Bloomingdale School District

Kindergarten Science

"Knowing Science" Pacing Chart

Developed July 2017-revised August 2018

Approximately 5-6 Weeks Per Unit, 3-4 Sessions Per Week = 15-24 Sessions Per Unit

The following sessions (lessons) are considered essential to students' development as learners.

Lesson & Session	Session Goal	Suggested Extension	NJSLS
1.1 Same or Different? Session 1 Texts-What is an Attribute? The Ant and the Elephant	Identify and describe two objects as the same or different.	Compare various objects and identify them as different or the same.	*SL.K.1, SL.K.3, SL.K.6*
1.2 Seeing the Difference: Comparing Height and Length Session 1 Texts-The Best Bug Parade Curious George Roller Coaster	Comparing lengths.	Describe the length of different objects using comparative language	*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.2 Seeing the Difference: Comparing Height and Length Session 2	Comparing heights.	**1.2 Seeing the Difference: Comparing Height and Length** Session 3	*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*

Texts-The Best Bug Parade Curious George Roller Coaster			
1.2 Seeing the Difference: Comparing Height and Length Session 4 Texts-The Best Bug Parade Curious George Roller Coaster	Introduction of standard units.	Measuring and comparing more objects.	*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.2 Seeing the Difference: Comparing Height and Length Session 5 Texts-The Best Bug Parade Curious George Roller Coaster	Using Eco Cubes® as unit of measurement.	Measuring and comparing more objects with Eco Cubes®.	*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*

1.2 Seeing the Difference: Comparing Height and Length Session 6 Texts-The Best Bug Parade Curious George Roller Coaster	Using Eco Cubes® as unit of measurement.	Measuring and comparing more objects with Eco Cubes®.	*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.2 Seeing the Difference: Comparing Height and Length Session 7 Texts-The Best Bug Parade Curious George Roller Coaster	Introduction to measuring with a measuring tape.	Measuring and comparing more objects with a tape.	*SSL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.2 Seeing the Difference: Comparing Height and Length Session 8 Texts-The Best Bug Parade Curious George Roller Coaster	Linear Measurement Assessment.		*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*

2.1 Distance and Motion Session 1 Texts- Inch By Inch The Fastest Animals	Introduction to motion.	Playing the game Statues to reinforce the idea of what movement is.	*SL.K.1, SL.K.3, SL.K.6*
2.1 Distance and Motion Session 2 Texts- Inch By Inch The Fastest Animals	Measuring the travelled distance.	Students can determine the distance traveled on a family trip, and explain their result.	*SL.K.1, SL.K.3, SL.K.6*
2.1 Distance and Motion Session 3 Texts- Inch By Inch The Fastest Animals	Measuring. Compare speeds of two objects using a stopwatch.	Having car races preparing a table of the results to compare lap times and compare speeds.	*SL.K.1, SL.K.3, SL.K.6*
2.2 Forces and Motion Session 1 Texts- Oscar and the Cricket	Differentiate between pushes and pulls.	Brainstorming on examples of pushes and pulls.	*SL.K.1, SL.K.4* *K.CC.A.3, K.MD.A.2* ***K-PS2-1. K-PS2-2***

Push and Pull Pushing and Pulling			
2.2 Forces and Motion Session 2 Texts- Oscar and the Cricket Push and Pull Pushing and Pulling	Differentiate between pushes and pulls.	Brainstorming on examples of pushes and pulls.	*SL.K.1, SL.K.4* *K.CC.A.3, K.MD.A.2* ***K-PS2-1. K-PS2-2***
2.2 Forces and Motion Session 3 Texts- Oscar and the Cricket Push and Pull Pushing and Pulling	Introduction to inertia.	List examples of things that a student cannot move (building) and things that a student can move (ball)	*SL.K.1, SL.K.4* *K.CC.A.3, K.MD.A.2* ***K-PS2-1. K-PS2-2***

2.2 Forces and Motion Session 4 Texts- Oscar and the Cricket Push and Pull Pushing and Pulling	Relating forces and motion.	Students can explain how moving things change directions (train – tracks curve, car- driver turns wheel, bicycle –student turns handle bar, tennis game- ball is hit in different directions)	*SL.K.1, SL.K.4* *K.CC.A.3, K.MD.A.2* ***K-PS2-1. K-PS2-2***

4.1 Is it Alive? Session 1 Texts- Is It Alive? Why Living Things Need… Food Water Air	Differences between living and non-living.	Living and non-living things student walk. Classify what is living what is not and what once was living (for example wood).	*SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K7, W.K.2* **K-LS1-1**
4.1 Is it Alive? Session 2 Texts- Is It Alive? Why Living Things Need… Food Water Air	Learning about common characteristics of living things.	Discussion around “real” and “fictional” living things.	*SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K7, W.K.2* **K-LS1-1**
4.1 Is it Alive? Session 3 Texts- Is It Alive? Why Living Things Need… Food Water Air	Basic needs of plants and animals.	Students can categorize essential needs – food, home, clothing and non-essential needs- toys, games, TV etc.	*SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K7, W.K.2* **K-LS1-1**
4.1 Is it Alive? Session 4 Texts- Is It Alive? Why Living Things Need… Food Water Air	Review lesson.		*SL.K.1, SL.K.2, SL.K.3, SL.K.4, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K7, W.K.2* **K-LS1-1**

4.2 Plants and Their Basic Needs Session 1 Texts- Seeds A Sunflower's Life Learning About Plants How Do Plants Grow? Living and Non-Living in the Ocean, Desert, Grasslands, Rainforest, Polar Regions A World of Farming: Farms Around the World	Introduction to seeds.	Students can discuss why there are so many different types of seeds. Seeds have an endless variety of shapes, sizes, textures and features that allow them to be dispersed in nature.	*SL.K.1, SL.K.2, SL.K.3, SL.K.5, SL.K.6*, *RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, RI.K9, W.K.2, W.K.11* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**
4.2 Plants and Their Basic Needs Session 2 Texts- Seeds A Sunflower's Life Learning About Plants	Planting a mini-garden.	Plant more types of plants.	*SL.K.1, SL.K.2, SL.K.3, SL.K.5, SL.K.6*, *RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, RI.K9, W.K.2, W.K.11* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

How Do Plants Grow? Living and Non-Living in the Ocean, Desert, Grasslands, Rainforest, Polar Regions A World of Farming: Farms Around the World			

4.2 Plants and Their Basic Needs Session 3 Texts- Seeds A Sunflower's Life Learning About Plants How Do Plants Grow? Living and Non-Living in the Ocean, Desert, Grasslands, Rainforest, Polar Regions A World of Farming: Farms Around the World	Parts of a plant.	Root viewer.	*SL.K.1, SL.K.2, SL.K.3, SL.K.5, SL.K.6*, *RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, RI.K9, W.K.2, W.K.11* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

4.2 Plants and Their Basic Needs Session 4 Texts- Seeds A Sunflower's Life Learning About Plants How Do Plants Grow? Living and Non-Living in the Ocean, Desert, Grasslands, Rainforest, Polar Regions A World of Farming: Farms Around the World	Plants and habitats.		*SL.K.1, SL.K.2, SL.K.3, SL.K.5, SL.K.6*, *RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, RI.K9, W.K.2, W.K.11* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**
4.2 Plants and Their Basic Needs Session 5 Texts- Seeds A Sunflower's Life Learning About Plants	Plants and habitats.		*SL.K.1, SL.K.2, SL.K.3, SL.K.5, SL.K.6*, *RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, RI.K9, W.K.2, W.K.11* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

How Do Plants Grow? Living and Non-Living in the Ocean, Desert, Grasslands, Rainforest, Polar Regions A World of Farming: Farms Around the World			

4.2 Plants and Their Basic Needs Session 7 Texts- Seeds A Sunflower's Life Learning About Plants How Do Plants Grow? Living and Non-Living in the Ocean, Desert, Grasslands, Rainforest, Polar Regions A World of Farming: Farms Around the World	Review.	Use measuring tools to track the plants' growth.	*SL.K.1, SL.K.2, SL.K.3, SL.K.5, SL.K.6*, *RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, RI.K9, W.K.2, W.K.11* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

4.3 Animals and Their Basic Needs Session 1 Texts- Animals and Their Babies A Penguin's Life Let's Classify Animals! Why Living Things Need… Food Water Air Homes Living and Nonliving in the…. Desert Ocean Grasslands Rainforest Polar Regions A World of Farming: Farms Around the World	Offspring and their basic needs.		*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**
4.3 Animals and Their Basic Needs Session 2 Texts- Animals and Their Babies A Penguin's Life	Animal grouping.	Ant farm.	*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

Let's Classify Animals! Why Living Things Need… Food Water Air Homes Living and Nonliving in the…. Desert Ocean Grasslands Rainforest Polar Regions A World of Farming: Farms Around the World			
4.3 Animals and Their Basic Needs Session 3 Texts- Animals and Their Babies A Penguin's Life Let's Classify Animals! Why Living Things Need… Food Water Air Homes Living and Nonliving in the…. Desert Ocean Grasslands Rainforest Polar Regions A World of Farming: Farms	Senses and basic needs.		*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

Around the World			
4.3 Animals and Their Basic Needs Session 4 Texts- Animals and Their Babies A Penguin's Life Let's Classify Animals! Why Living Things Need… Food Water Air Homes Living and Nonliving in the…. Desert Ocean Grasslands Rainforest Polar Regions A World of Farming: Farms Around the World	Senses and basic needs.		*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**
4.3 Animals and Their Basic Needs Session 5 Texts- Animals and Their Babies A Penguin's Life	Animals and their habitats.	Take a walk around the school yard or local nature areas. Look for animals that live in that particular habitat.	*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

Let's Classify Animals! Why Living Things Need… Food Water Air Homes Living and Nonliving in the…. Desert Ocean Grasslands Rainforest Polar Regions A World of Farming: Farms Around the World			
4.3 Animals and Their Basic Needs Session 6 Texts- Animals and Their Babies A Penguin's Life Let's Classify Animals! Why Living Things Need… Food Water Air Homes Living and Nonliving in the…. Desert Ocean Grasslands Rainforest Polar Regions A World of Farming: Farms Around the World	Animals and their habitats.	Take a walk around the school yard or local nature areas. Look for animals that live in that particular habitat.	*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**

4.3 Animals and Their Basic Needs Session 8	Review.		*SL.K.1, SL.K.3, SL.K.6, RI.K1, RI.K2, RI.K3, RI.K4, RI.K5, RI.K7, W.K.2* **K-LS1-1., K-ESS2-2.,** **K- ESS3-1.**
4.4 Taking Care of the Earth Session 1	How we depend on Earth's resources.		**K-ESS3-3.**

4.4 Taking Care of the Earth Session 2	How we can take care of our Earth.	Learning about recycling programs in the area.	**K-ESS3-3.**
5.1 Weather Watching Session 1 Texts- Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout	Introduction to weather.	Invite a local meteorologist.	*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K3, RI.K4, RI.K7, K.MD.A.5, K.MD.A.6* **K-ESS2-1.**

5.1 Weather Watching Session 2 Texts- Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout	Introduction to temperature.		*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K3, RI.K4, RI.K7, K.MD.A.5, K.MD.A.6* **K-ESS2-1.**
5.1 Weather Watching Session 3 Texts-	Introduction to wind speed.		*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K3, RI.K4, RI.K7, K.MD.A.5, K.MD.A.6*

Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout			**K-ESS2-1.**
5.1 Weather Watching Session 4 Texts- Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout	Introduction to precipitations.		*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K3, RI.K4, RI.K7, K.MD.A.5, K.MD.A.6* **K-ESS2-1.**
5.1 Weather Watching Session 5 Texts-	Precipitations and clouds.	Looking at shapes in clouds.	*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K3, RI.K4, RI.K7, K.MD.A.5, K.MD.A.6* **K-ESS2-1.**

Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout			
5.1 Weather Watching Session 6 Texts- Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout	Weather data analysis.	Use live weather cameras in the area.	*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K3, RI.K4, RI.K7, K.MD.A.5, K.MD.A.6* **K-ESS2-1.**
5.2 Stormy Weather Ahead! Session 1 Texts-	How the weather is predicted.	Invite a local meteorologist.	*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K4, RI.K.6, RL.K.3, RL.K.4, RL.K.7* **K-ESS2-1., K-ESS3-2.**

Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout			
5.2 Stormy Weather Ahead! Session 2 Texts- Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout	Safety in a thunderstorm.		*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K4, RI.K.6, RL.K.3, RL.K.4, RL.K.7* **K-ESS2-1., K-ESS3-2.**
5.2 Stormy Weather Ahead! Session 3 Texts-	Severe weather and preparations to it.		*SL.K.1, SL.K.2, SL.K.3, SL.K.6, RI.K1, RI.K4, RI.K.6, RL.K.3, RL.K.4, RL.K.7* **K-ESS2-1., K-ESS3-2.**

Maisy's Wonderful Weather Book What is Weather? Blizzard Blackout			
6.1 Sunlight and Energy Session 1 Texts- Sunlight	Introduction to light energy and the Sun as a source of energy.	Use a lamp with a warm bulb to show that the light produced by the bulb is warm.	*SL.K1.a, SL.K1.b, RI.K1, RI.K2, RI.K.4, RL.K.5, RL.K.7, K.MD.2* **K-PS3-1., K-PS3-2.**
6.1 Sunlight and Energy Session 2 Texts- Sunlight	How the radiation from the Sun warms materials.	Try more materials.	*SL.K1.a, SL.K1.b, RI.K1, RI.K2, RI.K.4, RL.K.5, RL.K.7, K.MD.2* **K-PS3-1., K-PS3-2.**

6.1 Sunlight and Energy Session 3 Texts- Sunlight	Building an umbrella to test materials under sun light.	Have students' select new materials to test.	*SL.K1.a, SL.K1.b, RI.K1, RI.K2, RI.K.4, RL.K.5, RL.K.7, K.MD.2* **K-PS3-1., K-PS3-2.**

6.1 Sunlight and Energy Session 4 Texts- Sunlight	Testing the umbrella materials and designs.		*SL.K1.a, SL.K1.b, RI.K1, RI.K2, RI.K.4, RL.K.5, RL.K.7, K.MD.2* **K-PS3-1., K-PS3-2.**

The following sessions (lessons) are considered enrichment lessons.

Lesson & Session	Session Goal	Suggested Extension	NJSLS
1.2 Seeing the Difference: Comparing Height and Length Session 3	Comparing heights.		*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*

1.3 Feeling the Difference: Comparing Weight Session 1 Texts- Mighty Maddie	Comparing weights.		*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.3 Feeling the Difference: Comparing Weight Session 2 Texts- Mighty Maddie	Comparing weights with respect to an object.		*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.3 Feeling the Difference: Comparing Weight Session 3 Texts- Mighty Maddie	Introducing the double pan balance.		*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.3 Feeling the Difference: Comparing Weight Session 4 Texts- Mighty Maddie	Comparing weights with a double pan balance.	Create a measurement center activity where students can use a balance to compare the weights of various objects.	*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*
1.3 Feeling the Difference: Comparing Weight Session 5 Texts- Mighty Maddie	Weight Assessment.		*SL.K.1, SL.K.3, K.MD.A.1, K.MD.A.2*

1.4 How Much Will it Hold: Comparing Capacity Session 1	Introduction to capacity.		*SL.K.1, K.MD.A.1, K.MD.A.2*

Texts-A House for Birdie Room for Ripley			
1.4 How Much Will it Hold: Comparing Capacity Session 2 Texts-A House for Birdie Room for Ripley	Introduction to capacity.		*SL.K.1, K.MD.A.1, K.MD.A.2*
1.4 How Much Will it Hold: Comparing Capacity Session 3 Texts-A House for Birdie Room for Ripley	Introduction to capacity. Compare relative capacities of various common containers.	Work in small groups to order stuffed animals from small to large and then select an appropriately sized box for each.	*SL.K.1, K.MD.A.1, K.MD.A.2*
1.4 How Much Will it Hold: Comparing Capacity Session 4 Texts-A House for Birdie Room for Ripley	Introduction to capacity. Compare relative capacities of various common containers.		*SL.K.1, K.MD.A.1, K.MD.A.2*
1.4 How Much Will it Hold: Comparing Capacity Session 5 Texts-A House for Birdie Room for Ripley	Introduction to the use of eyedroppers and assessment.		*SL.K.1, K.MD.A.1, K.MD.A.2*
3.1 Our Sensational Senses Session 1 Texts-Brown Bear, Brown Bear, What Do You See?	Learning about the sense of sight.	Learning about solution and practices followed by visually impaired persons.	*SL.K.1a, SL.K.1b, SL.K.2, SL.K.3, SL.K.6*, *RI.K2, RI.K8, W.K.2, W.K.8* **K-LS1-1.**

My Five Senses Our Eyes Can See			
3.1 Our Sensational Senses Session 2 My Five Senses Our Skin Can Touch	Learning about the sense of touch.	Collect objects with different textures.	*SL.K.1a, SL.K.1b, SL.K.2, SL.K.3, SL.K.6, RI.K2, RI.K8, W.K.2, W.K.8* **K-LS1-1.**
3.1 Our Sensational Senses Session 3 My Five Senses The Listening Walk Our Ears Can Hear	Learning about the sense of hearing.	Learning about sign language.	*SL.K.1a, SL.K.1b, SL.K.2, SL.K.3, SL.K.6, RI.K2, RI.K8, W.K.2, W.K.8* **K-LS1-1.**
3.1 Our Sensational Senses Session 4 My Five Senses Our Noses Can Smell	Learning about the sense of smell.		*SL.K.1a, SL.K.1b, SL.K.2, SL.K.3, SL.K.6, RI.K2, RI.K8, W.K.2, W.K.8* **K-LS1-1.**

3.1 Our Sensational Senses Session 5 My Five Senses Our Mouths Can Taste	Learning about the sense of taste.		*SL.K.1a, SL.K.1b, SL.K.2, SL.K.3, SL.K.6, RI.K2, RI.K8, W.K.2, W.K.8* **K-LS1-1.**

Bloomingdale School District

Grade One Science

"Knowing Science" Pacing Chart

Developed July 2017-revised August 2018

Approximately 5-6 Weeks Per Unit, 3-4 Sessions Per Week = 15-24 Sessions Per Unit

The following sessions (lessons) are considered essential to students' development as learners.

Lesson & Session	Session Goal	Suggested Extension	NJSLS
3.1 The Circle of Life—Animal Life Cycles Session 1	Introduction to life cycles and the human life cycle.	Invite family members to discuss about the different generations.	**1-LS1-2, 1-LS3-1** *LA.1.1, 1.3, 1.4, 1.5, 1.6*
3.1 The Circle of Life—Animal Life Cycles Session 2	Introduction to the chicken life cycle.		**1-LS1-2, 1-LS3-1** *LA.1.1, 1.3, 1.4, 1.5, 1.6*
3.1 The Circle of Life—Animal Life Cycles Session 3	Introduction to the butterfly life cycle.		**1-LS1-2, 1-LS3-1** *LA.1.1, 1.3, 1.4, 1.5, 1.6*
3.1 The Circle of Life—Animal Life Cycles Session 4	Introduction to the frog life cycle.		**1-LS1-2, 1-LS3-1** *LA.1.1, 1.3, 1.4, 1.5, 1.7*
3.1 The Circle of Life—Animal Life Cycles Session 5	Review.	Compare the life cycles of several animals.	**1-LS1-2, 1-LS3-1** *LA.1.1, 1.3, 1.4, 1.5, 1.7*

3.2 Getting Together—Animals that Live in Groups Session 1	Describing human families.	Creating posters.	**1-LS1-2.** *1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.2 Getting Together—Animals that Live in Groups Session 2	Describing herds.	Creating posters.	**1-LS1-2.** *1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.2 Getting Together—Animals that Live in Groups Session 3	Describing packs.	Creating posters. Discussing differences between wolfs and dogs.	**1-LS1-2.** *1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.2 Getting Together—Animals that Live in Groups Session 4	Describing schools.	Creating posters.	**1-LS1-2.** *1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.2 Getting Together—Animals that Live in Groups Session 5	Describing colonies.	Creating posters.	**1-LS1-2.** *1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.2 Getting Together—Animals that Live in Groups Session 6	Review.	Research about animal families.	**1-LS1-2.** *1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
4.1 Inspired by Nature Session 1	Understand the concept of biomimicry.		**1-LS1-1., K-2-ETS1-1.** *1.RI.1.7* *1.W.1.7, 1.W.1.8* *1.SL.1.1a, 1.1b, 1.1c, 1.3* *1.KI.1.4, 1.5, 1.6*
4.1 Inspired by Nature Session 2	Examples of biomimicry.		**1-LS1-1., K-2-ETS1-1.** *1.RI.1.7* *1.W.1.7, 1.W.1.8* *1.SL.1.1a, 1.1b, 1.1c, 1.3* *1.KI.1.4, 1.5, 1.6*

4.1 Inspired by Nature Session 3	Identify unique and specialized external structures that help plants and animals meet their basic needs for survival.		**1-LS1-1., K-2-ETS1-1.** *1.RI.1.7* *1.W.1.7, 1.W.1.8* *1.SL.1.1a, 1.1b, 1.1c, 1.3* *1.KI.1.4, 1.5, 1.6*
4.1 Inspired by Nature Session 4	Identify unique and specialized external structures that help plants and animals meet their basic needs for survival. Give examples of nature-inspired human technology.		**1-LS1-1., K-2-ETS1-1.** *1.RI.1.7* *1.W.1.7, 1.W.1.8* *1.SL.1.1a, 1.1b, 1.1c, 1.3* *1.KI.1.4, 1.5, 1.6*
Lesson & Session	**Session Goal**	**Suggested Extension**	**NJSLS**
5.1 Sun, and Moon Session 1	Model the rotation of Earth to explain day and night.	Ask students to list ways their lives would be different if they could not predict that we always move from day to night and night to day on a regular schedule.	**1-ESS1-1.** *1.KI.2.1*
5.1 Sun, and Moon Session 2	Represent and explain the daily apparent motion of the Sun.		**1-ESS1-1.** *1.KI.2.1*
5.1 Sun, and Moon Session 3	Create models to understand length and direction of shadows in daily patterns.		**1-ESS1-1.** *1.KI.2.1*
5.1 Sun, and Moon Session 4	Identify the cyclical phases of the moon.		**1-ESS1-1.** *1.KI.2.1*
5.2 The Seasons Session 1	Model how the Earth orbits the sun and the seasons.	Help the class locate your town on a globe. Discuss the current season for your town. Then	**1-ESS1-1., 1-ESS1-2.** *1.KI.2.1*

		select a town in the Southern Hemisphere and compare it to your town.	
5.2 The Seasons Session 2	Describe some of the differences between the seasons.		**1-ESS1-1., 1-ESS1-2.** *1.KI.2.1*
5.3 Star Patterns Session 1	Explain why we cannot see stars during the day.		**1-ESS1-1.** *1.KI.2.1*
5.3 Star Patterns Session 2	Explain why the stars that form constellations seem to change with the seasons.		**1-ESS1-1.** *1.KI.2.1*
3.3 Ready? Set? Snow! Winter Survival Behaviors Session 1	How people get ready for winter.		*1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.3 Ready? Set? Snow! Winter Survival Behaviors Session 2	Animal migrations.	Research on animals winter behaviors.	*1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.3 Ready? Set? Snow! Winter Survival Behaviors Session 3	Animal hibernation.	Research on animals winter behaviors.	*1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.3 Ready? Set? Snow! Winter Survival Behaviors Session 4	Winter sleep vs hibernation.	Research on animals winter behaviors.	*1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*
3.3 Ready? Set? Snow! Winter Survival Behaviors Session 5	Animals remaining active during winter.	Research on animals winter behaviors.	*1.RI.1.1, RI.1.2, RI.1.6, RI.1.7*

Lesson & Session	Session Goal	Suggested Extension	NJSLS
1.1 Ready, Set, Measure! Session 1 How Big is a Foot? How Do You Measure Length and Distance? Inch by Inch	Measuring and comparing measurements of feet.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.1 Ready, Set, Measure! Session 2 I Fall Down How Do You Measure Weight? How Heavy? Wacky Ways to Compare Weight	Measuring and comparing measurements of feet.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.1 Ready, Set, Measure! Session 3 Drip, Drop How Do You Measure Liquids?	Measuring blocks.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.1 Ready, Set, Measure! Session 4	Measuring with Eco Cubes®.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.1 Ready, Set, Measure! Session 5	Measuring with a ruler.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.1 Ready, Set, Measure! Session 6	Assessment.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.2 Comparing Weight to a Standard Session 1	Comparing weights.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*

1.2 Comparing Weight to a Standard Session 2	Introduction to gravity as a force.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.2 Comparing Weight to a Standard Session 3	Using a double pan balance to compare weights.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.2 Comparing Weight to a Standard Session 4	Using a double pan balance to compare weights.	Weight scavenger hunt: students find objects lighter or heavier than an assigned object.	*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.2 Comparing Weight to a Standard Session 5	Assessment.		*1.MD.A.1, 1. MD.A.2, 1. MD.C.4* *1.SL.1.3, 1.SL.1.3*
1.3 Comparing Capacity Session 1	Introduction to capacity.		*1.SL.1.3, 1.SL.1.3*
1.3 Comparing Capacity Session 2	Introduction to capacity. Quantifying capacity.	Create a center or learning station with pans of rice or macaroni and a limited selection of actual measuring cups or containers for further exploration.	*1.SL.1.3, 1.SL.1.3*
1.3 Comparing Capacity Session 3	Introduction to capacity: customary measuring units.	Create a center or learning station with pans of rice or macaroni and a limited selection of actual measuring cups or containers for further exploration.	*1.SL.1.3, 1.SL.1.3*
1.3 Comparing Capacity Session 4	Introduction to capacity: customary measuring units.		*1.SL.1.3, 1.SL.1.3*

1.3 Comparing Capacity Session 5	Introduction to capacity.		*1.SL.1.3, 1.SL.1.3*
2.1 Good Vibrations! – The Science of Sound Session 1 What are Shadows and Reflections?	Listening to sounds around us.		**1-PS4-1.** *1.RL.1.1, 1.RL.1.2, 1.RL.1.3, 1.RL.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.6*
2.1 Good Vibrations! – The Science of Sound Session 2	Introduction to vibrations.	Exploring sounds emitted through vibrations of different materials.	**1-PS4-1.** *1.RL.1.1, 1.RL.1.2, 1.RL.1.3, 1.RL.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.6*
2.1 Good Vibrations! – The Science of Sound Session 3	How vibrations cause sounds.	Exploring musical instruments.	**1-PS4-1.** *1.RL.1.1, 1.RL.1.2, 1.RL.1.3, 1.RL.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.6*
2.1 Good Vibrations! – The Science of Sound Session 4	How sounds cause vibrations.		**1-PS4-1.** *1.RL.1.1, 1.RL.1.2, 1.RL.1.3, 1.RL.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.6*
2.1 Good Vibrations! – The Science of Sound Session 5	Producing vibrations/sounds using speakers.		**1-PS4-1.** *1.RL.1.1, 1.RL.1.2, 1.RL.1.3, 1.RL.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.6*
2.2 Light All Around Session 1 The Listening Walk	How light helps us to see.		**1-PS4-2, 1-PS4-3** *1.RI.1.1, 1.RI.1.4*

How Does Sound Change?			*1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.1.C, 1.SL.1.2, 1.SL.1.1.3*
2.2 Light All Around Session 2	Exploring sources of light.	Introducing light energy in Life Science.	**1-PS4-2, 1-PS4-3** *1.RI.1.1, 1.RI.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.1.C, 1.SL.1.2, 1.SL.1.1.3*
2.2 Light All Around Session 3	Exploring how light travels.		**1-PS4-2, 1-PS4-3** *1.RI.1.1, 1.RI.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.1.C, 1.SL.1.2, 1.SL.1.1.3*

2.2 Light All Around Session 4	Exploring how light travels through materials.	Observing shadows.	**1-PS4-2, 1-PS4-3** *1.RI.1.1, 1.RI.1.4* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.1.C, 1.SL.1.2, 1.SL.1.1.3*
2.3 Communication Design Challenge Session 1 How Does Sound Change?	Presenting the design problem.		**1-PS4-1, 1-PS4-4** *1.RL.1.1, 1.R.L.1.2, 1.R.L.1.3, 1.RL.1.4, 1.RL.1.6* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.5, 1.SL.1.6*
2.3 Communication Design Challenge Session 2	How matter conducts sound.		**1-PS4-1, 1-PS4-4** *1.RL.1.1, 1.R.L.1.2, 1.R.L.1.3, 1.RL.1.4, 1.RL.1.6* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.5, 1.SL.1.6*
2.3 Communication Design Challenge Session 3	Making the phones.		**1-PS4-1, 1-PS4-4** *1.RL.1.1, 1.R.L.1.2, 1.R.L.1.3, 1.RL.1.4, 1.RL.1.6* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.5, 1.SL.1.6*
2.3 Communication Design Challenge Session 4	Making and testing the phones.	Creating a “party line” where two cup phone sets are connected.	**1-PS4-1, 1-PS4-4** *1.RL.1.1, 1.R.L.1.2, 1.R.L.1.3, 1.RL.1.4, 1.RL.1.6* *1.SL.1.1.A, 1.SL.1.1.B, 1.SL.1.2, 1.SL.1.3, 1.SL.1.5, 1.SL.1.6*

Bloomingdale School District

Grade Two Science

"Knowing Science" Pacing Chart Developed

July 2017-revised August 2018

Approximately 5-6 Weeks Per Unit, 3-4 Sessions Per Week = 15-24 Sessions Per Unit

The following sessions (lessons) are considered essential to students' development as learners.

Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
1.3 Measuring Capacity/Liquid Measurements Session 1	Measuring with graduated cylinders and beakers.	Create a center or learning station with pans of rice or macaroni and a limited selection of graduated cylinders, beakers or other containers for further exploration.	*SL.2.1, 2.3*
1.3 Measuring Capacity/Liquid Measurements Session 2	Understand and explain the relationship between metric measuring containers.		*SL.2.1, 2.3*
1.3 Measuring Capacity/Liquid Measurements Session 3	Liter vs milliliter.		*SL.2.1, 2.3*
1.4 Measuring Temperature Session 1	Explain how to read a thermometer.	Place various kinds of thermometers on a table in a	*SL.2.1, 2.3*

		corner. Allow students to explore how each one measures temperature.	

1.4 Measuring Temperature Session 2	Explain how to measure temperature		*SL.2.1, 2.3*
2.1 Properties Session 1	Use dichotomous sorting to classify a set of attributes.		*SL.2.1, 2.2* *2.MD.1* **2-PS1-1**., **2-PS1-2.**
2.1 Properties Session 2	Describe how to sort objects by observable properties.		*SL.2.1, 2.2* *2.MD.1* **2-PS1-1**., **2-PS1-2.**
2.1 Properties Session 3	Plan an investigation to determine which material is best suited to a specific task.		*SL.2.1, 2.2* *2.MD.1* **2-PS1-1**., **2-PS1-2.**
2.1 Properties Session 4	Carrying out the investigation.		*SL.2.1, 2.2* *2.MD.1* **2-PS1-1**., **2-PS1-2.**
2.1 Properties Session 5	Learning how to share the data.	Create a center where students can design a fair test to assess the absorbency of other materials other than sponges.	*SL.2.1, 2.2* *MD.10* **2-PS1-1**., **2-PS1-2.**
2.2 Properties of Solids, Liquids, and Gases Session 1	Introduction of the states of matter.		*SL.2.1, 2.2* **2-PS1-1**.
2.2 Properties of Solids, Liquids, and Gases Session 2	Describing properties of liquids.		*SL.2.1, 2.2* **2-PS1-1**.

2.2 Properties of Solids, Liquids, and Gases Session 3	Describing properties of solids.		*SL.2.1, 2.2* **2-PS1-1**.

2.2 Properties of Solids, Liquids, and Gases Session 4	Describing properties of gasses.		*SL.2.1, 2.2* **2-PS1-1**.
2.2 Properties of Solids, Liquids, and Gases Session 5	Comparing properties of solids, liquids, and gases.		*SL.2.1, 2.2* **2-PS1-1**.
2.3 Can Matter Change? Session 1	Describe how heating/cooling can cause reversible/irreversible changes.		*SL.2.1,2.2* **2-PS1-3**., **2-PS1-4**.
2.3 Can Matter Change? Session 2	Describe how heating/cooling can cause reversible/irreversible changes.	Create a center that focuses on reversible and irreversible changes and provide materials for students (under supervision) to replicate the experiments in this lesson.	*SL.2.1, 2.2* **2-PS1-3**., **2-PS1-4**.
2.3 Can Matter Change? Session 3	Explore how a structure made of separate pieces can be rearranged to form a new one.		*SL.2.1, 2.2* **2-PS1-3**., **2-PS1-4**.
3.1 Plant Munchies—What Plants Need to Survive Session 3	Plan and carry out a guided inquiry about the basic needs of plants.		*RI.2.1, 2.4, 2.5, 2.10* *2.MD.1, 2.MD.4* **2-LS2-1.**
3.1 Plant Munchies—What Plants Need to Survive Session 4	Record and communicate the observations from the inquiry.		*RI.2.1, 2.4, 2.5, 2.10* *2.MD.1, 2.MD.4* **2-LS2-1.**

3.2 Habitat, Sweet Habitat Session 1	Describe what a habitat is.		*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.2 Habitat, Sweet Habitat Session 2	Woodland and rainforest habitats.	Build a classroom terrarium to model a rainforest ecosystem.	*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**

3.2 Habitat, Sweet Habitat Session 3	Desert and tundra habitats.	Build a classroom terrarium to model a desert ecosystem.	*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.2 Habitat, Sweet Habitat Session 4	Ocean and fresh water habitats.	Build a classroom aquarium to model a pond ecosystem.	*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.2 Habitat, Sweet Habitat Session 5	Review.	Explore a local ecosystem.	*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.3 Adaptations and Interdependency Session 1	Describe adaptations for eating.	Choose a dinosaur and research its adaptations.	*RI 2.1, 2.2, 2.4, 2.5, 2.6, 2.7* **2-LS2-2.**
3.3 Adaptations and Interdependency Session 2	Describe adaptations for protection.		*RI 2.1, 2.2, 2.4, 2.5, 2.6, 2.7* **2-LS2-2.**
3.3 Adaptations and Interdependency Session 3	Describe behaviors for protection.	Observe as many animals as possible and record both physical structures and behaviors.	*RI 2.1, 2.2, 2.4, 2.5, 2.6, 2.7* **2-LS2-2.**
3.3 Adaptations and Interdependency Session 4	Explain interdependent relationships between animals and plants in any given ecosystem.		*RI 2.1, 2.2, 2.4, 2.5, 2.6, 2.7* **2-LS2-2.**
3.3 Adaptations and Interdependency Session 5	Classify adaptations in terms of basic needs.		*RI 2.1, 2.2, 2.4, 2.5, 2.6, 2.7* **2-LS2-2.**

3.3 Adaptations and Interdependency Session 6	Review.	Create an original animal from play dough or modeling clay. Decide where it would live and what physical adaptations it might need to live in its habitat.	*RI 2.1, 2.2, 2.4, 2.5, 2.6, 2.7* **2-LS2-2.**

3.5 Habitats Change Session 1	Food webs.		*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.5 Habitats Change Session 2	Give cause and effect examples of natural changes in a habitat.	Research various dinosaurs as parts of food chains and food webs and discover how significant natural changes in their habitat caused extinction.	*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.5 Habitats Change Session 3	Give cause and effect examples of human impact on habitats and classify them as positive or negative.		*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.5 Habitats Change Session 4	Helpful and harmful changes to a habitat or ecosystem.		*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.5 Habitats Change Session 5	Human impact on habitats.		*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
3.5 Habitats Change Session 6	Human impact on habitats.		*RI 2.1, 2.2, 2.4, 2.5, 2.7* **2-LS4-1.**
4.1 Earth's Land and Water Session 1	Explain how landform maps serve as models of Earth's features.		*SL 2.4.1.c* **2-ESS2-2.**
4.1 Earth's Land and Water Session 2	Distribution of water on Earth.		*SL 2.4.1.c* **2-ESS2-2.**

4.1 Earth's Land and Water Session 3	Landforms.	Obtain some paintings that feature landscapes. Show the first painting to the class and ask students to identify what landforms and/or water features they detect in the picture.	*SL 2.4.1.c* **2-ESS2-2.**

4.1 Earth's Land and Water Session 4	Locate and describe the main types of landform and water features.		*SL 2.4.1.c* **2-ESS2-2.**
4.1 Earth's Land and Water Session 5	Building a model to describe the main types of landform and water features.		*SL 2.4.1.c* **2-ESS2-2.**
4.1 Earth's Land and Water Session 6	Presenting the model.		*SL 2.4.1.c* **2-ESS2-2.**
4.2 Fast and Slow Changes Session 1	Weathering.	Research the geology of your local area.	*SL 2.4.1.c* **2-ESS1-1.**
4.2 Fast and Slow Changes Session 2	Describe weathering causes.		*SL 2.4.1.c* **2-ESS1-1.**
4.2 Fast and Slow Changes Session 3	Modelling weathering.		*SL 2.4.1.c* **2-ESS1-1.**
4.2 Fast and Slow Changes Session 4	Erosion.	Field trip to find evidence of erosion or erosion prevention.	*SL 2.4.1.c* **2-ESS1-1.**
4.2 Fast and Slow Changes Session 5	Describe erosion causes.		*SL 2.4.1.c* **2-ESS1-1.**
4.2 Fast and Slow Changes Session 6	Modelling erosion.		*SL 2.4.1.c* **2-ESS1-1.**

4.2 Fast and Slow Changes Session 7	Explain and give examples of fast changes to Earth's surface.		*SL 2.4.1.c* **2-ESS1-1.**
4.3 Erosion Prevention Design Challenge Session 1	Plants and erosion.		*SL 2.4.1.c* **2-ESS2-1., K-2-ETS1-1., K-2-ETS1-3**.

4.3 Erosion Prevention Design Challenge Session 2	Design and compare multiple solutions designed to prevent or slow water from changing the shape of the land.	Contact a local civil engineer.	*SL 2.4.1.c* **2-ESS2-1., K-2-ETS1-1., K-2-ETS1-3**.
4.3 Erosion Prevention Design Challenge Session 3	Create a labeled diagram and physical model to illustrate how the solution solves the given problem.		*SL 2.4.1.c* **2-ESS2-1., K-2-ETS1-1., K-2-ETS1-3**.
4.3 Erosion Prevention Design Challenge Session 4	Analyze observational data from tests of multiple design solutions and compare how each design solution performs.		*SL 2.4.1.c* **2-ESS2-1., K-2-ETS1-1., K-2-ETS1-3**.
4.3 Erosion Prevention Design Challenge Session 5	Sharing the design.		*SL 2.4.1.c* **2-ESS2-1., K-2-ETS1-1., K-2-ETS1-3**.

The following sessions (lessons) are considered enrichment lessons.

Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
1.1 How Long? How Far? Session 1	Measuring with nonstandard units.		*SL.2.1, 2.3*
1.1 How Long? How Far? Session 2	Measuring with hand spans.		*SL.2.1, 2.3*
1.1 How Long? How Far? Session 3	Measuring with a ruler.		*SL.2.1, 2.3*
1.1 How Long? How Far? Session 4	Measuring with a meter.		*SL.2.1, 2.3*

1.1 How Long? How Far? Session 5	Measuring with a tape measure.		*SL.2.1, 2.3*
1.1 How Long? How Far? Session 6	Measuring distances.		*SL.2.1, 2.3*
1.1 How Long? How Far? Session 7	Flick contest and data collection and analysis.		*SL.2.1, 2.3*
1.1 How Long? How Far? Session 8	Assessment.		*SL.2.1, 2.3*
1.2 Feeling the Difference: Weight Session 1	Comparing weights.		*SL.2.1, 2.3*
1.2 Feeling the Difference: Weight Session 2	Measuring with nonstandard units.		*SL.2.1, 2.3*
1.2 Feeling the Difference: Weight Session 3	Measuring with Eco Cubes.		*SL.2.1, 2.3*
1.2 Feeling the Difference: Weight Session 4	Comparing gram masses with a double pan balance.		*SL.2.1, 2.3*
1.2 Feeling the Difference: Weight Session 5	Measuring with gram masses.	Create a measurement center activity where students can use a balance to compare the weights of various objects.	*SL.2.1, 2.3*
1.2 Feeling the Difference: Weight Session 6	Introducing the kilogram.		*SL.2.1, 2.3*

1.2 Feeling the Difference: Weight Session 7	Assessment.		*SL.2.1, 2.3*
3.1 Plant Munchies—What Plants Need to Survive Session 1	Explain that all of a plant's basic needs must be met in order for it to live and grow.		*RI 2.1, 2.4, 2.5, 2.10* *MD.1, MD.4*
3.1 Plant Munchies—What Plants Need to Survive Session 2	Describe the roles that a plant's roots, stems, and leaves play in its food production and survival.	Start a classroom garden box of different types of seeds. Students may observe and compare the growth of seedlings and may also observe the plant parts of each type of seedling by removing some of the seedlings from the box.	*RI 2.1, 2.4, 2.5, 2.10* *MD.1, MD.4*
3.4 Eat or Be Eaten—Food Chains Session 1	Introduction of food chains.	Research about a specific animal. Find out about its food needs and work backwards through the food chain to determine which food sources come before, all the way back to the Sun. Create a food chain to represent the research.	*RI 2.1, 2.2, 2.4, 2.5, 2.7*
3.4 Eat or Be Eaten—Food Chains Session 2	Predators vs preys.		*RI 2.1, 2.2, 2.4, 2.5, 2.7*
3.4 Eat or Be Eaten—Food Chains Session 3	Herbivore, carnivore, omnivore or decomposer.		*RI 2.1, 2.2, 2.4, 2.5, 2.7*

3.4 Eat or Be Eaten—Food Chains Session 4	Explain how the members of any food chain or food web are connected to, or dependent upon, each other.		*RI 2.1, 2.2, 2.4, 2.5, 2.7*
3.4 Eat or Be Eaten—Food Chains Session 5	Explain how the members of any food chain or food web are connected to, or dependent upon, each other.		*RI 2.1, 2.2, 2.4, 2.5, 2.7*

Bloomingdale School District

Grade Three Science

"Knowing Science" Pacing Chart Developed

July 2017-revised August 2018

Approximately 5-6 Weeks per Unit, 3-4 Sessions per Week = 15-24 Sessions per Unit

The following sessions (lessons) are considered essential to students' development as learners.

Physical Science Lesson & Session	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
1.2 Measuring Distance and Motion Session 1	Define and measure distance. Explain the importance of initial and final positions when measuring distance traveled.	**1.1 Measure That! — A Review of Linear Measurement** This review can be done before or after lesson 1.2 Session 1	**3-PS2-2.** *1-MD-2* *1-MD-4* *2-MD-1*
1.2 Measuring Distance and Motion Session 2	Use time to measure how long it takes an object to move. Demonstrate an understanding that the faster something moves, the less time it takes to cover the same distance. Use patterns to predict future motion.	Organize races with multiple linear tracks. Students will be able to compare how fast cars went on each track and the total time to find who was overall the fastest.	**3-PS2-2.** *1-MD-2* *1-MD-4* *2-MD-1*

1.3 Let's Move! Session 1	Explain that a push or a pull causes an object at rest to move. Explain that a force can cause a moving object to stop or change direction. Explain that it requires more force to move a heavier object than a lighter one.	Play a short excerpt from a football, baseball, or soccer game. Ask students to cite instances of forces that stop the movement of the ball, and that change the direction in which a moving ball is traveling.	**3-PS2-2.** *W-3.2.a* *W-3.2.b* *S.L. 3.1*
1.3 Let's Move! Session 2	Practice that a force can cause a moving object to stop or change direction.		**3-PS2-2.** *W-3.2.a* *W-3.2.b* *S.L. 3.1*
1.4 Balanced and Unbalanced Forces Session 1	Explain that balanced forces will not cause an object to stay at rest or will not change its motion. Explain that unbalanced forces will cause an object to change its motion.		**3-PS2-1.** *S.L. 3.1*
1.4 Balanced and Unbalanced Forces Session 2	Practice and measure balanced forces.	Let students come up with more examples of balanced forces.	**3-PS2-1.** *S.L. 3.1*
1.5 Contact and Non-contact Forces Session 1	Introduce contact/noncontact forces.		**3-PS2-3.** *S.L. 3.1.c* *S.L. 3.4*

1.5 Contact and Non-contact Forces Session 2	Explore noncontact forces.	Divide the students into small groups and ask each group to come up with and chart 3 situations where contact forces are at work and then chart 3 situations where non-contact forces are at work.	**3-PS2-3.** *S.L. 3.1.c* *S.L. 3.4*
1.6 Magnets Make Things Move Session 1	Explain what kinds of materials magnets attract. Demonstrate that like poles of two magnets repel each other. Demonstrate that opposite poles of two magnets attract each other.		**3-PS2-3., 3-PS2-4., 3-5-ETS1-** *2., W.3.2.a, W3.2.b, W3.2.d, S.L. 3.4*
1.6 Magnets Make Things Move Session 2	Construct a toy train that incorporates magnetic levitation.	Build a simple electromagnet.	**3-PS2-3., 3-PS2-4., 3-5-ETS1-** *2., W.3.2.a, W3.2.b, W3.2.d, S.L. 3.4*

Life Science Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
2.1: Introducing… Life Cycles! Session 1	Introduce life cycles.		**3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8*
2.1: Introducing… Life Cycles! Session 2	Identify and sequence life cycles stages common to flowering plants and trees.		**3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8*
2.1: Introducing… Life Cycles! Session 3	Identify and sequence general animal life cycle stages.	Study life cycle of plants and animals in the local area.	**3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.2: Plant Life Cycles Session 1	Study plant life cycles planting seeds.	This session will require several follow up sessions to observe the full plant life cycle.	**3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.3: Frog Life Cycles Session 2	Identify, describe and sequence life cycles stages common to frogs.	Plan and built habitats for the frogs.	**3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, RI.3.9, W.3.7, W.3.8*
2.3: Frog Life Cycles Session 3	Prepare to study and work with living frogs. The following session will need to be arranged when the time is right for the frog stage development.	Plan and built habitats for the frogs.	**3-LS1-1.** **3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, RI.3.9, W.3.7, W.3.8*

2.3: Frog Life Cycles Session 4	Observe and describe frog eggs.		**3-LS1-1.** **3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, RI.3.9, W.3.7, W.3.8*
2.3: Frog Life Cycles Session 5	Observe and describe tadpoles.		**3-LS1-1.** **3-LS1-1.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, RI.3.9, W.3.7, W.3.8*

2.3: Frog Life Cycles Session 6	Observe and describe tadpoles transformation into frogs.	Study frog hibernation.	**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, RI.3.9, W.3.7, W.3.8*
2.4: Nature or Nurture—Traits in Animals and Plants Session 1	Differentiate among inherited, learned, and acquired traits.		**3-LS3-1., 3-LS3-2., 3-LS4-1., 3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.4: Nature or Nurture—Traits in Animals and Plants Session 2	Conduct a structured inquiry survey about inherited human traits.		**3-LS3-1., 3-LS3-2., 3-LS4-1., 3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.4: Nature or Nurture—Traits in Animals and Plants Session 3	Introduce to plant traits.		**3-LS3-1., 3-LS3-2., 3-LS4-1., 3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.4: Nature or Nurture—Traits in Animals and Plants Session 4	Explore how nature has influenced human learning and technology.	Research examples.	**3-LS3-1., 3-LS3-2., 3-LS4-1., 3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8.*
2.4: Nature or Nurture—Traits in Animals and	Explain the role of trait variation in the survival of plants and animals.	Research examples.	**3-LS3-1., 3-LS3-2., 3-LS4-1.,**

Plants Session 5			**3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.4: Nature or Nurture—Traits in Animals and Plants Session 6	Learn about fossils and how they contain information about plants and animals traits.	Visit a Natural History museum.	**3-LS3-1., 3-LS3-2., 3-LS4-1., 3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.4: Nature or Nurture—Traits in Animals and Plants Session 7+	Learn and research about selective breeding.	Visit local farms or learn about examples of selective breathing.	**3-LS3-1., 3-LS3-2., 3-LS4-1., 3-LS4-2., 3-LS4-3., 3-LS4-4.** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.5: Animal Communities Session 1	Learn about animal groups.	Purchase an ant farm	**3-LS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.5: Animal Communities Session 5+	Research about group animals.	Research about human communities.	**3-LS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*

Earth and Space Science Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
3.1: What is Weather? Session 1	Identify and describe components of weather (temperature, precipitation, air pressure, wind, and humidity).		**3-ESS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*
3.1: What is Weather? Session 2	Learn how to collect weather data. Record daily sky conditions and temperature. This lesson could be taught earlier during the school year.	Recording daily weather conditions will require additional time throughout the school year.	**3-ESS2-1., 3-ESS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*
3.1: What is Weather? Session 3	Build working models of weather instruments. Record daily sky conditions and temperature.	Research the history of weather instruments.	**3-ESS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*
3.1: What is Weather? Session 6	Describe the interdependent components of weather in forecasting. Record daily sky conditions and temperature.		**3-ESS2-1.**,*R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*
3.1: What is Weather? Session 7	Discuss collected weather data. This lesson can be taught later toward the end of the school year when enough data have been collected.	Discuss about possible improvement to the collection of data.	**3-ESS2-1.**,*R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*

3.2: Climate and Biomes Session 1	Explain the connection between Earth's orbit and seasons in temperate zones. Identify and describe general characteristics of polar, tropical, and temperate climate zones.	Create and keep a chart of local sunrise and sunset times for one or two months.	**3-ESS2-2.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, W.3.7*
3.2: Climate and Biomes Session 2	Understand the concept of biome and make comparisons between biomes in each climate zone.		**3-ESS2-2.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, W.3.7*
3.3: Extreme Weather Session 2	Identify and describe general characteristics of hurricanes. Understand the damage that hurricanes may cause.		**3-ESS3-1.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.6*
3.4: Hurricane House Session 1	Identify hazards to property associated with extreme weather conditions. Understand the basic engineering design process.	Invite an engineer that has experience with hurricane proof constructions.	**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3, SL.3.6, 3.MD.4*
3.4: Hurricane House Session 3	Design, and build a model of a house capable of withstanding extreme weather.	Dedicate as many session as needed to let students work on their house project.	**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3,*

			SL.3.6, 3.MD.4
3.4: Hurricane House Session 5	Test the project.		**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3, SL.3.6, 3.MD.4*
3.4: Hurricane House Session 6	Discuss and review the project.		**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3, SL.3.6, 3.MD.4*

The following sessions (lessons) are considered enrichment lessons.

Life Science Lesson & Session	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
2.2: Plant Life Cycles Session 2	Observe the parts of the seed. Make and record accurate observations regarding growth of familiar plants.	Grow a plant in a root viewer.	**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.2: Plant Life Cycles Session 3	Introduce to seed dispersion mechanisms. Make and record accurate observations regarding growth of familiar plants.		**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.2: Plant Life Cycles Session 4	Introduce to seed dispersion mechanisms. Make and record accurate observations regarding growth of familiar plants.		**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.2: Plant Life Cycles Session 5	Introduce to seed dispersion mechanisms. Make and record accurate observations regarding growth of familiar plants.		**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.2: Plant Life Cycles Session 6+	Make and record accurate observations regarding growth of familiar plants.	Graph seedling growth.	**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*

2.3: Frog Life Cycles Session 1	Review of experiences with tadpoles, frogs, and toads, and questions they would like to have answered during the lesson.		**3-LS1-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, RI.3.9, W.3.7, W.3.8*
2.5: Animal Communities Session 2	Explain how different senses are used for communication between group members.		**3-LS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.5: Animal Communities Session 3	Explain how different senses are used for communication between group members.		**3-LS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.8, W.3.8*
2.5: Animal Communities Session 4	Explain how different senses are used for communication between group members.	Visit a local zoo, aquarium, or nature center to observe different animal groups.	**3-LS2-1.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.7, W.3.2, SL.3.1*
2.6: Fossils Tell Stories of Prehistoric Life on Earth Session 1	Explain what a fossil is.		**3-LS4-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, W.3.2, SL.3.1*
2.6: Fossils Tell Stories of Prehistoric Life on Earth Session 2	Describe how fossils are formed.		**3-LS4-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, W.3.2, SL.3.1*
2.6: Fossils Tell Stories of Prehistoric Life on Earth Session 3	Develop an argument from evidence that Earth's environments/organisms have changed over millions of years.	Visit a Natural History museum.	**3-LS4-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, W.3.2, SL.3.1*

Earth and Space Science Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
3.1: What is Weather? Session 4	Describe the relationship between the water cycle and weather. Record daily sky conditions and temperature.	Contact the Earth Science teacher at your middle or high school to talk about weather systems.	**3-ESS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*
3.1: What is Weather? Session 5	Match cloud formations with weather conditions. Record daily sky conditions and temperature.		**3-ESS2-1.,** *R.I.3.1, RI.3.2, RI.3.4, RI3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.4*
3.2: Climate and Biomes Session 3+	Research about climate zones and biomes.	Research animals leaving in extreme conditions.	**3-ESS2-2.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, W.3.7*
3.3: Extreme Weather Session 1	Identify and describe general characteristics of tornadoes. Understand the damage that tornadoes may cause.	Research legends or stories in literature that support or explain certain types of extreme weather or weather events.	**3-ESS3-1.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.6*
3.3: Extreme Weather Session 3	Identify and describe general characteristics of winter storms. Understand the damage that winter storms may cause.		**3-ESS3-1.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.6*

3.4: Hurricane House Session 2	Understand the basic engineering design process. Design, build and test a model of a house capable of withstanding extreme weather.		**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3, SL.3.6, 3.MD.4*

3.4: Hurricane House Session 4	Match stormproof technology to appropriate focus areas of the house. Design, and build a model of a house capable of withstanding extreme weather.		**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3, SL.3.6, 3.MD.4*
3.4: Hurricane House Session 7+	Design, build and test a model of a house capable of withstanding extreme weather.		**3-ESS3-1., 3-5-ETS1-1., 3-5- ETS1-2., 3-5-ETS1-3.,** *R.I.3.1, RI.3.2, RI.3.3, RI.3.4, RI.3.5, RI.3.7, RI.3.9, SL.3.1, SL.3.2, SL.3.3, SL.3.6, 3.MD.4*

Bloomingdale School District

Grade Four Science

"Knowing Science" Pacing Chart Developed

July 2017-revised August 2018

Approximately 5-6 Weeks per Unit, 3-4 Sessions per Week = 15-24 Sessions per Unit

The following sessions (lessons) are considered essential to students' development as learners.

Earth and Space Science Lesson & Session	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
3.2: Fossils Tell a Story Session 1 *Text: Fossils*	Introduce to Pangea.	Provide the opportunity for a "home project" to create Pangea models.	**4-ESS-1-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7* *S.L. 4.1, 4.2*
3.2: Fossils Tell a Story Session 2 *Text: Fossils*	Recognize that fossils provide evidence about organisms that lived long ago Explain how fossils provide evidence about the nature of the environment at any time in history Create models to better understand plate tectonics and fossil records	Find a local geologist or fossil collector to come in and talk about their work.	**4-ESS-1-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7* *S.L. 4.1, 4.2*
3.2: Fossils Tell a Story Session 4 *Text: Fossils*	Make models of fossils		**4-ESS-1-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,*

			4.7 *S.L. 4.1, 4.2*
3.2: Fossils Tell a Story Session 5 *Text: Fossils*	Make models of fossils		**4-ESS-1-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7* *S.L. 4.1, 4.2*
3.4: Weathering and Erosion Session 1 *Text: Erosion: Changing Earth's Surface*	Introduce to weathering	Research the geology of your local area.	**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*
3.4: Weathering and Erosion Session 2 *Text: Erosion: Changing Earth's Surface*	Create models to represent and understand various types of weathering		**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*
3.4: Weathering and Erosion Session 3 *Text: Erosion: Changing Earth's Surface*	Create models to represent and understand various types of weathering		**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*

3.4: Weathering and Erosion Session 4 *Text: Erosion: Changing Earth's Surface*	Introduce to erosion	If you live near a local waterway, take a field trip to find evidence of erosion or erosion prevention.	**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*

3.4: Weathering and Erosion Session 5 *Text: Erosion: Changing Earth's Surface*	Create models to represent and understand various types of erosion		**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*
3.4: Weathering and Erosion Session 6 *Text: Erosion: Changing Earth's Surface*	Create models to represent and understand various types of erosion		**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*
3.4: Weathering and Erosion Session 7 *Text: Erosion: Changing Earth's Surface*	Create models to represent and understand various types of erosion Compare the processes of weathering and erosion Understand the impacts of weathering and erosion on humans		**4-ESS-2-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5, 4.7, 4.9* *S.L. 4.1, 4.4*
3.5: Patterns in Earth's Features Session 1 *Text: Mapping the Land and Weather*	Give examples of Earth's continental and oceanic landforms		**4-ESS-2-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1*
3.5: Patterns in Earth's Features Session 2 *Text: Mapping the Land and Weather*	Explain the main mountains formation mechanisms		**4-ESS-2-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1*
3.5: Patterns in Earth's Features Session 3 *Text: Mapping the Land and*	Compare types of maps that show Earth's features	Create a display of various types of maps brought in by students. Include local maps.	**4-ESS-2-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,*

Weather			*S.L. 4.1*

3.5: Patterns in Earth's Features Session 4 *Text: Mapping the Land and Weather*	Explain how topographic maps represent contour and elevation	Invite a local Scout or 4-H leader to demonstrate orienteering.	**4-ESS-2-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1*
3.6: Volcanoes, Tsunamis and Earthquakes – Oh My! Session 1 *Texts: Anatomy of a Volcanic Eruption; Sweeping Tsunamis; Violent Volcanoes; Shattering Earthquakes*	Understand the ways in which tectonic plates move Explain how volcanoes, earthquakes, and tsunamis form and describe their relationship to each other		**4-ESS-3-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1, 4.4*
3.6: Volcanoes, Tsunamis and Earthquakes – Oh My! Session 2 *Text: Mapping the Land and Weather*	Model natural disasters		**4-ESS-3-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1, 4.4*
3.6: Volcanoes, Tsunamis and Earthquakes – Oh My! Session 3 *Text: Mapping the Land and Weather*	Give examples of preventive measures humans take to reduce the impacts of these natural hazards	Contact school administrators to have them discuss with students emergency plans for the school in the event of a natural disaster.	**4-ESS-3-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1, 4.4*
3.6: Volcanoes, Tsunamis and Earthquakes – Oh My! Session 4 *Text: Mapping the Land and Weather*	Give examples of preventive measures humans take to reduce the impacts of these natural hazards	Invite a representative from the local Red Cross to come talk about what the organization does to help people whose lives have been affected by a natural disaster.	**4-ESS-3-2.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.5,* *S.L. 4.1, 4.4*

Physical Science Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
1.2 Energy and Motion Session 1 *Texts: Energy Makes Things Happen; Energy on Earth*	Explain that energy can be transferred from one object to another		**4-PS3-1., 4-PS3-3.** *S.L. 4.1.C*
1.2 Energy and Motion Session 2 *Texts: Energy Makes Things Happen; Energy on Earth*	Argue from evidence that the more massive an object, the more the energy required to move it	Challenge students to drop the lidded cans from three significantly different heights onto a hard surface. Ask them to measure each height, describe the noise that results from each drop, and chart the data.	**4-PS3-1., 4-PS3-3.** *S.L. 4.1.C*
1.2 Energy and Motion Session 3 *Texts: Energy Makes Things Happen; Energy on Earth*	Assessment		**4-PS3-1., 4-PS3-3.** *S.L. 4.1.C*
1.3 Energy and Forces Session 1 *Texts: Energy Makes Things Happen; Energy on Earth*	Construct an argument, using evidence, to show that when forces are balanced, energy is stored Construct an argument, using evidence, to show that when forces are unbalanced, energy is transformed into motion		**4-PS3-1.** *S.L. 4.1*

1.3 Energy and Forces Session 2 *Texts: Energy Makes Things Happen; Energy on Earth*	Construct an argument, using evidence, to show that when forces are balanced, energy is stored Construct an argument, using evidence, to show that when forces are unbalanced, energy is transformed into motion		**4-PS3-1.** *S.L. 4.1*
1.4 Producing Electrical Energy Session 1 *Texts: Electricity: Bulbs, Batteries, and Sparks; Bridging the Energy Gap; Endangered Energy; Going Green; Electricity; Let's Think About Sustainable Energy*	Explain how mechanical energy is converted into electrical energy Explain that electricity is our most prominent form of energy because it can be stored and transferred easily and over long distances	Introduce students to food chains. In a food chain the primary source of energy is the Sun. Producers (plants) use the Sun to produce their own food, transforming light energy into chemical energy.	**4-PS3-2., 4-PS3-4., 4-ESS3-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.7* *W.4.2.a, 4.2.b, 4.2.c, 4.2.d, 4.2.e, 4.4, 4.5, 4.7, 4.8* *S.L. 4.1.c, 4.4, 4.5*
1.4 Producing Electrical Energy Session 2 *Texts: Electricity: Bulbs, Batteries, and Sparks; Bridging the Energy Gap; Endangered Energy; Going Green; Electricity; Let's Think About Sustainable Energy*	Construct projects related to the production or use of electrical energy Collect information on one of six types of energy sources Collaborate to create an oral presentation on one of six types of energy sources	Multiple sessions may be required for researching and for preparing the presentation.	**4-PS3-2., 4-PS3-4., 4-ESS3-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.7* *W.4.2.a, 4.2.b, 4.2.c, 4.2.d, 4.2.e, 4.4, 4.5, 4.7, 4.8* *S.L. 4.1.c, 4.4, 4.5*

1.4 Producing Electrical Energy Session 3 *Texts: Electricity: Bulbs, Batteries, and Sparks; Bridging the Energy Gap; Endangered Energy; Going Green; Electricity; Let's Think About Sustainable Energy*	Construct projects related to the production or use of electrical energy Collect information on one of six types of energy sources Collaborate to create an oral presentation on one of six types of energy sources	Multiple sessions may be required for researching and for preparing the presentation.	**4-PS3-2., 4-PS3-4., 4-ESS3-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.7* *W.4.2.a, 4.2.b, 4.2.c, 4.2.d, 4.2.e, 4.4, 4.5, 4.7, 4.8* *S.L. 4.1.c, 4.4, 4.5*
1.4 Producing Electrical Energy Session 4 *Texts: Electricity: Bulbs, Batteries, and Sparks; Bridging the Energy Gap; Endangered Energy; Going Green; Electricity; Let's Think About Sustainable Energy*	Construct projects related to the production or use of electrical energy Collect information on one of six types of energy sources Collaborate to create an oral presentation on one of six types of energy sources	Multiple sessions may be required for researching and for preparing the presentation.	**4-PS3-2., 4-PS3-4., 4-ESS3-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.7* *W.4.2.a, 4.2.b, 4.2.c, 4.2.d, 4.2.e, 4.4, 4.5, 4.7, 4.8* *S.L. 4.1.c, 4.4, 4.5*
1.4 Producing Electrical Energy Session 5 *Texts: Electricity: Bulbs, Batteries, and Sparks; Bridging the Energy Gap; Endangered Energy; Going Green; Electricity; Let's Think About Sustainable Energy*	Construct projects related to the production or use of electrical energy Collect information on one of six types of energy sources Collaborate to create an oral presentation on one of six types of energy sources	Visit Power plant. Explore more SnapCircuit projects.	**4-PS3-2., 4-PS3-4., 4-ESS3-1.** *R.I. 4.1, 4.2, 4.3, 4.4, 4.7* *W.4.2.a, 4.2.b, 4.2.c, 4.2.d, 4.2.e, 4.4, 4.5, 4.7, 4.8* *S.L. 4.1.c, 4.4, 4.5*

Life Science Lesson & Session	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
2.1: Animal Classification Session 1	Compare and review traits of living and nonliving things		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W. 4.8*
2.1: Animal Classification Session 2	Compare traits of vertebrates and invertebrates		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W. 4.8*
2.1: Animal Classification Session 3	Explain how animals' physical structures and body coverings may be used to classify them	Go on an "animal scavenger hunt" around the schoolyard, nearby nature trail, or local neighborhood. Have students record the names of animals they observe.	**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W. 4.8*
2.1: Animal Classification Session 4	Explain how animals' physical structures and body coverings may be used to classify them	Visit a Natural History museum.	**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W. 4.8*
2.1: Animal Classification Session 5	Identify and compare observable characteristics of each major vertebrate group		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8, W. 4.8*

2.1: Animal Classification Session 6	Compare animal groups	Create a classification system for nonliving objects in the classroom.	**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W. 4.8*

2.2: Physical Structures, Survival, and Crayfish Session 3 *Text: The Life Cycle of a Crayfish*	Associate the physical structures of animals with basic needs Identify, describe, and associate the physical structures and behaviors of crayfish with their basic needs. Crayfish will need to be ordered in a timely manner.		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-2.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 4 *Text: The Life Cycle of a Crayfish*	Associate the physical structures of animals with survival behaviors	Research on other animals and how they use their physical structures to survive.	**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-2.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 7 *Text: The Life Cycle of a Crayfish*	Study crayfish behavior		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-2.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 8 *Text: The Life Cycle of a Crayfish*	Study crayfish behavior		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-2.**
2.2: Physical Structures, Survival, and Crayfish Session 9 *Text: The Life Cycle of a Crayfish*	Associate animal senses with survival behaviors		**4-LS1-1., 3-5-ETS1-1., 3-5- ETS1-2.** *R.I. 4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*

2.3: Plant Structures and Survival Session 1 *Text: The ABCs of Plants*	Introduce to basic needs of plants	Plant a Garden Box at least four weeks before. This will ensure that the seedlings will have developed roots, stems, leaves, and perhaps flowers that will be observable for lessons.	**4-LS1-1., 3-5-ETS1-3.** *R.I.4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*

2.3: Plant Structures and Survival Session 2 *Text: The ABCs of Plants*	Associate the physical structures of plants (roots, stems, leaves, flowers, and fruits) with basic needs of plants Associate the physical structures of plants with their specific functions and explain how these structures work together as a system in the plant		**4-LS1-1., 3-5-ETS1-3.** *R.I.4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*
2.3: Plant Structures and Survival Session 3 *Text: The ABCs of Plants*	Associate the physical structures of plants (roots, stems, leaves, flowers, and fruits) with basic needs of plants Associate the physical structures of plants with their specific functions and explain how these structures work together as a system in the plant	Prepare a root viewer.	**4-LS1-1., 3-5-ETS1-3.** *R.I.4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*

2.3: Plant Structures and Survival Session 4 *Text: The ABCs of Plants*	Associate the physical structures of plants (roots, stems, leaves, flowers, and fruits) with basic needs of plants Associate the physical structures of plants with their specific functions and explain how these structures work together as a system in the plant		**4-LS1-1., 3-5-ETS1-3.** *R.I.4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*

2.3: Plant Structures and Survival Session 5 *Text: The ABCs of Plants*	Associate the physical structures of plants (roots, stems, leaves, flowers, and fruits) with basic needs of plants Associate the physical structures of plants with their specific functions and explain how these structures work together as a system in the plant		**4-LS1-1., 3-5-ETS1-3.** *R.I.4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*
2.3: Plant Structures and Survival Session 6 *Text: The ABCs of Plants*	Associate the physical structures of plants (roots, stems, leaves, flowers, and fruits) with basic needs of plants Associate the physical structures of plants with their specific functions and explain how these structures work together as a system in the plant		**4-LS1-1., 3-5-ETS1-3.** *R.I.4.1, 4.2, 4.4, 4.5, 4.7, 4.8* *W.4.8*

Waves **Lesson & Session**	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
2.1 Amplitude and Wavelength Session 1 *Texts: What Are Waves?; The Science of Sound Waves*	Describe waves using scientific vocabulary Model waves graphically Explain that waves are caused by repetitive motion		**4-PS4-1., 3-5-ETS1-1.** *R.I. 4.1, 4.2, 4.4, 4.7* *S.L. 4.1a, 4.1c, 4.1d, 4.2*
2.1 Amplitude and Wavelength Session 2 *Texts: What Are Waves?; The Science of Sound Waves*	Describe waves using scientific vocabulary Model waves graphically Explain that waves are caused by repetitive motion Construct a wave generator		**4-PS4-1., 3-5-ETS1-1.** *R.I. 4.1, 4.2, 4.4, 4.7* *S.L. 4.1a, 4.1c, 4.1d, 4.2*
2.1 Amplitude and Wavelength Session 3 *Texts: What Are Waves?; The Science of Sound Waves*	Construct a wave generator		**4-PS4-1., 3-5-ETS1-1.** *R.I. 4.1, 4.2, 4.4, 4.7* *S.L. 4.1a, 4.1c, 4.1d, 4.2*
2.2 How We See Session 1 *Text: The Science of Light Waves*	Explain that light travels in a straight line Explain that light bends Explain that light reflects off objects	Place mirrors to form a maze to reflect the laser beam along a path.	**4-PS4-2., 3-5-ETS1-1., 3-5- ETS1-3.** *R.I. 4.4* *W. 4.10*
2.2 How We See Session 2	Construct a simple model of the human eye		**4-PS4-2., 3-5-ETS1-1.,**

Text: The Science of Light Waves			**3-5- ETS1-3.** *R.I. 4.4* *W. 4.10*
2.3 Using Waves to Transfer Information Session 1 *Text: Waves and Information Transfer*	Explain what a code is Create a code to send information to a recipient		**4-PS4-1., 4-PS4-3., 3-5-ETS1-1., 3-5-ETS1-2.** *R.I. 4.1, 4.2, 4.3, 4.4* *S.L. 4.1.a, 4.1.c, 4.4*
2.3 Using Waves to Transfer Information Session 2 *Text: Waves and Information Transfer*	Create a code to send information to a recipient Decode a coded message from a sender Observe the role of waves in transmitting information	Distribute Activity Sheet 3: Digital and Analog Information to the students.	**4-PS4-1., 4-PS4-3., 3-5-ETS1-1., 3-5-ETS1-2.** *R.I. 4.1, 4.2, 4.3, 4.4* *S.L. 4.1.a, 4.1.c, 4.4*

The following sessions (lessons) are considered enrichment lessons.

Physical Science Lesson & Session	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
1.1 Review of Distance and Motion Session 1	Explain that distance is the separation between two objects Measure the distance between two objects		*W 4.10, 3.MD.4*
1.1 Review of Distance and Motion Session 2	Identify an object's initial and final positions Measure the distance an object travels in two dimensions Measure in seconds how long it takes an object to travel a specified distance Explain that the faster an object moves over a specified distance, the less time it takes	Take the students outside to a playing field that has straight lines (yard lines for football, lines between the bases on a baseball field) and mark starting and finish lines. Then measure the time it takes individual students to run from the initial position to the final position.	*W 4.10, 3.MD.4*

Life Science Lesson & Session	**Session Goal**	**Suggested Extension**	**New Jersey Student Learning Standards**
2.2: Physical Structures, Survival, and Crayfish Session 1	Prepare to work with crayfish		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 2	Prepare to work with crayfish		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 5	Measure crayfish physical structure		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 6	Measure crayfish physical structure		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 10	Compare natural and classroom crayfish habits		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 11	Design and construct a “prosthetic device” to replace a lost crayfish physical structure	Design modifications to the crayfish school environment.	**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.2: Physical Structures, Survival, and Crayfish Session 12	Design and construct a “prosthetic device” to replace a lost crayfish physical structure		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*

2.2: Physical Structures, Survival, and Crayfish Session 13	Design and construct a "prosthetic device" to replace a lost crayfish physical structure		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*

2.2: Physical Structures, Survival, and Crayfish Session 14	Design and construct a "prosthetic device" to replace a lost crayfish physical structure		**4-LS1-1., 3-5-ETS1-1., 3-5-ETS1-2.,** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.4: Plant and Animal Seasonal Responses Session 1	Describe how adaptations of plants allow them to respond to seasonal changes Carry out a guided inquiry about the effects of temperature on plants	Study local plants. (This will require multiple session along the school year.)	**4-LS1-1., 4-LS1-2.** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.4: Plant and Animal Seasonal Responses Session 2	Describe how adaptations of plants allow them to respond to seasonal changes Carry out a guided inquiry about the effects of temperature on plants		**4-LS1-1., 4-LS1-2.** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.4: Plant and Animal Seasonal Responses Session 3	Describe how adaptations of animals allow them to respond to seasonal changes Compare seasonal behaviors of migration, hibernation and staying active Carry out a guided inquiry about the effects of temperature on animals	Research one or more animals that migrate.	**4-LS1-1., 4-LS1-2.** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*

2.4: Plant and Animal Seasonal Responses Session 4	Describe how adaptations of animals allow them to respond to seasonal changes Compare seasonal behaviors of migration, hibernation and staying active Carry out a guided inquiry about the effects of temperature on animals		**4-LS1-1., 4-LS1-2.** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*
2.4: Plant and Animal Seasonal Responses Session 5+	Summarize the learning		**4-LS1-1., 4-LS1-2.** *RI.4.1, RI.4.2, RI.4.4, RI.4.5,RI.4.7, RI.4.8, W.4.8*

Earth and Space Science Lesson & Session	Session Goal	Suggested Extension	New Jersey Student Learning Standards
3.1: Beneath our Feet Session 1	Identify Earth's layers and the characteristics of each	Create an informal learning center or discovery area. Provide books on rocks and minerals and invite students to bring in their own samples to share and identify.	**4-ESS-2-2.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*
3.1: Beneath our Feet Session 2	Create models of Earth's internal structure	Provide the opportunity for a "home project" to create additional models of Earth layers.	**4-ESS-2-2.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*
3.2: Fossils Tell a Story Session 3	Introduce to main types of fossils	Visit a local museum or science center to learn more about local geologic history.	**4-ESS-1-1.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*
3.2: Fossils Tell a Story Session 6	Understand how Earth's history is represented through geologic time	Students may further research fossils or an era of geologic time that interests them.	**4-ESS-1-1.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*
3.3: What is Soil? Session 1	Identify and describe soil layers	Encourage students to bring in soil samples from around their homes or collect samples from the area around the school.	**4-ESS-2-2.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*
3.3: What is Soil? Session 2	Observe properties of soil samples	Invite a local farmer or cooperative extension representative to talk about soil and bring in local samples.	**4-ESS-2-2.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*

3.6: Volcanoes, Tsunamis and Earthquakes – Oh My! Session 5+	Research examples of preventive measures humans take to reduce the impacts of these natural hazards	Have students interview a family member about natural disasters or extreme weather events they have experienced or remember hearing about.	**4-ESS-3-2.** *RI.4.1, RI.4.2, RI.4.3, RI.4.4,RI.4.5, RI.4.7, W.4.9b*