



Nebraska’s College and Career Ready Standards for Science (CCR-Science) Correlation to *PhD Science*®

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Key: Module (M), Lesson(L)

PhD Science Level K

The Grade K Nebraska’s College and Career Ready Standards for Science (CCR-Science) are fully covered by the Level K *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Kindergarten Standards and Indicators

SC.K.1 Forces and Interactions: Pushes and Pulls		Aligned <i>PhD Science</i> Lessons
SC.K.1.1 Gather, analyze, and communicate evidence of forces and their interactions.		Level K M2 L1–23
SC.K.1.1.A	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
SC.K.1.1.B	Analyze data to determine if a design solution works as intended <u>to change</u> the speed or direction of an object with a push or a pull.	Level K M2 L17–23

SC.K.7 Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment		Aligned <i>PhD Science</i> Lessons
SC.K.7.2 Gather, analyze, and communicate evidence of interdependent relationships in ecosystems.		Level K M3 L1–29 Level K M4 L1–28
SC.K.7.2.A	Use observations to describe <u>patterns</u> of what plants and animals (including humans) need to survive.	Level K M3 L4–16, 19–22, 27–29
SC.K.7.2.B	Construct an argument supported by evidence for how <u>plants and animals (including humans) can change the environment</u> to meet their needs.	Level K M4 L1–10, 14–16, 26–28
SC.K.7.2.C	Use a model to represent <u>the relationship between the needs</u> of different plants or animals (including humans) <u>and the places</u> they live.	Level K M3 L1–3, 9–29 Level K M4 L1–2, 8–9, 11–13
SC.K.7.2.D	Communicate solutions that will increase the positive <u>impact</u> of humans on the land, water, air, and/or other living things in the local environment.	Level K M4 L14–24, 26–28
SC.K.12 Weather and Climate		Aligned <i>PhD Science</i> Lessons
SC.K.12.3 Gather, analyze, and communicate evidence of weather and climate.		Level K M1 L1–30 Level K M4 L25
SC.K.12.3.A	Use and share observations of local weather conditions <u>to describe patterns</u> over time.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
SC.K.12.3.B	Ask questions to obtain information about the purpose of <u>weather forecasting</u> to prepare for, and respond to, severe weather.	Level K M1 L22–30
SC.K.12.3.C	Make observations to determine the effect of sunlight on Earth’s surface.	Level K M1 L8–11, 28–30
SC.K.12.3.D	Use tools and materials to design and build a structure that will reduce the warming <u>effect</u> of sunlight on an area.	Level K M1 L12–16, 28–30
SC.K.12.3.E	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 K M1 L12–16

Science and Engineering Practices		
1	Asking Questions and Defining Problems	Aligned <i>PhD Science</i> Lessons
		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	Aligned <i>PhD Science</i> Lessons
		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	Aligned <i>PhD Science</i> Lessons
		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	Aligned <i>PhD Science</i> Lessons
		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	Aligned <i>PhD Science</i> Lessons
		Level K M1 L17–21, 25–30 Level K M2 L17–20
6	Constructing Explanations and Designing Solutions	Aligned <i>PhD Science</i> Lessons
		Level K M2 L17–20 Level K M3 L4–16, 23–29

7	Engaging in Argument from Evidence		Aligned <i>PhD Science</i> Lessons
			Level K M3 L17–21, 27–29 Level K M4 L3–5, 11–13, 25
8	Obtaining, Evaluating, and Communicating Information		Aligned <i>PhD Science</i> Lessons
			Level K M1 L12–16, 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

Disciplinary Core Ideas			
Physical Science			Aligned <i>PhD Science</i> Lessons
PS 2	Motion and Stability: Forces and Interactions		Level K M2 L1–23
PS 3	Energy		Level K M1 L8–16, 28–30

Life Science			Aligned <i>PhD Science</i> Lessons
LS 1	From Molecules to Organisms: Structures and Processes		Level K M3 L4–16, 19–22, 27–29


Earth and Space Science			Aligned <i>PhD Science</i> Lessons
ESS 2	Earth's Systems		Level K M1 L1–11, 17–24, 28–30 Level K M4 L1–10, 14–16, 25–28
ESS 3	Earth and Human Activity		Level K M1 L22–30 Level K M3 L1–3, 9–29 Level K M4 L1–2, 8–9, 11–24, 26–28


Engineering, Technology, and the Applications of Science			Aligned <i>PhD Science</i> Lessons
ETS 1	Engineering Design		Level K M1 L12–16 Level K M2 L17–20 Level K M4 L20–24

Crosscutting Concepts		Aligned <i>PhD Science</i> 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 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
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

Connections to Engineering, Technology, and Applications of Science		Aligned <i>PhD Science</i> Lessons
Interdependence of Science, Engineering, and Technology		
<ul style="list-style-type: none"> People encounter questions about the natural world every day. 		Level K M3 L1–3 Level K M4 L25
Influence of Engineering, Technology, and Science on Society and the Natural World		
<ul style="list-style-type: none"> Taking natural materials to make things impacts the environment. 		Level K M4 L11–13
<ul style="list-style-type: none"> People depend on various technologies in their lives; human life would be very different without technology. 		Level K M4 L18–19

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Key: Module (M), Lesson (L)

PhD Science Level 1

The Grade 1 Nebraska’s College and Career Ready Standards for Science (CCRS-Science) are fully covered by the Level 1 *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Grade 1 Performance Expectations		Aligned <i>PhD Science</i> Lessons
SC.1.2 Waves: Light and Sound		
SC.1.2.1 Gather, analyze, and communicate evidence of light and sound waves.		Level 1 M3 L1–29
SC.1.2.1.A	Plan and conduct investigations to provide evidence that vibrating materials <u>can make</u> sound and that sound <u>can make</u> materials vibrate.	Level 1 M3 L1–17, 26–29
SC.1.2.1.B	Make observations to construct an evidence-based account that objects can be seen <u>only when illuminated</u> .	Level 1 M2 L1–9, 21–23
SC.1.2.1.C	Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light.	Level 1 M2 L1–3, 10–23
SC.1.2.1.D	Use tools and materials to design and build a <u>device that uses light or sound to solve the problem of communicating over a distance</u> .	Level 1 M3 L18–29

SC.1.6 Structure, Function, and Information Processing		Aligned <i>PhD Science</i> Lessons
SC.1.6.2 Gather, analyze, and communicate evidence to show the relationship between structure and function in living things.		Level 1 M1 L1–29
SC.1.6.2.A	Use materials to design a solution to a human problem by <u>mimicking how plants and/or animals</u> use their external parts to help them survive, grow, and meet their needs.	Level 1 M1 L1–21, 27–29
SC.1.6.2.B	Develop a simple sketch, drawing, or physical model to illustrate how the <u>shape of an object helps it function</u> as needed to solve a given problem.	Level 1 M3 L21–25
SC.1.6.2.C	Read texts and use media to determine patterns in a behavior of parents and offspring that help offspring survive.	Level 1 M1 L24–29
SC.1.6.2.D	Make observations to construct an evidence-based account that young plants and animals <u>are like, but not exactly like</u> , their parents.	Level 1 M1 L22–23, 26–29
SC.1.11 Space Systems: Patterns and Cycles		Aligned <i>PhD Science</i> Lessons
SC.1.11.3 Gather, analyze, and communicate evidence of patterns and cycles of space systems.		Level 1 M4 L1–25
SC.1.11.3.A	Use observations of the sun, moon, and stars <u>to describe patterns</u> that can be predicted.	Level 1 M4 L1–8, 14–25
SC.1.11.3.B	Make observations at different times of the year <u>to relate the amount of daylight to the time of year</u> .	Level 1 M4 L9–13, 23–25

Science and Engineering Practices		
1	Asking Questions and Defining Problems	Aligned <i>PhD Science</i> Lessons
		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	Aligned <i>PhD Science</i> Lessons
		Level 1 M1 L1–9, 11–15, 18 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	Aligned <i>PhD Science</i> Lessons
		Level 1 M1 L19–20 Level 1 M2 L4–12, 15–18, 20–23 Level 1 M3 L1–9, 11–13, 15–29 Level 1 M4 L1–6, 14–16, 19–21
4	Analyzing and Interpreting Data	Aligned <i>PhD Science</i> Lessons
		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, L9–13
5	Using Mathematics and Computational Thinking	Aligned <i>PhD Science</i> Lessons
		Level 1 M2 L15–18 Level 1 M3 L21–25
6	Constructing Explanations and Designing Solutions	Aligned <i>PhD Science</i> Lessons
		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		Aligned <i>PhD Science</i> Lessons
			Level 1 M3 L4–6, 8–9, 18–20 Level 1 M4 L4–25
8	Obtaining, Evaluating, and Communicating Information		Aligned <i>PhD Science</i> Lessons
			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

Disciplinary Core Ideas			
Physical Science			Aligned <i>PhD Science</i> Lessons
PS 4	Waves and Their Applications in Technologies for Information Transfer		Level 1 M2 L1–23 Level 1 M3 L1–29

Life Science			Aligned <i>PhD Science</i> Lessons
LS 1	From Molecules to Organisms: Structures and Processes		Level 1 M1 L1–21, 27–29
LS 3	Heredity: Inheritance and Variation of Traits		Level 1 M1 L22–23, 26–29


Earth and Space Science		Aligned <i>PhD Science</i> Lessons
ESS 1	Earth's Place in the Universe	Level 1 M4 L1–25

Engineering, Technology, and the Applications of Science		Aligned <i>PhD Science</i> Lessons
ETS 1	Engineering Design	Level 1 M1 L11–15 Level 1 M3 L21–25

Crosscutting Concepts		Aligned <i>PhD Science</i> 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
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
6	Structure and Function	Level 1 M1 L4–15, 27–29 Level 1 M3 L8–9

Connections to Engineering, Technology, and Applications of Science		Aligned <i>PhD Science</i> Lessons
Influence of Engineering, Technology, and Science on Society and the Natural World		
	<ul style="list-style-type: none"> Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. 	Level 1 M1 L10–15
	<ul style="list-style-type: none"> People depend on various technologies in their lives; human life would be very different without technology. 	Level 1 M3 L20

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PhD Science Level 2

The Grade 2 Nebraska’s College and Career Ready Standards for Science (CCR-Science) are fully covered by the Level 2 *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Second Grade		Aligned <i>PhD Science</i> Lessons
SC.2.3 Structure and Properties of Matter		
SC.2.3.1 Gather, analyze, and communicate evidence of the structure, properties, and interactions of matter.		Level 2 M1 L1–31 Level 2 M2 L3–4, L14–17
SC.2.3.1.A	Plan and conduct an investigation to describe and classify different kinds of materials <u>by their observable properties</u> .	Level 2 M1 L1–9, 12–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
SC.2.3.1.B	Analyze data obtained from testing different materials to determine which materials <u>have the properties that are best suited</u> for an intended purpose.	Level 2 M1 L20–31
SC.2.3.1.C	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
SC.2.3.1.D	Make observations to construct an evidence-based account of how an object made of a small set of pieces <u>can be disassembled and made into a new object</u> .	Level 2 M1 L10–11, 29–31
SC.2.3.1.E	Construct an argument with evidence that <u>some changes caused by</u> heating or cooling can be reversed and some cannot.	Level 2 M1 L14–19, 29–31

SC.2.7 Interdependent Relationships in Ecosystems		Aligned <i>PhD Science</i> Lessons
SC.2.7.2 Gather, analyze, and communicate evidence of interdependent relationships in ecosystems.		Level 2 M3 L1–29 Level 2 M4 L1–25
SC.2.7.2.A	Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Level 2 M3 L1–7, 25–29
SC.2.7.2.B	Develop a simple model that mimics the function of an animal in dispersing seeds or pollinating plants.	Level 2 M3 L8–29
SC.2.7.2.C	Make observations of plants and animals to compare the diversity of life in different habitats.	Level 2 M4 L1–3, 7–25
SC.2.13 Earth's Systems: Processes That Shape the Earth		Aligned <i>PhD Science</i> Lessons
SC.2.13.3 Gather, analyze, and communicate evidence of the processes that shape the earth.		Level 2 M2 L1–25 Level 2 M4 L1–6, 11–16, 20–21, 23–25
SC.2.13.3.A	Use information from several sources to provide evidence that Earth <u>events can occur quickly or slowly.</u>	Level 2 M2 L18–24
SC.2.13.3.B	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
SC.2.13.3.C	Develop a model to represent the <u>shapes and kinds</u> of land and bodies of water <u>in an area.</u>	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
SC.2.13.3.D	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

Science and Engineering Practices		
1	Asking Questions and Defining Problems	<p>Aligned <i>PhD Science</i> Lessons</p> <p>Level 2 M1 L1–3 Level 2 M2 L1–2 Level 2 M3 L1–6, 14–18 Level 2 M4 L1–3</p>
2	Developing and Using Models	<p>Aligned <i>PhD Science</i> Lessons</p> <p>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</p>
3	Planning and Carrying Out Investigations	<p>Aligned <i>PhD Science</i> Lessons</p> <p>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</p>
4	Analyzing and Interpreting Data	<p>Aligned <i>PhD Science</i> Lessons</p> <p>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</p>
5	Using Mathematics and Computational Thinking	<p>Aligned <i>PhD Science</i> Lessons</p> <p>Level 2 M1 L20–22 Level 2 M2 L14–17 Level 2 M3 L8–11, 23–29 Level 2 M4 L7–8, 17–22</p>
6	Constructing Explanations and Designing Solutions	<p>Aligned <i>PhD Science</i> Lessons</p> <p>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</p>

7	Engaging in Argument from Evidence		Aligned <i>PhD Science</i> Lessons
			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		Aligned <i>PhD Science</i> Lessons
			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

Disciplinary Core Ideas		
Physical Science		Aligned <i>PhD Science</i> Lessons
PS 1	Matter and Its Interactions	Level 2 M1 L1–31 Level 2 M2 L3–4, 14–17

Life Science		Aligned <i>PhD Science</i> Lessons
LS 2	Ecosystems: Interactions, Energy, and Dynamics	Level 2 M3 L1–29
LS 4	Biological Evolution: Unity and Diversity	Level 2 M4 L1–3, 7–25

Earth and Space Science		Aligned <i>PhD Science</i> Lessons
ESS 1	Earth's Place in the Universe	Level 2 M2 L18–24
ESS 2	Earth's Systems	Level 2 M2 L1–17, 20, 22–24 Level 2 M4 L1–6, 11–16, 20–25

Engineering, Technology, and the Applications of Science		Aligned <i>PhD Science</i> Lessons
ETS 1	Engineering Design	Level 2 M1 L24–28 Level 2 M2 L8–12, 14–17 Level 2 M3 L14–18

Crosscutting Concepts		Aligned <i>PhD Science</i> 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

Connections to Engineering, Technology, and Applications of Science		
Interdependence of Science, Engineering, and Technology		Aligned <i>PhD Science</i> Lessons
	<ul style="list-style-type: none"> Science and engineering involve the use of tools to observe and measure things. 	Level 2 M3 L3–6, 14–18
Influence of Engineering, Technology, and Science on Society and the Natural World		Aligned <i>PhD Science</i> Lessons
	<ul style="list-style-type: none"> Every human-made product is designed by applying some knowledge of the natural world and is built using materials derived from the natural world. 	Level 2 M2 L14–17 Level 2 M3 L14–18
	<ul style="list-style-type: none"> Developing and using technology has impacts on the natural world. 	Level 2 M2 L8–9