

***PhD Science*® Texas Curriculum Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science**

Contents

Kindergarten	2
Level 1	10
Level 2	20
Level 3	30
Level 4	39
Level 5	47

PhD Science® Texas Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science: Kindergarten

The *PhD Science Texas* Level K curriculum fully aligns with the Kindergarten TEKS for Science. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Kindergarten Knowledge and Skills

(1) Scientific and Engineering Practices

K.1: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.1A	Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.	Level K M1 Weather L1–3, 6, 8–9, 12, 22–26 Level K M1 Spotlight Lessons on Magnets L1, 3–4 Level K M2 Life L1–3, 15, 20, 35–36 Level K M3 Light L3, 8, 13, 16
K.1B	Use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.	Level K M1 Weather L5–9, 12–16 Level K M1 Spotlight Lessons on Magnets L1–8 Level K M2 Life L6–9 Level K M3 Light L11, 14, 17–18
K.1C	Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	Level K M1 Weather L1, 4–8, 12–16 Level K M1 Spotlight Lessons on Magnets L1–8 Level K M2 Life L13, 32 Level K M3 Light L1, 6, 11, 14–19

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.1D	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.	Level K M1 Weather L5–9, 11 Level K M1 Spotlight Lessons on Magnets L2–3, 5, 7 Level K M2 Life L1–2, 6–9, 32 Level K M3 Light L4–6, 9, 11, 13–14, 17–18, 20–21
K.1E	Collect observations and measurements as evidence.	Level K M1 Weather L5, 8–13, 15, 17–19, 22, 24, 29 Level K M1 Spotlight Lessons on Magnets L4–8 Level K M2 Life L1–2, 4–5, 7–16, 19–23, 26–30, 32, 35–36 Level K M3 Light L1–14 16–18, 23 Level K M3 Spotlight Lessons on the Sky L1–11
K.1F	Record and organize data using pictures, numbers, words, symbols, and simple graphs.	Level K M1 Weather L7–11, 17–25, 27, 29–30 Level K M1 Spotlight Lessons on Magnets L2–3, 5–6 Level K M2 Life L1–2, 7–9, 13, 16, 18–21, 27, 29–30, 32–33 Level K M3 Light L10–11, 17–18 Level K M3 Spotlight Lessons on the Sky L1–4, 6–11
K.1G	Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.	Level K M1 Weather L2, 13–15 Level K M1 Spotlight Lessons on Magnets L3–8 Level K M2 Life L2–3, 10, 17–18, 26, 30 Level K M3 Light L1, 3–6, 14–16, 18–19, 21, 23 Level K M3 Spotlight Lessons on the Sky L3–4, 9–11

(2) Scientific and Engineering Practices

K.2: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.2A	Identify basic advantages and limitations of models such as their size, properties, and materials.	Level K M1 Weather L14 Level K M3 Light L5, 13, 15, 18 Level K M3 Spotlight Lessons on the Sky L4
K.2B	Analyze data by identifying significant features and patterns.	Level K M1 Weather L17, 19–21, 25, 27, 29–30 Level K M2 Life L9–10, 15, 20–23, 28, 33, 35–36 Level K M3 Light L2–5, 7, 9–14, 17–21 Level K M3 Spotlight Lessons on the Sky L5–11
K.2C	Use mathematical concepts to compare two objects with common attributes.	Level K M2 Life L6–9 Level K M3 Light L17–18 Level K M3 Spotlight Lessons on the Sky L5–7, 9–11
K.2D	Evaluate a design or object using criteria to determine if it works as intended.	Level K M1 Weather L7, 13, 15 Level K M1 Spotlight Lessons on Magnets L4–8

(3) Scientific and Engineering Practices

K.3 The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.3A	Develop explanations and propose solutions supported by data and models.	Level K M1 Weather L14–15 Level K M1 Spotlight Lessons on Magnets L5–8 Level K M2 Life L13–18, 23–24, 26, 30–31, 33, 35–36 Level K M3 Light L4–5, 7–9, 11–15, 20–23 Level K M3 Spotlight Lessons on the Sky L9–11
K.3B	Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.	Level K M1 Weather L12–16, 28 Level K M1 Spotlight Lessons on Magnets L4–8 Level K M2 Life L1–2, 4–8, 10, 12, 16–19, 24, 28, 30, 34–36 Level K M3 Light L3, 7, 9, 15, 19, 21–22, 24
K.3C	Listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.	Level K M2 Life L1, 3, 5, 11–12, 24, 34, 36 Level K M3 Light L19, 22, 24

(4) Scientific and Engineering Practices

K.4 The student knows the contributions of scientists and recognizes the importance of scientific research and innovation on society. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.4A	Explain how science or an innovation can help others.	Level K M1 Weather L16 Level K M3 Light L14–15
K.4B	Identify scientists and engineers such as Isaac Newton, Mae Jemison, and Ynes Mexia and explore what different scientists and engineers do.	Level K M1 Weather L2, 6–7, 12, 14–16, 20, 25–26 Level K M1 Spotlight Lessons on Magnets L4–8 Level K M2 Life L1, 5, 20, 22 Level K M3 Light L4, 14–15

(5) Recurring Themes and Concepts

K.5: The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
K.5A	Identify and use patterns to describe phenomena or design solutions.	Level K M1 Weather L17, 21, 23–25, 27, 30 Level K M1 Spotlight Lessons on Magnets L5–8 Level K M2 Life L4–5, 7–9, 11, 13–14, 19, 21–24, 28, 33, 35 Level K M3 Light L1–3, 10–13, 16–17, 20–21–23 Level K M3 Spotlight Lessons on the Sky L2–5, 9–11
K.5B	Investigate and predict cause-and-effect relationships in science.	Level K M1 Spotlight Lessons on Magnets L1–8 Level K M2 Life L8, 10–12, 36 Level K M3 Light L1–2, 5–8, 10–12, 15–23
K.5C	Describe the properties of objects in terms of relative size (scale) and relative quantity.	Level K M1 Weather L1–2, 4–7 Level K M2 Life L6–9 Level K M3 Light L17–19
K.5D	Examine the parts of a whole to define or model a system.	Level K M2 Life L13–14, 17, 26, 29–31, 35–36 Level K M3 Light L3, 10–13, 16, 18–19, 24
K.5E	Identify forms of energy and properties of matter.	Level K M3 Light L2, 4, 7–8, 14–15, 17–19
K.5F	Describe the relationship between the structure and function of objects, organisms, and systems.	Level K M1 Weather L14–16, 24, 27, 30 Level K M2 Life L5, 20, 27, 32, 35–36 Level K M3 Light L3, 11
K.5G	Describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same.	Level K M1 Weather L8–9 Level K M2 Life L6–9, 11–12 Level K M3 Light L6–7, 11–13, 24 Level K M3 Spotlight Lessons on the Sky L2–4, 9–11

(6) Matter and Its Properties

K.6: The student knows that objects have physical properties that determine how they are described and classified. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.1	Identify and record observable physical properties of objects, including shape, color, texture, and material, and generate ways to classify objects.	Level K M1 Weather L6–9, 13–16 Level K M1 Spotlight Lessons on Magnets L2–8 Level K M2 Life L32 Level K M3 Light L2, 10, 12, 14–24

(7) Force, Motion, and Energy

K.7: The student knows that forces cause changes in motion and position in everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.7	Describe and predict how a magnet interacts with various materials and how magnets can be used to push or pull.	Level K M1 Spotlight Lessons on Magnets L1–8

(8) Force, Motion, and Energy

K.8: The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.8A	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.	Level K M3 Light L1–9, 22–24
K.8B	Demonstrate and explain that light travels through some objects and is blocked by other objects, creating shadows.	Level K M1 Weather L8–9, 12–16, 28 Level K M3 Light L1–3, 10–14, 16–24

(9) Earth and Space

K.9: The student knows that there are recognizable patterns in the natural world and among objects in the sky. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
K.9A	Identify, describe, and predict the patterns of day and night and their observable characteristics.	Level K M1 Weather L17–18, 20–21, 23–24, 27–30 Level K M3 Light L13 Level K M3 Spotlight Lessons on the Sky L1–4, 9–11
K.9B	Observe, describe, and illustrate the Sun, Moon, stars, and objects in the sky such as clouds.	Level K M1 Weather L3–4, 10–11, 22–24, 28–30 Level K M3 Light L13 Level K M3 Spotlight Lessons on the Sky L1–4, 9–11

(10) Earth and Space

K.10: The student knows that the natural world includes earth materials and systems that can be observed. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
K.10A	Describe and classify rocks by the observable properties of size, shape, color, and texture.	Level K M1 Weather L8 Level K M2 Life L32, 35
K.10B	Observe and describe weather changes from day to day and over seasons.	Level K M1 Weather L1, 4, 8–11, 17–30 Level K M3 Light L14–15 Level K M3 Spotlight Lessons on the Sky L5–11
K.10C	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.	Level K M1 Weather L5–7, 11, 17, 28–30

(11) Earth and Space

K.11: The student knows that earth materials are important to everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
K.11	Observe and generate examples of practical uses for rocks, soil, and water.	Level K M1 Weather L2, 21, 27 Level K M2 Life L11, 25–26, 29–36

(12) Organisms and Environments

K.12: The student knows that plants and animals depend on the environment to meet their basic needs for survival. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.12A	Observe and identify the dependence of plants on air, sunlight, water, nutrients in the soil, and space to grow.	Level K M2 Life L1–3, 6–12, 15–17, 19, 21, 34–36
K.12B	Observe and identify the dependence of animals on air, water, food, space, and shelter.	Level K M1 Weather L1–2, 10–13, 15–16, 22, 24, 26–30 Level K M2 Life L20–23, 25, 27–30, 34–36 Level K M3 Spotlight Lessons on the Sky L6–8

(13) Organisms and Environments

K.13: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
K.13A	Identify the structures of plants, including roots, stems, leaves, flowers, and fruits.	Level K M2 Life L4–5, 16, 19, 34–36
K.13B	Identify the different structures that animals have that allow them to interact with their environment such as seeing, hearing, moving, and grasping objects.	Level K M2 Life L20–22, 25, 27–28, 34–36
K.13C	Identify and record the changes from seed, seedling, plant, flower, and fruit in a simple plant life cycle.	Level K M2 Life L6–9, 13–14, 19, 34–36
K.13D	Identify ways that young plants resemble the parent plant.	Level K M2 Life L14, 19, 34–35

PhD Science® Texas Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science: Level 1

The *PhD Science Texas* Level 1 curriculum fully aligns with the Grade 1 TEKS for Science. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Grade 1 Knowledge and Skills

(1) Scientific and Engineering Practices

1.1: 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:

Standard	Student Expectation	Aligned PhD Science Texas Lessons
1.1A	Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.	Level 1 M1 Pushes and Pulls L3, 9–10, 17–18 Level 1 M2 Environments L1, 12, 15, 19, 21 Level 1 M2 Spotlight Lessons on Water L1, 7–8 Level 1 M3 Survival L1–2, 9, 12, 17 Level 1 M1 Spotlight Lessons on Weather Conditions L1, 5–6
1.1B	Use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.	Level 1 M1 Pushes and Pulls L4, 7, 10–11, 13–15, 18–20 Level 1 M2 Environments L5, 21–25 Level 1 M3 Survival L12, 14, 20–21 Level 1 M1 Spotlight Lessons on Weather Conditions L2, 5–6
1.1C	Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	Level 1 M1 Pushes and Pulls L4–7, 14–15, 17–21 Level 1 M1 Spotlight Lessons on Weather Conditions L2 Level 1 M2 Environments L4–5, 19, 24–25 Level 1 M2 Spotlight Lessons on Water L2–5 Level 1 M3 Survival L1, 4, 9–16, 27 Level 1 M1 Spotlight Lessons on Weather Conditions L1–6

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.1D	Use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, sieves/sifters, tweezers, primary balance, notebooks, terrariums, aquariums, stream tables, soil samples (loam, sand, gravel, rocks, and clay), seeds, plants, windsock, pinwheel, student thermometer, demonstration thermometer, rain gauge, straws, ribbons, non-standard measuring items, flashlights, sandpaper, wax paper, items that are magnetic, non-magnetic items, a variety of magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and plant and animal life cycle models to observe, measure, test, and compare.	Level 1 M1 Pushes and Pulls L6, 13–15, 19–21 Level 1 M1 Spotlight Lessons on Weather Conditions L1–3 Level 1 M2 Environments L1, 4–5, 12, 21, 25 Level 1 M2 Spotlight Lessons on Water L2–5 Level 1 M3 Survival L4–5, 8–11, 14, 17–18, 20–21, 23–25, 30–31 Level 1 M1 Spotlight Lessons on Weather Conditions L1–7
1.1E	Collect observations and measurements as evidence.	Level 1 M1 Pushes and Pulls L5, 7–8, 11, 18–20, 23 Level 1 M1 Spotlight Lessons on Weather Conditions L2, 4–7 Level 1 M2 Environments L1–2, 4–5, 8–9, 11–12, 15, 17–18, 20, 22–25, 27 Level 1 M2 Spotlight Lessons on Water L2–10 Level 1 M3 Survival L1, 4–5, 7–11, 15, 17, 20–26, 28, 30–31 Level 1 M3 Spotlight Lessons on Earth Materials L2, 5–7
1.1F	Record and organize data using pictures, numbers, words, symbols, and simple graphs.	Level 1 M1 Pushes and Pulls L5, 7, 9, 11, 19–20, 23–24 Level 1 M1 Spotlight Lessons on Weather Conditions L1–7 Level 1 M2 Environments L1, 5, 22–23, 25 Level 1 M2 Spotlight Lessons on Water L1, 7 Level 1 M3 Survival L1, 4–5, 8, 10–11, 17, 21, 25 Level 1 M3 Spotlight Lessons on Earth Materials L2, 5–6
1.1G	Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.	Level 1 M1 Pushes and Pulls L1–3, 6, 8, 10, 12, 14, 16–17, 19–20, 23 Level 1 M2 Environments L3, 4, 6–9, 12–13, 16–17, 20–21, 23 Level 1 M2 Spotlight Lessons on Water L5–6, 10 Level 1 M3 Survival L3–5, 7, 12–15, 19, 22, 25–27, 30–31 Level 1 M3 Spotlight Lessons on Earth Materials L1, 3–4

(2) Scientific and Engineering Practices

1.2: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.2A	Identify basic advantages and limitations of models such as their size, properties, and materials.	Level 1 M1 Pushes and Pulls L1–3, 6, 8, 12–13 Level 1 M2 Environments L4 Level 1 M2 Spotlight Lessons on Water L5, 9–10 Level 1 M3 Survival L4, 10, 19
1.2B	Analyze data by identifying significant features and patterns.	Level 1 M1 Pushes and Pulls L4, 18–21 Level 1 M1 Spotlight Lessons on Weather Conditions L4–7 Level 1 M2 Environments L1, 23 Level 1 M2 Spotlight Lessons on Water L7–8 Level 1 M3 Survival L2–5, 10–11, 17–18, 21, 23–28
1.2C	Use mathematical concepts to compare two objects with common attributes.	Level 1 M1 Pushes and Pulls L18–21, 23 Level 1 M2 Spotlight Lessons on Water L2 Level 1 M3 Spotlight Lessons on Earth Materials L2
1.2D	Evaluate a design or object using criteria to determine if it works as intended.	Level 1 M1 Pushes and Pulls L18–21 Level 1 M2 Environments L24–25 Level 1 M3 Survival L14–15

(3) Scientific and Engineering Practices

1.3: The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
1.3A	Develop explanations and propose solutions supported by data and models.	Level 1 M1 Pushes and Pulls L5–8, 16, 21 Level 1 M1 Spotlight Lessons on Weather Conditions L6–7 Level 1 M2 Environments L3, 5–6, 9–11, 13–14, 16, 20, 22, 26–28 Level 1 M2 Spotlight Lessons on Water L2, 8 Level 1 M3 Survival L5–11, 13, 16, 18–19, 21–22, 25, 27–29 Level 1 M3 Spotlight Lessons on Earth Materials L4–5, 7
1.3B	Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.	Level 1 M1 Pushes and Pulls L10, 19, 21–24 Level 1 M1 Spotlight Lessons on Weather Conditions L4–7 Level 1 M2 Environments L1–2, 4, 6–8, 11, 14, 16–17, 21, 24–26 Level 1 M2 Spotlight Lessons on Water L1–3, 6–8, 10 Level 1 M3 Survival L3–4, 6, 8–9, 13, 17, 19, 26–29 Level 1 M3 Spotlight Lessons on Earth Materials L4–8
1.3C	Listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.	Level 1 M1 Pushes and Pulls L4, 22 Level 1 M2 Environments L6, 14, 26 Level 1 M2 Spotlight Lessons on Water L7–8 Level 1 M3 Survival L16, 29

(4) Scientific and Engineering Practices

1.4: The student knows the contributions of scientists and recognizes the importance of scientific research and innovation on society. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.4A	Explain how science or an innovation can help others.	Level 1 M1 Pushes and Pulls L18, 21 Level 1 M2 Environments L17–21, 25 Level 1 M3 Survival L11
1.4B	Identify scientists and engineers such as Katherine Johnson, Sally Ride, and Ernest Just and explore what different scientists and engineers do.	Level 1 M1 Pushes and Pulls L17–18 Level 1 M2 Environments L3, 11 Level 1 M2 Spotlight Lessons on Water L4 Level 1 M3 Survival L11–12 Level 1 M3 Spotlight Lessons on Earth Materials L2

(5) Recurring Themes and Concepts

1.5: The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.5A	Identify and use patterns to describe phenomena or design solutions.	Level 1 M1 Pushes and Pulls L1, 4, 23 Level 1 M1 Spotlight Lessons on Weather Conditions L3–7 Level 1 M2 Environments L4–7, 11, 13–14, 20, 24–28 Level 1 M2 Spotlight Lessons on Water L1–4, 7–10 Level 1 M3 Survival L1–3, 7, 12, 15–19, 21, 23–26, 28–31 Level 1 M3 Spotlight Lessons on Earth Materials L5–7
1.5B	Investigate and predict cause-and-effect relationships in science.	Level 1 M1 Pushes and Pulls L4–7, 9–12, 14, 16, 22–24 Level 1 M1 Spotlight Lessons on Weather Conditions L6–7 Level 1 M2 Environments L6, 10–12, 14–18, 20, 27–28 Level 1 M2 Spotlight Lessons on Water L5, 9–10 Level 1 M3 Survival L8, 17–21, 26–27, 29 Level 1 M3 Spotlight Lessons on Earth Materials L5–7

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.5C	Describe the properties of objects in terms of relative size (scale) and relative quantity.	Level 1 M1 Pushes and Pulls L7–8, 12–14, 22–24 Level 1 M2 Environments L5 Level 1 M2 Spotlight Lessons on Water L2–3, 9 Level 1 M3 Survival L28 Level 1 M3 Spotlight Lessons on Earth Materials L7
1.5D	Examine the parts of a whole to define or model a system.	Level 1 M2 Environments L1–10, 12–17, 21, 28 Level 1 M2 Spotlight Lessons on Water L5–6, 10 Level 1 M3 Survival L1–3, 6–8, 22, 30–31 Level 1 M3 Spotlight Lessons on Earth Materials L1–2, 7
1.5E	Identify forms of energy and properties of matter.	Level 1 M3 Survival L5, 11–12, 16 Level 1 M1 Spotlight Lessons on Weather Conditions L1–8
1.5F	Describe the relationship between structure and function of objects, organisms, and systems.	Level 1 M1 Pushes and Pulls L17 Level 1 M2 Environments L9–10, 21–25 Level 1 M3 Survival L4–6, 8–15, 29–31
1.5G	Describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same.	Level 1 M1 Spotlight Lessons on Weather Conditions L1–5 Level 1 M2 Spotlight Lessons on Water L5–11 Level 1 M3 Survival L20, 27, 30–31 Level 1 M1 Spotlight Lessons on Weather Conditions L1–7

(6) Matter and Its Properties

1.6: The student knows that objects have physical properties that determine how they are described and classified. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.6A	Classify objects by observable physical properties, including, shape, color, and texture, and attributes such as larger and smaller and heavier and lighter.	Level 1 M1 Pushes and Pulls L19–20, 23 Level 1 M2 Environments L20–28 Level 1 M3 Survival L11, 13 Level 1 M1 Spotlight Lessons on Weather Conditions L2
1.6B	Explain and predict changes in materials caused by heating and cooling.	Level 1 M1 Spotlight Lessons on Weather Conditions L1, 3–8
1.6C	Demonstrate and explain that a whole object is a system made of organized parts such as a toy that can be taken apart and put back together.	Level 1 M1 Pushes and Pulls L17–24

(7) Force, Motion, and Energy

1.7: The student knows that forces cause changes in motion and position in everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.7A	Explain how pushes and pulls can start, stop, or change the speed or direction of an object's motion.	Level 1 M1 Pushes and Pulls L1, 3–16, 18–24
1.7B	Plan and conduct a descriptive investigation that predicts how pushes and pulls can start, stop, or change the speed or direction of an object's motion.	Level 1 M1 Pushes and Pulls L2, 4–5, 7–8, 10, 12–14, 19–23

(8) Force, Motion, and Energy

1.8: The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.8A	Investigate and describe applications of heat in everyday life such as cooking food or using a clothes dryer.	Level 1 M1 Spotlight Lessons on Weather Conditions L1, 5–8
1.8B	Describe how some changes caused by heat may be reversed such as melting butter and other changes cannot be reversed such as cooking an egg or baking a cake.	Level 1 M1 Spotlight Lessons on Weather Conditions L3, 6–8

(9) Earth and Space

1.9: The student knows that the natural world has recognizable patterns. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.9	Describe and predict the patterns of seasons of the year such as order of occurrence and changes in nature.	Level 1 M1 Spotlight Lessons on Weather Conditions L4–7

(10) Earth and Space

1.10: The student knows that the natural world includes earth materials that can be observed in systems and processes. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.10A	Investigate and document the properties of particle size, shape, texture, and color and the components of different types of soils such as topsoil, clay, and sand.	Level 1 M1 Spotlight Lessons on Weather Conditions L2–4, 5–8
1.10B	Investigate and describe how water can move rock and soil particles from one place to another.	Level 1 M2 Spotlight Lessons on Water L5–6, 9–11
1.10C	Compare the properties of puddles, ponds, streams, rivers, lakes, and oceans, including color, clarity, size, shape, and whether it is freshwater or saltwater.	Level 1 M2 Spotlight Lessons on Water L2–6, 9–11
1.10D	Describe and record observable characteristics of weather, including hot or cold, clear or cloudy, calm or windy, and rainy or icy, and explain the impact of weather on daily choices.	Level 1 M1 Spotlight Lessons on Weather Conditions L1–7

(11) Earth and Space

1.11: The student knows that earth materials and products made from these materials are important to everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
1.11A	Identify and describe how plants, animals, and humans use rocks, soil, and water.	Level 1 M2 Environments L1, 4–10, 12–14, 16–19, 21–22, 26–28 Level 1 M2 Spotlight Lessons on Water L1–4, 9–11 Level 1 M3 Survival L8–9, 22, 30–31 Level 1 M1 Spotlight Lessons on Weather Conditions L1, 3–4, 7–8
1.11B	Explain why water conservation is important.	Level 1 M2 Spotlight Lessons on Water L1, 8–11
1.11C	Describe ways to conserve water such as turning off the faucet when brushing teeth and protect natural sources of water such as keeping trash out of bodies of water.	Level 1 M2 Environments L19–20 Level 1 M2 Spotlight Lessons on Water L6–11

(12) Organisms and Environments

1.12: The student knows that the environment is composed of relationships between living organisms and nonliving components. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
1.12A	Classify living and nonliving things based upon whether they have basic needs and produce young.	Level 1 M2 Environments L1–2, 4–11, 13–14, 16, 26–28 Level 1 M3 Survival L4, 8–9, 26
1.12B	Describe and record examples of interactions and dependence between living and nonliving components in terrariums or aquariums.	Level 1 M2 Environments L1–2, 4–21, 26–28 Level 1 M3 Survival L7, 17–22, 29–31
1.12C	Identify and illustrate how living organisms depend on each other through food chains.	Level 1 M3 Survival L7, 17, 22, 29–31

(13) Organisms and Environments

1.13: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
1.13A	identify the external structures of different animals and compare how those structures help different animals live, move, and meet basic needs for survival.	Level 1 M3 Survival L1–6, 10–19, 29–31
1.13B	Record observations of and describe basic life cycles of animals, including a bird, a mammal, and a fish.	Level 1 M3 Survival L4–6, 17–19, 23–31
1.13C	Compare ways that young animals resemble their parents.	Level 1 M3 Survival L23–26, 28–31

PhD Science® Texas Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science: Level 2

The *PhD Science Texas* Level 2 curriculum fully aligns with the Grade 2 TEKS for Science. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Grade 2 Knowledge and Skills

(1) Scientific and Engineering Practices

2.1: 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:

Standard	Student Expectation	Aligned PhD Science Texas Lessons
2.1A	Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.	Level 2 M1 Matter L1–7, 17, 22–25, 27–28 Level 2 M1 Spotlight Lessons on Weather Events L1–2, 13–14 Level 2 M2 Sound L1–4, 6–8, 11, 13–15, 17–18, 20–22 Level 2 Spotlight Lessons on Objects in the Sky L1–2 Level 2 M3 Plants L2, 4, 7, 13–15 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–2, 7–8
2.1B	Use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.	Level 2 M1 Matter L4–6, 8–9, 11, 17, 20–21, 28–30 Level 2 M1 Spotlight Lessons on Weather Events L9–10 Level 2 M2 Sound L5–8, 10, 12–13, 15–16, 18–22, 28 Level 2 M2 Spotlight Lessons on Objects in the Sky L4 Level 2 M3 Plants L4–7, 15, 27

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.1C	Identify, describe, and demonstrate safe practices during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	Level 2 M1 Matter L3–7, 11, 14, 17, 20, 28–31, 33 Level 2 M1 Spotlight Lessons on Weather Events L3–5, 9–10 Level 2 M2 Sound L9, 12–14, 22–23, 28 Level 2 M2 Spotlight Lessons on Objects in the Sky L2 Level 2 M3 Plants L5, 9, 11, 14–18 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L7
2.1D	Use tools, including hand lenses, goggles, heat-resistant gloves, trays, cups, bowls, beakers, notebooks, stream tables, soil, sand, gravel, flowering plants, student thermometer, demonstration thermometer, rain gauge, flashlights, ramps, balls, spinning tops, drums, tuning forks, sandpaper, wax paper, items that are flexible, non-flexible items, magnets, hot plate, aluminum foil, Sun-Moon-Earth model, and frog and butterfly life cycle models to observe, measure, test, and compare.	Level 2 M1 Matter L3–7, 11–17, 24, 28, 30, 33 Level 2 M1 Spotlight Lessons on Weather Events L3–5, 8–10 Level 2 M2 Sound L2, 5–8, 14, 19, 22–24, 28–29 Level 2 M2 Spotlight Lessons on Objects in the Sky L1, 4 Level 2 M3 Plants L3–6, 9, 11, 15–17, 19, 22–23, 26, 28 Level 2 M3 Spotlight Lessons on Living and Their Environment L5–6
2.1E	Collect observations and measurements as evidence.	Level 2 M1 Matter L1, 3–7, 9, 11–18, 20–21, 28, 30, 33–34 Level 2 M1 Spotlight Lessons on Weather Events L3–5, 9–10, 13–14 Level 2 M2 Sound L1–2, 4–9, 11, 13–14, 19–20, 22–24, 28 Level 2 M2 Spotlight Lessons on Objects in the Sky L1–2, 5–6 Level 2 M3 Plants L1, 3, 6, 9–11, 15–17, 19, 22–23, 26, 29 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–9
2.1F	Record and organize data using pictures, numbers, words, symbols, and simple graphs.	Level 2 M1 Matter L4–7, 9, 17–18, 20–21, 24, 27–28 Level 2 M1 Spotlight Lessons on Weather Events L3–10, 13–14 Level 2 M2 Sound L1–2, 5–6, 11, 13, 19–20, 22–24, 27–28 Level 2 M3 Plants L15–17, 22–23, 26, 29 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–9

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.1G	Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.	Level 2 M1 Matter L1–2, 16, 19, 22, 25, 29, 32–34 Level 2 M1 Spotlight Lessons on Weather Events L2, 9–10, 12–14 Level 2 M2 Sound L2, 7, 11, 12, 14, 22–24 Level 2 M2 Spotlight Lessons on Objects in the Sky L3–4 Level 2 M3 Plants L1–3, 9, 11–12, 15–17, 19–21, 24–25, 29 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L5–7, 9

(2) Scientific and Engineering Practices

2.2: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.2A	Identify basic advantages and limitations of models such as their size, properties, and materials.	Level 2 M1 Matter L1, 19 Level 2 M2 Sound L14 Level 2 M3 Plants L9, 11, 16–17
2.2B	Analyze data by identifying significant features and patterns.	Level 2 M1 Matter L4–7, 28–29 Level 2 M1 Spotlight Lessons on Weather Events L6–7, 11, 13–14 Level 2 M2 Sound L6–13, 15–20, 22–24, 28 Level 2 M2 Spotlight Lessons on Objects in the Sky L5–6 Level 2 M3 Plants L3, 8, 14–15, 17, 19–23, 26–27, 29 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1, 9
2.2C	Use mathematical concepts to compare two objects with common attributes.	Level 2 M1 Matter L11–12, 24 Level 2 M2 Sound L25 Level 2 M3 Plants L6, 8, 11, 20, 25–27
2.2D	Evaluate a design or object using criteria to determine if it works as intended.	Level 2 M1 Matter L23–24, 26, 28–30 Level 2 M2 Sound L9, 20, 23–25 Level 2 M3 Plants L16–17

(3) Scientific and Engineering Practices

2.3: The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.3A	Develop explanations and propose solutions supported by data and models.	Level 2 M1 Matter L10, 28–29, 31, 33–34 Level 2 M1 Spotlight Lessons on Weather Events L3–4, 11, 13 Level 2 M2 Sound L2, 5–6, 8–11, 13–20, 22–24, 26, 28 Level 2 M2 Spotlight Lessons on Objects in the Sky L5–6 Level 2 M3 Plants L1, 7–8, 12, 16, 20–22, 25, 27–29 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–7, 9–10
2.3B	Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.	Level 2 M1 Matter L4–7, 10, 16, 26, 28–29, 31–34 Level 2 M2 Sound L8, 10–12, 17, 19, 26–27, 29 Level 2 M2 Spotlight Lessons on Objects in the Sky L5–7 Level 2 M3 Plants L9, 11–13, 18–21, 28, 30 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–8, 10
2.3C	Listen actively to others' explanations to identify important evidence and engage respectfully in scientific discussion.	Level 2 M1 Matter L31–32, 34 Level 2 M2 Sound L26 Level 2 M3 Plants L17–18, 21, 28, 30 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L10

(4) Scientific and Engineering Practices

2.4: The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.4A	Explain how science or an innovation can help others.	Level 2 M1 Matter L23, 25, 27, 31 Level 2 M1 Spotlight Lessons on Weather Events L12 Level 2 M2 Sound L20, 24 Level 2 M3 Plants L18
2.4B	Identify scientists and engineers such as Alexander Graham Bell, Marie Daly, Mario Molina, and Jane Goodall and explore what different scientists and engineers do.	Level 2 M1 Matter L25, 27, 30–31 Level 2 M2 Sound L20, 25 Level 2 M2 Spotlight Lessons on Objects in the Sky L2, 4 Level 2 M3 Plants L4, 14, 17, 27, 29

(5) Recurring Themes and Concepts

2.5: The student uses recurring themes and concepts to make connections across disciplines. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.5A	Identify and use patterns to describe phenomena or design solutions.	Level 2 M1 Matter L10, 12 Level 2 M1 Spotlight Lessons on Weather Events L5–7, 11, 13–14 Level 2 M2 Sound L1–2, 4–8, 11–13, 15–16, 18, 20, 26, 28–29 Level 2 M2 Spotlight Lessons on Objects in the Sky L5–6 Level 2 M3 Plants L3, 21–22, 25–27 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L7–10
2.5B	investigate and predict cause-and-effect relationships in science.	Level 2 M1 Matter L18–19, 22 Level 2 M1 Spotlight Lessons on Weather Events L9–10 Level 2 M2 Sound L5–16, 17, 19–20, 21, 27–29 Level 2 M2 Spotlight Lessons on Objects in the Sky L1, 5–6 Level 2 M3 Plants L1–12, 14–16, 18–20, 22, 24–29 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–2

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.5C	Measure and describe the properties of objects in terms of size and quantity.	Level 2 M1 Matter L1, 3 Level 2 M2 Spotlight Lessons on Objects in the Sky L2, 5–6 Level 2 M3 Plants L6, 8–9, 11, 15, 19, 26–27, 29–30
2.5D	Examine the parts of a whole to define or model a system.	Level 2 M1 Matter L1–2, 13–14 Level 2 M2 Sound L1–3, 9–10, 21–25, 29 Level 2 M3 Plants L9, 11–13, 24–25, 29–30 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–4 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L5–10
2.5E	Identify forms of energy and properties of matter.	Level 2 M1 Matter L4–7, 11–13, 15, 17–18, 20–21, 23–26, 32–34 Level 2 M2 Spotlight Lessons on Objects in the Sky L1–6 Level 2 M3 Plants L9
2.5F	Describe the relationship between structure and function of objects, organisms, and systems.	Level 2 M1 Matter L24, 27–31 Level 2 M2 Sound L8–9 Level 2 M3 Plants L2, 7, 12–19, 21–24, 28–30 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L3–4, 6–10
2.5G	Describe how factors or conditions can cause objects, organisms, and systems to either change or stay the same.	Level 2 M1 Matter L17–22, 33–34 Level 2 M1 Spotlight Lessons on Weather Events L1–5, 8–10, 12–14 Level 2 M3 Plants L1–6, 26–27 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L9–10

(6) Matter and Its Properties

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

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.6A	Classify matter by observable physical properties, including texture, flexibility, and relative temperature, and identify whether a material is a solid or liquid.	Level 2 M1 Matter L1–7, 11, 13–19, 22–26, 28–30, 32–34
2.6B	Conduct a descriptive investigation to explain how physical properties can be changed through processes such as cutting, folding, sanding, melting, or freezing.	Level 2 M1 Matter L17–22, 26, 28–34
2.6C	Demonstrate that small units such as building blocks can be combined or reassembled to form new objects for different purposes and explain the materials chosen based on their physical properties.	Level 2 M1 Matter L2–3, 13–14, 23–34

(7) Force, Motion, and Energy

2.7: The student knows that forces cause changes in motion and position in everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.7A	Explain how objects push on each other and may change shape when they touch or collide.	Level 2 M1 Matter L7, 11, 13–14, 25, 29–30, 32–34
2.7B	Plan and conduct a descriptive investigation to demonstrate how the strength of a push and pull changes an object's motion.	Level 2 M1 Matter L8–10, 32–34

(

8) Force, Motion, and Energy

2.8: The student knows that energy is everywhere and can be observed in everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.8A	Demonstrate and explain that sound is made by vibrating matter and that vibrations can be caused by a variety of means, including sound.	Level 2 M2 Sound L4–12, 14–17, 19, 26–29
2.8B	Explain how different levels of sound are used in everyday life such as a whisper in a classroom or a fire alarm.	Level 2 M2 Sound L1–2, 11–13, 16–17, 20–22, 24, 26, 28–29
2.8C	Design and build a device using tools and materials that uses sound to solve the problem of communicating over a distance.	Level 2 M2 Sound L18–29

(9) Earth and Space

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

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.9A	Describe the Sun as a star that provides light and heat and explain that the Moon reflects the Sun's light.	Level 2 M2 Spotlight Lessons on Objects in the Sky L1–6
2.9B	Observe objects in the sky using tools such as a telescope and compare how objects in the sky are more visible and can appear different with a tool than with an unaided eye.	Level 2 M2 Spotlight Lessons on Objects in the Sky L2–3, 5–6

(10) Earth and Space

2.10: The student knows that the natural world includes earth materials that can be observed in systems and processes. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.10A	Investigate and describe how wind and water move soil and rock particles across the Earth's surface such as wind blowing sand into dunes on a beach or a river carrying rocks as it flows.	Level 2 M1 Spotlight Lessons on Weather Events L9–10, 13–14
2.10B	Measure, record, and graph weather information, including temperature and precipitation.	Level 2 M1 Spotlight Lessons on Weather Events L3–7, 13–14
2.10C	Investigate different types of severe weather events such as a hurricane, tornado, or flood and explain that some events are more likely than others in a given region.	Level 2 M1 Spotlight Lessons on Weather Events L1–2, 8, 11–14

(11) Earth and Space

2.11: The student knows that earth materials and products made from these materials are important to everyday life. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.11A	Distinguish between natural and manmade resources.	Level 2 M1 Matter L23, 27–29, 32–34
2.11B	Describe how human impact can be limited by making choices to conserve and properly dispose of materials such as reducing use of, reusing, or recycling paper, plastic, and metal.	Level 2 M2 Sound L1–3, 8–9, 21, 23–24, 26, 28–29

(12) Organisms and Environments

2.12: The student knows that living organisms have basic needs that must be met through interactions within their environment. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.12A	Describe how the physical characteristics of environments, including the amount of rainfall, support plants and animals within an ecosystem.	Level 2 M3 Plants L1–8, 21, 26–30 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L1–2, 4, 9–10
2.12B	Create and describe food chains identifying producers and consumers to demonstrate how animals depend on other living things.	Level 2 M3 Plants L19–25, 27–30
2.12C	Explain and demonstrate how some plants depend on other living things, wind, or water for pollination and to move their seeds around.	Level 2 M3 Plants L8–20, 22–25, 27–30

(13) Organisms and Environments

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

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
2.13A	Identify the roots, stems, leaves, flowers, fruits, and seeds of plants and compare how those structures help different plants meet their basic needs for survival.	Level 2 M3 Plants L2–15, 17, 19–20, 22–24, 27–30
2.13B	Record and compare how the structures and behaviors of animals help them find and take in food, water, and air.	Level 2 M3 Plants L9 Level 2 M3 Spotlight Lessons on Living Things and Their Environments L3–6, 9–10
2.13C	Record and compare how being part of a group helps animals obtain food, defend themselves, and cope with changes.	Level 2 M3 Spotlight Lessons on Living Things and Their Environments L6–10
2.13D	Investigate and describe some of the unique life cycles of animals where young animals do not resemble their parents, including butterflies and frogs.	Level 2 M3 Spotlight Lessons on Living Things and Their Environments L2, 5–6, 8–10

***PhD Science*® Texas Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science: Level 3**

The *PhD Science Texas* Level 3 curriculum fully aligns with the Grade 3 TEKS for Science. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Grade 3 Knowledge and Skills

(1) Scientific and Engineering Practices

3.1: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.1A	Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.	Level 3 M1 Earth Changes L1–2, 5–6, 14–15, 19 Level 3 M1 Spotlight Lessons on Changes in Matter L6–7 Level 3 M3 Survival and Change L1–4, 9, 11, 14, 16, 19–20, 25–26 Level 3 M3 Forces and Motion L1, 3, 5, 7, 9, 11, 15, 18–23, 27, 29 Level 3 M3 Spotlight Lessons on the Solar System L3–4
3.1B	Use scientific practices to plan and conduct simple descriptive investigations and use engineering practices to design solutions to problems.	Level 3 M1 Earth Changes L1–6, 8–13, 15–17 Level 3 M1 Spotlight Lessons on Changes in Matter L2–4, 8 Level 3 M3 Survival and Change L6–7, 29, 29 Level 3 M3 Forces and Motion L4–5, 7–15, 17–19, 21, 23–27, 29 Level 3 M3 Spotlight Lessons on the Solar System L2, 4–5, 7
3.1C	Demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	Level 3 M1 Earth Changes L3–4, 8, 11, 14–18 Level 3 M1 Spotlight Lessons on Changes in Matter L2–5, 7–10 Level 3 M3 Survival and Change L3, 6–7, 14, 23, 26–29 Level 3 M3 Forces and Motion L4–5, 10–11, 15, 19, 21, 23–27 Level 3 M3 Spotlight Lessons on the Solar System L2, 5

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.1D	Use tools, including hand lenses; metric rulers; Celsius thermometers; wind vanes; rain gauges; graduated cylinders; beakers; digital scales; hot plates; meter sticks; magnets; notebooks; Sun, Earth, Moon system models; timing devices; materials to support observation of habitats of organisms such as terrariums, aquariums, and collecting nets; and materials to support digital data collection such as computers, tablets, and cameras, to observe, measure, test, and analyze information.	Level 3 M1 Earth Changes L2–3, 5, 8–9, 13 Level 3 M1 Spotlight Lessons on Changes in Matter L2–5, 7, 9 Level 3 M3 Survival and Change L3, 5–7, 9–10, 12, 14, 17, 23, 27 Level 3 M3 Forces and Motion L2–12, 15, 17, 19, 21, 23–26 Level 3 M3 Spotlight Lessons on the Solar System L2, 4–7
3.1E	Collect observations and measurements as evidence.	Level 3 M1 Earth Changes L2–14, 16–17, 19, 21–24 Level 3 M1 Spotlight Lessons on Changes in Matter L2–5, 7, 9 Level 3 M3 Survival and Change L4–7, 9–10, 12, 14–15, 17–23, 31 Level 3 M3 Forces and Motion L1–2, 4–15, 17–21, 23, 25–26 Level 3 M3 Spotlight Lessons on the Solar System L1–9
3.1F	Construct appropriate graphic organizers to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect.	Level 3 M1 Earth Changes L3–7, 9–10, 12, 14, 16–17, 20, 23–24 Level 3 M3 Survival and Change L3, 8, 17, 24, 26, 30 Level 3 M3 Forces and Motion L4–5, 8–10, 15–17, 20, 28 Level 3 M3 Spotlight Lessons on the Solar System L2
3.1G	Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.	Level 3 M1 Earth Changes L2, 8, 10–17, 21–24 Level 3 M1 Spotlight Lessons on Changes in Matter L3–4, 9, 10 Level 3 M3 Survival and Change L1, 3–5, 9–13, 18–24, 27, 31 Level 3 M3 Forces and Motion L2–3, 6, 8, 11–14, 16–18, 23–25 Level 3 M3 Spotlight Lessons on the Solar System L1–9

(2) Scientific and Engineering Practices

3.2: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.2A	Identify advantages and limitations of models such as their size, scale, properties, and materials.	Level 3 M1 Earth Changes L1–2, 21 Level 3 M3 Survival and Change L3, 12 Level 3 M3 Spotlight Lessons on the Solar System L1, 5, 8–9
3.2B	Analyze data by identifying any significant features, patterns, or sources of error.	Level 3 M1 Earth Changes L1–4, 6–18, 20, 22–24 Level 3 M1 Spotlight Lessons on Changes in Matter L2–3, 5 Level 3 M3 Survival and Change L3–5, 8–11, 14–15, 17–18–26, 31 Level 3 M3 Forces and Motion L4–14, 16–21, 23, 26, 29 Level 3 M3 Spotlight Lessons on the Solar System L2–5, 7
3.2C	Use mathematical calculations to compare patterns and relationships.	Level 3 M1 Earth Changes L8 Level 3 M3 Forces and Motion L8, 16, 24
3.2D	Evaluate a design or object using criteria.	Level 3 M1 Earth Changes L15–18 Level 3 M1 Spotlight Lessons on Changes in Matter L8–10 Level 3 M3 Survival and Change L25, 27, 29 Level 3 M3 Forces and Motion L24–27

(3) Scientific and Engineering Practices

3.3: The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.3A	Develop explanations and propose solutions supported by data and models.	Level 3 M1 Earth Changes L4, 6–9, 13, 16, 22, 24 Level 3 M1 Spotlight Lessons on Changes in Matter L2, 4, 8 Level 3 M3 Survival and Change L3–5, 9–25, 27–29, 31 Level 3 M3 Forces and Motion L5, 8–14, 16–18, 20–21, 23–25, 27–30 Level 3 M3 Spotlight Lessons on the Solar System L1–9
3.3B	Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.	Level 3 M1 Earth Changes L2–9, 11–19, 21–25 Level 3 M1 Spotlight Lessons on Changes in Matter L4 Level 3 M3 Survival and Change L2, 4–5, 9–11, 15–16, 21, 23–26, 28, 30–31 Level 3 M3 Forces and Motion L1–3, 10, 12–14, 16–17, 20, 22–24, 27–28, 30 Level 3 M3 Spotlight Lessons on the Solar System L2, 7
3.3C	Listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion.	Level 3 M1 Earth Changes L3–4, 18–19, 21, 23 Level 3 M1 Spotlight Lessons on Changes in Matter L1, 6 Level 3 M3 Survival and Change L11, 15–17, 25, 29–30 Level 3 M3 Forces and Motion L14, 24, 27–28

(4) Scientific and Engineering Practices

3.4: The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.4A	Explain how scientific discoveries and innovative solutions to problems impact science and society.	Level 3 M1 Earth Changes L9, 12, 15, 18, 21, 24 Level 3 M3 Survival and Change L17, 19, 25–27 Level 3 M3 Forces and Motion L21, 22–23, 27 Level 3 M3 Spotlight Lessons on the Solar System L2
3.4B	Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.	Level 3 M1 Earth Changes L14 Level 3 M3 Forces and Motion L23

(5) Recurring Themes and Concepts

3.5: The student understands that recurring themes and concepts provide a framework for making connections across disciplines. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.5A	Identify and use patterns to explain scientific phenomena or to design solutions.	Level 3 M1 Earth Changes L6–7 Level 3 M1 Spotlight Lessons on Changes in Matter L1 Level 3 M3 Survival and Change L3–5, 9–11, 17, 19–22, 24–25, 31–32 Level 3 M3 Forces and Motion L2, 5–6, 8–9, 12, 14, 19, 25, 28–29 Level 3 M3 Spotlight Lessons on the Solar System L1–5, 8–9
3.5B	Identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.	Level 3 M1 Earth Changes L8, 10–11 Level 3 M1 Spotlight Lessons on Changes in Matter L3–5 Level 3 M3 Survival and Change L5, 11–13, 18–19, 21–29, 31–32 Level 3 M3 Forces and Motion L1–2, 5, 7–8, 10–21, 23, 27–29 Level 3 M3 Spotlight Lessons on the Solar System L1–4, 6–7
3.5C	Use scale, proportion, and quantity to describe, compare, or model different systems.	Level 3 M1 Earth Changes L17, 20–22, 25 Level 3 M3 Survival and Change L2–3 Level 3 M3 Forces and Motion L4–6, 8–9, 11, 16, 24, 29 Level 3 M3 Spotlight Lessons on the Solar System L2, 4, 5–9
3.5D	Examine and model the parts of a system and their interdependence in the function of the system.	Level 3 M1 Earth Changes L9, 12, 14–18, 24–25 Level 3 M1 Spotlight Lessons on Changes in Matter L8–10 Level 3 M3 Survival and Change L1, 12–13, 18, 24, 27–28 Level 3 M3 Forces and Motion L3–4, 7, 11, 13, 19, 21, 24–28 Level 3 M3 Spotlight Lessons on the Solar System L1–2, 5–7

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.5E	Investigate the flow of energy and cycling of matter through systems.	Level 3 M1 Earth Changes L3–4 Level 3 M3 Survival and Change L13, 18 Level 3 M3 Forces and Motion L4–6, 9–11, 28–29 Level 3 M3 Spotlight Lessons on the Solar System L2–3, 8–9
3.5F	Explain the relationship between the structure and function of objects, organisms, and systems.	Level 3 M3 Survival and Change L9, 14–16, 18, 25–29, 31–32 Level 3 M3 Forces and Motion L24–27, 29
3.5G	Explain how factors or conditions impact stability and change in objects, organisms, and systems.	Level 3 M1 Earth Changes L2–4, 6–8, 11, 13–17, 19, 21–22, 24–25 Level 3 M1 Spotlight Lessons on Changes in Matter L4–5 Level 3 M3 Survival and Change L8, 19, 22–25, 32 Level 3 M3 Forces and Motion L26

(6) Matter and Energy

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

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.6A	Measure, test, and record physical properties of matter, including temperature, mass, magnetism, and the ability to sink or float in water.	Level 3 M1 Earth Changes L3–4 Level 3 M1 Spotlight Lessons on Changes in Matter L2–5, 7–10 Level 3 M3 Forces and Motion L19–28 Level 3 M3 Spotlight Lessons on the Solar System L2, 5, 8–9
3.6B	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.	Level 3 M1 Spotlight Lessons on Changes in Matter L3–5, 9–10 Level 3 M3 Spotlight Lessons on the Solar System L4–5, 8–9

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.6C	Predict, observe, and record changes in the state of matter caused by heating or cooling in a variety of substances such as ice becoming liquid water, condensation forming on the outside of a glass, or liquid water being heated to the point of becoming water vapor (gas).	Level 3 M1 Earth Changes L2 Level 3 M1 Spotlight Lessons on Changes in Matter L3, 5, 9–10
3.6D	Demonstrate that materials can be combined based on their physical properties to create or modify objects such as building a tower or adding clay to sand to make a stronger brick and justify the selection of materials based on their physical properties.	Level 3 M1 Earth Changes L9, 15–18, 23–25

(7) Force, Motion, and Energy

3.7: The student knows the nature of forces and the patterns of their interactions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.7A	Demonstrate and describe forces acting on an object in contact or at a distance, including magnetism, gravity, and pushes and pulls.	Level 3 M3 Forces and Motion L1–3, 10–30
3.7B	Plan and conduct a descriptive investigation to demonstrate and explain how position and motion can be changed by pushing and pulling objects such as swings, balls, and wagons.	Level 3 M3 Forces and Motion L2–21, 28–30

(8) Force, Motion, and Energy

3.8: The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
3.8A	Identify everyday examples of energy, including light, sound, thermal, and mechanical.	Level 3 M3 Forces and Motion L4–9, 28–30 Level 3 M3 Spotlight Lessons on the Solar System L1–3, 8–9
3.8B	Plan and conduct investigations that demonstrate how the speed of an object is related to its mechanical energy.	Level 3 M3 Forces and Motion L5, 8, 10–11, 18, 28–30

(9) Earth and Space

3.9: The student knows there are recognizable objects and patterns in Earth's solar system. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
3.9A	Construct models and explain the orbits of the Sun, Earth, and Moon in relation to each other.	Level 3 M3 Spotlight Lessons on the Solar System L1–2, 4–9
3.9B	Identify the order of the planets in Earth's solar system in relation to the Sun.	Level 3 M3 Spotlight Lessons on the Solar System L5, 8–9

(10) Earth and Space

3.10: The student knows that there are recognizable processes that change Earth over time. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
3.10A	Compare and describe day-to-day weather in different locations at the same time, including air temperature, wind direction, and precipitation.	Level 3 M3 Survival and Change L6–8, 11, 19, 30–32
3.10B	Investigate and explain how soils such as sand and clay are formed by weathering of rock and by decomposition of plant and animal remains.	Level 3 M1 Earth Changes L3–4, 7–8, 13, 21, 23–25
3.10C	Model and describe rapid changes in Earth's surface such as volcanic eruptions, earthquakes, and landslides.	Level 3 M1 Earth Changes L1–2, 4–25

(11) Earth and Space

3.11: The student understands how natural resources are important and can be managed. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
3.11A	Explore and explain how humans use natural resources such as in construction, in agriculture, in transportation, and to make products.	Level 3 M1 Earth Changes L9, 12, 15–16, 18, 23–25
3.11B	Explain why the conservation of natural resources is important.	Level 3 M1 Earth Changes L15 Level 3 M1 Spotlight Lessons on Changes in Matter L1, 6, 10
3.11C	Identify ways to conserve natural resources through reducing, reusing, or recycling.	Level 3 M1 Earth Changes L14–16, 18 Level 3 M1 Spotlight Lessons on Changes in Matter L1, 6–7, 10

(12) Organisms and Environments

3.12: The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
3.12A	Explain how temperature and precipitation affect animal growth and behavior through migration and hibernation and plant responses through dormancy.	Level 3 M3 Survival and Change L19, 21–23, 25, 30–32
3.12B	Identify and describe the flow of energy in a food chain and predict how changes in a food chain such as removal of frogs from a pond or bees from a field affect the ecosystem.	Level 3 M3 Survival and Change L12–13, 18, 26–32
3.12C	Describe how natural changes to the environment such as floods and droughts cause some organisms to thrive and others to perish or move to new locations.	Level 3 M3 Survival and Change L1–2, 5, 10–16, 19, 21–32
3.12D	Identify fossils as evidence of past living organisms and environments, including common Texas fossils.	Level 3 M3 Survival and Change L2–5, 9, 11, 14, 30–32

(13) Organisms and Environments

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

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
3.13A	Explore and explain how external structures and functions of animals such as the neck of a giraffe or webbed feet on a duck enable them to survive in their environment.	Level 3 M3 Survival and Change L9, 12–18, 26–32
3.13B	Explore, illustrate, and compare life cycles in organisms such as beetles, crickets, radishes, or lima beans.	Level 3 M3 Survival and Change L20–21, 30–32

PhD Science® Texas Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science: Level 4

The *PhD Science Texas* Level 4 curriculum fully aligns with the Grade 4 TEKS for Science. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Grade 4 Knowledge and Skills

(1) Scientific and Engineering Practices

4.1: 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:

Standard	Student Expectation	Aligned PhD Science Texas Lessons
4.1A	Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.	Level 4 M1 Earth Features L1–2, 5, 13–14, 20–21 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1 Level 4 M2 Energy L1, 3, 7, 10, 21 Level 4 M2 Spotlight Lessons on Earth and Space L1 Level 4 M3 Plants in the Environment L1–3, 7, 14, 16–17
4.1B	Use scientific practices to plan and conduct descriptive investigations and use engineering practices to design solutions to problems.	Level 4 M1 Earth Features L7, 9–11, 13–15, 17, 19–20, 23 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L3–4 Level 4 M2 Energy L6–8, 10–11, 16, 21–26 Level 4 M3 Plants in the Environment L20–21
4.1C	Demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	Level 4 M1 Earth Features L7, 10, 15–20, 23 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L2, 4–5 Level 4 M2 Energy L1, 4, 10, 12, 14–18, 21–26 Level 4 M3 Plants in the Environment L6, 8–9, 12–14, 17, 20–21

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.1D	Use tools, including hand lenses; metric rulers; Celsius thermometers; calculators; laser pointers; mirrors; digital scales; balances; graduated cylinders; beakers; hot plates; meter sticks; magnets; notebooks; timing devices; sieves; materials for building circuits; materials to support observation of habitats of organisms such as terrariums, aquariums, and collecting nets; and materials to support digital data collection such as computers, tablets, and cameras, to observe, measure, test, and analyze information.	Level 4 M1 Earth Features L9–11, 23 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L4 Level 4 M2 Energy L1–2, 4, 6–8, 10, 12–15, 17–18, 23–26 Level 4 M3 Plants in the Environment L1, 8–9, 14, 17, 20
4.1E	Collect observations and measurements as evidence.	Level 4 M1 Earth Features L1–2, 6–8, 10–11, 19–21, 25, 27–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1–7 Level 4 M2 Energy L1, 4, 6–8, 10, 12–15, 18 Level 4 M2 Spotlight Lessons on Earth and Space L2–7 Level 4 M3 Plants in the Environment L3–7, 9–12, 14, 17–18, 20, 22
4.1F	Construct appropriate graphic organizers used to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect.	Level 4 M1 Earth Features L11, 21, 23, 26 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L2, 3–4 Level 4 M2 Energy L6, 8, 11, 23, 25–26 Level 4 M2 Spotlight Lessons on Earth and Space L2–4 Level 4 M3 Plants in the Environment L4, 14, 19–22, 24
4.1G	Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.	Level 4 M1 Earth Features L2–5, 7–10, 12, 14, 18–20, 23–24, 27–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L3, 6–7 Level 4 M2 Energy L1–3, 9, 12–15, 17–20, 22–26, 28 Level 4 M2 Spotlight Lessons on Earth and Space L6–7 Level 4 M3 Plants in the Environment L1–2, 5–7, 12–16, 18–19, 22–24

(2) Scientific and Engineering Practices

4.2: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.2A	Identify advantages and limitations of models such as their size, scale, properties, and materials.	Level 4 M1 Earth Features L9–10, 19, 24 Level 4 M3 Plants in the Environment L1, 5, 8–9, 12, 15, 19, 22–23
4.2B	Analyze data by identifying any significant features, patterns, or sources of error.	Level 4 M1 Earth Features L3–6, 8, 11, 21, 23, 25, 27–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L5–7 Level 4 M2 Energy L5, 7, 8, 10–11, 14, 18, 20, 28 Level 4 M2 Spotlight Lessons on Earth and Space L1, 3–7 Level 4 M3 Plants in the Environment L10–11, 14, 19–23
4.2C	Use mathematical calculations to compare patterns and relationships.	Level 4 M1 Spotlight Lessons on Mixtures and Solutions L6–7 Level 4 M2 Spotlight Lessons on Earth and Space L2, 6–7 Level 4 M3 Plants in the Environment L10–11
4.2D	Evaluate a design or object using criteria.	Level 4 M1 Earth Features L14–17 Level 4 M2 Energy L21, 23–24

(3) Scientific and Engineering Practices

4.3: The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.3A	Develop explanations and propose solutions supported by data and models.	Level 4 M1 Earth Features L4–6, 11–12, 14, 16, 18, 20, 23, 25, 27–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L5 Level 4 M2 Energy L1, 3, 5–13–15, 18–20, 24, 26–28 Level 4 M2 Spotlight Lessons on Earth and Space L2–4 Level 4 M3 Plants in the Environment L6–7, 12–13, 15–18, 22–24
4.3B	Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.	Level 4 M1 Earth Features L2, 4–5, 11–12, 16–18, 20–22, 24, 26–28 Level 4 M2 Energy L1–3, 6–7, 11–13, 16–18, 22, 27–28 Level 4 M2 Spotlight Lessons on Earth and Space L3–4 Level 4 M3 Plants in the Environment L22–24
4.3C	Listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion.	Level 4 M1 Earth Features L16, 18, 26 Level 4 M2 Energy L13, 26–27 Level 4 M2 Spotlight Lessons on Earth and Space L1–5 Level 4 M3 Plants in the Environment L22

(4) Scientific and Engineering Practices

4.4: The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.4A	Explain how scientific discoveries and innovative solutions to problems impact science and society.	Level 4 M1 Earth Features L13–14, 18, 21 Level 4 M2 Energy L20–21, 26
4.4B	Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.	Level 4 M2 Energy L22

(5) Recurring Themes and Concepts

4.5: The student understands that recurring themes and concepts provide a framework for making connections across disciplines. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.5A	Identify and use patterns to explain scientific phenomena or to design solutions.	Level 4 M1 Earth Features L1–6, 8, 12, 19, 23–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1–7 Level 4 M2 Energy L5, 7, 10, 15, 27–28 Level 4 M2 Spotlight Lessons on Earth and Space L1–7 Level 4 M3 Plants in the Environment L3–4, 7, 10–11, 14, 19, 23–24
4.5B	Identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.	Level 4 M1 Earth Features L7–8, 10–12, 14–16, 18, 22, 24–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1, 3–7 Level 4 M2 Energy L1, 3–15, 18–20, 22–23, 25, 28 Level 4 M2 Spotlight Lessons on Earth and Space L2–4 Level 4 M3 Plants in the Environment L20–21
4.5C	Use scale, proportion, and quantity to describe, compare, or model different systems.	Level 4 M1 Spotlight Lessons on Mixtures and Solutions L4 Level 4 M2 Spotlight Lessons on Earth and Space L5–7 Level 4 M3 Plants in the Environment L6, 12, 14–16, 19, 23–24
4.5D	Examine and model the parts of a system and their interdependence in the function of the system.	Level 4 M1 Earth Features L14, 17, 19–20, 23, 27 Level 4 M2 Energy L2, 14–19, 22–24, 26, 28 Level 4 M3 Plants in the Environment L1–2, 15–19, 24
4.5E	Investigate how energy flows and matter cycles through systems and how matter is conserved.	Level 4 M1 Spotlight Lessons on Mixtures and Solutions L4, 6–7 Level 4 M2 Energy L2–9, 11–15, 18–20, 23–28 Level 4 M3 Plants in the Environment L8–9, 12–21, 23–24
4.5F	Explain the relationship between the structure and function of objects, organisms, and systems.	Level 4 M2 Energy L22, 24 Level 4 M3 Plants in the Environment L1–2, 5–7, 23–24
4.5G	Explain how factors or conditions impact stability and change in objects, organisms, and systems.	Level 4 M1 Earth Features L20 Level 4 M2 Spotlight Lessons on Earth and Space L3, 6–7 Level 4 M3 Plants in the Environment L8–9, 20–21

(6) Matter and Energy

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

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.6A	Classify and describe matter using observable physical properties, including temperature, mass, magnetism, relative density (the ability to sink or float in water), and physical state (solid, liquid, gas).	Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1–7
4.6B	Investigate and compare a variety of mixtures, including solutions that are composed of liquids in liquids and solids in liquids.	Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1, 3–7
4.6C	Demonstrate that matter is conserved when mixtures such as soil and water or oil and water are formed.	Level 4 M1 Spotlight Lessons on Mixtures and Solutions L4, 6–7

(7) Force, Motion, and Energy

4.7: The student knows the nature of forces and the patterns of their interactions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.7	Plan and conduct descriptive investigations to explore the patterns of forces such as gravity, friction, or magnetism in contact or at a distance on an object.	Level 4 M1 Earth Features L7, 10 Level 4 M2 Energy L9–11, 22–23, 25–29

(8) Force, Motion, and Energy

4.8: The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.8A	Investigate and identify the transfer of energy by objects in motion, waves in water, and sound.	Level 4 M1 Earth Features L22 Level 4 M2 Energy L4–9, 11–13, 16–29
4.8B	Identify conductors and insulators of thermal and electrical energy.	Level 4 M2 Energy L14–20, 22, 24–29
4.8C	Demonstrate and describe how electrical energy travels in a closed path that can produce light and thermal energy.	Level 4 M2 Energy L2–5, 13–29

(9) Earth and Space

4.9: The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.9A	Collect and analyze data to identify sequences and predict patterns of change in seasons such as change in temperature and length of daylight.	Level 4 M2 Spotlight Lessons on Earth and Space L1–4, 6–7
4.9B	Collect and analyze data to identify sequences and predict patterns of change in the observable appearance of the Moon from Earth.	Level 4 M2 Spotlight Lessons on Earth and Space L1, 5–7

(10) Earth and Space

4.10: The student knows that there are processes on Earth that create patterns of change. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.10A	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.	Level 4 M3 Plants in the Environment L10–14, 18–19, 22–24
4.10B	Model and describe slow changes to Earth's surface caused by weathering, erosion, and deposition from water, wind, and ice.	Level 4 M1 Earth Features L1–5, 7–20, 26–28
4.10C	Differentiate between weather and climate.	Level 4 M3 Plants in the Environment L10–14, 22–24

(11) Earth and Space

4.11: The student understands how natural resources are important and can be managed. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
4.11A	Identify and explain advantages and disadvantages of using Earth's renewable and nonrenewable natural resources such as wind, water, sunlight, plants, animals, coal, oil, and natural gas.	Level 4 M1 Earth Features L20, 22, 25–28 Level 4 M2 Energy L1, 22, 25–26
4.11B	Explain the critical role of energy resources and how conservation, disposal, and recycling of natural resources impact the environment and modern life.	Level 4 M1 Earth Features L20–22, 24–28 Level 4 M1 Spotlight Lessons on Mixtures and Solutions L1
4.11C	Determine the physical properties of rocks that allow Earth's natural resources to be stored there.	Level 4 M1 Earth Features L23, 25–28 Level 4 M2 Energy L21–26

(12) Organisms and Environments

4.12: The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
4.12A	Investigate and explain how most producers can make their own food using sunlight, water, and carbon dioxide through the cycling of matter.	Level 4 M3 Plants in the Environment L8–9, 14–24
4.12B	Describe the cycling of matter and flow of energy through food webs, including the roles of the Sun, producers, consumers, and decomposers.	Level 4 M3 Plants in the Environment L15–19, 22–24
4.12C	Identify and describe past environments based on fossil evidence, including common Texas fossils.	Level 4 M1 Earth Features L3–6, 26–28

(13) Organisms and Environments

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

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
4.13A	Explore and explain how structures and functions of plants such as waxy leaves and deep roots enable them to survive in their environment.	Level 4 M3 Plants in the Environment L1–2, 5–7, 22–24
4.13B	Differentiate between inherited and acquired physical traits of organisms.	Level 4 M3 Plants in the Environment L3–4, 7, 22–24

PhD Science® Texas Correlation to the Texas Essential Knowledge and Skills (TEKS) for Science: Level 5

The *PhD Science Texas* Level 5 curriculum fully aligns with the Grade 5 TEKS for Science. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Grade 5 Knowledge and Skills

(1) Scientific and Engineering Practices

5.1: 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:

Standard	Student Expectation	Aligned PhD Science Texas Lessons
5.1A	Ask questions and define problems based on observations or information from text, phenomena, models, or investigations.	Level 5 M1 Earth Processes L1–6, 17 Level 5 M2 Ecosystems L1–2, 8–9, 11–13, 15, 23–24 Level 5 M3 Sun, Earth, and Moon System L1–3, 6–7, 14–15, 23–24 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1–4, 11
5.1B	Use scientific practices to plan and conduct descriptive and simple experimental investigations and use engineering practices to design solutions to problems.	Level 5 M1 Earth Processes L8, 10–11, 13–14, 17–21 Level 5 M2 Ecosystems L3–5, 8, 13, 15–16, 25–26 Level 5 M3 Sun, Earth, and Moon System L3, 8–9, 21, 24, 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–5, 12–14
5.1C	Demonstrate safe practices and the use of safety equipment during classroom and field investigations as outlined in Texas Education Agency-approved safety standards.	Level 5 M1 Earth Processes L3, 7–11, 13–14, 17–21 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L2, 4–5 Level 5 M2 Ecosystems L1, 4, 13, 16, 24–25 Level 5 M3 Sun, Earth, and Moon System L5, 21 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–9, 12–15

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.1D	Use tools, including calculators, microscopes, hand lenses, metric rulers, Celsius thermometers, prisms, concave and convex lenses, laser pointers, mirrors, digital scales, balances, spring scales, graduated cylinders, beakers, hot plates, meter sticks, magnets, collecting nets, notebooks, timing devices, materials for building circuits, materials to support observations of habitats or organisms such as terrariums and aquariums, and materials to support digital data collection such as computers, tablets, and cameras to observe, measure, test, and analyze information.	Level 5 M1 Earth Processes L13–14, 19–20 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L2–5 Level 5 M2 Ecosystems L4–7, 13–14, 16 Level 5 M3 Sun, Earth, and Moon System L1, 3–4, 12–13, 17 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–9, 12–15
5.1E	Collect observations and measurements as evidence.	Level 5 M1 Earth Processes L7–11, 13–16, 19–20, 23–24 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L1–7 Level 5 M2 Ecosystems L3–5, 10–12, 16–22 Level 5 M3 Sun, Earth, and Moon System L1, 3–4, 8, 12–14, 17–21, 24, 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1–14, 17
5.1F	Construct appropriate graphic organizers used to collect data, including tables, bar graphs, line graphs, tree maps, concept maps, Venn diagrams, flow charts or sequence maps, and input-output tables that show cause and effect.	Level 5 M1 Earth Processes L2, 6, 8–9, 12, 15–17, 21–23, 25 Level 5 M2 Ecosystems L2, 7, 9, 11–12, 17, 22, 27–28 Level 5 M3 Sun, Earth, and Moon System L1, 4, 20–21, 24 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–4, 12, 14, 16
5.1G	Develop and use models to represent phenomena, objects, and processes or design a prototype for a solution to a problem.	Level 5 M1 Earth Processes L1–16, 19–20, 23–25 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L6–7 Level 5 M2 Ecosystems L1–2, 6–7, 9–10, 17, 28–29 Level 5 M3 Sun, Earth, and Moon System L1–3, 5–23, 25 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1, 6–7, 9–17

(2) Scientific and Engineering Practices

5.2: 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:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.2A	Identify advantages and limitations of models such as their size, scale, properties, and materials.	Level 5 M1 Earth Processes L8–9, 13, 18 Level 5 M2 Ecosystems L8–9, 17, 23 Level 5 M3 Sun, Earth, and Moon System L2, 8, 12, 15, 19, 21 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2, 4
5.1B	Analyze data by identifying any significant features, patterns, or sources of error.	Level 5 M1 Earth Processes L22 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L4 Level 5 M2 Ecosystems L5–8, 18, 20 Level 5 M3 Sun, Earth, and Moon System L1, 4, 11, 15–16, 24, 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L3–5, 8–10, 13–14, 17
5.2C	Use mathematical calculations to compare patterns and relationships.	Level 5 M1 Spotlight Lessons on Physical Properties of Matter L2, 4, 6–7 Level 5 M3 Sun, Earth, and Moon System L15, 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L3–4
5.2D	Evaluate experimental and engineering designs.	Level 5 M1 Earth Processes L19–20 Level 5 M2 Ecosystems L3, 18 Level 5 M3 Sun, Earth, and Moon System L9 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L13–14

(3) Scientific and Engineering Practices

5.3: The student develops evidence-based explanations and communicates findings, conclusions, and proposed solutions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.3A	Develop explanations and propose solutions supported by data and models.	Level 5 M1 Earth Processes L1–16, 22–25 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L6–7 Level 5 M2 Ecosystems L3, 6–8, 13, 17–23, 28–29 Level 5 M3 Sun, Earth, and Moon System L3, 5, 7, 9–14, 16–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1, 3–6, 10, 13–17
5.3B	Communicate explanations and solutions individually and collaboratively in a variety of settings and formats.	Level 5 M1 Earth Processes L15–17, 20–21, 23–25 Level 5 M2 Ecosystems L5, 10–12, 14–15, 17–20, 24–26 Level 5 M3 Sun, Earth, and Moon System L3, 5, 7, 10–11, 26, 28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L5, 15
5.3C	Listen actively to others' explanations to identify relevant evidence and engage respectfully in scientific discussion.	Level 5 M1 Earth Processes L15–17, 20–21, 23 Level 5 M2 Ecosystems L1, 10–12, 17, 21–23, 27 Level 5 M3 Sun, Earth, and Moon System L6, 26–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L15

(4) Scientific and Engineering Practices

5.4: The student knows the contributions of scientists and recognizes the importance of scientific research and innovation for society. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.4A	Explain how scientific discoveries and innovative solutions to problems impact science and society.	Level 5 M1 Earth Processes L17–18 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L3, 5, 6–7 Level 5 M2 Ecosystems L24–26, 28–29 Level 5 M3 Sun, Earth, and Moon System L1, 6, 8–10, 21 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1
5.4B	Research and explore resources such as museums, libraries, professional organizations, private companies, online platforms, and mentors employed in a science, technology, engineering, and mathematics (STEM) field to investigate STEM careers.	Level 5 M1 Earth Processes L21 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L5

(5) Recurring Themes and Concepts

5.5: The student understands that recurring themes and concepts provide a framework for making connections across disciplines. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.5A	Identify and use patterns to explain scientific phenomena or to design solutions.	Level 5 M1 Earth Processes L8–9, 11, 24–25 Level 5 M2 Ecosystems L8–9, 12–14, 23–25 Level 5 M3 Sun, Earth, and Moon System L1, 3–4, 6, 8–11, 14–16, 20–22, 24–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1–5, 8, 11, 16–17
5.5B	Identify and investigate cause-and-effect relationships to explain scientific phenomena or analyze problems.	Level 5 M1 Earth Processes L1–3, 5–17, 24–25 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L3–7 Level 5 M2 Ecosystems L3–9, 13–14, 16–17, 23, 28–29 Level 5 M3 Sun, Earth, and Moon System L4–5, 8–13, 17–21, 25, 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–5, 11–17
5.5C	Use scale, proportion, and quantity to describe, compare, or model different systems.	Level 5 M1 Earth Processes L3–9, 13–14, 18–20, 22, 25 Level 5 M3 Sun, Earth, and Moon System L20–21
5.5D	Examine and model the parts of a system and their interdependence in the function of the system.	Level 5 M1 Earth Processes L3–6, 19–21, 25 Level 5 M2 Ecosystems L1–2, 6–9, 15, 17, 24–25 Level 5 M3 Sun, Earth, and Moon System L2, 6–16, 18–19, 22–23, 27–28 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1–4, 10, 12, 14
5.5E	Investigate how energy flows and matter cycles through systems and how matter is conserved.	Level 5 M1 Earth Processes L3–5, 25 Level 5 M2 Ecosystems L6–7, 9–16, 18–22, 24–29 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–4, 6–17
5.5F	Explain the relationship between the structure and function of objects, organisms, and systems.	Level 5 M2 Ecosystems L17, 19–20, 27–29 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L5, 10–15
5.5G	Explain how factors or conditions impact stability and change in objects, organisms, and systems.	Level 5 M1 Earth Processes L1–2, 7–18, 20, 24–25 Level 5 M1 Spotlight Lessons on Physical Properties of Matter L6–7 Level 5 M2 Ecosystems L23–26 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L3, 8–9

(6) Matter and Energy

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

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.6A	Compare and contrast matter based on measurable, testable, or observable physical properties, including mass, magnetism, relative density (sinking and floating using water as a reference point), physical state (solid, liquid, gas), volume, solubility in water, and the ability to conduct or insulate thermal energy and electric energy.	Level 5 M1 Spotlight Lessons on Physical Properties of Matter L1–7 Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L7, 10, 16–17
5.6B	Demonstrate and explain that some mixtures maintain physical properties of their substances such as iron filings and sand or sand and water.	Level 5 M1 Spotlight Lessons on Physical Properties of Matter L4–7
5.6C	Compare the properties of substances before and after they are combined into a solution and demonstrate that matter is conserved in solutions.	Level 5 M1 Spotlight Lessons on Physical Properties of Matter L4, 6–7
5.6D	Illustrate how matter is made up of particles that are too small to be seen such as air in a balloon.	Level 5 M1 Earth Processes L4–6, 13–14, 16, 23–25

(7) Force, Motion, and Energy

5.7: The student knows the nature of forces and the patterns of their interactions. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.7A	Investigate and explain how equal and unequal forces acting on an object cause patterns of motion and transfer of energy.	Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L1–5, 11–17
5.7B	Design a simple experimental investigation that tests the effect of force on an object in a system such as a car on a ramp or a balloon rocket on a string.	Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L2–5, 11–17

(8) Force, Motion, and Energy

5.8: The student knows that energy is everywhere and can be observed in cycles, patterns, and systems. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.8A	Investigate and describe the transformation of energy in systems such as energy in a flashlight battery that changes from chemical energy to electrical energy to light energy.	Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L6–17
5.8B	Demonstrate that electrical energy in complete circuits can be transformed into motion, light, sound, or thermal energy and identify the requirements for a functioning electrical circuit.	Level 5 M3 Spotlight Lessons on Forces, Motion, and Energy L6–17
5.8C	Demonstrate and explain how light travels in a straight line and can be reflected, refracted, or absorbed.	Level 5 M3 Sun, Earth, and Moon System L3–5, 12–13, 17–21, 25–28

(9) Earth and Space

5.9: The student recognizes patterns among the Sun, Earth, and Moon system and their effects. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.9	Demonstrate that Earth rotates on its axis once approximately every 24 hours and explain how that causes the day/night cycle and the appearance of the Sun moving across the sky, resulting in changes in shadow positions and shapes.	Level 5 M3 Sun, Earth, and Moon System L1–16, 18–19, 22–28

(10) Earth and Space

5.10: The student knows that there are recognizable patterns and processes on Earth. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas</i> Lessons
5.10A	Explain how the Sun and the ocean interact in the water cycle and affect weather.	Level 5 M1 Earth Processes L1–6, 17, 23–25
5.10B	Model and describe the processes that led to the formation of sedimentary rocks and fossil fuels.	Level 5 M1 Earth Processes L2, 13–16, 23–25
5.10C	Model and identify how changes to Earth's surface by wind, water, or ice result in the formation of landforms, including deltas, canyons, and sand dunes.	Level 5 M1 Earth Processes L1–2, 7–14, 23–25

(11) Earth and Space

5.11: The student understands how natural resources are important and can be managed. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
5.11	Design and explain solutions such as conservation, recycling, or proper disposal to minimize environmental impact of the use of natural resources.	Level 5 M1 Earth Processes L2, 17–25

(12) Organisms and Environments

5.12: The student describes patterns, cycles, systems, and relationships within environments. The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
5.12A	Observe and describe how a variety of organisms survive by interacting with biotic and abiotic factors in a healthy ecosystem.	Level 5 M2 Ecosystems L3–9, 13–17, 21–22, 24–25, 27–29
5.12B	Predict how changes in the ecosystem affect the cycling of matter and flow of energy in a food web.	Level 5 M2 Ecosystems L1–3, 5–7, 9, 14, 16–18, 22–23, 25–29
5.12C	Describe a healthy ecosystem and how human activities can be beneficial or harmful to an ecosystem.	Level 5 M2 Ecosystems L8, 23, 26–29

(13) Organisms and Environments

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

The student is expected to:

Standard	Student Expectation	Aligned <i>PhD Science Texas Lessons</i>
5.13A	Analyze the structures and functions of different species to identify how organisms survive in the same environment.	Level 5 M2 Ecosystems L10–11, 17, 19–20, 27–29
5.13B	Explain how instinctual behavioral traits such as turtle hatchlings returning to the sea and learned behavioral traits such as orcas hunting in packs increase chances of survival.	Level 5 M2 Ecosystems L11–12, 17, 27–29