sky such as the clouds, Moon, and stars, including the Sun.

NLS-KA (1); 1C (30, 32); 3A (1–9), 3D (44, 45)

K.9 Organisms and environments.

The student knows that plants and animals have basic needs and depend on the living and nonliving things around them for survival. The student is expected to:

K.9.A differentiate between living and nonliving things based upon whether they have basic needs and produce offspring; and

NLS-KG (55–57); 2A (2)

K.9.B examine evidence that living organisms have basic needs such as food, water, and shelter for animals and air, water, nutrients, sunlight, and space for plants.

NLS-KC (19, 20–22, 24), KF (46, 48, 53), KG (55–57); 1B (13, 14, 28), 1C (35), 1D (41–45), 1E (53–55, 57), 1F (59, 61, 63, 65, 67, 68); 2A (2), 2F (67–70, 72, 75–77)

K.10 Organisms and environments.

The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

K.10.A sort plants and animals into groups based on physical characteristics such as color, size, body covering, or leaf shape;

NLS-KC (18–24), KF (47); 1A (2–8), 1B (15–18, 20, 21, 24), 1D (40, 41, 45), 1F (60, 63, 65, 67, 69); 2F (68, 70, 72)

K.10.B identify basic parts of plants and animals;

NLS-KA (2–6), KB (11), KC (19–24), KF (46, 47, 49, 50, 52–54); 1B (13–18, 20–27), 1D (45), 1E (47–57), 1F (59, 60, 64–67); 2F (67–70, 72, 73, 75, 76)

K.10.C identify ways that young plants resemble the parent plant; and

NLS-1B (24); 3F (67)

K.10.D observe changes that are part of a simple life cycle of a plant: seed, seedling, plant, flower, and fruit.

NLS-KF (49, 52, 54); 1B (26)

GRADE 1

Knowledge and Skills

1.1 Scientific investigation and reasoning.

The student conducts classroom and outdoor investigations following home and school safety procedures and uses environmentally appropriate and responsible practices. The student is expected to:

1.1.A identify, discuss, and demonstrate safe and healthy practices as outlined in Texas Education agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately; and

NLS—KA (6), KB (16), KD (30, 35, 37); 1A (7), 1B (13, 15), 1C (30, 35), 1F (59); 2A (1, 13, 15, 16), 2D (44, 45), 2E (56), 2F (73, 77); 3B (26)

1.1.B identify and learn how to use natural resources and materials, including conservation and reuse or recycling of paper, plastic, and metals.

NLS—1B (28), 1C (36); 2A (16), 2B (20–25), 2D (53); 3B (22–24), 3D (50), 3E (62)

1.2 Scientific investigation and reasoning.

The student develops abilities to ask questions and seek answers in classroom and outdoor investigations. The student is expected to:

1.2.A ask questions about organisms, objects, and events observed in the natural world;

In all Nancy Larson Science lessons, students should be encouraged to generate questions based on observations made throughout the lessons.

NLS—KA (5–7, 9, 10), KC (19–21, 23), KF (49, 52), KG (55–57), KH (58–61); 1A (2, 4, 8), 1B (13, 15, 16, 20, 23–25, 27), 1C (30–32, 37), 1D (45), 1E (48–50), 1F (60–62, 67, 69); 2A (2, 3, 7, 8, 11–17), 2B (20–25), 2C (28–31, 36–39), 2E (54, 55, 57–59, 61–63), 2F (68–73, 75–77); 3A (3, 5, 6, 9, 17, 18), 3B (22), 3C (37–39), 3D (45–50), 3E (55–57, 59, 60, 62–64), 3F (67, 68, 70, 71), 3G (75–77)

1.2.B plan and conduct simple descriptive investigations;

In Nancy Larson Science, lessons are designed to be developmentally appropriate for students, providing a balance of guided direct instruction as well as hands-on investigations.

NLS—KA (5, 6, 7), KC (23), KD (27–32, 37, 38), KE (40, 41, 43–45), KF (48, 49, 52, 54), KG (56); 1B (15, 16, 20, 24, 25, 27), 1C (30, 31, 34, 37), 1E (52), 1F (59–69); 2A (4–6, 11–17), 2B (20–25), 2C (28–32, 35–39), 2D (42–46, 49), 2E (54, 55, 60–63), 2F (71, 73, 77); 3A (3, 4, 9, 14, 16), 3B (22, 23, 25, 26), 3C (30, 31, 33–38), 3D (46, 47), 3E (60, 62–64), 3F (67, 79, 71)

1.2.C collect data and make observations using simple tools;

NLS—KD (30, 31, 32, 35, 36, 37, 39), KE (44), KF (47, 54); 1B (25, 27), 1C (34, 37), 1E (50, 52); 2A (8, 11, 13, 15–17), 2B (21, 24, 25), 2C (30, 36–39), 2D (42), 2E (62), 2F (77); 3A (4), 3B (26), 3C (30, 31, 34–38), 3D (47), 3E (60, 64), 3F (67, 69, 71)

1.2.D record and organize data using pictures, numbers, and words; and

NLS—KA (10), KB (11), KC (23), KD (28, 29, 32, 33), KE (42), KF (47), KG (56, 57);

1A (2–11), 1B (24, 26–28), 1C (30, 34–37), 1D (40–45), 1E (47, 49, 51–55), 1F (59–69); 2A (2, 3, 7, 8, 13, 15, 17), 2B (20–25), 2C (28, 29, 31, 32, 35, 38), 2D (42, 43, 45–50, 53), 2E (55, 56, 58, 60–62), 2F (73–75, 77, 78); 3A (1, 2, 6, 8, 12–16, 18), 3B (22–26), 3C (29, 31, 33–39), 3D (42–45, 47, 50), 3E (53–55, 60, 64), 3F (67, 69–71), 3G (74, 76, 78)

1.2.E communicate observations and provide reasons for explanations using student-generated data from simple descriptive investigations.

NLS–KA (5, 7), KC (19–21, 23), KD (39), KF (52), KG (55–57); 1B (20, 27), 1C (34), 1E (47, 48, 50, 52); 2A (7, 13), 2C (28–32, 35, 37–39), 2D (42, 48, 49), 2E (60); 3A (3, 6), 3B (26), 3C (29, 35–39), 3D (46, 47), 3E (60, 62), 3F (67, 71)

1.3 Scientific investigation and reasoning.

The student knows that information and critical thinking are used in scientific problem solving. The student is expected to:

1.1.A identify and explain a problem and propose a solution;

NLS–1C (36); 2D (53); 3D (50)

1.1.B make predictions based on observable patterns; and

NLS–1C (31), 1E (47, 50); 2A (13), 2C (28–30, 36–39), 2E (61, 62); 3A (9), 3C (34–38), 3F (47)

1.1.C describe what scientists do.

NLS–KA (2, 3), KD (30, 32); 1A (1, 2), 1B (20), 1C (30), 1D (40), 1E (48), 1F (59); 2A (1, 2), 2B (20), 2C (28, 29), 2D (42), 2E (54, 62), 2F (67); 3A (1, 2, 7, 17), 3B (21), 3C (29), 3D (42, 46, 48, 49), 3E (53, 57), 3F (67), 3G (74)

1.4 Scientific investigation and reasoning.

The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

1.4.A collect, record, and compare information using tools, including computers, hand lenses, primary balances, cups, bowls, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; nonstandard measuring items; weather instruments such as demonstration thermometers and wind socks; and materials to support observations of habitats of organisms such as aquariums and terrariums; and

NLS–KD (30–32, 35–37, 39), KE (44), KF (47, 54); 1B (25, 27), 1C (34, 37), 1E (52), 1F (59–69); 2A (8, 11, 13, 15–17), 2B (21, 24, 25), 2C (30, 35–39), 2D (42, 44), 2E (59, 62), 2F (77); 3A (9, 14), 3B (22, 25), 3C (30–32, 34–38), 3D (46, 47), 3E (60, 64), 3F (67, 69, 71)

1.4.B measure and compare organisms and objects using non-standard units.

NLS–KC (23), KF (49, 52, 54); 1B (26), 1C (34); 2C (38), 2D (53); 3A (14)

1.5 Matter and energy.

The student knows that objects have properties and patterns. The student is expected to:

1.5.A classify objects by observable properties such as larger and smaller, heavier and lighter, shape, color, and texture;

NLS–KD (26–29, 31–39), KE (42, 44); 1B (20, 24); 2A (2–8, 11–17), 2B (20–23), 2C (28, 29, 37), 2D (42–44), 2E (61, 62); 3C (29–32, 37–39), 3E (60, 62)

1.5.B predict and identify changes in materials caused by heating and cooling; and

NLS–KD (38); 1C (34); 2A (13); 3B (26), 3C (34–38)

1.5.C classify objects by the materials from which they are made

NLS–KD (29, 34, 37), KE (44); 2A (4, 15, 16), 2B (22–25); 3A (15), 3E (59, 60, 62)

1.6 Force, motion, and energy.

The student knows that force, motion, and energy are related and are part of everyday life.

The student is expected to:

1.6.A identify and discuss how different forms of energy such as light, thermal, and sound are important to everyday life;

NLS–KF (46, 48); 1B (13), 1C (30), 1D (44); 2E (61–63); 3A (2, 3, 5), 3F (70, 71), 3G (74, 75)

1.6.B predict and describe how a magnet can be used to push or pull an object; and

NLS–KE (44); 2A (16), 2B (21)

1.6.C demonstrate and record the ways that objects can move such as in a straight line, zig zag, up and down, back and forth, round and round, and fast and slow.

NLS–KB (11), KE (42, 43); 1C (31, 32), 1E (53, 54); 2A (17), 2C (35), 2D (44–49), 2E (54, 55, 61); 3A (6, 16, 17), 3D (48), 3E (56)

1.7 Earth and space.

The student knows that the natural world includes rocks, soil, and water that can be observed in cycles, patterns, and systems. The student is expected to:

1.7.A observe, compare, describe, and sort components of soil by size, texture, and color;

NLS–1C (37); 3E (64)

1.7.B identify and describe a variety of natural sources of water, including streams, lakes, and oceans; and

NLS–1C (33), 1D (39, 41); 3D (50), 3E (53)

1.7.C identify how rocks, soil, and water are used to make products.

NLS–1C (35); 2B (20–25); 3B (23), 3D (50), 3E (60, 62)

1.8 Earth and space.

The student knows that the natural world includes the air around us and objects in the sky.

The student is expected to:

1.8.A record weather information, including relative temperature, such as hot or cold, clear or cloudy, calm or windy, and rainy or icy;

NLS–KA (1); 3D (47)

1.8.B observe and record changes in the appearance of objects in the sky such as the Moon, and stars, including the Sun;

NLS-1C (32); 3A (8, 9, 17, 18), 3D (45)

1.8.C identify characteristics of the seasons of the year and day and night; and

NLS-KH (58–61); 1C (32), 1D (44); 3A (3, 5), 3D (48, 49)

1.8.D demonstrate that air is all around us and observe that wind is moving air.

NLS-KE (45); 2A (2, 12), 2C (32); 3C (32), 3D (46, 47)

1.9 Organisms and environments.

The student knows that the living environment is composed of relationships between organisms and the life cycles that occur. The student is expected to:

1.9.A sort and classify living and nonliving things based upon whether they have basic needs and produce offspring;

NLS-KG (55–57); 2A (2)

1.9.B analyze and record examples of interdependence found in various situations such as terrariums and aquariums or pet and caregiver; and

NLS-KC (18–22, 24); 1A (2), 1B (28), 1D (43), 1F (59–69); 2F (74–78)

1.9.C gather evidence of interdependence among living organisms such as energy transfer through food chains or animals using plants for shelter.

NLS-KB (12–15), KC (18, 22, 24), KF (48); 1A (2), 1B (25, 28), 1D (40, 42, 43, 45), 1F (59–69); 2F (67, 70–72, 74–78); 3F (70), 3G (74, 75, 77)

1.10 Organisms and environments.

The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

1.10.A investigate how the external characteristics of an animal are related to where it lives, how it moves, and what it eats;

NLS-KC (22); 1D (42, 44, 45), 1F (60–62, 64, 66, 67); 2F (68, 70, 72, 76); 3G (75–78)

1.10.B identify and compare the parts of plants;

NLS-KF (46, 47, 50–54); 1B (13–18, 20–27); 3F (67–71)

1.10.C compare ways that young animals resemble their parents; and

NLS-KC (24); 1D (45), 1F (65, 68); 2F (67, 69, 75); 3G (76, 78)

1.10.D observe and record life cycles of animals such as a chicken, frog, or fish.

NLS-1A (2–8), 1F (59–69); 3G (76)

GRADE 2

Knowledge and Skills

2.1 Scientific investigation and reasoning.

The student conducts classroom and outdoor investigations following home and school safety procedures. The student is expected to:

2.1.A identify, describe, and demonstrate safe practices as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations, including wearing safety goggles or chemical splash goggles, as appropriate, washing hands, and using materials appropriately; and

***NLS*–KA (6), KB (16), KD (30, 35, 37); 1A (7), 1B (13, 15), 1C (30, 35), 1F (59); 2A (1, 13, 15, 16), 2D (44, 45), 2E (56), 2F (73, 77); 3B (26); 4A (2), 4C (29), 4E (63, 73)**

2.1.B identify and demonstrate how to use, conserve, and dispose of natural resources and materials such as conserving water and reuse or recycling of paper, plastic, and metal.

***NLS*–1C (36); 2D (53); 3D (50); 4E (76), 4F (79)**

2.2 Scientific investigation and reasoning.

The student develops abilities necessary to do scientific inquiry in classroom and outdoor investigations. The student is expected to:

2.2.A ask questions about organisms, objects, and events during observations and investigations;

***NLS*–1A (8, 11), 1B (13, 16, 20, 24, 25, 27), 1C (30–32, 34, 36, 37), 1E (48, 49, 52, 55), 1F (60–62, 67, 69); 2A (2, 3, 7, 8, 11–17), 2B (20–25), 2C (28–32, 35–39), 2D (42–50), 2E (54, 55, 57, 59–62), 2F (68, 69, 71, 73, 77); 3A (3, 5, 6, 9), 3B (22, 26), 3C (29–32, 34–39), 3D (46, 47, 50), 3E (55, 57, 59, 62–64), 3F (67–69, 71), 3G (76); 4A (2, 3, 7), 4B (12, 14, 15, 18–20, 22), 4C (28–30, 36, 38–40), 4D (52–55, 58, 59), 4E (62–66, 70–74), 4F (80–89)**

2.2.B plan and conduct descriptive investigations;

In Nancy Larson Science, lessons are designed to be developmentally appropriate for students, providing a balance of guided direct instruction as well as hands-on investigations.

***NLS*–1B (15, 16, 20, 24, 25, 27), 1C (30, 31, 34, 37), 1E (52), 1F (59–69); 2A (4–6, 11–17), 2B (20–25), 2C (28–32, 35–39), 2D (42–46, 49), 2E (54, 55, 60–63), 2F (66, 71, 73, 77); 3A (3, 4, 9, 14, 16), 3B (22, 23, 25, 26), 3C (30, 31, 33–38), 3D (46, 47), 3E (60, 62–64), 3F (67, 69, 71); 4A (3, 5, 7), 4B (12, 15, 18–20, 24, 25), 4C (29, 30, 36, 38–40), 4D (52, 54, 58, 59), 4E (62–66, 70–74), 4F (80, 82–89)**

2.2.C collect data from observations using scientific tools;

***NLS*–1B (25, 27), 1C (37), 1E (52); 2A (8, 11), 2B (21, 23–25), 2C (30, 36–39), 2D (42), 2E (62), 2F (77); 3B (26), 3C (30, 31, 34–36, 38), 3D (47), 3E (60, 64), 3F (67, 69, 71); 4A (2, 3, 5, 7), 4B (12, 18, 20), 4C (36, 38), 4E (72), 4F (82)**

2.2.D record and organize data using pictures, numbers, and words;

NLS–1A (2–11), 1B (24, 2–28), 1C (30, 34–37), 1D (40–43, 45), 1E (49, 51–55), 1F (59–69); 2A (2, 3, 7, 8, 13, 15, 17), 2B (20–25), 2C (28, 29, 31, 32, 35, 38), 2D (42, 43, 45–50, 53), 2E (55, 56, 58, 60, 61), 2F (73–75, 77, 78); 3A (2, 6, 8, 12–16, 18), 3B (22–26), 3C (29, 31, 33–39), 3D (42–45, 47, 50), 3E (53–55, 60, 64), 3F (67, 69, 71); 4A (1, 3–9), 4B (12–15, 18, 20, 21, 23–25), 4C (31, 32, 36–38, 40), 4D (44–48, 51, 52, 58, 59), 4E (61–63, 65, 70, 72–76), 4F (79, 81, 83, 87, 88)

2.2.E communicate observations and justify explanations using student-generated data from simple descriptive investigations; and

NLS–1B (20, 27), 1C (34), 1E (48, 52); 2A (7, 8, 13), 2C (28–32, 35, 37–39), 2D (42–46, 48, 49), 2E (60); 3A (3, 6), 3B (26), 3C (29, 35–39), 3D (46, 47), 3E (60, 62), 3F (67, 71); 4B (18, 19, 25), 4C (29, 36, 40), 4D (52, 59), 4E (66, 72), 4F (83–85, 87–89)

2.2.F compare results of investigations with what students and scientists know about the world.

NLS–1E (52); 2A (13, 14), 2C (28, 29, 36–39), 2D (44), 2E (61, 62); 3B (26), 3C (29, 35–38), 3D (46, 47, 50), 3E (62, 64); 4B (18, 19, 24, 25), 4C (36), 4D (52, 59), 4E (76)

2.3 Scientific investigation and reasoning.

The student knows that information and critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:

2.3.A identify and explain a problem and propose a task and solution for the problem;

NLS–1C (36); 2D (53); 3D (50), 4E (76)

2.3.B make predictions based on observable patterns; and

NLS–1C (31); 2A (13), 2C (28, 29); 3A (9), 3C (34–38), 3F (47); 4D (52, 59), 4F (84, 87–89)

2.3.C identify what a scientist is and explore what different scientists do.

NLS–1A (1, 2), 1B (14), 1C (30), 1D (40), 1E (48), 1F (59); 2A (1, 2), 2B (20), 2C (28, 29), 2D (42), 2E (62), 2F(67); 3A (1, 2, 7, 17), 3B (21), 3C (29), 3D (42, 46, 48, 49), 3E (53, 57), 3F (67), 3G (74); 4A (1, 2, 3, 6–9), 4B (12, 15), 4C (28, 36), 4D (44), 4E (61), 4F (79)

2.4 Scientific investigation and reasoning.

The student uses age-appropriate tools and models to investigate the natural world. The student is expected to:

2.4.A collect, record, and compare information using tools, including computers, hand lenses, rulers, plastic beakers, magnets, collecting nets, notebooks, and safety goggles or chemical splash goggles, as appropriate; timing devices; weather instruments such as thermometers, wind vanes, and rain gauges; and materials to support observations of habitats of organisms such as terrariums and aquariums; and

NLS–1B (25, 27), 1C (34, 37), 1E (52), 1F (59–69); 2A (8, 11, 13, 15–17), 2B (21,

24, 25), 2C (30, 35–39), 2D (42, 44), 2E (59, 62), 2F (77); 3B (22, 25), 3C (30–32, 34–38), 3D (46, 47), 3E (60, 64), 3F (67, 69, 71); 4A (3, 5, 7), 4B (12, 18, 20), 4C (36, 38, 39), 4D (52, 59), 4E (72, 73), 4F (82–89)

2.4.B measure and compare organisms and objects;

NLS–1A (2–8), 1B (15, 16, 20, 21, 24, 27), 1C (34), 1D (43), 1E (52), 1F (60, 69); 2A (2, 3, 6–8, 11–16), 2B (20–23), 2C (28–30, 35, 37, 39), 2D (42–47, 49), 2F (70, 72); 3A (14), 3C (30, 31), 3D (45), 3E (53, 60, 62), 3G (78); 4A (6), 4B (12, 14, 18, 24, 25), 4C (28, 31, 32, 36–41), 4D (45, 54–58), 4E (62–64, 66, 71–73, 75), 4F (80–82, 84–85, 89)

2.5 Matter and energy.

The student knows that matter has physical properties and those properties determine how it is described, classified, changed, and used. The student is expected to:

2.5.A classify matter by physical properties, including relative temperature, texture, flexibility, and whether material is a solid or liquid;

NLS–1C (34); 2A (6–8, 11, 12), 2B (21, 23, 24); 3B (22), 3C (30–32, 34–39) 3E (54, 58, 60, 62); 4E (71, 73, 74), 4F (81, 84, 85, 89)

2.5.B compare changes in materials caused by heating and cooling;

NLS–2A (13), 2E (63); 3B (26), 3C (37–39), 3D (44, 45), 3E (58, 59, 60); 4F (82)

2.5.C demonstrate that things can be done to materials such as cutting, folding, sanding, and melting to change their physical properties; and

NLS–1C (34); 2A (13); 3B (26), 3C (29, 34–39), 3E (44)

2.5.D combine materials that when put together can do things that they cannot do by themselves such as building a tower or a bridge and justify the selection of those materials based on their physical properties.

NLS–2C (36), 2D (46–49), 2E (60); 4F (83–89)

2.6 Force, motion, and energy.

The student knows that forces cause change and energy exists in many forms. The student is expected to:

2.6.A investigate the effects on objects by increasing or decreasing amounts of light, heat, and sound energy such as how the color of an object appears different in dimmer light or how heat melts butter;

NLS–2A (13), 2E (56); 3C (37, 38); 4D (53, 55), 4E (73, 74)

2.6.B observe and identify how magnets are used in everyday life; and

NLS–2A (15, 16); 4F (89)

2.6.C trace and compare patterns of movement of objects such as sliding, rolling, and spinning over time:

NLS–2C (38), 2D (42, 44), 2E (55); 3A (3, 4, 5, 8, 17), 3E (55, 56, 57); 4E (65, 69)

2.7 Earth and space.

The student knows that the natural world includes earth materials. The student is expected to:

2.7.A observe, describe, and compare rocks by size, texture, and color;

NLS–2B (20–23, 25); 3E (60, 62)

2.7.B identify and compare the properties of natural sources of freshwater and saltwater; and

NLS–5D (62)

2.7.C distinguish between natural and manmade resources.

NLS–2A (3)

2.8 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:

2.8.A measure, record, and graph weather information, including temperature, wind conditions, precipitation, and cloud coverage, in order to identify patterns in the data;

NLS–3D (47)

2.8.B identify the importance of weather and seasonal information to make choices in clothing, activities, and transportation; and

NLS–3A (5), 3D (42, 47–49)

2.8.C observe, describe, and record patterns of objects in the sky, including the appearance of the Moon.

NLS–3A (3–6, 8, 9, 16, 17); 4E (72)

2.9 Organisms and environments.

The student knows that living organisms have basic needs that must be met for them to survive within their environment. The student is expected to:

2.9.A identify the basic needs of plants and animals;

NLS–1B (13, 14, 28), 1C (35, 36), 1D (39, 41–45), 1E (53–55, 57), 1F (59, 61, 63, 65, 67, 68); 2A (2), 2F (67, 69, 70, 72, 75–77); 3A (7), 3D (43, 50), 3F (67–71), 3G (74, 75, 77); 4B (12, 13, 20, 21, 23, 24), 4C (29, 30, 32, 38–41), 4D (44–48, 52–56, 57–59)

2.9.B identify factors in the environment, including temperature and precipitation, that affect growth and behavior such as migration, hibernation, and dormancy of living things; and

NLS–1B (13, 21–23), 1C (34, 35), 1D (44); 2F (67); 3F (67, 78, 71), 3G (75, 77, 78); 4B (13, 15, 18, 20, 22, 23), 4D (44, 47, 53, 55, 58)

2.9.C compare the ways living organisms depend on each other and on their environments such as through food chains.

NLS–1A (2), 1B (24, 28), 1C (35, 36), 1D (42, 43, 45), 1E (53, 57), 1F (61, 63, 65, 67, 68); 2A (2), 2F (67, 70–73, 75–78); 3D (50), 3E (64), 3F (70), 3G (74, 75, 77);

4B (23), 4C (40), 4D (44–48, 53, 54, 56–58)

2.10 Organisms and environments.

The student knows that organisms resemble their parents and have structures and processes that help them survive within their environments. The student is expected to:

2.10.A observe, record, and compare how the physical characteristics and behaviors of animals help them meet their basic needs;

NLS–1D (42–45), 1F (60, 63, 65–67); 2F (67–78); 3G (74, 75, 77, 78); 4C (29, 31, 36, 37, 39–41), 4D (45–48, 51–54, 56–58)

2.10.B observe, record, and compare how the physical characteristics of plants help them meet their basic needs such as stems carry water throughout the plant; and

NLS–1B (13, 14, 17, 23–25); 3F (67–71); 4B(12–15, 18, 20–24), 4D (52, 55, 57, 59)

2.10.C investigate and record some of the unique stages that insects such as grasshoppers and butterflies undergo during their life cycle

NLS–1F (59–69); 4C (38)

GRADE 3

Knowledge and Skills

3.1 Scientific investigation and reasoning.

The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:

3.1.A demonstrate safe practices as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment as appropriate, including safety goggles or chemical splash goggles, as appropriate, and gloves; and

NLS–2A (1, 13, 15, 16), 2D (44, 45), 2E (56), 2F (73, 77); 3B (26); 4A (2), 4C (29), 4E (63, 73); 5A (2), 5C (50, 52), 5D (57), 5E (74)

3.1.B make informed choices in the use and conservation of natural resources by recycling or reusing materials such as paper, aluminum cans, and plastics.

NLS–2D (53); 3D (50); 4E (76), 4F (79); 5D (67)

3.2 Scientific investigation and reasoning.

The student uses scientific practices during laboratory and outdoor investigations. The student is expected to:

3.2.A plan and implement descriptive investigations, including asking and answering questions, making inferences, and selecting and using equipment or technology needed, to solve a specific problem in the natural world;

3.2.B collect and record data by observing and measuring using the metric system and recognize differences between observed and measured data;

NLS–2A (8), 2B (21), 2C (38), 2E (56); 3C (35–38); 5C (44–49), 5E (72, 77), 5F (83, 90)

3.2.C construct maps, graphic organizers, simple tables, charts, and bar graphs using tools and current technology to organize, examine, and evaluate measured data;

NLS–2A (8), 2B (20, 21), 2C (38), 2E (56); 3C (31, 35, 36); 4F (87, 88); 5A (16), 5C (40, 41, 44–49), 5E (77), 5F (83, 90)

3.2.D analyze and interpret patterns in data to construct reasonable explanations based on evidence from investigations;

NLS–3A (3, 4, 6), 3B (26), 3C (29–31, 34–39), 3D (46, 47), 3E (59, 60, 62–64), 3F (67, 69, 71); 4B (12, 14, 15, 18, 19, 22, 25), 4C (36, 38, 40), 4D (52, 54, 59), 4E (62–66, 70–74), 4F (80, 83–89); 5A (14–16, 18), 5C (32–41, 44–46, 48–52), 5D (57–59), 5E (70–75, 77), 5F (82, 83, 85–91)

3.2.E demonstrate that repeated investigations may increase the reliability of results; and

NLS–2C (38); 5C (37, 40, 41), 5E (77)

3.2.F communicate valid conclusions supported by data in writing, by drawing pictures, and through verbal discussion.

NLS–2A (2, 3, 7, 12, 15, 16), 2B (20, 21, 25), 2C (28, 32, 38, 39), 2D (42, 43, 46, 47), 2E (61), 2F (73, 77); 3A (3, 5, 6, 9), 3B (25, 26), 3C (32, 34–39), 3D (46, 47), 3E (62), 3F (67, 68, 71), 3G (75, 76); 4A (1), 4B (12, 14, 15, 18, 19, 25), 4C (36, 40),

4D (52, 55, 58, 59), 4E (66), 4F (84, 85, 89); 5A (15, 16, 18), 5B (24, 25, 28, 29), 5C (32–41, 44–46, 49–52), 5D (57), 5E (72–75, 77), 5F (82, 83)

3.3 Scientific investigation and reasoning.

The student knows that information, critical thinking, scientific problem solving, and the contributions of scientists are used in making decisions. The student is expected to:

3.3.A analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;

NLS–2C (28); 3B (26), 3C (35, 38), 3F (67, 68, 71); 4B (15), 4D (52, 59), 4F (87, 88); 5A (16), 5C (37, 40, 41, 45, 46, 49, 50), 5D (57), 5E (73–75, 77), 5F (82, 83, 85, 86, 89, 90)

3.3.B represent the natural world using models such as volcanoes or Sun, Earth, and Moon system and identify their limitations, including size, properties, and materials; and

NLS–2F (57); 3A (3–6, 9, 14, 17, 18), 3B (25), 3D (43–45), 3E (53–55, 59), 3F (70), 3G (76); 4B (12, 13, 20, 22–25), 4D (54, 58), 4E (70, 72–74), 4F (83–89); 5A (3, 5, 11, 15–18), 5B (23, 24, 27, 29), 5D (56, 59, 63)

3.3.C connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

NLS–2A (2), 2B (20, 23), 2C (28, 29), 2E (54, 62), 2F (67); 3A (1, 2, 7, 17), 3B (21), 3C (29, 34), 3D (42, 46, 48, 49), 3E (53, 57), 3F (67), 3G (74); 4A (1, 2, 7, 17), 4B (12), 4C (28), 4D (44), 4E (61), 4F (79); 5A (1, 2, 3, 5, 12–14, 18), 5B (21, 23), 5C (32, 33, 44), 5D (55, 58, 64, 66), 5E (70, 71, 74, 75, 78, 79), 5F (82, 87, 93)

3.4 Scientific investigation and reasoning.

The student knows how to use a variety of tools and methods to conduct science inquiry. The student is expected to:

collect, record, and analyze information using tools, including cameras, computers, hand lenses, metric rulers, Celsius thermometers, wind vanes, rain gauges, pan balances, graduated cylinders, beakers, spring scales, hot plates, meter sticks, magnets, collecting nets, notebooks, and Sun, Earth, and Moon system models; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums

NLS–2A (8, 11, 13, 15–17), 2B (21, 24, 25), 2C (30, 35–39), 2D (42, 44), 2E (59, 62), 2F (77); 3A (9, 14), 3B (22, 25), 3C (30–32, 34–38), 3D (46, 47), 3E (60, 64), 3F (67, 69, 71); 4A (3, 5, 7), 4B (12, 18, 20), 4C (36, 38, 39), 4D (52, 58, 59), 4E (72), 4F (82–89); 5A (2), 5B (27), 5C (32, 38, 39, 44–49, 52), 5D (57, 59), 5E (72–77), 5F (82, 83, 85, 86, 89)

3.5 Matter and energy.

The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

3.5.A measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float;

NLS–2A (7, 8, 13, 15, 17), 2B (20–25); 3C (31, 34–39); 5C (39–41, 44–49, 52)

3.5.B describe and classify samples of matter as solids, liquids, and gases and demonstrate that solids have a definite shape and that liquids and gases take the shape of their container;

NLS–2A (5, 11–13); 3C (30–33, 37–39); 5C (34–36)

3.5.C predict, observe, and record changes in the state of matter caused by heating or cooling such as ice becoming liquid water, condensation forming on the outside of a glass of ice water, or liquid water being heated to the point of becoming water vapor; and

NLS–2A (13); 3C (35–39); 5C (35, 36)

3.5.D explore and recognize that a mixture is created when two materials are combined such as gravel and sand and metal and plastic paper clips.

NLS–5C (32, 33)

3.6 Force, motion, and energy.

The student knows that forces cause change and that energy exists in many forms. The student is expected to:

3.6.A explore different forms of energy, including mechanical, light, sound, and heat/thermal in everyday life;

NLS–2E (54, 55, 57, 59, 60, 61, 63); 4A (13), 4E (61–65, 69, 73–75), 4F (79–89); 5A (5, 10), 5C (50, 51), 5D (63), 5E (74)

3.6.B demonstrate and observe how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons; and

NLS–2B (15–17), 2C (28–30, 32, 35–39), 2D (42–49); 3D (46–48), 3E (55–58); 4E (62–65), 4F (89); 5E (70, 71, 73–78), 5F (82–91)

3.6.C observe forces such as magnetism and gravity acting on objects.

NLS–2A (15–17), 2C (29, 36–39), 2D (42–49); 3E (61); 4D (52, 59), 4E (63, 64), 4F (89); 5C (39), 5D (57, 58), 5E (70–79)

3.7 Earth and space.

The student knows that Earth consists of natural resources and its surface is constantly changing. The student is expected to:

3.7.A explore and record how soils are formed by weathering of rock and the decomposition of plant and animal remains;

NLS–3E (61, 64); 5D (57, 58)

3.7.B investigate rapid changes in Earth’s surface such as volcanic eruptions, earthquakes, and landslides; and

NLS–3E (57, 58, 61); 5D (56–59)

3.7.C explore the characteristics of natural resources that make them useful in products and materials such as clothing and furniture and how resources may be conserved.

NLS–2B (22–25), 2D (53); 3B (21–24), 3E (60, 62); 4B (18), 4E (75, 76), 4F (79); 5D (55, 56, 67)

3.8 Earth and space.

The student knows there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

3.8.A observe, measure, record, and compare day-to-day weather changes in different locations at the same time that include air temperature, wind direction, and precipitation;

NLS-3D (47)

3.8.B describe and illustrate the Sun as a star composed of gases that provides light and thermal energy;

NLS-3A (2); 4E (69, 75); 5A (6, 7, 10, 11, 15, 16, 18), 5D (60,63)

3.8.C construct models that demonstrate the relationship of the Sun, Earth, and Moon, including orbits and positions; and

NLS-3A (2-9); 5A (14, 15, 17, 18)

3.8.D identify the planets in Earth's solar system and their position in relation to the Sun.

NLS-3A (1, 12-16); 5A (11, 12)

3.9 Organisms and environments.

The student knows and can describe patterns, cycles, systems, and relationships within the environments. The student is expected to:

3.9.A observe and describe the physical characteristics of environments and how they support populations and communities of plants and animals within an ecosystem;

NLS-3D (50), 3E (64), 3G (74, 75, 77); 4D (44-48); 5D (62, 65, 66)

3.9.B identify and describe the flow of energy in a food chain and predict how changes in a food chain affect the ecosystem such as removal of frogs from a pond or bees from a field; and

NLS-4D (46-48)

3.9.C describe environmental changes such as floods and droughts where some organisms thrive and others perish or move to new locations.

NLS-4D (55, 58); 5D (60, 63)

3.10 Organisms and environments.

The student knows that organisms undergo similar life processes and have structures that help them survive within their environments. The student is expected to:

3.10.A explore how structures and functions of plants and animals allow them to survive in a particular environment; and

NLS-2F (68, 70, 72, 76); 3F (68), 3G (75, 77); 4C (31), 4D (48, 55-57); 5D (66)

3.10.B investigate and compare how animals and plants undergo a series of orderly changes in their diverse life cycles such as tomato plants, frogs, and lady beetles.

NLS-3F (67, 71), 3G (76); 4B (20, 23), 4C (32, 38)

Grade 4

Knowledge and Skills

4.1 Scientific investigation and reasoning.

The student conducts classroom and outdoor investigations, following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:

4.1.A demonstrate safe practices and the use of safety equipment as described in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate; and

NLS–2A (1, 13, 15, 16), 2D (44, 45), 2E (56), 2F (73, 77); 3B (26); 4A (2), 4C (29), 4E (63, 73); 5A (2), 5C (50, 52), 5D (57), 5E (74)

4.1.B make informed choices in the use and conservation of natural resources and reusing and recycling of materials such as paper, aluminum, glass, cans, and plastic.

NLS–2D (53); 3C (50); 4E (76), 4F (79); 5D (67)

4.2 Scientific investigation and reasoning.

The student uses scientific inquiry methods during laboratory and outdoor investigations. The student is expected to:

4.2.A plan and implement descriptive investigations, including asking well-defined questions, making inferences, and selecting and using appropriate equipment or technology to answer his/her questions;

In Nancy Larson Science, lessons are designed to be developmentally appropriate for students, providing a balance of guided direct instruction as well as hands-on investigations.

NLS–2B (21, 25), 2C (38, 39), 2E (60, 62), 2F (77); 3A (9, 14), 3B (22, 25), 3C (30, 31, 34–36, 38), 3D (47), 3E (60, 64), 3F (67, 69, 71); 4A (3, 5, 7), 4B (12, 15, 18–20, 25), 4C (30, 36, 38, 39), 4D (52, 58, 59), 4E (62–64, 66, 71–74), 4F (82–89); 5A (2, 5, 16), 5B (22, 26–28), 5C (32–34, 46–41), 5D (57–59, 63), 5E (72–77), 5F (82, 83, 85, 86, 89–93)

4.2.B collect and record data by observing and measuring, using the metric system, and using descriptive words and numerals such as labeled drawings, writing, and concept maps;

NLS–2A (8, 13, 17), 2B (25), 2C (38), 2D (46, 47, 49), 2E (55, 58, 61, 62); 3A (5, 8, 9, 15, 18), 3C (34, 37, 39), 3D (43–45, 47), 3E (53–56, 58, 64), 3F (69, 70), 3G (76, 78); 4A (3–5, 7, 8), 4B (12–15, 18, 20–25), 4C (28–30, 32, 35, 37–39), 4D (44–48, 51), 4E (65, 70, 72–74), 4F (81, 83, 88); 5A (5, 7, 11, 15, 17, 18), 5B (23, 24, 26–29), 5C (32, 35, 36, 48), 5D (59, 63), 5E (72, 74), 5F (83, 85, 86, 90)

4.2.C construct simple tables, charts, bar graphs, and maps using tools and current technology to organize, examine, and evaluate data

NLS–2A (8, 15), 2B (21, 22, 23), 2C (38), 2D (53), 2E (54, 56); 3A (9, 12, 16), 3B (22–24), 3C (31, 35, 36, 38), 3D (42, 47), 3E (60), 3F (71); 4F (87, 88); 5A (16), 5B (26–28), 5C (44–46, 49–52), 5D (59), 5E (72, 77), 5F (82, 83)

4.2.D analyze data and interpret patterns to construct reasonable explanations from data that can be observed and measured;

NLS–2C (38); 3C (35, 36, 38), 3D (47); 5A (16, 17), 5C (37, 40, 41, 48, 49), 5F (90, 91)

4.2.E perform repeated investigations to increase the reliability of results; and

NLS–2C (38); 5C (37, 40, 41), 5E (75, 77)

4.2.F communicate valid, oral, and written results supported by data.

*NLS–2A (8, 13, 15, 17), 2B (20–25), 2C (37–39), 2D (44, 53), 2E (55–57, 59, 63), 2F (73, 77); 3B (23, 26), 3C (30, 31, 35–38), 3D (47), 3E (60, 62, 63), 3F (67, 71); **4B (12, 15), 4D (52, 54, 59), 4E (64, 71–74), 4F (83–89)**; 5A (16), 5C (33–37, 39–41, 44–50, 52), 5D (57–59, 63–65), 5E (72–79), 5F (82, 83, 85, 86, 88–91)*

4.3 Scientific investigation and reasoning.

The student uses critical thinking and scientific problem solving to make informed decisions.

The student is expected to:

4.3.A analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;

*NLS–2C (28); 3B (26), 3C (35, 38), 3F (67, 71); **4B (15), 4C (40), 4D (52, 59), 4F (87, 88)**; 5A (16), 5C (37, 40, 41, 45, 46, 49, 50), 5D (57), 5E (73–75, 77), 5F (82, 83, 85, 86, 89, 90)*

4.3.B represent the natural world using models such as the water cycle and stream tables and identify their limitations, including accuracy and size; and

*NLS–2F (74); 3A (3–6, 9), 3D (44), 3E (54, 57, 59), 3G(76); **4B (20, 23), 4C (32, 38), 4D (46, 47), 4E(71, 72), 4F (83, 88)**; 5A (14–16, 18), 5B (24, 27, 29), 5D (63)*

4.3.C connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

*NLS–2A (2), 2B (20, 23), 2C (28, 29), 2E (54, 62), 2F (67); 3A (1, 2, 7, 17), 3B (21), 3C (29, 34), 3D (42, 46, 48, 49), 3E (53, 57), 3F (67), 3G (74); **4A (1–3, 6, 7, 9), 4B (12), 4C (28), 4D (44), 4E (61), 4F (79)**; 5A (1–3, 5, 12–14, 18), 5B (21, 23), 5C (32, 33, 44), 5D (55, 58, 64, 66), 5E (70, 71, 74, 75, 78, 79), 5F (82, 87, 91)*

4.4 Scientific investigation and reasoning.

The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:

collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, mirrors, spring scales, balances, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observation of habitats of organisms such as terrariums and aquariums.

*NLS–2A (8, 11, 13, 15–17), 2B (21, 24, 25), 2C (38), 2E (62), 2F (77); 3C (30, 31, 34–36, 38), 3D (47), 3E (60, 64), 3F (67, 69, 71); **4A (2, 3, 5, 7), 4B (12, 18, 20), 4C (36, 38, 39), 4D (52, 59), 4E (71–73), 4F (82–89)**; 5A (2, 15, 16), 5B (27), 5C (32, 37–39, 44–52), 5D (57, 59), 5E (72–77), 5F (82, 83, 85, 86, 89)*

4.5 Matter and energy.

The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

4.5.A measure, compare, and contrast physical properties of matter, including mass, volume, states (solid, liquid, gas), temperature, magnetism, and the ability to sink or float; and

NLS–2A (5–8, 15–17), 2B (20–22, 25), 2E (62, 63); 3B (21), 3C (29–39), 3E (60, 62); 5C (34–36, 38–41, 44–52), 5D (59), 5E (72–75, 78)

4.5.B compare and contrast a variety of mixtures, including solutions.

NLS–5C (32, 33)

4.6 Force, motion, and energy.

The student knows that energy exists in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

4.6.A differentiate among forms of energy, including mechanical, sound, electrical, light, and thermal;

NLS–2D (50); 4E (61–66, 69, 70, 73–76)

4.6.B differentiate between conductors and insulators of thermal and electrical energy;

NLS–4E (73), 4F (81, 84, 85); 5B (22)

4.6.C demonstrate that electricity travels in a closed path, creating an electrical circuit; and

NLS–4F (80, 83–89)

4.6.D design a descriptive investigation to explore the effect of force on an object such as a push or a pull, gravity, friction, or magnetism.

In Nancy Larson Science, lessons are designed to be developmentally appropriate for students, providing a balance of guided direct instruction as well as hands-on investigations.

NLS–2A (15–17), 2C (28–32, 35–39), 2D (42–44, 46–49), 2E (55); 3E (55, 57); 4E (62–64), 4F (89); 5F (70–79)

4.7 Earth and space.

The students know that Earth consists of useful resources and its surface is constantly changing. The student is expected to:

4.7.A examine properties of soils, including color and texture, capacity to retain water, and ability to support the growth of plants;

NLS–3E (64)

4.7.B observe and identify slow changes to Earth’s surface caused by weathering, erosion, and deposition from water, wind, and ice; and

NLS–3E (55–59, 61); 5D (56–59, 63)

4.7.C identify and classify Earth’s renewable resources, including air, plants, water, and animals; and nonrenewable resources, including coal, oil, and natural gas; and the importance of conservation.

NLS–2D (53); 3D (50); 4B (18), 4E (75, 76), 4F (79); 5D (55, 62, 67)

4.8 Earth and space.

The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:

4.8.A measure, record, and predict changes in weather;

NLS–3D (47)

4.8.B describe and illustrate the continuous movement of water above and on the surface of Earth through the water cycle and explain the role of the Sun as a major source of energy in this process; and

NLS–3D (44); 5A (11), 5D (63)

4.8.C collect and analyze data to identify sequences and predict patterns of change in shadows, seasons, and the observable appearance of the Moon over time.

NLS–3A (3, 5, 8, 9); 4E (71, 72); 5A (14, 15, 17, 18)

4.9 Organisms and environments.

The student knows and understands that living organisms within an ecosystem interact with one another and with their environment. The student is expected to:

4.9.A investigate that most producers need sunlight, water, and carbon dioxide to make their own food, while consumers are dependent on other organisms for food; and

NLS–3F (70), 3G (74); 4B (13), 4D (45–48)

4.9.B describe the flow of energy through food webs, beginning with the Sun, and predict how changes in the ecosystem affect the food web.

NLS–4D (45–47)

4.10 Organisms and environments.

The student knows that organisms undergo similar life processes and have structures and behaviors that help them survive within their environment. The student is expected to:

4.10.A explore how structures and functions enable organisms to survive in their environment;

NLS–3F (67–70), 3G (75, 77, 78); 4B (12–14, 18, 20–23), 4C (29, 31, 32, 35–41), 4D (51, 53–57, 59); 5D (66)

4.10.B explore and describe examples of traits that are inherited from parents to offspring such as eye color and shapes of leaves and behaviors that are learned such as reading a book and a wolf pack teaching their pups to hunt effectively; and

NLS–2F (67, 70–72, 74–76); 3F (67, 71), 3G (76, 78); 4B (20, 23), 4C (32, 38, 40), 4D (48, 51–57)

4.10.C explore, illustrate, and compare life cycles in living organisms such as beetles, crickets, radishes, or lima beans.

NLS–3G (76, 78); 4B (20, 23), 4C (32, 38)

Grade 5

Knowledge and Skills

5.1 Scientific investigation and reasoning.

The student conducts classroom and outdoor investigations following home and school safety procedures and environmentally appropriate and ethical practices. The student is expected to:

5.1.A demonstrate safe practices and the use of safety equipment as outlined in Texas Education Agency-approved safety standards during classroom and outdoor investigations using safety equipment, including safety goggles or chemical splash goggles, as appropriate, and gloves, as appropriate; and

NLS–3B (26); 4A ((2), 4C (29), 4E (63, 73); 5A (2), 5C (50, 52), 5D (57), 5E (74)

5.1.B make informed choices in the conservation, disposal, and recycling of materials.

NLS–3D (50); 4E (76), 4F (79); 5D (67)

5.2 Scientific investigation and reasoning.

The student uses scientific methods during laboratory and outdoor investigations. The student is expected to:

5.2.A describe, plan, and implement simple experimental investigations testing one variable;

In Nancy Larson Science, lessons are designed to be developmentally appropriate for students, providing a balance of guided direct instruction as well as hands-on investigations.

NLS–3C (34–39), 3F (67, 71); 4B (15), 4D (52, 59), 4E (62–66, 72), 4F (83–89); 5A (16), 5C (35–37, 40, 41, 44, 52)

5.2.B ask well-defined questions, formulate testable hypotheses, and select and use appropriate equipment and technology;

NLS–3C (38), 3F (67, 71); 4B (15), 4D (52, 59); 5C (40, 41), 5E (77)

5.2.C collect and record information using detailed observations and accurate measuring;

NLS–3C (31, 34–36, 38), 3D (47); 5C (44–49), 5E (72, 76, 77), 5F (82, 83, 85, 86, 89, 90)

5.2.D analyze and interpret information to construct reasonable explanations from direct (observable) and indirect (inferred) evidence;

NLS–3A (3, 4, 6), 3B (26), 3C (29, 30, 31, 34–39), 3D (46, 47), 3E (60, 62, 63, 64), 3F (67, 69, 71); 4B (12, 14, 15, 18, 19, 22, 25), 4C (36, 38, 40), 4D (52, 54, 59), 4E (62–66, 70–74), 4F (80, 83–89); 5A (4, 14–16, 18), 5C (32–41, 44–46, 48–52), 5D (57–59), 5E (70–75, 77), 5F (82, 83, 85–91)

5.2.E demonstrate that repeated investigations may increase the reliability of results;

NLS–5C (37, 40, 41), 5E (77)

5.2.F communicate valid conclusions in both written and verbal forms; and

NLS–3B (26), 3C (36, 38), 3F (67, 71); 4B (15), 4D (52, 59); 5C (40, 41), 5E (77), 5F (82, 92)

5.2.G construct appropriate simple graphs, tables, maps, and charts using technology, including computers, to organize, examine, and evaluate information.

NLS–3A (9), 3B (22), 3C (35, 36), 3D (47); 4F (87, 88); 5A (5, 16), 5B (26, 28), 5C (45), 5E (77), 5F (82, 83)

5.3 Scientific investigation and reasoning.

The student uses critical thinking and scientific problem solving to make informed decisions.

The student is expected to:

5.3.A analyze, evaluate, and critique scientific explanations by using evidence, logical reasoning, and experimental and observational testing;

NLS–3B (26), 3C (36, 38), 3E (67, 71); 4B (15), 4D (52, 59), 4F (84–89); 5A (4) 5C (35, 37, 39–41, 52), 5D (57), 5E (77), 5F (82)

5.3.B draw or develop a model that represents how something that cannot be seen such as the Sun, Earth, and Moon system and formation of sedimentary rock works or looks; and

NLS–3A (2–5, 8, 9, 13, 14, 17, 18), 3B (25), 3C (33), 3D (43–45), 3E (52–56), 3F (70); 4A (4, 5, 8), 4B (13, 20, 23), 4C (32, 38), 4E (65, 69); 5A (7, 15, 17, 18), 5B (23–25, 27, 29), 5D (56, 58–60, 63, 66)

5.3.C connect grade-level appropriate science concepts with the history of science, science careers, and contributions of scientists.

NLS–3A (1, 2, 7, 17), 3B (21), 3C (29, 34), 3D (42, 46, 48, 49), 3E (53, 57), 3F (67), 3G (74); 4A (1–3, 6, 7, 9), 4B (12), 4C (28), 4D (44), 4E (61), 4F (79); 5A (1–5, 12–14, 18), 5B (21, 23), 5C (32, 33, 44), 5D (55, 58, 64, 66), 5E (70, 71, 74, 75, 78, 79), 5F (82, 87, 92, 93)

5.4 Scientific investigation and reasoning.

The student knows how to use a variety of tools, materials, equipment, and models to conduct science inquiry. The student is expected to:

collect, record, and analyze information using tools, including calculators, microscopes, cameras, computers, hand lenses, metric rulers, Celsius thermometers, prisms, mirrors, balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, and notebooks; timing devices; and materials to support observations of habitats or organisms such as terrariums and aquariums

NLS–3C (30, 31, 34–36, 38), 3D (47), 3E (60, 64), 3F (67, 69, 71); 4A (3, 5, 7), 4B (12, 18, 20), 4C (36, 38, 39), 4D (52, 59), 4E (71–73), 4F (82–89); 5A (2, 15, 16), 5B (27), 5C (32, 37–39, 44–50, 52), 5D (57, 59), 5E (72–77), 5F (82, 83, 85, 86, 89)

5.5 Matter and energy.

The student knows that matter has measurable physical properties and those properties determine how matter is classified, changed, and used. The student is expected to:

5.5.A classify matter based on measurable, testable, and observable physical properties, including mass, magnetism, physical state (solid, liquid, and gas), relative density (sinking and floating using water as a reference point), solubility in water, and the ability to conduct or insulate thermal energy or electric energy;

NLS–3C (29–39); 4E (71, 73, 74), 4F (81, 84–86); 5B (25), 5C (32–36, 38, 39, 44–52), 5E (72–75)

5.5. B demonstrate that some mixtures maintain physical properties of their ingredients such as iron filings and sand and sand and water; and

NLS–5C (32, 33)

5.5. C identify changes that can occur in the physical properties of the ingredients of solutions such as dissolving salt in water or adding lemon juice to water.

NLS–5C (32, 33, 35, 50)

5.6 Force, motion, and energy.

The student knows that energy occurs in many forms and can be observed in cycles, patterns, and systems. The student is expected to:

5.6.A explore the uses of energy, including mechanical, light, thermal, electrical, and sound energy;

NLS–4E (61, 65, 69, 75)

5.6.B demonstrate that the flow of electricity in closed circuits can produce light, heat, or sound;

NLS–4F (80, 83–88)

5.6.C demonstrate that light travels in a straight line until it strikes an object and is reflected or travels through one medium to another and is refracted; and

NLS–4E (70–72); 5A (17)

5.6.D design a simple experimental investigation that tests the effect of force on an object.

NLS–3D (46), 3E (55); 4E (62–66), 4F (89); 5C (39), 5E (70, 72–79), 5F (82–91)

5.7 Earth and space.

The student knows Earth’s surface is constantly changing and consists of useful resources. The student is expected to:

5.7.A explore the processes that led to the formation of sedimentary rocks and fossil fuels; and;

NLS–3E (59, 60); 5D (57–59)

5.7.B recognize how landforms such as deltas, canyons, and sand dunes are the result of changes to Earth’s surface by wind, water, or ice;

NLS–5D (57, 58)

5.8 Earth and space.

The student knows that there are recognizable patterns in the natural world and among the Sun, Earth, and Moon system. The student is expected to:

5.8.A differentiate between weather and climate;

NLS–5D (61, 64)

5.8.B explain how the Sun and the ocean interact in the water cycle;

NLS–3D (44); 5D (61, 64)

5.8.C demonstrate that Earth rotates on its axis once approximately every 24 hours causing the day/night cycle and the apparent movement of the Sun across the sky; and

NLS–3A (3); 4E (72); 5A (4, 14)

5.8.D identify and compare the physical characteristics of the Sun, Earth, and Moon.

NLS–3A (2, 5–9, 15); 5A (6, 7, 10–13, 15, 17)

5.9 Organisms and environments.

The student knows that there are relationships, systems, and cycles within environments. The student is expected to:

5.9.A observe the way organisms live and survive in their ecosystem by interacting with the living and non-living elements;

NLS–3D (50), 3E (64), 3F (68, 70), 3G (74, 75, 77); 4B (12, 13, 18, 20, 21–24), 4C (31, 35, 38–40), 4D (45–48, 52–58); 5D (55, 62, 63, 65, 67)

5.9.B describe the flow of energy within a food web, including the roles of the Sun, producers, consumers, and decomposers;

NLS–4D (45–47)

5.9.C predict the effects of changes in ecosystems caused by living organisms, including humans, such as the overpopulation of grazers or the building of highways; and

NLS–4D (58); 5D (56, 60, 62, 64, 67)

5.9.D identify fossils as evidence of past living organisms and the nature of the environments at the time using models.

NLS–3E (59); 5D (58)

5.10 Organisms and environments.

The student knows that organisms have structures and behaviors that help them survive within their environments. The student is expected to:

5.10.A compare the structures and functions of different species that help them live and survive such as hooves on prairie animals or webbed feet in aquatic animals; and

NLS–3G (75–78); 4B (14, 18, 21, 22, 24), 4C (29–32, 35–41), 4D (48, 51, 54–57)

5.10.B differentiate between inherited traits of plants and animals such as spines on a cactus or shape of a beak and learned behaviors such as an animal learning tricks or a child riding a bicycle.

NLS–4D (51–53, 55–57)