3rd Grade Topic Model

Narrative and Rationale: The four bundles in this Grade 3 model all have a particular topical focus. Bundle 1 focuses on traits of organisms. Bundle 2 builds on Bundle 1 to focus on relationships between organism traits and survival in a habitat. Bundle 3 extends this study to focus on how the climate affects organisms over long periods of time. Bundle 4 shifts focus to the physical sciences, with a study of forces and motion.

Throughout the first three bundles, students have the opportunity to build understanding over time of typical weather conditions expected. Alternately, this performance expectation (3-ESS2-1) could be included solely in Bundle 3. There are also a variety of opportunities to incorporate the 3–5 engineering design performance expectations throughout the year in addition to those shown in the bundles. Although two of these performance expectations are included in this 3rd grade model, they will be fully assessable at the end of grade five.

Grade 3 places special emphasis on making sense of data, using evidence to construct arguments and explanations, developing models, and planning and conducting investigations. However, the practices and crosscutting concepts described 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.

Bundle 1: Why are organisms different from one another? **~9 weeks**	**Bundle 2:** How does the environment affect organisms? **~9 weeks**	**Bundle 3:** How do we know the environment used to be different? **~9 weeks**	**Bundle 4:** What happens when different objects interact? **~9 weeks**
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. **3-LS2-1.** Construct an argument that some animals form groups that help members survive.[1] **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. **3-LS3-2.** Use evidence to support the explanation that traits can be influenced by the environment. **3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.[1]	**3-LS2-1.** Construct an argument that some animals form groups that help members survive. **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. **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. **3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season.[1] **3-ESS3-1.** Make a claim about the merit of a design solution that reduces the impacts of a weather-related hazard.* **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.	**3-LS4-1.** Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago. **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.* **3-ESS2-1.** Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. **3-ESS2-2.** Obtain and combine information to describe climates in different regions of the world. **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.	**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. **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. **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. **3-PS2-4.** Define a simple design problem that can be solved by applying scientific ideas about magnets.*

1. The bundle only includes part of this PE; the PE is not fully assessable in a unit of instruction leading to this bundle.

3rd Grade Topic Model Flowchart

Bundle 1

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.

LS2.D as found in 3-LS2-1
- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size

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

LS3.A as found in 3-LS3-2
- Other characteristics result from individuals' interactions with the environment, which can range from diet to learning. Many characteristics involve both inheritance and environment.

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.

ESS2.D as found in 3-ESS2-1
- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

Bundle 2

LS2.D as found in 3-LS2-1
- Being part of a group helps animals obtain food, defend themselves, and cope with changes. Groups may serve different functions and vary dramatically in size

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.

ESS2.D as found in 3-ESS2-1
- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

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.

to PS2.A in Bundle 4

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.

Bundle 3

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.

LS2.C as found in 3-LS4-4
- When the environment changes in ways that affect a place's physical characteristics, temperature, or availability of resources, some organisms survive and reproduce, others move to new locations, yet others move into the transformed environment, and some die.

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
- Scientists record patterns of the weather across different times and areas so that they can make predictions about what kind of weather might happen next.

ESS2.D as found in 3-ESS2-2
- Climate describes a range of an area's typical weather conditions and the extent to which those conditions vary over years.

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.

Bundle 4

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. (Boundary: Qualitative and conceptual, but not quantitative addition of forces are used at this level.)

PS2.A as found in 3-PS2-2
- The patterns of an object's motion in various situations can be observed and measured; when that past motion exhibits a regular pattern, future motion can be predicted from it. (Boundary: Technical terms, such as magnitude, velocity, momentum, and vector quantity, are not introduced at this level, but the concept that some quantities need both size and direction to be described is developed.)

PS2.B as found in 3-PS2-1
- Objects in contact exert forces on each other.

PS2.B as found in 3-PS2-3 and 3-PS2-4
- Electric and magnetic forces between a pair of objects do not require that the objects be in contact. The sizes of the forces in each situation depend on the properties of the objects and their distances apart and, for forces between two magnets, on their orientation relative to each other.