Narrative and Rationale: The thematic model in Grade 3 is divided into four bundles that build on one another and increase in intellectual demand both in terms of content and the science and engineering practices. While other crosscutting concepts are included at this grade level, the crosscutting concepts of cause and effect is a theme that carries throughout the year.

The grade 3 disciplinary core ideas in physical science focus on forces and explanations for types of interactions involving motion, electricity, and magnetism. Core ideas in life science include life cycles of organisms, fossils as evidence of major changes over time in the environment, and traits influenced by inheritance and the environment. These ideas contribute to building the understanding that variations in traits among individuals of the same species can provide advantages in survival and reproduction. The core ideas in Earth and space science emphasize weather patterns, climates, and the connection between the two.

Note that the practices and crosscutting concepts included in each bundle are intended as end-of-instructional unit expectations and not curricular designations. Additional practices and crosscutting concepts should be used throughout instruction in each bundle.

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<tr>
<td>3-PS2-1. Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object.</td>
<td>3-LS1-1. Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death.</td>
<td>3-LS2-1. Construct an argument that some animals form groups that help members survive.</td>
<td>3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</td>
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<td>3-PS2-2. Make observations and/or measurements of an object’s motion to provide evidence that a pattern can be used to predict future motion.</td>
<td>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.</td>
<td>3-LS4-2. Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing.</td>
<td>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.*</td>
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<td>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.</td>
<td>3-LS3-2. Use evidence to support the explanation that traits can be influenced by the environment.</td>
<td>3-LS4-3. Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all.</td>
<td>3-ESS2-2. Obtain and combine information to describe climates in different regions of the world.</td>
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<tr>
<td>3-PS2-4. Define a simple design problem that can be solved by applying scientific ideas about magnets.*</td>
<td>3-LS4-1. Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.</td>
<td>3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.</td>
<td>3-ESS3-1. Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.*</td>
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<td>3-ESS2-1. Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.¹</td>
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<td>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.</td>
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| 3-5-ETS1-2. Generate and compare multiple possible solutions to a
### 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.¹

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<td>problem based on how well each is likely to meet the criteria and constraints of the problem.¹</td>
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¹ The bundle only includes part of this PE; the PE is not fully assessable in a unit of instruction leading to this bundle.
PS2.A as found in 3-PS2-1
• Each force acts on one particular object and has both strength and a direction. An object at rest typically has multiple forces acting on it, but they add to give zero net force on the object. Forces that do not sum to zero can cause changes in the object’s speed or direction of motion.

LS1.B as found in 3-LS1-1
• Reproduction is essential to the continued existence of every kind of organism. Plants and animals have unique and diverse life cycles.

LS3.A as found in 3-LS3-1
• Many characteristics of organisms are inherited from their parents.

LS3.B as found in 3-LS3-1
• Different organisms vary in how they look and function because they have different inherited information.

LS3.B as found in 3-LS3-2
• The environment also affects the traits that an organism develops.

LS4.A as found in 3-LS4-1
• Some kinds of plants and animals that once lived on Earth are no longer found anywhere. Fossils provide evidence about the types of organisms that lived long ago and also about the nature of their environments.

LS4.B as found in 3-LS4-2
• Sometimes the differences in characteristics between individuals of the same species provide advantages in surviving, finding mates, and reproducing.

LS4.C as found in 3-LS4-3
• For any particular environment, some kinds of organisms survive well, some survive less well, and some cannot survive at all.

LS4.D as found in 3-LS4-4
• Populations live in a variety of habitats, and change in those habitats affects the organisms living there.

ESS2.D as found in 3-ESS2-1
• Climate describes a range of an area’s typical weather conditions and the extent to which those conditions vary over years.

ESS3.B as found in 3-ESS3-1
• A variety of natural hazards result from natural processes. Humans cannot eliminate natural hazards but can take steps to reduce their impacts.

ETS1.A as found in 3-5-ETS1-1
• Possible solutions to a problem are limited by available materials and resources (constraints). The success of a designed solution is determined by considering the desired features of a solution (criteria). Different proposals for solutions can be compared on the basis of how well each one meets the specified criteria for success or how well each takes the constraints into account.

ETS1.B as found in 3-5-ETS1-2
• Research on a problem should be carried out before beginning to design a solution. Testing a solution involves investigating how well it performs under a range of likely conditions.

At whatever stage, communicating with peers about proposed solutions is an important part of the design process, and shared ideas can lead to improved designs.