





Alabama Course of Study: Science Correlation to PhD Science®

-  Green indicates that *PhD Science*® fully addresses the standard within the grade level.
-  Blue indicates that *PhD Science* covers the standard but in a different grade level.
-  Yellow indicates that *PhD Science* partially covers the standard within the grade level.
-  Red indicates that *PhD Science* does not cover the standard.

Key: Module (M), Lesson (L)

PhD Science Level K

The Grade K *Alabama Course of Study: Science* standards are almost entirely covered by the Level K *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Grade K Science Content Standards

Physical Sciences		
Motion and Stability: Forces and Interactions		Aligned PhD Science Lessons
1	Investigate the resulting motion of objects when forces of different strengths and directions act upon them.	Level K M2 L1–23
2	Use observations and data from investigations to determine if a design solution solves the problem of using force to change the speed or direction of an object.	Level K M2 L17–23

Life Sciences		
Ecosystems: Interactions, Energy, and Dynamics		Aligned <i>PhD Science</i> Lessons
3	Distinguish between living and nonliving things and verify what living things need to survive.	Level K M3 L4–16, 19–22, 27–29
4	Gather evidence to support how plants and animals provide for their needs by altering their environment.	Level K M4 L1–10, 14–16, 26–28
5	Construct a model of a natural habitat conducive to meeting the needs of plants and animals native to Alabama.	Level K M3 L1–3, 9–29 Level K M4 L1–2, 8–9, 11–13
6	Identify and plan possible solutions to lessen the human impact on the local environment.	Level K M4 L14–24, 26–28
Earth and Space Sciences		
Earth's Systems		Aligned <i>PhD Science</i> Lessons
7	Observe and describe the effects of sunlight on Earth's surface.	Level K M1 L8–11, 28–30
8	Design and construct a device to reduce the effects of sunlight.	Level K M1 L12–16, 28–30
9	Observe, record, and share findings of local weather patterns over a period of time.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
Earth and Human Activity		Aligned <i>PhD Science</i> Lessons
10	Ask questions to obtain information about the purpose of weather forecasts in planning for, preparing for, and responding to severe weather.	Level K M1 L22–30

Science and Engineering Practices

<p>Asking Questions and Defining Problems</p>	<p>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</p>
<p>Developing and Using Models</p>	<p>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</p>
<p>Planning and Carrying Out Investigations</p>	<p>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</p>
<p>Analyzing and Interpreting Data</p>	<p>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</p>
<p>Using Mathematics and Computational Thinking</p>	<p>Aligned <i>PhD Science</i> Lessons Level K M1 L17–21, 25–30 Level K M2 L17–20</p>
<p>Constructing Explanations and Designing Solutions</p>	<p>Aligned <i>PhD Science</i> Lessons Level K M2 L17–20 Level K M3 L4–16, 23–29</p>

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
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 Sciences	Aligned <i>PhD Science</i> Lessons
Motion and Stability: Forces and Interactions	Level K M2 L1–23
Energy	Level K M1 L8–16, 28–30


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

Earth and Space Sciences	Aligned <i>PhD Science</i> Lessons
Earth's Systems	Level K M1 L1–11, 17–24, 28–30 Level K M4 L1–10, 14–16, 25–28
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
Engineering Design	Level K M1 L4–7, 12–16 Level K M2 L17–20 Level K M4 L20–24
Links Among Engineering, Technology, Science, and Society	Level K M2 L17–20

Crosscutting Concepts	Aligned <i>PhD Science</i> Lessons
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
Cause and Effect	Level K M2 L4–23 Level K M4 L3–5, 10, 14–19, 26–28
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
Systems and System Models	Level K M3 L1–3, 9–13, 19–21, 23–25, 27–29 Level K M4 L1–9, 11–16
Energy and Matter	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
Structure and Function	Level K M1 L10–16 Level K M4 L20–24
Stability and Change	Level K M1 L8–9, 17–21 Level K M4 L14–16

Alabama Course of Study: Science Correlation to PhD Science®

 Green indicates that *PhD Science*® fully addresses the standard within the grade level.

 Blue indicates that *PhD Science* covers the standard but in a different grade level.

 Yellow indicates that *PhD Science* partially covers the standard within the grade level.

 Red indicates that *PhD Science* does not cover the standard.

Key: Module (M), Lesson (L)

PhD Science Level 1

The Grade 1 *Alabama Course of Study: Science* standards are almost entirely covered by the Level K *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Grade 1 Science Content Standards

Physical Sciences		
Waves and Their Applications in Technologies for Information Transfer		Aligned PhD Science Lessons
1	Conduct experiments to provide evidence that vibrations of matter can create sound and sound can make matter vibrate.	Level 1 M3 L1–17, 26–29
2	Construct explanations from observations that objects can be seen only when light is available to illuminate them.	Level 1 M2 L1–9, 21–23
3	Investigate materials to determine which types allow light to pass through, allow only partial light to pass through, block light, or reflect light.	Level 1 M2 L1–3, 10–23
4	Design and construct a device that uses light or sound to send a communication signal over a distance.	Level 1 M3 L18–29

Life Sciences		
From Molecules to Organisms: Structures and Processes		Aligned <i>PhD Science</i> Lessons
5	Design a solution to a human problem by using materials to imitate 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
6	Obtain information to provide evidence that parents and their offspring engage in patterns of behavior that help the offspring survive.	Level 1 M1 L24–29
Heredity: Inheritance and Variation of Traits		Aligned <i>PhD Science</i> Lessons
7	Make observations to identify the similarities and differences of offspring to their parents and to other members of the same species.	Level 1 M1 L22–23, 26–29
Earth and Space Sciences		
Earth’s Place in the Universe		Aligned <i>PhD Science</i> Lessons
8	Observe, describe, and predict patterns of the sun, moon, and stars as they appear in the sky.	Level 1 M4 L1–8, 14–25
9	Observe seasonal patterns of sunrise and sunset to describe the relationship between the number of hours of daylight and the time of year.	Level 1 M4 L9–13, 23–25

Science and Engineering Practices

<p>Asking Questions and Defining Problems</p>	<p>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</p>
<p>Developing and Using Models</p>	<p>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</p>
<p>Planning and Carrying Out Investigations</p>	<p>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</p>
<p>Analyzing and Interpreting Data</p>	<p>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</p>
<p>Using Mathematics and Computational Thinking</p>	<p>Aligned <i>PhD Science</i> Lessons Level 1 M2 L15–18 Level 1 M3 L21–25</p>
<p>Constructing Explanations and Designing Solutions</p>	<p>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</p>

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
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 Sciences		Aligned <i>PhD Science</i> Lessons
Waves and Their Applications in Technologies for Information Transfer		Level 1 M2 L1–23 Level 1 M3 L1–29


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


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

Engineering, Technology, and the Applications of Science		Aligned <i>PhD Science</i> Lessons
Engineering Design		Level 1 M1 L11–15 Level 1 M3 L21–25
Links Among Engineering, Technology, Science, and Society		Level 1 M1 L10–15 Level 1 M3 L18–29

Crosscutting Concepts	Aligned <i>PhD Science</i> Lessons
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
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
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
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
Energy and Matter	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
Structure and Function	Level 1 M1 L4–15, 27–29 Level 1 M3 L8–9
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

Alabama Course of Study: Science Correlation to PhD Science®

 Green indicates that *PhD Science*® fully addresses the standard within the grade level.

 Blue indicates that *PhD Science* covers the standard but in a different grade level.

 Yellow indicates that *PhD Science* partially covers the standard within the grade level.

 Red indicates that *PhD Science* does not cover the standard.

Key: Module (M), Lesson (L)

PhD Science Level 2

The Grade 2 *Alabama Course of Study: Science* standards are fully covered by the Level K PhD Science curriculum. A detailed analysis of alignment appears in the table below.

Grade 2 Science Content Standards

Physical Sciences		
Matter and Its Interactions		Aligned <i>PhD Science</i> Lessons
1	Conduct an investigation to describe and classify various substances according to physical properties.	Level 2 M1 L1–9, 12–16, 29–31 Level 2 M2 L2–4, 14–17
2	Collect and evaluate data to determine appropriate uses of materials based on their properties.	Level 2 M1 L20–31
3	Demonstrate and explain how structures made from small pieces can be disassembled and then rearranged to make new and different structures.	Level 2 M1 L10–11, 29–31
4	Provide evidence that some changes in matter caused by heating or cooling can be reversed and some changes are irreversible.	Level 2 M1 L14–19, 29–31

Life Sciences		
Ecosystems: Interactions, Energy, and Dynamics		Aligned <i>PhD Science</i> Lessons
5	Plan and carry out an investigation, using one variable at a time, to determine the growth needs of plants.	Level 2 M3 L1–7, 25–29
6	Design and construct models to simulate how animals disperse seeds or pollinate plants.	Level 2 M3 L8–29
7	Obtain information from literature and other media to illustrate that there are many different kinds of living things and that they exist in different places on land and in water.	Level 2 M4 L1–3, 7–25
Earth and Space Sciences		
Earth's Systems		Aligned <i>PhD Science</i> Lessons
8	Make observations from media to obtain information about Earth events that happen over a short period of time or over a time period longer than one can observe.	Level 2 M2 L18–24
9	Create models to identify physical features of Earth.	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
10	Collect and evaluate data to identify water found on Earth and determine whether it is a solid or a liquid.	Level 2 M4 L1–6, 16, 22–25
Earth and Human Activity		Aligned <i>PhD Science</i> Lessons
11	Examine and test solutions that address changes caused by Earth's events.	Level 2 M2 L1–17, 20, 22–24

Science and Engineering Practices

<p>Asking Questions and Defining Problems</p>	<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>
<p>Developing and Using Models</p>	<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>
<p>Planning and Carrying Out Investigations</p>	<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>
<p>Analyzing and Interpreting Data</p>	<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>
<p>Using Mathematics and Computational Thinking</p>	<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>
<p>Constructing Explanations and Designing Solutions</p>	<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>

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
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 Sciences	Aligned <i>PhD Science</i> Lessons
Matter and Its Interactions	Level 2 M1 L1–31 Level 2 M2 L3–4, 14–17

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

Earth and Space Sciences	Aligned <i>PhD Science</i> Lessons
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
Engineering Design	Level 2 M1 L24–28 Level 2 M2 L8–12, 14–17 Level 2 M3 L14–18
Links Among Engineering, Technology, Science, and Society	Level 2 M2 L8–12, 14–17 Level 2 M3 L3–6, 14–18

Crosscutting Concepts	Aligned <i>PhD Science</i> Lessons
Patterns	Level 2 M1 L4–9 Level 2 M2 L1–2, 5–6 Level 2 M4 L1–8, 11–15, 20–21, 23–25
Cause and Effect	Level 2 M1 L14–19, 29–31 Level 2 M2 L8–12, 20–21 Level 2 M3 L3–11
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
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
Energy and Matter	Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24
Structure and Function	Level 2 M1 L24–28 Level 2 M2 L14–17 Level 2 M3 L8–11, 14–22
Stability and Change	Level 2 M2 L1–2, 18–24 Level 2 M3 L1–2, 25–29