




Oklahoma Academic Standards for Science (OAS-S) 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 Kindergarten Oklahoma Academic Standards for Science (OAS-S) are fully covered by the Level K *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Kindergarten Performance Expectations		
Motion and Stability of Forces (PS2)		Aligned <i>PhD Science</i> 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
K.PS2.2	Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or pull.	 Level K M2 L17–23
Energy (PS3)		Aligned <i>PhD Science</i> Lessons
K.PS3.1	Make observations to determine the effect of sunlight on Earth’s surface.	 Level K M1 L8–11, 28–30
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
From Molecules to Organisms: Structure and Function (LS1)		Aligned <i>PhD Science</i> Lessons
K.LS1.1	Use observations to describe patterns of what plants and animals (including humans) need to survive.	 Level K M3 L4–16, 19–22, 27–29

Earth Systems (ESS2)		Aligned <i>PhD Science</i> Lessons
K.ESS2.1	Use and share observations of local weather conditions to describe patterns over time.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
K.ESS2.2	Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs.	Level K M4 L1–10, 14–16, 26–28
Earth and Human Activity (ESS3)		Aligned <i>PhD Science</i> 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
K.ESS3.2	Ask questions to understand the purpose of weather forecasting to prepare for and respond to severe weather.	Level K M1 L22–30

Science and Engineering Practices		Aligned <i>PhD Science</i> Lessons
Asking Questions		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Ask questions based on observations to find more information about the natural and/or designed world(s). 		Level K M1 L1–3, 22–26 Level K M2 L1–3, 9 Level K M3 L1–3, 14–16, 27–29
Developing and Using Models		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Use a model to represent relationships in the natural world. 		Level K M3 L1–3, 9–12, 19–20 Level K M4 L1–9, 11–16
Planning and Carrying Out Investigations		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> With guidance, plan and conduct an investigation in collaboration with peers. 		Level K M2 L7–8, 10–15 Level K M3 L4–8
<ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. 		Level K M1 L4–7, 10–11, 17–24, 27–30 Level K M2 L7–8, 16–23 Level K M3 L21

Analyzing and Interpreting Data		Aligned <i>PhD Science</i> Lessons
• Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions.		Level K M3 L4–8, 14–20, 22–26 Level K M4 L25
• Analyze data from tests of an object or tool to determine if it works as intended.		Level K M4 L20–24
Designing Solutions		Aligned <i>PhD Science</i> Lessons
• Use tools and materials provided to design and build a device that solves a specific problem or a solution to a specific problem.		Level K M2 L17–20
Engaging in Argument from Evidence		Aligned <i>PhD Science</i> Lessons
• Construct an argument with evidence to support a claim.		Level K M3 L17–21, 27–29


Disciplinary Core Ideas		
Physical Science		Aligned <i>PhD Science</i> Lessons
PS2	Pushes and pulls can have different strengths and directions.	Level K M2 L7–23
	Pushing or pulling on an object can change the speed or direction of its motion and can start or stop it.	Level K M2 L1–23
	A bigger push or pull makes things speed up or slow down more quickly.	Level K M2 L7–9, 21–23
	When objects touch or collide, they push on one another and can change motion.	Level K M2 L13–23
PS3	Sunlight warms the Earth’s surface.	Level K M1 L8–16, 28–30
Life Science		Aligned <i>PhD Science</i> Lessons
LS1	All animals need food in order to live and grow.	Level K M3 L4–16, 19–20, 22, 27–29
	Animals obtain their food from plants or from other animals.	Level K M3 L4–16, 19–20, 22, 27–29
	Plants need water and light to live and grow.	Level 2 M3 L1–7, 25–29


Earth and Space Science		Aligned <i>PhD Science</i> Lessons
ESS2	Weather is the combination of sunlight, wind, snow or rain, and temperature in a particular region at a particular time.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
	People measure these conditions to describe and record the weather and to notice patterns over time.	Level K M1 L1–11, 17–24, 28–30 Level K M4 L25
	Plants and animals can change their environment.	Level K M4 L1–10, 14–16, 26–28
	Things that people do to live comfortably can affect the world around them.	Level K M4 L11–24, 26–28
ESS3	Living things need water, air, and resources from the land, and they live in places that have the things they need.	Level K M3 L1–3, 9–29 Level K M4 L1–5, 8–9, 11–16
	Humans use natural resources for everything they do.	Level K M3 L1–3, 9–29 Level K M4 L1–5, 8–9, 11–16
	Some kinds of severe weather are more likely than others in a given region.	Level K M1 L17–20, 22–30
	Weather scientists forecast severe weather so that the communities can prepare for and respond to these events.	Level K M1 L17–20, 22–30
Engineering, Technology, and Applications of Science		Aligned <i>PhD Science</i> Lessons
ETS	A situation that people want to change or create can be approached as a problem to be solved through engineering.	Level K M1 L4–7, 12–16 Level K M2 L17–20
	Such problems may have many acceptable solutions.	Level K M1 L4–7, 12–16 Level K M2 L17–20
	People depend on various technologies in their lives; human life would be very different without technology.	Level K M4 L18–19
	People encounter questions about the natural world every day.	Level K M3 L1–3 Level K M4 L25

Crosscutting Concepts	
Patterns	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Patterns in the natural and human designed world can be observed, used to describe phenomena, and used as evidence. 	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	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Events have causes that generate observable patterns. 	Level K M2 L4–16, 21–23 Level K M4 L3–5, 10, 14–19, 26–28
<ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes. 	Level K M2 L10–12, 17–20
Systems and System Models	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Systems in the natural and designed world have parts that work together. 	Level K M3 L1–3, 9–13, 19–21, 23–25, 27–29 Level K M4 L1–9, 11–16

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"> 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	Aligned <i>PhD Science</i> Lessons
<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

Oklahoma Academic Standards for Science (OAS-S) 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 Oklahoma Academic Standards for Science (OAS-S) are fully covered by the Level 1 *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Grade 1 Performance Expectations		
Waves and Their Applications in Technologies for Information Transfer (PS4)		Aligned <i>PhD Science</i> Lessons
1.PS4.1	Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate.	 Level 1 M3 L1–17, 26–29
1.PS4.2	Make observations to construct an evidence-based account that objects can be seen only when illuminated.	 Level 1 M2 L1–9, 21–23
1.PS4.3	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
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

From Molecules to Organisms: Structure and Function (LS1)		Aligned <i>PhD Science</i> 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
1.LS1.2	Obtain information from media and/or text to determine patterns in the behavior of parents and offspring that help offspring survive.	Level 1 M1 L24–29
Heredity: Inheritance and Variation of Traits (LS3)		Aligned <i>PhD Science</i> Lessons
1.LS3.1	Make observations to construct an evidence-based account that young plants and animals are like, but not exactly like, their parents.	Level 1 M1 L22–23, 26–29
Earth’s Place in the Universe (ESS1)		Aligned <i>PhD Science</i> 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
1.ESS1.2	Make observations at different times of year to relate the amount of daylight and relative temperature to the time of year.	Level 1 M4 L9–13, 23–25
Earth and Human Activity (ESS3)		Aligned <i>PhD Science</i> Lessons
1.ESS3.1	Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment.	Level K M4 L14–24, 26–28

Science and Engineering Practices	
Planning and Carrying Out Investigations	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Plan and conduct investigations collaboratively to produce data to serve as the basis for evidence to answer a question. 	Level 1 M1 L19–20 Level 1 M2 L15–18
<ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. 	Level 1 M2 L4–12, 15–18, 20–23 Level 1 M3 L1–7, 11–13, 18–19 Level 1 M4 L4–6, 14–16, 19–21
Analyzing and Interpreting Data	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Use observations (firsthand or from media) to describe patterns in the natural world in order to answer scientific questions. 	Level 1 M1 L16–21, 27–29 Level 1 M2 L1–9 Level 1 M3 L10 Level 1 M4 L4–6, 9–13
Constructing Explanations and Designing Solutions	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. 	Level 1 M1 L7–8, 16–17, 22–23, 26–29 Level 1 M2 L4–7, 21–23 Level 1 M3 L4–6, 14, 26–29
<ul style="list-style-type: none"> Use tools and materials provided to design a device that solves a specific problem. 	Level 1 M1 L11–15
Obtaining, Evaluating, and Communicating Information	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Read grade-appropriate texts and use media to obtain scientific information to determine patterns in the natural world. 	Level 1 M1 L24–25 Level 1 M3 L18–19 Level 1 M4 L9–13
<ul style="list-style-type: none"> Communicate solutions with others in oral and/or written forms using models and/or drawings that provide detail about scientific ideas. 	Level 1 M1 L27–29 Level 1 M2 L21–23 Level 1 M3 L26–29 Level 1 M4 L23–25


Disciplinary Core Ideas		
Physical Science		Aligned <i>PhD Science</i> Lessons
PS4	Sound can make matter vibrate, and vibrating matter can make sound.	Level 1 M3 L1–17, 26–29
	Objects can be seen if light is available to illuminate them or if they give off their own light.	Level 1 M2 L1–9, 21–23
	Some materials allow light to pass through them, others allow only some light through, and others block all the light and create a dark shadow on any surface beyond them, where the light cannot reach.	Level 1 M2 L1–3, 10–23
	Mirrors can be used to redirect a light beam.	Level 1 M2 L13–14
	People also use a variety of devices to communicate (send and receive information) over long distances.	Level 1 M3 L18–29
Life Science		Aligned <i>PhD Science</i> Lessons
LS1	All organisms have external parts.	Level 1 M1 L1–15, 27–29
	Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water, and air.	Level 1 M1 L1–15, 27–29
	Plants also have different parts (roots, stems, leaves, flowers, fruits) that help them survive and grow.	Level 1 M1 L1–15, 27–29
	Animals have body parts that capture and convey different kinds of information needed for growth and survival.	Level 1 M1 L16–21, 27–29
	Plants also respond to some external inputs.	Level 1 M1 L16–21, 27–29
	Adult plants and animals can have young.	Level 1 M1 L24–29
	In many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring to survive.	Level 1 M1 L24–29
LS3	Young animals are very much, but not exactly, like their parents.	Level 1 M1 L22–23, 26–29
	Plants also are very much, but not exactly, like their parents.	Level 1 M1 L22–23, 26–29
	Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	Level 1 M1 L22–23, 27–29


Earth and Space Science		Aligned <i>PhD Science</i> Lessons
ESS1	Patterns of the motion of the sun, moon, and stars in the sky can be observed, described, and predicted.	Level 1 M4 L1–8, 14–25
	Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	Level 1 M4 L9–13, 23–25
ESS3	Things that people do to live comfortably can affect the world around them. But they can make choices that reduce their impacts on the land, water, air, and other living things.	Level K M4 L11–24, 26–28
Engineering, Technology, and Applications of Science		Aligned <i>PhD Science</i> Lessons
ETS	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem’s solutions to other people.	Level 1 M3 L21–25
	People depend on various technologies in their lives; human life would be very different without technology.	Level 1 M3 L20
	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

Crosscutting Concepts	
Patterns	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Patterns in the natural world can be observed, used to describe phenomena, and used as evidence. 	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	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Events have causes that generate observable patterns. 	Level 1 M2 L1–7, 10–12, 15–23 Level 1 M3 L4–6, 14, 17, 26–29 Level 1 M4 L4–6, 9–13, 17–21, 23–25
<ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes. 	Level 1 M2 L13–14 Level 1 M3 L7, 15–16
Structure and Function	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> The shape and stability of structures of natural and designed objects are related to their functions. 	Level 1 M1 L4–15, 27–29 Level 1 M3 L8–9

Connections to Engineering, Technology, and Applications of Science	
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 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

Oklahoma Academic Standards for Science (OAS-S) 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 Oklahoma Academic Standards for Science (OAS-S) are almost entirely covered by the Level 2 *PhD Science* curriculum. A detailed analysis of alignment appears in the table below.

Grade 2 Performance Expectations		
Matter and Its Interactions (PS1)		Aligned <i>PhD Science</i> Lessons
2.PS1.1	Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties.	 Level 2 M1 L1–9, 12–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
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
2.PS1.3	Make observations to construct an evidence-based account of how an object made of a small set of pieces can be disassembled and made into a new object.	 Level 2 M1 L10–11, 29–31
2.PS1.4	Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	 Level 2 M1 L14–19, 29–31

Ecosystems: Interactions, Energy, and Dynamics (LS2)		Aligned <i>PhD Science</i> Lessons
2.LS2.1	Plan and conduct an investigation to determine if plants need sunlight and water to grow.	Level 2 M3 L1–7, 25–29
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
Biological Unity and Diversity (LS4)		Aligned <i>PhD Science</i> 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’s Place in the Universe (ESS1)		Aligned <i>PhD Science</i> Lessons
2.ESS1.1	Use information from several sources to provide evidence that Earth events can occur quickly or slowly.	Level 2 M2 L18–24
Earth’s Systems (ESS2)		Aligned <i>PhD Science</i> 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.ESS2.2	Develop a model to represent the shape and kind of land and bodies of water in an area.	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
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

Science and Engineering Practices	
Developing and Using Models	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Develop a model to represent patterns in the natural world. 	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, 19–20, 23–29 Level 2 M4 L1–3, 7–8
<ul style="list-style-type: none"> Develop a simple model based on evidence to represent a proposed object or tool. 	Level 2 M3 L14–18
Planning and Carrying Out Investigations	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Plan and conduct an investigation collaboratively to produce data to serve as the basis for evidence to answer a question. 	Level 2 M2 L8–12 Level 2 M3 L3–7 Level 2 M4 L17–19
<ul style="list-style-type: none"> Make observations (firsthand or from media) to collect data that can be used to make comparisons. 	Level 2 M1 L1–3, 29–31 Level 2 M2 L1–6, 14–19 Level 2 M3 L3–6, 8–11, 13, 21–22, 25–29 Level 2 M4 L16–19
Analyzing and Interpreting Data	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Analyze data from tests of an object or tool to determine if it works as intended. 	Level 2 M1 L20–22, 24–28 Level 2 M3 L14–18
Constructing Explanations and Designing Solutions	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Make observations (firsthand or from media) to construct an evidence-based account for natural phenomena. 	Level 2 M1 L8–9, 12–13, 17–19, 23, 29–31 Level 2 M2 L3–4, 7, 13, 22–24 Level 2 M4 L23–25
<ul style="list-style-type: none"> Compare multiple solutions to a problem. 	Level 2 M2 L8–12, 14–17
Engaging in Argument from Evidence	Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Construct an argument with evidence to support a claim. 	Level 2 M2 L3–4, 10–13, 21–24 Level 2 M4 L16

Disciplinary Core Ideas		
Physical Science		Aligned <i>PhD Science</i> Lessons
PS1	Different kinds of matter exist and many of them can be either solid or liquid, depending on temperature.	Level 2 M1 L1–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
	Matter can be described and classified by its observable properties.	Level 2 M1 L1–16, 19, 23, 29–31 Level 2 M2 L3–4, 14–17
	Different properties are suited to different purposes.	Level 2 M1 L20–31
	A great variety of objects can be built up from a small set of pieces.	Level 2 M1 L10–11, 24–31
	Heating or cooling a substance may cause changes that can be observed.	Level 2 M1 L14–19, 29–31
	Sometimes these changes are reversible, and sometimes they are not.	Level 2 M1 L14–19, 29–31
Life Science		Aligned <i>PhD Science</i> Lessons
LS2	Plants depend on water and light to grow.	Level 2 M3 L1–7, 25–29
	Plants depend on animals for pollination or to move their seeds around.	Level 2 M3 L8–29
LS4	There are many different kinds of living things in any area, and they exist in different places on land and in water.	Level 2 M4 L1–3, 7–25
Earth and Space Science		Aligned <i>PhD Science</i> Lessons
ESS1	Some events happen very quickly; others occur very slowly over a time period much longer than one can observe.	Level 2 M2 L18–24
ESS2	Wind and water can change the shape of the land.	Level 2 M2 L1–17, 20, 22–24
	Maps show where things are located.	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
	One can map the shapes and kinds of land and water in any area.	Level 2 M2 L1–2, 5–6 Level 2 M4 L1–6, 11–16, 20–21, 23–25
	Water is found in the oceans, rivers, lakes, and ponds.	Level 2 M4 L1–6, 16, 22–25
	Water exists as solid ice and in liquid form.	Level 2 M4 L1–6, 16, 22–25

Engineering, Technology, and Applications of Science		Aligned <i>PhD Science</i> Lessons
ETS	Designs can be conveyed through sketches, drawings, or physical models.	Level 2 M3 L14–18
	These representations are useful in communicating ideas for a problem’s solutions to other people.	Level 2 M3 L14–18
	Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	Level 2 M2 L8–12, 14–17
	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
	Developing and using technology has impacts on the natural world.	Level 2 M2 L8–9

Crosscutting Concepts		Aligned <i>PhD Science</i> Lessons
Patterns		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Patterns in the natural and human-designed world can be observed. 		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		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Events have causes that generate observable patterns. 		Level 2 M1 L14–19, 29–31 Level 2 M2 L20–21 Level 2 M3 L8–11
<ul style="list-style-type: none"> Simple tests can be designed to gather evidence to support or refute student ideas about causes. 		Level 2 M1 L14–18 Level 2 M2 L8–12 Level 2 M3 L3–7
Systems and System Models		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> A system is an organized group of related objects or components. 		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 Level 4 M4 L1–6, 10–27
Energy and Matter		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Objects may break into smaller pieces and be put together into larger pieces or change shapes. 		Level 2 M1 L10–11, 29–31 Level 2 M2 L3–4, 8–13, 22–24

Structure and Function		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> The shape and stability of structures of natural and designed objects are related to their function(s). 		Level 2 M1 L24–28 Level 2 M2 L14–17 Level 2 M3 L8–11, 14–22
Stability and Change		Aligned <i>PhD Science</i> Lessons
<ul style="list-style-type: none"> Things may change slowly or rapidly. 		Level 2 M2 L18–24

Connections to Engineering, Technology, and Applications of Science		
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