Grade 3 Science Curriculum

Unit:	Life Science
Big Ideas:	Life cycles, ecosystems, heredity, and evolution
Unit Essential Questions:	How do organisms live, grow, respond to their environment, and reproduce? How and why do organisms interact with their environment and what are the effects of these interactions? How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics? How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?

Concept & Pacing	**New Emphasis (Pa Core Standard)**	**Key Vocabulary**	**Essential Questions**	**Mini-Lessons/Activities**	**Instructional Materials**	**Assessments**
Life Cycles	**3.1.3.A** **3.1.3.B** **3.1.3.C** **3.1.3.D** **3.1.3.E** **3.1.3.F** **3.1.3.G** **3.1.3.h**	**adaptation** **characteristic** **compete** **environment** **flower** **food chain** **fruit** **generation** **germination** **inherited trait** **leaf** **life cycle** **mature** **nutrient** **observe** **offspring** **organism** **parent** **reproduce** **root** **seed** **seed coat** **seedling** **shoot** **stem** **structure** **survive**	How are plants categorized using their seeds? How are plant traits passed on to other plants? How do seeds move around? How do plants go through a cycle from seed to adult plant?	Use fruit to identify and sort seeds. investigate how seeds germinate and sprout into plants. **<u>Mystery Science</u>** ● Pollination & Plant Reproduction ● Fruit, Seed, & Plant Reproduction ● Plant Life Cycles **<u>Nearpod</u>** **<u>Generation Genius</u>**	FOSS notebook Unit worksheets Various fruits & Vegetables plates plastic knives newspaper seeds sprouter Mystery Science lesson/unit worksheets coffee grounds corn meal paper cups pipe cleaners	Formative and summative unit assessments
Life Cycles	3.1.4.A 3.1.4.B 3.1.4.C 4.1.4.A 4.5.4.D 4.2.4.C	Life cycle Offspring Parents Reproduce Survival	How do organisms live, grow, respond to their environment, and reproduce?	Use models to explain how reproduction is essential for every kind of organism. **<u>Mystery Science</u>** ● Animal Life Cycles (Alligators) ● Plant Life Cycles **<u>Nearpod</u>** **<u>Generation Genius</u>**	Unit worksheets Glue Scissors Scrap paper	Formative and summative unit assessments

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Ecosystems	3.1.4.A 3.1.4.C 3.2.4.A 3.2.4.B 3.3.4.B 3.4.4.A 3.4.4.B 3.4.4.E 4.1.4.A 4.1.4.B 4.1.4.C 4.2.4.A 4.2.4.B 4.2.4.C 4.4.4.B 4.5.4.D	Life cycle Offspring Parents Reproduce Survival	How and why do organisms interact with their environment and what are the effects of these interactions?	Develop a model to describe the commonalities of life cycles of different organisms. **FOSS** ● Crayfish Structures ● Adaptation ● Crayfish Territory ● Comparing Crayfish ● Food Chains **Mystery Science** ● Environmental Change & Engineering (Mosquitoes) ● Animal Groups & Survival (Dogs) **Nearpod** **Generation Genius**	FOSS Notebook Basins Plastic utensils Bus trays Crayfish Elodea Pitcher Water Gravel Crayfish houses Fish food Mystery Science lesson/unit worksheets Stapler	Formative and summative unit assessments
Heredity	3.1.3.B1	Inheritance Traits Environment Evidence Influence Characteristics Environmental factors Generation Inherited Siblings Traits Variation	How are the characteristics of one generation passed to the next? How can individuals of the same species and even siblings have different characteristics?	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-LS3-1; 3-LS3-2) Based on observations, construct an argument that some animals form groups that help members survive. (3-LS2-1) **FOSS** ● Crayfish Structures ● Adaptation ● Crayfish Territory ● Comparing Crayfish ● Food Chains **Mystery Science** ● Trait Variation, Inheritance, & Artificial Selection (Apples, Pumpkins) ● Trait and Environmental Variation (People and animals in outer space) **Nearpod** **Generation Genius**	FOSS Notebook Basins Plastic utensils Bus trays Crayfish Elodea Pitcher Water Gravel Crayfish houses Fish food Mystery Science lesson/unit worksheets	Formative and summative unit assessments

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Evolution	3.1.2.C3 3.1.3.C3 3.1.4.A 3.1.4.B 3.1.4.C 3.1.4.E 3.2.4.A 3.2.4.B 3.3.4.A 3.3.4.B 3.4.4.B 3.4.4.D 3.4.4.E 4.1.4.A 4.1.4.E 4.4.4.A 4.4.4.D 4.5.4.A 4.5.4.C	Extinct Fossils Adapt Endangered Habitat Microscopic organism Organism Visible organism Living Non-Living	How can there be so many similarities among organisms yet so many different kinds of plants, animals, and microorganisms?	Based on observations, construct an argument that some animals form groups that help members survive. (3-LS2-1) Construct an argument with evidence that within a specific habitat, some organisms survive well, some not so well, and others cannot survive at all. (3-LS4-3) **FOSS** ● Crayfish Structures ● Adaptation ● Crayfish Territory ● Comparing Crayfish ● Food Chains ● Owl Pellets **Mystery Science** ● Trait Variation, Natural Selection, & Survival ● Habitats, Fossils, & Environments Over Time (Whales/dessert) ● Fossil Evidence and Classification ● Fossil Evidence, Trace fossils, & Animal Behavior **Nearpod** **Generation Genius**	FOSS Notebook Basins Plastic utensils Bus trays Crayfish Elodea Pitcher Water Gravel Crayfish houses Fish food Mystery Science lesson/unit worksheets	Formative and summative unit assessments

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Unit:	Physical Science
Big Ideas:	Interactions between any two objects can cause changes in one or both. Interactions of objects or systems of objects can be predicted and explained using the concept of energy transfer and conservation.Waves are a repeating pattern of motion that transfers energy from place to place without overall displacement of matter.
Unit Essential Questions:	How can one explain and predict interactions between objects within systems?

Concept & Pacing	**New Emphasis (Pa Core Standard)**	**Key Vocabulary**	**Essential Questions**	**Mini-Lessons/Activities**	**Instructional Materials**	**Assessments**
	3.2.3.B1 3.2.3.B2 3.2.4.B1 3.2.4.B2 3.2.3.B6	acceleration force speed velocity	How can one explain and predict interactions between objects within systems?	Investigate the variables that may affect how objects move across a floor, down a ramp, etc. **FOSS -Motion and Matter** ● Investigation 2 Patterns of Motion **Mystery Science** ● Balanced & Unbalanced Forces **Nearpod** **Generation Genius**	**FOSS** ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks ● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards ● cardboard ramps	Formative and summative unit assessment
	3.2.4.B1	Systems	How can one explain and predict interactions between objects within systems?	Construct an explanation for why an object subjected to multiple pushes and pulls might stay in one place or move. **FOSS -Motion and Matter** ● Investigation 2 Patterns of Motion **Mystery Science** ● Balanced & Unbalanced Forces **Nearpod** **Generation Genius**	FOSS ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks ● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards	Formative and summative unit assessment
	3.2.3.B1	Design Direction Investigation Motion Speed	How can one explain and predict interactions between objects within systems?	Through the use of objects, design an investigation and demonstrate that forces can cause changes on an object's speed or direction of motion. **FOSS -Motion and Matter** ● Investigation 3 Engineering **Mystery Science** ● Balanced Forces & Engineering **Nearpod** **Generation Genius**	FOSS ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks ● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards ● cardboard ramps	Formative and summative unit assessment
	3.2.3.B1	Motion Net Zero Pattern Prediction	How can one explain and predict interactions between objects within systems?	Take measurements of objects in motion and represent the movement of objects in multiple representations. **FOSS -Motion and Matter** ● Investigation 3 Engineering	FOSS ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks	Formative and summative unit assessment

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				Mystery Science ● Balanced Forces & Engineering **Nearpod** **Generation Genius**	● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards ● cardboard ramps ● meter tape	

	3.2.3.B1 3.2.4.B1	Force Gravity Net force Pattern Predict	How can one explain and predict interactions between objects within systems?	Investigate the motion of objects to determine observable and measurable patterns to predict future motions. **FOSS -Motion and Matter** ● Investigation 3 Engineering **Nearpod** **Generation Genius**	FOSS: ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks ● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards ● cardboard ramps	Formative and summative unit assessment
	3.2.3.B1 3.2.4.B1	Force Pattern	How can one explain and predict interactions between objects within systems?	Provide evidence that a pattern can be used to predict future motion. **FOSS -Motion and Matter** ● Investigation 3 Engineering **Nearpod** **Generation Genius**	FOSS: ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks ● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards ● cardboard ramps	Formative and summative unit assessment

	3.2.3.B1		How can one explain and predict interactions between objects within systems?	Design and implement an investigation to demonstrate that objects in contact exert forces on each other. **FOSS -Motion and Matter** ● Investigation 3 Engineering **Nearpod** **Generation Genius**	FOSS: ● Notebook sheets ● Large plastic disks ● Small plastic disks ● plastic shafts ● tongue depressors ● craft sticks ● jumbo straws ● binder clips ● scissors ● transparent or masking tape ● index cards ● cardboard ramps	Formative and summative unit assessmentEar

Unit:	Earth Science

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Big Ideas:	The Universe, Earth and its atmospheres, Climates, Weather patterns
Unit Essential Questions:	What is the universe, and what is Earth's place in it? How and why is Earth constantly changing? How do Earth's processes and human activities affect each other?

Concept & Pacing	New Emphasis (Pa Core Standard)	Key Vocabulary	Essential Questions	Mini-Lessons/Activities	Instructional Materials	Assessments
The Universe		N/A	How and why is Earth constantly changing?	Organize simple weather data sets to record local weather data and identify day-to-day variations, as well as, long-term patterns of weather **FOSS - Water and Climate** ● Investigation 3 Weather and Water **Nearpod** **Generation Genius**	FOSS: ● Notebook sheets ● Basin ● Thermometers ● Materials for Wind-vane construction ● lightweight cardboard or poster board ● jumbo straws ● super jumbo straws ● wood block ● hole punch ● transparent tape ● scissors ● compass ● rain gauge ● clipboard	Formative and summative unit assessments
Earth and Its Atmospheres		Atmosphere Data Weather	How and why is Earth constantly changing?	Record and communicate information to describe climates in different regions of the world. **FOSS - Water and Climate** ● Investigation 4 Seasons and Climate **Nearpod** **Generation Genius**	FOSS: ● Notebook sheets ● weather calendar ● chart paper ● marking pens ● transparent tape	Formative and summative unit assessments
Climates		Climate Weather Conditions	How and why is Earth constantly changing?	Display simple data sets in tables and graphs to display previous weather conditions to make predictions for future seasons. **FOSS - Water and Climate** ● Investigation 4 Seasons and Climate **Nearpod** **Generation Genius** **Mystery Science** ● Climate, Geography, and Global Weather Patterns	Mystery Science unit/lesson worksheets Cleanup materials Water Scissors Cups	Formative and summative unit assessments

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Weather patterns		Climate Weather	How do Earth's processes and human activities affect each other?	**Mystery Science** ● Local Weather Patterns & Weather Prediction ● Seasonal Weather Patterns ● Natural Hazards and Engineering	Mystery Science unit/lesson worksheets Scissors Thermometer Crayons World maps Colored pencils Rulers Dot Stickers Paper clips Toothpicks	Formative and summative unit assessments