PhD Science® K–5 Curriculum Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS)

Contents

PhD Science® Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS): Level K

The *PhD Science* Level K curriculum fully aligns with the Kindergarten 2023 Science WYCPS. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Kindergarten Science Content Standards

Physical Science (PS)

PS2	**Motion and Stability: Forces and Interactions**	**Aligned *PhD Science* Lessons**
K-PS2-1	Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.	Level K M2 L1–23

PS3	**Energy**	**Aligned *PhD Science* Lessons**
K-PS3-2	Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area.	Level K M1 L12–16, 28–30

Life Science (LS)

No Wyoming content standards exist for this domain for Kindergarten.

Earth and Space Systems (ESS)

ESS3	Earth and Human Activity	Aligned *PhD Science* Lessons
K-ESS3-1	Use a model to represent the relationship between the needs of different plants or animals (including humans) and the places they live.	Level K M3 L1–3, 9–29 Level K M4 L1–2, 8–9, 11–13

Engineering Technology and Application of Science (ETS)

ETS1	Engineering and Design	Aligned *PhD Science* Lessons
K–2-ETS1-2	Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem.	Level K M2 L17–20

Crosscutting Concepts

Crosscutting Concepts	Aligned *PhD Science* Lessons
1. Patterns	Level K M1 L17–30 Level K M2 L1–6, 17–20 Level K M3 L4–8, 14–20, 22, 26–29 Level K M4 L3–5
2. Cause and Effect	Level K M2 L4–23 Level K M3 L28–29 Level K M4 L3–5, 10, 14–19, 26–28
3. Scale, Proportion, and Quantity	Level K M1 L1–7, 10–24, 28–30 Level K M2 L7–9, 13–15, 21–23 Level K M3 L1–3 Level K M4 L25
4. Systems and System Models	Level K M3 L1–3, 9–13, 19–21, 23–25, 27–29 Level K M4 L1–9, 11–16
5. Energy and Matter	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
6. Structure and Function	Level K M1 L10–16 Level K M4 L20–24
7. Stability and Change	Level K M1 L8–9, 17–21 Level K M4 L14–16

Disciplinary Core Ideas

Physical Science	**Aligned *PhD Science* Lessons**
PS2: Motion and Stability: Forces and Interactions	Level K M2 L1–23
PS3: Energy	Level K M1 L8–16, 28–30

Earth and Space Science	**Aligned *PhD Science* Lessons**
ESS3: Earth and Human Activity	Level K M3 L1–3, 9–29 Level K M4 L1–5, 8–9, 11–16

Engineering, Technology, and Applications of Science	**Aligned *PhD Science* Lessons**
ETS1: Engineering Design	Level K M2 L17–20 Level K M4 L20–24

Science and Engineering Practices

Science and Engineering Practices	Aligned *PhD Science* Lessons
1. Asking Questions and Defining Problems	Level K M1 L1–9, 12–16, 22–26 Level K M2 L1–3, 9 Level K M3 L1–8, 14–16, 22, 27–29
2. Developing and Using Models	Level K M1 L1–2, 12–16 Level K M2 L1–3, 10–12 Level K M3 L1–3, 9–12, 19–20 Level K M4 L1–9, 11–16
3. Planning and Carrying Out Investigations	Level K M1 L4–7, 10–24, 27–30 Level K M2 L7–8, 10–23 Level K M3 L4–8, 21 Level K M4 L3–5
4. Analyzing and Interpreting Data	Level K M1 L4–7, 22–24 Level K M2 L4–8, 21–23 Level K M3 L1–20, 22–26 Level K M4 L1–2, 6–7, 10, 14–17, 20–28
5. Using Mathematics and Computational Thinking	Level K M1 L17–21, 25–30 Level K M2 L17–20
6. Constructing Explanations and Designing Solutions	Level K M2 L17–20 Level K M3 L4–16, 23–29
7. Engaging in Argument from Evidence	Level K M3 L17–21, 27–29 Level K M4 L3–5, 11–13, 17, 27–28
8. Obtaining, Evaluating, and Communicating Information	Level K M1 L12–16, 25–26, 28–30 Level K M2 L21–23 Level K M3 L23–29 Level K M4 L1–2, 6–10, 14–16, 18–24, 26–28

PhD Science® Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS): Level 1

The *PhD Science* Level 1 curriculum fully aligns with the First Grade 2023 Science WYCPS. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

First Grade Science Content Standards

Physical Science (PS)

PS4	Waves and Their Applications in Technologies for Information Transfer	Aligned *PhD Science* Lessons
1-PS4-4	Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance.	Level 1 M3 L18–29

Life Science (LS)

LS1	From Molecules to Organisms: Structures and Processes	Aligned *PhD Science* Lessons
1-LS1-1	Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	Level 1 M1 L1–21, 27–29

Earth and Space Science (ESS)

ESS1	Earth's Place in the Universe	Aligned *PhD Science* Lessons
1-ESS1-1	Use observations of the sun, moon, and stars to describe patterns that can be predicted.	Level 1 M4 L1–8, 14–25

Engineering Technology and Application of Science (ETS)

ETS1	Engineering and Design	Aligned *PhD Science* Lessons
K–2-ETS1-2	Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Level 1 M1 L11–15

Crosscutting Concepts

Crosscutting Concepts	Aligned *PhD Science* Lessons
1. Patterns	Level 1 M1 L1–6, 16–29 Level 1 M2 L1–9, 21–23 Level 1 M3 L1–7, 11–13, 17–20, 26–29 Level 1 M4 L1–25
2. Cause and Effect	Level 1 M2 L1–7, 10–23 Level 1 M3 L4–7, 14–17, 26–29 Level 1 M4 L4–6, 9–13, 17–21, 23–25
3. Scale, Proportion, and Quantity	Level K M1 L1–7, 10–24, 28–30 Level K M2 L7–9, 13–15, 21–23 Level K M3 L1–3 Level K M4 L25 Level 2 M1 L8–9 Level 2 M2 L18–21 Level 2 M3 L3–6, 14–18, 25–29 Level 2 M4 L1–6, 17–19, 22–25
4. Systems and System Models	Level 1 M1 L1–8, 16–17 Level 1 M2 L1–3, 10–23 Level 1 M3 L1–3, 8–10, 14, 21–29
5. Energy and Matter	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
6. Structure and Function	Level 1 M1 L4–15, 27–29 Level 1 M3 L8–9
7. Stability and Change	Level K M1 L8–9, 17–21 Level K M4 L14–16 Level 2 M2 L1–2, 18–24 Level 2 M3 L1–2, 25–29

Disciplinary Core Ideas

Physical Science	**Aligned *PhD Science* Lessons**
PS4: Waves and Their Applications in Technologies for Information Transfer	Level 1 M3 L18–29

Life Science	**Aligned *PhD Science* Lessons**
LS1: From Molecules to Organisms: Structures and Processes	Level 1 M1 L1–15, 27–29

Earth and Space Science	**Aligned *PhD Science* Lessons**
ESS1: Earth's Place in the Universe	Level 1 M4 L1–25

Engineering, Technology, and Applications of Science	**Aligned *PhD Science* Lessons**
ETS1: Engineering Design	Level 1 M1 L11–15

Science and Engineering Practices

Science and Engineering Practices	Aligned *PhD Science* Lessons
1. Asking Questions and Defining Problems	Level 1 M1 L1–3, 11–15 Level 1 M2 L1–3 Level 1 M3 L1–3 Level 1 M4 L1–3, 14–16
2. Developing and Using Models	Level 1 M1 L1–9, 11–15, 18, 28–29 Level 1 M2 L1–7, 10–23 Level 1 M3 L7, 11–14 Level 1 M4 L1–3, 7–8
3. Planning and Carrying Out Investigations	Level 1 M1 L19–20 Level 1 M2 L4–12, 15–18, 22–23 Level 1 M3 L1–9, 11–13, 15–29 Level 1 M4 L1–6, 14–16, 19–21
4. Analyzing and Interpreting Data	Level 1 M1 L10, 16–21, 27–29 Level 1 M2 L1–9 Level 1 M3 L8–13, 15–16, 26–29 Level 1 M4 L4–6, 9–13
5. Using Mathematics and Computational Thinking	Level 1 M2 L15–18 Level 1 M3 L21–25
6. Constructing Explanations and Designing Solutions	Level 1 M1 L7–8, 11–17, 22–23, 26–29 Level 1 M2 L4–7, 21–23 Level 1 M3 L4–6, 14, 21–29
7. Engaging in Argument from Evidence	Level 1 M3 L4–6, 8–9, 18–20 Level 1 M4 L4–25
8. Obtaining, Evaluating, and Communicating Information	Level 1 M1 L24–25, 27–29 Level 1 M2 L21–23 Level 1 M3 L18–19, 26–29 Level 1 M4 L9–18, 23–25

PhD Science® Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS): Level 2

The *PhD Science* Level 2 curriculum fully aligns with the Second Grade 2016 Wyoming Science Content and Performance Standards . A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Second Grade Science Content Standards

Physical Science (PS)

PS1	Matter and Its Interactions	Aligned *PhD Science* Lessons
2-PS1-2	Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for the intended purpose.	Level 2 M1 L20–31

Life Science (LS)

LS2	Ecosystems: Interactions, Energy, and Dynamics	Aligned *PhD Science* Lessons
2-LS2-2	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	Level 2 M3 L8–29

LS4	Biological Evolution: Unity and Diversity	Aligned *PhD Science* Lessons
2-LS4-1	Make observations of plants and animals to compare the diversity of life in different habitats.	Level 2 M4 L1–3, 7–25

Earth and Space Science (ESS)

ESS2	Earth's Systems	Aligned *PhD Science* Lessons
2-ESS2-1	Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land.	Level 2 M2 L1–17, 20, 22–24
2-ESS2-3	Obtain information to identify where water is found on Earth and that it can be solid or liquid.	Level 2 M4 L1–6, 16, 22–25

Engineering Technology and Application of Science (ETS)

ETS1	Engineering and Design	Aligned *PhD Science* Lessons
K–2-ETS1-3	Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs.	Level 2 M2 L8–12, 14–17

Crosscutting Concepts

Crosscutting Concepts	Aligned *PhD Science* Lessons
1. Patterns	Level 2 M1 L4–9 Level 2 M2 L1–2, 5–6 Level 2 M4 L1–8, 11–15, 20–21, 23–25
2. Cause and Effect	Level 2 M1 L14–19, 29–31 Level 2 M2 L8–12, 20–21 Level 2 M3 L3–11
3. Scale, Proportion, and Quantity	Level 2 M1 L8–9 Level 2 M2 L18–21 Level 2 M3 L3–6, 14–18, 25–29 Level 2 M4 L1–6, 17–19, 22–25
4. Systems and System Models	Level 2 M1 L1–7, 12–13, 20–23, 29–31 Level 2 M2 L3–4, 7–12, 14–17 Level 2 M3 L8–13, 19–24 Level 2 M4 L7–16, 23–25
5. Energy and Matter	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
6. Structure and Function	Level 2 M1 L24–28 Level 2 M2 L14–17 Level 2 M3 L8–11, 14–22
7. Stability and Change	Level 2 M2 L1–2, 18–24 Level 2 M3 L1–2, 25–29

Disciplinary Core Ideas

Physical Science	**Aligned *PhD Science* Lessons**
PS1: Matter and Its Interactions	Level 2 M1 L20–31

Life Science	**Aligned *PhD Science* Lessons**
LS2: Ecosystems: Interactions, Energy, and Dynamics	Level 2 M3 L8–29
LS4: Biological Evolution: Unity and Diversity	Level 2 M4 L1–3, 7–25

Earth and Space Science	**Aligned *PhD Science* Lessons**
ESS2: Earth's Systems	Level 2 M2 L1–17, 20, 22–24

Engineering, Technology, and Applications of Science	**Aligned *PhD Science* Lessons**
ETS1: Engineering Design	Level 2 M2 L8–12, 14–17

Science and Engineering Practices

Science and Engineering Practices	Aligned *PhD Science* Lessons
1. Asking Questions and Defining Problems	Level 2 M1 L1–3 Level 2 M2 L1–2 Level 2 M3 L1–6, 14–18 Level 2 M4 L1–3
2. Developing and Using Models	Level 2 M1 L1–3, 14–16, 19, 29–31 Level 2 M2 L1–2, 14–17, 20–24 Level 2 M3 L1–6, 8–12, 14–20, 23–29 Level 2 M4 L1–8, 20–21, 23–25
3. Planning and Carrying Out Investigations	Level 2 M1 L1–3, 17–18, 20–22, 24–31 Level 2 M2 L1–6, 8–12, 14–19, 22–24 Level 2 M3 L3–11, 13, 21–22, 25–29 Level 2 M4 L16–19
4. Analyzing and Interpreting Data	Level 2 M1 L4–11, 14–18, 20–22, 24–28 Level 2 M2 L5–6, 8–9 Level 2 M3 L14–20 Level 2 M4 L22–25
5. Using Mathematics and Computational Thinking	Level 2 M1 L20–22 Level 2 M2 L14–17 Level 2 M3 L8–11, 23–29 Level 2 M4 L7–8, 17–22
6. Constructing Explanations and Designing Solutions	Level 2 M1 L8–9, 12–13, 17–19, 23–31 Level 2 M2 L3–4, 7–17, 22–24 Level 2 M4 L23–25

Science and Engineering Practices	Aligned *PhD Science* Lessons
7. Engaging in Argument from Evidence	Level 2 M2 L3–4, 10–13, 20–24 Level 2 M3 L14–18, 21–22 Level 2 M4 L4–6, 9–13, 16, 20–21, 23–25
8. Obtaining, Evaluating, and Communicating Information	Level 2 M1 L29–31 Level 2 M2 L1–2, 5–6, 14–19, 22–24 Level 2 M3 L8–12, 14–20, 25–29 Level 2 M4 L4–9, 11–16, 23–25

PhD Science® Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS): Level 3

The *PhD Science* Level 3 curriculum fully aligns with the Third Grade 2023 Science WYCPS. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Third Grade Science Content & Performance Standards

Physical Science (PS)

PS2	**Motion and Stability: Forces and Interactions**	**Aligned *PhD Science* Lessons**
3-PS2-3	Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other.	Level 3 M4 L19–21, 28–30

Life Science (LS)

LS3	**Heredity: Inheritance and Variation of Traits**	**Aligned *PhD Science* Lessons**
3-LS3-1	Analyze and interpret data to provide evidence that plants and animals have traits inherited from parents and that variation of these traits exists in a group of similar organisms.	Level 3 M3 L1–6, 14–18, 26–28

LS4	**Biological Evolution: Unity and Diversity**	**Aligned *PhD Science* Lessons**
3-LS4-4	Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change.	Level 3 M2 L16–28

Earth and Space Science (ESS)

ESS3	Earth and Human Activity	Aligned *PhD Science* Lessons
3-ESS3-1	Make a claim about the effectiveness of a design solution that reduces the impacts of a weather-related hazard.	Level 3 M1 L1–3, 16–29

Engineering Technology and Application of Science (ETS)

ETS1	Engineering and Design	Aligned *PhD Science* Lessons
3–5-ETS1-1	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.	Level 3 M1 L21–26

Crosscutting Concepts

Crosscutting Concepts	Aligned *PhD Science* Lessons
1. Patterns	Level 3 M1 L11–15, 19–20, 27–29 Level 3 M2 L3–8, 13–15, 27–28 Level 3 M3 L1–8, 14–18, 26–28 Level 3 M4 L1–9, 28–30
2. Cause and Effect	Level 3 M1 L1–3, 16–18, 21–29 Level 3 M2 L9–12, 16–28 Level 3 M3 L9–13, 19–25, 27–28 Level 3 M4 L1–3, 10–30
3. Scale, Proportion, and Quantity	Level 3 M1 L4–10 Level 3 M2 L1–2, 27–28 Level 3 M3 L1–3, 14–15
4. Systems and System Models	Level 3 M1 L1–3, 16–20 Level 3 M2 L6–15, 20–28 Level 3 M3 L9–11 Level 3 M4 L1–30
5. Energy and Matter	Level 4 M2 L1–3, 8–26 Level 4 M3 L10–19, 30–31 Level 5 M1 L5–8, 13–14, 23–26 Level 5 M2 L6–11, 14–19, 24–26 Level 5 M3 L10–11 Level 5 M4 L3–4
6. Structure and Function	Level 3 M2 L1–3, 9–12 Level 3 M3 L4–6, 21–28
7. Stability and Change	Level 3 M1 L4–15, 27–29 Level 3 M2 L16–19 Level 3 M3 L7–8, 12–13, 19–20, 26–28

Disciplinary Core Ideas

Physical Science	**Aligned *PhD Science* Lessons**
PS2: Motion and Stability: Forces and Interactions	Level 3 M4 L19–30

Life Science	**Aligned *PhD Science* Lessons**
LS3: Heredity: Inheritance and Variation of Traits	Level 3 M3 L14–18, 26–28
LS4: Biological Evolution: Unity and Diversity	Level 3 M2 L16–28

Earth and Space Science	**Aligned *PhD Science* Lessons**
ESS3: Earth and Human Activity	Level 3 M1 L1–3, 16–29

Engineering, Technology, and Applications of Science	**Aligned *PhD Science* Lessons**
ETS1: Engineering Design	Level 3 M1 L21–26

Science and Engineering Practices

Science and Engineering Practices	Aligned *PhD Science* Lessons
1. Asking Questions and Defining Problems	Level 3 M1 L1–3, 21–26, 28–29 Level 3 M2 L1–2 Level 3 M3 L1–3, 12–13 Level 3 M4 L1–3, 7–9, 15–16, 19–30
2. Developing and Using Models	Level 3 M1 L1–3, 19–20 Level 3 M2 L1–3, 6–12, 22–25, 27–28 Level 3 M3 L7–11, 21–25, 27–28 Level 3 M4 L1–3, 17–18, 23–30
3. Planning and Carrying Out Investigations	Level 3 M2 L4–5 Level 3 M3 L12–13 Level 3 M4 L7–18, 23–30
4. Analyzing and Interpreting Data	Level 3 M1 L4–15, 19–20, 27–29 Level 3 M2 L3–8, 16–19, 27–28 Level 3 M3 L4–9, 14–20, 27–28 Level 3 M4 L7–9
5. Using Mathematics and Computational Thinking	Level 3 M1 L4–12 Level 3 M2 L3, 16–19 Level 3 M3 L7–8 Level 3 M4 L23–27
6. Constructing Explanations and Designing Solutions	Level 3 M1 L13–15, 18, 21–29 Level 3 M2 L6–8, 22–28 Level 3 M3 L9–11, 14–15, 21–28 Level 3 M4 L10–14, 19–21, 28–30

Science and Engineering Practices	Aligned *PhD Science* Lessons
7. Engaging in Argument from Evidence	Level 3 M1 L21–26, 28–29 Level 3 M2 L9–15, 20–21, 27–28 Level 3 M3 L16–20 Level 3 M4 L12–14
8. **Obtaining, Evaluating, and Communicating Information**	Level 3 M1 L11–17, 28–29 Level 3 M2 L13–15, 20–21 Level 3 M4 L22

PhD Science® Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS): Level 4

The *PhD Science* Level 4 curriculum fully aligns with the Fourth Grade 2023 Science WYCPS. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Fourth Grade Science Content & Performance Standards

Physical Science (PS)

PS3	**Energy**	**Aligned *PhD Science* Lessons**
4-PS3-4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.	Level 4 M2 L12–26

PS4	**Waves and Their Applications in Technologies for Information Transfer**	**Aligned *PhD Science* Lessons**
4-PS4-1	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.	Level 4 M3 L7–14, 29–31
4-PS4-3	Generate and compare multiple solutions that use patterns to transmit information.	Level 4 M4 L18–27

Life Science (LS)

LS1	**From Molecules to Organisms: Structures and Processes**	**Aligned *PhD Science* Lessons**
4-LS1-1	Construct an argument that plants and animals have internal and external structures that function together in a system to support survival, growth, behavior, and reproduction.	Level 4 M3 L1–6, 20, 26–31

Earth and Space Science (ESS)

ESS1	Earth's Place in the Universe	Aligned *PhD Science* Lessons
4-ESS1-1	Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.	Level 4 M1 L1–5, 19–20, 25–27

Engineering Technology and Application of Science (ETS)

ETS1	Engineering and Design	Aligned *PhD Science* Lessons
3–5-ETS1-2	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.	Level 4 M1 L12–17 Level 4 M4 L14–17

Crosscutting Concepts

Crosscutting Concepts	Aligned *PhD Science* Lessons
1. Patterns	Level 4 M1 L1–5, 18–20, 26–27 Level 4 M2 L4–5, 8–11, 24–26 Level 4 M3 L1–3, 7–11, 20, 24–31 Level 4 M4 L1–4, 7–8, 14–17, 22–27
2. Cause and Effect	Level 4 M1 L6–17, 21–27 Level 4 M2 L1–7, 10–14, 24–26 Level 4 M3 L6–23, 30–31 Level 4 M4 L3–13, 18–21, 25–27
3. Scale, Proportion, and Quantity	Level 4 M1 L3–5
4. Systems and System Models	Level 4 M1 L1–2, 12–17, 21–24 Level 4 M2 L1–11, 15–26 Level 4 M3 L7–9, 15–19, 21–23, 26–28, 30–31 Level 4 M4 L1–6, 10–27
5. Energy and Matter	Level 4 M2 L1–3, 8–26 Level 4 M3 L10–19, 30–31
6. Structure and Function	Level 4 M3 L4–6, 20, 24–25, 29–31 Level 4 M4 L7–9, 25–27
7. Stability and Change	Level 4 M1 L3–11, 18–20, 25–27

Disciplinary Core Ideas

Physical Science	**Aligned *PhD Science* Lessons**
PS3: Energy	Level 4 M2 L12–14, 24–26
PS4: Waves and Their Applications in Technologies for Information Transfer	Level 4 M3 L7–14, 29–31 Level 4 M4 L18–27

Life Science	**Aligned *PhD Science* Lessons**
LS1: From Molecules to Organisms: Structures and Processes	Level 4 M3 L1–6, 20, 26–31

Earth and Space Science	**Aligned *PhD Science* Lessons**
ESS1: Earth's Place in the Universe	Level 4 M1 L1–5, 19–20, 25–27

Engineering, Technology, and Applications of Science	**Aligned *PhD Science* Lessons**
ETS1: Engineering Design	Level 4 M1 L12–17 Level 4 M4 L14–17

Science and Engineering Practices

Science and Engineering Practices	Aligned *PhD Science* Lessons
1. Asking Questions and Defining Problems	Level 4 M1 L1–2, 12–17, 23 Level 4 M2 L1–3, 8–9, 11, 17–23, 25–26 Level 4 M3 L1–3, 6, 15–19 Level 4 M4 L1–2, 14–17
2. Developing and Using Models	Level 4 M1 L1–2, 26–27 Level 4 M2 L1–3, 8–11, 15–16, 25–26 Level 4 M3 L1–3, 7–14, 30–31 Level 4 M4 L1–8, 10–24, 26–27
3. Planning and Carrying Out Investigations	Level 4 M1 L8–11, 21–22 Level 4 M2 L6–7, 10–14 Level 4 M3 L15–19 Level 4 M4 L7–9, 14–21, 26–27
4. Analyzing and Interpreting Data	Level 4 M1 L12–20, 23–24, 26–27 Level 4 M2 L25–26 Level 4 M4 L10–17
5. Using Mathematics and Computational Thinking	Level 4 M2 L8–9 Level 4 M4 L14–17
6. Constructing Explanations and Designing Solutions	Level 4 M1 L3–7, 10, 12–18, 21–22, 25–27 Level 4 M2 L4–5, 15–26 Level 4 M3 L4–5, 24–25, 29–31 Level 4 M4 L14–27
7. Engaging in Argument from Evidence	Level 4 M3 L21–23, 26–28, 30–31 Level 4 M4 L7–8
8. Obtaining, Evaluating, and Communicating Information	Level 4 M1 L3–5, 23–24 Level 4 M3 L4–6, 10–11, 20–23, 26–28, 30–31 Level 4 M4 L22–24

PhD Science® Correlation to the 2023 Science Wyoming Content and Performance Standards (WYCPS): Level 5

The *PhD Science* Level 5 curriculum fully aligns with the Fifth Grade 2023 Science WYCPS. A detailed analysis of alignment follows.

Key: Module (M), Lesson (L)

Fifth Grade Science Content & Performance Standards

Physical Science (PS)

PS1	**Matter and Its Interactions**	**Aligned *PhD Science* Lessons**
5-PS1-4	Conduct an investigation to determine whether the mixing of two or more substances results in new substances.	Level 5 M1 L1–2, 13–26

PS3	**Energy**	**Aligned *PhD Science* Lessons**
5-PS3-1	Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.	Level 5 M2 L15–19, 24–26

Life Science (LS)

LS2	**Ecosystems: Interactions, Energy, and Dynamics**	**Aligned *PhD Science* Lessons**
5-LS2-1	Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.	Level 5 M2 L1–2, 6–14, 20, 24–26

Earth and Space Science (ESS)

ESS1	Earth's Place in the Universe	Aligned *PhD Science* Lessons
5-ESS1-2	Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.	Level 5 M4 L1–2, 5–17, 20–26

ESS3	Earth and Human Activity	Aligned *PhD Science* Lessons
5-ESS3-1	Evaluate potential solutions to problems that individual communities face in protecting the Earth's resources and environment.	Level 5 M3 L14–18, 24–27

Engineering Technology and Application of Science (ETS)

ETS1	Engineering and Design	Aligned *PhD Science* Lessons
3–5-ETS1-3	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.	Level 5 M1 L18–22

Crosscutting Concepts

Crosscutting Concepts	Aligned *PhD Science* Lessons
1. Patterns	Level 5 M1 L7–8 Level 5 M2 L1–5, 8–9, 15–17, 25–26 Level 5 M3 L6–9 Level 5 M4 L1–17, 20–26
2. Cause and Effect	Level 5 M1 L1–2, 5–6, 9–10, 18–22, 24–26 Level 5 M2 L3–7, 12–13, 18–23, 25–26 Level 5 M3 L6–8, 12–18, 25–27 Level 5 M4 L5–6, 24–26
3. Scale, Proportion, and Quantity	Level 5 M1 L3–4, 13–17, 23–26 Level 5 M2 L10–11 Level 5 M3 L1–5, 10–11, 24–27 Level 5 M4 L18–19, 24–26
4. Systems and System Models	Level 5 M1 L3–4, 15–17 Level 5 M2 L1–2, 6–11, 14, 18–19, 24–26 Level 5 M3 L1–9, 12–13, 19–27 Level 5 M4 L1–2, 7–26
5. Energy and Matter	Level 5 M1 L5–8, 13–14, 23–26 Level 5 M2 L6–11, 14–19, 24–26 Level 5 M3 L10–11 Level 5 M4 L3–4
6. Structure and Function	Level 3 M2 L1–3, 9–12 Level 3 M3 L4–6, 21–28 Level 4 M3 L4–6, 20, 24–25, 29–31 Level 4 M4 L7–9, 25–27
7. Stability and Change	Level 5 M1 L1–2, 9–12, 18–26 Level 5 M2 L12–13, 20, 24–26 Level 5 M3 L14–18 Level 5 M4 L5–6, 9–12, 24–26

Disciplinary Core Ideas

Physical Science	**Aligned *PhD Science* Lessons**
PS1: Matter and Its Interactions	Level 5 M1 L1–2, L9–26
PS3: Energy	Level 5 M2 L6–7, 15–19, 24–26

Life Science	**Aligned *PhD Science* Lessons**
LS2: Ecosystems: Interactions, Energy, and Dynamics	Level 5 M2 L1–2, 6–14, 20, 24–26

Earth and Space Science	**Aligned *PhD Science* Lessons**
ESS1: Earth's Place in the Universe	Level 5 M4 L1–2, 5–17, 20–26
ESS3: Earth and Human Activity	Level 5 M3 L14–27

Engineering, Technology, and Applications of Science	**Aligned *PhD Science* Lessons**
ETS 1: Engineering Design	Level 5 M1 L18–22 Level 5 M2 L21–23 Level 5 M3 L19–23

Science and Engineering Practices

Science and Engineering Practices	Aligned *PhD Science* Lessons
1. Asking Questions and Defining Problems	Level 5 M1 L1–2 Level 5 M2 L1–2, 21–23 Level 5 M3 L1–3, 19–23 Level 5 M4 L1–2, 13
2. Developing and Using Models	Level 5 M1 L1–2, 5–10, 13–14, 23–26 Level 5 M2 L1–2, 6–7, 14, 20, 25–26 Level 5 M3 L1–3, 6–16, 24–27 Level 5 M4 L1–4, 7–17, 19–26
3. Planning and Carrying Out Investigations	Level 5 M1 L13–14, 18–22, 24–26 Level 5 M2 L3–5 Level 5 M3 L10–11 Level 5 M4 L5–6, 18–19, 25–26
4. Analyzing and Interpreting Data	Level 5 M1 L15–17, 24–26 Level 5 M2 L3–5, 8–13, 15–17, 25–26 Level 5 M3 L4–5, 14–16, 25–27 Level 5 M4 L14–15
5. Using Mathematics and Computational Thinking	Level 5 M1 L3–4, 15–17 Level 5 M3 L10–11, 24–27 Level 5 M4 L5–6, 25–26
6. Constructing Explanations and Designing Solutions	Level 5 M1 L5–6, 11–12, 18–26 Level 5 M2 L12–13, 15–17, 21–26 Level 5 M3 L17–23, 25–27 Level 5 M4 L3–4, 9–12, 20–21, 22–26

Science and Engineering Practices	Aligned *PhD Science* Lessons
7. Engaging in Argument from Evidence	Level 5 M1 L3–4, 24–26 Level 5 M2 L3–5, 8–11, 21–23, 25–26 Level 5 M3 L19–23, 25–27 Level 5 M4 L5–6, 13–17, 20–21, 24–26
8. Obtaining, Evaluating, and Communicating Information	Level 5 M2 L6–7, 10–11, 18–20, 25–26 Level 5 M3 L9, 14–16, 19–27 Level 5 M4 L18–19