Grades K-2
SCIENCE CURRICULUM

Middle Township Public Schools
216 S. Main Street
Cape May Court House, NJ 08210

Born on Date: August 2018 Revised April 2022

SUBJECT: Science
GRADE LEVEL: K
UNIT 1 TITLE: Earth Science
LENGTH OF STUDY: 17 Lessons

Unit Learning Goals
● Identify the sun as the object that warms Earth's land, water, and air. ● Evaluate the effect of sunlight on soil, sand, rocks, and water. ● Design and build a structure to reduce the warming effect of sunlight on an area. ● Describe weather as the combination of sunlight, wind, snow or rain, and temperature in a particular place at a particular time. ● Describe sunny and cloudy weather. ● Describe windy weather. ● Describe rainy or snowy weather. ● Observe local weather conditions to describe patterns over time. ● Describe and compare four kinds of severe weather (thunderstorms, tornadoes, blizzards, and hurricanes). ● Ask questions about weather forecasts to solve the problem of staying safe from severe weather.

Suggested Sequence of Lessons	Performance Expectations	Disciplinary Core Ideas	Modifications SE, ESL, & G&T	Assessment/Benchmarks
Lesson 1- The Sun Warms Earth, E4-E5 (Daily Target: I can recognize the sun as the object that warms Earth's land, water, and air.) Lesson 2 - Lab: Warmth from the Sun, E6-E7 (Daily Target: I can observe and talk about the effect of sunlight on soil, sand, rocks, and water.) Lesson 3 - **STEM** Lab: Think Like an Engineer - Design a Shade Structure - Plan, E8-E9 (Daily Target: I can work with a group to design a structure that will help an area stay cool.) Lesson 4 - **STEM** Lab: Think Like an Engineer - Design a Shade Structure - Execute, E9a (Daily Target: I can work with a group to build a structure that will help an area stay cool.) Lesson 5 - **STEM** Lab: Think Like an Engineer - Design a Shade Structure - Revise, E9a-E9b (Daily Target: I can work with a group to strengthen the design of our shade structure that will help an area stay cool.) Lesson 6 - The Weather, E10-E11 (Daily Target: I can explain what weather is.)	K-PS3-1 K-PS3-2 K-PS3-2 K-PS3-2	PS3.B PS3.B ESS2.D ESS2.D ESS2.D	SE - ● follow 504/IEP accommodations ● create visual word wall with labels ● highlight and define important vocabulary ● ask yes/no questions ● provide sentence frames or sentence stems ● allow for use of pictures in science journal with dictation support ● create a word map ESL - ● create visual word wall with labels ● highlight and define important vocabulary ● ask yes/no questions ● provide sentence frames or	Science Journal: Wrap It Up? Science Journal: Warm or Cool? Table, Wrap It Up? Science Journal: Group plans, Teacher Questioning Completed Structure, Teacher Questioning Science Journal: Wrap It Up?, Groups Share Results & Process Science Journal: Wrap It Up?

Lesson 7 - Sunny and Cloudy, E12-E13 (Daily Target: I can describe sunny and cloudy weather.) Lesson 8 - Windy Weather, E14-15 (Daily Target: I can tell when the wind is blowing.) Lesson 10 - Wet Weather, E16-E17 (Daily Target: I can describe rainy and snowy weather.) Lesson 11(5 days) - Lab: Weather Patterns/Conditions 1, E18-19 (Daily Target: I can observe and describe local weather conditions over time.) *This lab involves checking the weather conditions in the morning and afternoon over the course of a week. Day 1 Introduce and begin lab Continue observation records and extension activities Lesson 12 - Weather Patterns, E20-E21 (Daily Target: I can describe weather patterns.) Lesson 13 (5 days) - **STEM** Lab: Weather Patterns/Conditions 2, E22-23 (Daily Target: I can observe and describe local weather conditions over time.) *This lab involves checking the weather	K-ESS2-1 ETK-ESS2-1 K-ESS3-3	ESS2.D ESS2.D ESS2.D	sentence stems ● allow for use of pictures in science journal with dictation support ● create a word map G&T- ● Research tasks ● Answer Wrap It? in writing ● Record questions	Science Journal: Wrap It Up? Science Journal: Wrap It Up? Science Journal: Wrap It Up? Science Journal: Wrap It Up? Science Journal: Wrap It Up?, Daily Weather Observations (BLM1) Science Journal: Wrap It Up ?, Local Weather Pattern Chart by Months iPad Project

conditions each day over the course of a week. Introduce and begin lab, Continue observation records and extension activities	K-ESS2-1	ESS3.B		
Lesson 14 - Thunderstorms and Tornadoes, E24-E25 (Daily Target: I can describe how thunderstorms and tornadoes are alike and different.)	K-ESS2-1	ESS3.B		Science Journal: Wrap It Up?, Daily Weather Observations (BLM2)
Lesson 15 - Lab: Tornado in a Bottle, E25 (Daily Target: I can describe a tornado.)		ESS3.B		Science Journal: Wrap It Up?
Lesson 16 - Blizzards and Hurricanes, E26-E27 (Daily Target: I can describe how blizzards and hurricanes are alike and different.				Science Journal: Wrap It Up?
Lesson 17 - Predicting Weather, E28-E29 (Daily Target: I can ask questions about the weather forecast to stay safe from severe weather.) *Extension Activities: ● SMART TV: ● Physical Science Launch Video and interactive white board lessons on web page: ● Myngconnect	K-ESS3-2, K-2-ETS1-1	ESS3.B, ETS1.A		Science Journal: Wrap It Up? Unit Assessment

Materials Needed
For daily lesson/lab materials please see Exploring Science Kindergarten teacher's guide. Materials that need to be collected: ● Cardboard ● 1-2 Liter plastic bottles Materials that need to be ordered: ● Small clear plastic cups – 50 per class (350) ● 2 bags soil, 2 bags sand, 2 bags rocks ● Masking tape 1" – 2 rolls per class (14) ● Measuring cups – 1 set per class (7) ● Sharpe Markers (Color Variety) – 1 set per class (7) ● Modeling clay ● Aluminum Wrap - 4 small boxes per class (28) ● Cloth ● Construction Paper ● Small dowels ● Craft sticks ● Pipe cleaners ● Tape ● Streamers (3 colors) ● Straws – 1 large box per class (7) ● Brass Fasteners – 1 box per class (7) ● Small Plastic Cups (bathroom size) – 100 per class ● Push Pins – 1 box per class (7) ● Food Coloring – 1 set per class (7)

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Connections to NJSLS – English Language Arts • RL.K.1 With prompting and support, ask and answer questions about key details in a text (e.g., who, what, where, when, why, how). (K-ESS2-2) • W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2) • W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2- 2) • W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1) Connections to NJSLS – Mathematics • MP.2 Reason abstractly and quantitatively. (K-ESS2-1) • MP.4 Model with mathematics. (K-ESS2-1) • K.CC.A Know number names and the count sequence. (K-ESS2-1) • K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1) • K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of/less of" the attribute, and describe the difference. (K-LS-1) • K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1)	**Creativity & Innovation** • 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). **Critical Thinking and Problem Solving** • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). **Information, Media, & Technology Skills** •9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. •9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). •9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). •9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). **Technology Literacy:** • 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). • 9.4.2.TL.2: Create a document using a word processing application. • 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. • 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. • 9.4.2.TL.5: Describe the difference between real and virtual experiences. • 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). • 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). **Digital Citizenship:** 9.4.2.DC.1: Explain differences between ownership and sharing of information. • 9.4.2.DC.2: Explain the importance of respecting digital content of others. • 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). • 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Science
GRADE LEVEL: K
UNIT 2 TITLE: Physical Science
LENGTH OF STUDY: 16 Lessons

Unit Learning Goals

- Identify a push.
- Identify a pull.
- Explain that when objects collide, they push on one another and change motion.
- Identify that pushes can have different strengths and directions.
- Explain that a big push makes things speed up or slow down more quickly.
- Identify that pulls can have different strengths and directions.
- Explain that a big pull makes things speed up or slow down more quickly.
- Explain that pushing or pulling on an object can start or stop it from moving.
- Observe and record how pushing and pulling on an object can change the direction of its motion, and can start or stop it.
- Identify that pushing or pulling on an object can change the speed of its motion.
- Observe and record how pushing and pulling on an object can change the speed of its motion.
- Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.
- Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull.

Suggested Sequence of Lessons	Performance Expectations	Disciplinary Core Ideas	Modifications SE, ESL, & G&T	Assessment/Benchmarks
Lesson 1-How Things Move, P4-5 (Daily Target: I can identify different types of motions.) Lesson 2-Hard Push, Soft Push, P6-7 (Daily Target: I can identify that pushes have different strengths and directions and explain how that affects the way an object moves.) Lesson 3-Lab - Hard and Soft Pushes, P8-P9 (Daily Target: I can observe and record how the strength of a push can change motion.) Lesson 4-Weak Pull, Strong Pull, P10-11 (Daily Target: I can identify that pulls can have different strengths and directions.) Lesson 5-Lab - Weak and Strong Pulls, P12-P13 (Daily Target: I can observe and record how the strength of a pull can change motion.) Lesson 6 6-Starting and Stopping, P14-15 (Daily Target: I can explain that pushing or pulling an object can start or stop it from moving.)	K-PS2-1 K-PS2-1	PS2.A PS2.A, PS3.C PS2.A, PS3.C PS2.A PS2.A, PS3.C	SE - ● follow 504/IEP accommodations ● create visual word wall with labels ● highlight and define important vocabulary ● ask yes/no questions ● provide sentence frames or sentence stems ● allow for use of pictures in science journal with dictation support ● create a word map ESL - ● create visual word wall with labels ● highlight and define important vocabulary ● ask yes/no questions ● provide sentence frames or sentence stems ● allow for use of pictures in science	Science Journal: Wrap It Up? Science Journal: Wrap It Up? Science Journal: Observations Recorded on Table, Wrap It Up? Science Journal: Wrap It Up? Science Journal: Observations Recorded on Table, Wrap It Up? Science Journal: Wrap It Up?

Lesson 7-Lab-Starting and Stopping, P16-P17 (Daily Target: I can observe and record how pushing or pulling on an object can change the direction of its motion and can start or stop it. Lesson 8- Changing Direction, P18-19 (Daily Target: I can explain that when objects touch or collide, they push on one another and can change motion.) Lesson 9-Lab-Changing Direction,P20-21(Daily Target: I can explain that when objects touch or collide, they push on one another and can change motion.) Lesson 10-Changing Speed, P22-23 (Daily Target: I can identify that pushing or pulling on an object can change the speed of its motion.) Lesson 11-Lab-Changing Speed, P24-25 (Daily Target: I can observe and record how pushing or pulling on an object can change the speed of its motion.) Lesson 12 - **STEM** Lab - Think Like a Scientist: Comparing Strengths and	K-PS2-2	PS2.A, PS2.B PS2.A, PS2.B PS2.A, PS2.B PS2.A, PS2.B PS2.A, PS2.B	journal with dictation support ● create a word map G&T- ● Research tasks ● Answer Wrap It ? in writing ● Record questions	Science Journal: Observations Recorded on Table, Wrap It Up? Science Journal: Wrap It Up? Science Journal: Observations Recorded on Table, Wrap It Up? Science Journal: Wrap It Up? Science Journal: Observations Recorded on Table, Wrap It Up?

Direction of Pushes and Pulls, P26-27b (Daily Target: I can plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object.)		PS2.A, PS2.B, PS2.C		Science Journal: Observations Recorded on Table, Wrap It Up?
Lesson 13 - **STEM** Lab - Think Like an Engineer: Analyze Data, P28-29b (Daily Target: I can analyze data to determine if a design solution works as planned to change the speed and direction of an object.) ***Extension Activities:** **STEM CLASS** • Identify what motion is. • Some objects need Force to be set in Motion-difference between push and pull • Pushes and pulls can have different strengths and directions. • An investigation to compare the effects of different strengths. • When objects touch or collide, they push on one another and can change direction. • An investigation to analyze what happens when objects collide. **SMART TV:** Physical Science Launch Video and interactive white board lessons on web page: Myngconnect	K-PS2-2 K-PS2-1 K-PS2-2, K-2-ETS1-1	PS2.A, PS2.B, PS2.C ETS1.A		Science Journal: Observations Recorded on Table, Wrap It Up?

Materials Needed
For daily lesson/lab materials please see Exploring Science Kindergarten teacher's guide or science kit. Materials used for experiments: ● Books ● Boards ● String ● Tape ● Toy cars ● Rubber balls ● Rulers ● Science notebooks

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Connections to NJSLS – English Language Arts • RL.K.1 With prompting and support, ask and answer questions about key details in a text (e.g., who, what, where, when, why, how). (K-ESS2-2) • W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2) • W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2-2) • W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1) Connections to NJSLS – Mathematics • MP.2 Reason abstractly and quantitatively. (K-ESS2-1) • MP.4 Model with mathematics. (K-ESS2-1) • K.CC.A Know number names and the count sequence. (K-ESS2-1) • K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1) • K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of/less of" the attribute, and describe the difference. (K-LS-1) • K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1)	**Creativity & Innovation** • 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). **Critical Thinking and Problem Solving** • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). **Information, Media, & Technology Skills** •9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. •9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). •9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). •9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). **Technology Literacy:** • 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). • 9.4.2.TL.2: Create a document using a word processing application. • 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. • 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. • 9.4.2.TL.5: Describe the difference between real and virtual experiences. • 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). • 9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). **Digital Citizenship:** 9.4.2.DC.1: Explain differences between ownership and sharing of information. • 9.4.2.DC.2: Explain the importance of respecting digital content of others. • 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). • 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Science
GRADE LEVEL: K
UNIT 3 TITLE: Life Science
LENGTH OF STUDY: 13 Lessons

Unit Learning Goals
*Define the word ***living***. *Explain that things are alive and they ***grow and change***. *Identify plants as living things. *Explain that plants need water and light to live and grow. *Explain that living things live in places that have things they need. *Identify that plants need water, air and resources from the land. *Explain that plants live in places that have the things they need to live. *Identify animals as living things. *Explain that animals need water and air to live and grow. *Explain that animals live in places that have the things they need. *Identify that animals need water, air and resources from the land, and live in places that have the things they need. *Explain that animals need food in order to live and grow, and that they obtain their food from plants or from other animals. *Use observations to describe patterns of what plants and animals need to survive. *Explain that living things live in places that have the things they need. *Identify how plants and animals can change their environment. *Construct an argument supported by evidence for how plants and animals (including humans) can change the environment to meet their needs. *Understand how scientists such as wildlife experts look for patterns and order when making observations about the world.

Suggested Sequence of Lessons	Performance Expectations	Disciplinary Core Ideas	Modifications SE, ESL, & G&T	Assessment/Benchmarks
Lesson 1: Living Things, L4-5 (Daily target: I can explain the word living. I can tell that living things are alive and they grow and change.)	K-ESS3-1		SE/ESL: Review unknown words.	Science Journal: Wrap It Up! L5
Lesson 2: Plants are Living Things, L6-7 (Daily target: I can identify plants as living things. I can tell that plants need water and light to live and grow. I can tell that living things live in places that have the things they need.)	K-ESS3-1	LS1.C	SE/ESL: Identify main idea, retell key details.	Science Journal: Wrap It Up! L7
Lesson 3: What Plants Need, L8-9 (Daily target: I can identify that plants need water, air and resources from the land. I can tell that plants live in places that have the things they need to live.)	K-ESS3-1		SE/ESL: Illustrate real plant. Ask and answer questions about key details. GT: Illustrate garden.	Science Journal: Wrap It Up! L9

Lesson 4: Animals are Living Things, L10-11 (Daily target: I can identify animals as living things. I can tell that animals need water and air to live and grow. I can tell that animals live in places that have the things they need.)	K-ESS3-1	LS1.C	SE/ESL: Use pictures and yes/no questions. GT: Illustrate an animal meeting its needs.	Science Journal: Wrap It Up! L11
Lesson 5: What Animals Need, L12-13 (Daily target: I can identify that animals need water, air and resources from the land and live in places that have the things they need. I can tell that animals need food in order to live and grow, and that they get food from plants or from other animals.)	K-ESS3-1, K-LS1-1	LS1.C	SE/ESL: Matching game with pictures for needs/animals GT: Create a journal entry of a day in the life on a specific animal, highlighting needs being met.	Science Journal: Wrap It Up! L13

Lesson 6: Observe- Think Like a Scientist (GROUP WORK) L14-17 (Daily Target: I can observe and describe patterns of what plants and animals need to survive.)	K-LS1-1		SE/ESL: Crosscut the concept of : Patterns (Name other places you can find patterns)	Science Journal: Use Evaluate steps L15b, See Rubric - Student/Teacher-L15b
Lesson 7: Where Living Things Live: L16-L17 (Daily target: I can tell that living things live in places that have the things they need.)	K-ESS3-1	ESS3.A	SE/ESL: Connect illustrations to text.	Science Journal: Wrap It Up! L17
Lesson 8-9: Make a Model-Think Like a Scientist L18-19b (Daily target: I can use a model to represent the relationship between the needs of different plants or animals and the place they live.) **STEM LAB**	K-ESS3-1		SE/ESL- Crosscutting concept: systems	See Evaluate/Rubric L19b (use the student created model)
Lesson 10: Living Things Change the Places They Live L20-21 (Daily target: I can identify how plants and animals can change their environment.)		ESS2.E	SE/ESL: Picture cards	Science Journal: Wrap It Up! L21

Lessons 11-12: Explain Change-Think Like a Scientist (PARTNER WORK) L22-23b (Daily target: I can prove with evidence how plants and animals can change the environment to meet their needs.)	K-ESS2-2	ESS3.C	SE/ESL: Picture cards	Evaluate: Student/Teacher Rubric L23b
Lesson 13-Wildlife Expert-Science Career- L30-31 (Daily target- I can understand how scientists like wildlife experts look for patterns and order when making observations about the world.) Extension Activities: STEM CLASS • All animals need food in order to live and grow. • They obtain their food from plants or other animals SMART TV • Life Science Launch Video and interactive white board lessons on web page • MYNGConnect • Plant and Observe seeds *15 flex days for Animal Explorations: • All About Animals (Penguins, Polar Bears, etc.) • Animal Habitat Exploration • Winter Animals (Migration, Hibernation, Adaptation)			ES/ESL: Review vocabulary, and identify main idea of lesson	Science Journal: Evaluate exercise L31

Materials Needed
For Daily Lesson materials please see the National Geographic Teacher's Guide. Materials Soil Cups Seeds Animal Books Magazine pictures

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Connections to NJSLS – English Language Arts • RL.K.1 With prompting and support, ask and answer questions about key details in a text (e.g., who, what, where, when, why, how). (K-ESS2-2) • W.K.1 Use a combination of drawing, dictating, and writing to compose opinion pieces in which they tell a reader the topic or the name of the book they are writing about and state an opinion or preference about the topic or book. (K-ESS2-2) • W.K.2 Use a combination of drawing, dictating, and writing to compose informative/explanatory texts in which they name what they are writing about and supply some information about the topic. (K-ESS2- 2) • W.K.7 Participate in shared research and writing projects (e.g., explore a number of books by a favorite author and express opinions about them). (K-ESS2-1) Connections to NJSLS – Mathematics • MP.2 Reason abstractly and quantitatively. (K-ESS2-1) • MP.4 Model with mathematics. (K-ESS2-1) • K.CC.A Know number names and the count sequence. (K-ESS2-1)	Creativity & Innovation • 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills •9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. •9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). •9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). •9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy:

• K.MD.A.1 Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object. (K-ESS2-1) • K.MD.A.2 Directly compare two objects with a measurable attribute in common, to see which object has "more of/less of" the attribute, and describe the difference. (K-LS-1) • K.MD.B.3 Classify objects into given categories; count the number of objects in each category and sort the categories by count. (K-ESS2-1)	• 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). • 9.4.2.TL.2: Create a document using a word processing application. • 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. • 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. • 9.4.2.TL.5: Describe the difference between real and virtual experiences. • 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). •9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of information. • 9.4.2.DC.2: Explain the importance of respecting digital content of others. • 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). • 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Science
GRADE LEVEL: 1st
UNIT TITLE: Lights and Sound Unit 1
LENGTH OF STUDY: 2 months
START OF UNIT: September
END OF UNIT: October

Unit Learning Goals
Students will be able to understand wave properties. Students will plan and conduct investigations. Students will be able to make observations. Students will be able to use devices to communicate.

Sequence of Lessons	NGSS Standards	Suggested Learning Goal	Instructional Materials	Modifications SE, ESL, & G&T	Assessment
Vibrate and Make Sound	**PS4.A Wave Properties:** Sound can make matter vibrate, and vibrating matter can make sound.	Students will explain that vibrating matter can make sound.	National Geographic p.4-5, science notebook, my NG connect, SMART board	small group, science journals, graphic organizers	teacher observation, turn and talk
Sound *Investigate*	**PS4.A Wave Properties:** Sound can make matter vibrate, and vibrating matter can make sound. Plan and conduct investigations to provide evidence that vibrating material can make sound and that sound can make materials vibrate	Students will demonstrate that vibrating matter can make sound.	National Geographic Investigate p. 6-7 Science notebook, *Cardboard boxes (shoe boxes or tissue boxes)	small group, science journals, graphic organizers	Teacher observation, turn and talk

			*Rubber bands *Hand lens *Safety Goggles		
Sound *Investigate*	**PS4.A Wave Properties:** Sound can make matter vibrate, and vibrating matter can make sound. Plan and conduct investigations to provide evidence that vibrating material can make sound and that sound can make materials vibrate	Students will plan and conduct an investigation to provide evidence that vibrating materials make sound. Students will use evidence from their investigation to explain results to others.	National Geographic p. 8-9 2-L bottles, plastic cups, wax-paper, plastic wrap, balloons, string, rubber bands, cardboard boxes, rulers, hand lens, science notebook	small group, science journals, graphic organizers	Performance rubric teacher observation, turn and talk
Sound Makes Things Vibrate	**PS4.A Wave Properties:** Sound can make matter vibrate, and vibrating matter can make sound	Students will explain that sound can make matter vibrate.	National Geographic p. 10-11, science notebook, my NG connect, SMART board	small group, science journals, graphic organizers	Teacher observation, turn and talk

Vibration *Investigate*	**PS4.A Wave Properties:** Sound can make matter vibrate, and vibrating matter can make sound. Plan and conduct investigations to provide evidence that vibrating material can make sound and that sound can make materials vibrate	Students will demonstrate that sound can make matter vibrate.	National Geographic Investigate p. 12-13, science notebook *inflated balloons *paper towel tubes *safety goggles	small group, science journals, graphic organizers	Teacher observation, turn and talk
Vibration *Investigate*	**PS4.A Wave Properties:** Sound can make matter vibrate, and vibrating matter can make sound. Plan and conduct investigations to provide evidence that vibrating material can make sound and that sound can make materials vibrate	Students will plan and conduct an investigation to provide evidence that sound can make materials vibrate. Students will use evidence to explain results to others.	National Geographic p. 14-15 radios, thick plastic, tin cans, milk cartons, wooden blocks, rubber bands, foil, rice Science Notebook	small group, science journals, graphic organizers	Performance rubric teacher observation, turn and talk

Light	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light.	Students will identify that light makes it possible to see objects and identify that the sun gives off its own light.	National Geographic p. 16-17, science notebook, my NG connect, SMART board.	small group, science journals, graphic organizers	Teacher observation, turn and talk
Light to See	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light.	Students will recognize that objects that give off light can be used to help people see.	National Geographic p. 18-19, science notebook, my NG connect, SMART board	small group, science journals, graphic organizers	Teacher observation, turn and talk
Light and Dark *Investigate*	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light. Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.	Students will observe evidence that objects can be seen only where there is light. Students will use their observations to construct an evidence-based account that objects can be seen only when illuminated.	National Geographic Investigate p. 20-21 *cardboard boxes with two holes *flashlights *masking tape *science notebook *my NG connect	small group, science journals, graphic organizers	Teacher observation, turn and talk

Shining Through	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light.	Students will define clear as the ability of a material to allow light to pass through it and identify some materials as clear.	National Geographic p. 22-23, science notebook, my NG connect, SMART board	small group, science journals, graphic organizers	Teacher observation, turn and talk
Blocking some Light	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light.	Students will describe materials that allow only some light to pass through them.	National Geographic p. 24-25, science notebook, my NG connect, SMART board	small group, science journals, graphic organizers	Teacher observation, turn and talk
Blocking All Light	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light.	Students will describe materials that block all light and define what a shadow is.	National Geographic p. 26-27 *flashlight Science Notebook, my NG connect	small group, science journals, graphic organizers	Teacher observation, turn and talk

Reflecting Light	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light.	Students will describe how some materials redirect a beam of light.	National Geographic p. 28-29 *flashlights *small mirrors * science notebook, my NG connect	small group, science journals, graphic organizers	Teacher observation, turn and talk
Reflecting Light *Investigation*	**PS4-B Electromagnetic Radiation:** Objects can be seen if light is available to illuminate them or if they give off their own light. Make observations to construct an evidence-based account that objects in darkness can be seen only when illuminated.	Students will work with a group to plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. Students will explain their results and conclusions to others.	National Geographic p. 30-31 *flashlights, science notebook, my NG connect cardboard, wax paper, clear plastic, cellophane, foil, small mirrors	small group, science journals, graphic organizers	Performance rubric teacher observation, turn and talk

People Communicate	**PS4-C Information Technologies and Instrumentation:** People also use a variety of devices to communicate.	Students will describe how people communicate and will identify devices that enable people to communicate over long distances.	National Geographic p. 32-33 *flashlights science notebook, my NG connect	small group, science journals, graphic organizers	Teacher observation, turn and talk
Communicating with Sound *Investigate*	**PS4-C Information Technologies and Instrumentation:** People also use a variety of devices to communicate.	Students will observe and record evidence that information can be communicated using devices.	National Geographic p. 34-35 *two cups with slits *string *paper clips *Science notebook *my NG connect	small group, science journals, graphic organizers	Teacher observation, turn and talk

Design a Device	**PS4-C Information Technologies and Instrumentation:** People also use a variety of devices to communicate.	Students will use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance	National Geographic p. 36-37 flashlights, lights sticks, spoons, bowls, plastic cups, string, scissors, tape, paper clips, mirrors, my NG Connect, science notebook	small group, science journals, graphic organizers	Teacher observation, turn and talk

Materials Needed
National Geographic: Life Science-Animals pages 4-39 • **Additional Informational Text resources** • **Internet resources** • **Nat Geo online video clips /photographs.** **Supplemental Instruction by STEM teacher for this unit.** **Investigate Materials** **Cardboard/shoe boxes, rubber bands, magnifying glass, tuning fork, 2Lbottles, plastic cups, cardboard tubes, wax paper, plastic wrap, balloons, string, rulers, scissors, plastic, tin cans, plastic milk cartons, wooden blocks, kazoos, water, rice, dried beans, flashlight, masking tape, mirrors, vellum, cellophane, wrapping tissue, paper clip, string, drums, spoons, bowls, fabric rods, tiles, game pieces, light sticks.**

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Reading- *Informational Text Standards* ***LA.1.RI*** *- [Strand] - Reading Informational Text* • Ask and answer questions about key details in a text. • Identify the main topic and retell key details of a text. • Describe the connection between two individuals, events, ideas, or pieces of information in a text. • Ask and answer questions to help determine or clarify the meaning of words and phrases in a text. • Know and use various text features (e.g., headings, tables of contents, glossaries, electronic menus, icons) to locate key facts or information in a text. • Distinguish between information provided by pictures or other illustrations and information provided by the words in a text. • Use the illustrations and details in a text to describe its key ideas • Identify the reasons an author gives to support points in a text and explain the application of this information with prompting as needed • Identify basic similarities in and differences between two texts on the same topic (e.g., in illustrations, descriptions, or procedures). • With prompting and support, read informational texts at grade level text complexity or above. **Writing**: Science Journals Connections to NJSLS – English Language Arts · W.1.2 Write informative/explanatory texts in which they name a topic, supply some facts about the topic, and provide some sense of closure. (1-PS4-2) · W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (1-PS4-1), (1-PS4-2), (1-PS4-3), (1-PS4-4) · W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-PS4-1), (1-PS4-2), (1-PS4-3) · SL.1.1 Participate in collaborative conversations with diverse partners about grade 1 topics and texts with peers and adults in small and larger groups. (1-PS4-1), (1-PS4-2), (1-PS4-3) Connections to NJSLS – Mathematics · MP.5 Use appropriate tools strategically. (1-PS4-4) · 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1-PS4-4)	Creativity & Innovation · 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). · 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving · 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). · 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). · 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills ·9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. ·9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). ·9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). ·9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: · 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). · 9.4.2.TL.2: Create a document using a word processing application. · 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. · 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. · 9.4.2.TL.5: Describe the difference between real and virtual experiences. · 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). ·9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of

· 1.MD.A.2 Express the length of an object as a whole number of length units, by layering multiple copies of a shorter object (the length unit) end to end; understand that the length measurement of an object is the number of same-size length units that span it with no gaps or overlaps. (1-PS4-4)	information. · 9.4.2.DC.2: Explain the importance of respecting digital content of others. · 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). · 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Science
GRADE LEVEL: 1st
UNIT TITLE: Animals –Unit 2
LENGTH OF STUDY: 2 months
START OF UNIT: End of October
END OF UNIT: January

Unit Learning Goals
Students will describe animal body parts and explain how they use their body parts to survive and grow. Students will identify ways animals see and hear. Students will explain how different animals grasp objects. Students will explain how animals protect themselves to survive. Students will describe how animals move. Students will identify body parts of animals that help them survive. Students will explain how animals eat, drink, and breathe to survive. Students will describe how animals use their senses. Students will explain that young animals make sounds to call for help. Students will explain how young animals stay warm. Students will explain how adult animals protect their young. Students will be able to compare and contrast young and adult animals.

Sequence of Lessons	NGSS Standards	Suggested Learning Goal	Instructional Materials	Modifications SE, ESL, & G&T	Assessment
Animal Parts	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will describe animal body parts and explain how they use their body parts to survive and grow.	National Geographic TE p.64-65 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk,
Animals See and Hear	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will be able to explain how animals use their body parts to see and hear.	National Geographic p. 66-67 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

Animals Grasp	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will identify and explain how animals use their body parts to grasp objects to help them survive	National Geographic p. 68-69 Science My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Animals Protect	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will explain how animals use different body parts to protect themselves to help them survive and grow.	National Geographic p. 70-71 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Animals Move	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food,	Students will explain how animals use their body parts to help them move from place to place to survive and grow.	National Geographic p. 72-73 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

	water and air. Plants also have different parts that help them survive and grow.				
Animals Find What They Need.	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will explain that animals use their body parts to seek and find food to help them survive and grow.	National Geographic p. 74-75 Science notebooks My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Animals Take in Food, Water and Air.	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will be able to explain that animals use their body parts to take in food, water, and air in order to survive and grow.	National Geographic p.76-77 Science My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

Animal Senses	**LS1.D: Information Processing:** Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.	Students will describe how animals use their senses to survive and grow.	National Geographic p.78-79 Science notebooks My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Think Like an Engineer *A Better Train*	**1-LS1-1** Use materials to design a solution to a human problem by mimicking how plants and /or animals use their external parts to help them survive, grow, and meet their needs. **K-2-ETS1-1 Engineering Design:** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool.	Students will be able to explain how engineers design solutions to human problems by mimicking how animals use their parts to help them survive.	National Geographic TE p. 80-83 My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

	ETS1.A Defining and Delimiting Engineering Problems: Before beginning to design a solution, it is important to clearly understand the problem.				
Think Like an Engineer *Design a Solution*	**1-LS1-1** Use materials to design a solution to a human problem by mimicking how plants and /or animals use their external parts to help them survive, grow, and meet their needs. **K-2-ETS1-1 Engineering Design:** Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. **ETS1.A Defining and**	Students will use materials to design a solution.	National Geographic Think Like An Engineer p. 84-85d cardboard boxes, poster board, paper cloth, yarn toothpicks, foil cups, rubber bands, markers, newspapers, scissors, glue, tape	small group, science journals, graphic organizers	Teacher observation, final prototype, Performance rubric

	Delimiting Engineering Problems: Before beginning to design a solution, it is important to clearly understand the problem.				
Hear Me	**LS1.B Growth and Development of Organisms** Adult plants and animals can have young. In many kinds of animals, parents, and the offspring themselves engage in behaviors that help the offspring to survive.	Students will be able to explain that some young animals make noises to let their parents know that they need something in order to survive.	National Geographic TE p. 86-87 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Warm Me	**LS1.B Growth and Development of Organisms** Adult plants and animals can have young. In many kinds of animals, parents, and the offspring themselves engage in behaviors that help the offspring to survive.	Students will be able to explain that young animals need help to stay warm to help them survive.	National Geographic p. 88-89 Scie My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

Carry Me	**LS1.B Growth and Development of Organisms** Adult plants and animals can have young. In many kinds of animals, parents, and the offspring themselves engage in behaviors that help the offspring to survive.	Students will be able to explain that many young animals need to be carried to move from place to place to help their offspring survive.	National Geographic p.90-91 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Protect Me	**LS1.B Growth and Development of Organisms** Adult plants and animals can have young. In many kinds of animals, parents, and the offspring themselves engage in behaviors that help the offspring to survive.	Students will be able to explain that many animals protect their young.	National Geographic TE p.92-93 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

Meer Kat Teachers	**LS1.B Growth and Development of Organisms** Adult plants and animals can have young. In many kinds of animals, parents, and the offspring themselves engage in behaviors that help the offspring to survive.	Students will be able to describe how some young animals learn how to survive from their parents.	National Geographic p.94-95 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Think like a Scientist *Look for Patterns*	**1-LS1-2** **Read texts and use media to determine patterns in behavior of parents and offspring that help offspring survive.**	Students will be able to observe patterns in behaviors of young and adult animals to help them survive.	National Geographic p.96-97 Science notebooks, My Ngconnect, smart board magazines, internet resources	small group, science journals, graphic organizers	teacher observation, turn and talk
Young Animals Look Like Their Parents.	**LS3.A: Inheritance of Traits** Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents	Students will be able to observe and explain how young animals look like their parents (compare and contrast).	National Geographic p.98-99 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

Different Dogs	**LS3.B: Variation of Traits** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	Students will be able to compare and contrast the same type of animal.	National Geographic TE p.100-101 Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
How are animals alike and different?	**LS3.B: Variation of Traits** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways. **LS3.A: Inheritance of Traits** Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents	Students will be able to compare and contrast young and adult animals.	National Geographic p.102-103 Science notebooks My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk
Think Like a Scientist- Make Observations	**1-LS3-1** Make observations to construct an evidence based account that young plants and animals are like, but not exactly like their parents.	Students will be able to plan and conduct an investigation.	National Geographic p.104-105b Science notebooks, My Ngconnect, smart board	small group, science journals, graphic organizers	teacher observation, turn and talk

Conservationist	**NGSS- Core Ideas** Science uses different ways to study the world.	Students will connect concepts about animals and how they survive with the career of a conservationist.	National Geographic p. 106-107 Science notebooks, NGconnect, smart board	Whole group, science journals, graphic organizers.	Teacher observation, turn and talk

Materials Needed
National Geographic: Life Science-Animals pages 64-107 • **Additional Informational Text resources** • **Internet resources** • **Nat Geo online video clips /photographs.** **Lab Materials** **Cardboard, cardboard boxes, poster board, construction paper, scrap paper, material , string, tubes, toothpicks, craft sticks, aluminum foil, paper cups, watering cans, rubber bands, pipe cleaners, newspaper, markers, scissors, glue, tape, books, magazines, internet resources, pictures of adult animals with their young.**

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Reading- **Connections to NJSLS – English Language Arts** • RL.1.1 Ask and answer questions about key details in a text. (1-LS1-2) • RL.1.2 Identify the main topic and retell key details of a text. (1-LS1-2) • RL.1.10 With prompting and support, read and comprehend stories and poetry at grade level text complexity or above. (1-LS1-2) • W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (1-LS1-1) **Connections to NJSLS – Mathematics** • 1.NBT.B.3 Compare two two-digit numbers based on the meanings of the tens and one digits, recording the results of comparisons with the symbols >, =, and <. (1-LS1-2) • 1.NBT.C.4 Add within 100, including adding a two-digit number and a one-digit number, and adding a two-digit number and a multiple of 10, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning uses. Understand that in adding two-digit numbers, one adds tens and tens, ones and ones; and sometimes it is necessary to compose a ten. (1-LS1-2) • 1.NBT.C.5 Given a two-digit number, mentally find 10	Creativity & Innovation · 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). · 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving · 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). · 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). · 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills ·9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. ·9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). ·9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). ·9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: · 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). · 9.4.2.TL.2: Create a document using a word processing application. · 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. · 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. · 9.4.2.TL.5: Describe the difference between real and virtual experiences. · 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.).

more or 10 less than the number, without having to count; explain the reasoning used. (1-LS1-2) • 1.NBT.C.6 Subtract multiples of 10 in the range 10–90 from multiples of 10 in the range 10–90 (positive or zero differences), using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used. (1-LS1-2) **Technology:** • *With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.* • *Use Smart Board and Internet for informational resources.* • *NGConnect* • *Online Videos from Nat Geo*	·9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of information. · 9.4.2.DC.2: Explain the importance of respecting digital content of others. · 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). · 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Science
GRADE LEVEL: 1st
UNIT TITLE: Space Systems Unit 3
LENGTH OF STUDY: 2 months
START OF UNIT: January
END OF UNIT: March

Unit Learning Goals
Students will plan and conduct investigations. Students will be able to make observations. Students will be able to describe the sun. Students will be able to describe the moon. Students will be able to describe stars. Students will be able to describe seasons.

Suggested Sequence of Lessons	NGSS Standards	Suggested Learning Goal	Instructional Materials	Modifications SE, ESL, & G&T	Assessment/Benchmarks
The Sun	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will be able to describe the sun.	National Geographic Teacher's Guide p.110-111 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk

Day and Night	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe how day turning into night makes a pattern.	National Geographic p. 112-113 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
The Sun in the Sky	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe the pattern of the sun's motion in the sky.	National Geographic p. 114-115 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
The Sun *Investigate*	**ESS1-1** Use observations of the sun, moon, and star to describe patterns that can be predicted.	Students will observe the pattern of the sun and will predict the future pattern of the sun.	National Geographic Investigate p. 116-117b My NG Connect Smart Board Science Journal crayons paper plates	small group, science journals, graphic organizers	teacher observation, turn and talk

The Moon	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe the moon.	National Geographic p. 118-119 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
The Moon in the Sky	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe the pattern of the moon.	National Geographic p. 120-121 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
The Moon *Investigate*	**ESS1-1** Use observations of the sun, moon, and star to describe patterns that can be predicted.	Students will describe the pattern of the moon, and will describe the future pattern of the moon.	National Geographic Investigate p. 122-123b My NG Connect Smart Board Science Journal crayons paper plates	small group, science journals, graphic organizers	teacher observation, turn and talk

Stars	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe when you can observe the stars, and will explain why you can only see stars at night.	National Geographic p. 124-125 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Star Patterns	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe how people use stars to make a pattern.	National Geographic p. 126-127 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Stars in the Sky	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe the Little Dipper and the North Star.	National Geographic p. 128-129 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk

Patterns of Motion	**ESS1.A** **The Universe and its Stars** Patterns of the sun, moon, and stars in the sky can be observed, described, and predicted.	Students will describe Alkaid's pattern of motion.	National Geographic p. 130-131 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
The Night Sky *Investigate*	**ESS1-1** Use observations of the sun, moon, and star to describe patterns that can be predicted.	Students will describe how Cepheus appears to move.	National Geographic Investigate p. 132-133b My NG Connect Smart Board Science Journal night sky model 4 sheets of paper scissors pencil brass fasteners	small group, science journals, graphic organizers	teacher observation, turn and talk

Seasons	**ESS1.B** **Earth and the Solar System** Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	Students will describe the pattern of seasons.	National Geographic p. 134-135 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Light and the Seasons	**ESS1.B** **Earth and the Solar System** Seasonal patterns of sunrise and sunset can be observed, described, and predicted.	Students will explain how daylight changes with the seasons.	National Geographic p. 136-137 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Make Observations *Think Like a Scientist*	**ESS1-2** Make observations at different times of year to relate the amount of daylight to the time of year.	Students will observe when sunrise and sunset occur at different times of the year.	National Geographic Think Like a Scientist p. 138-139b My NG Connect Smart Board Science Journal paper crayons	small group, science journals, graphic organizers	teacher observation, turn and talk, rubric

Astronomer		Students will describe the work of an astronomer.	National Geographic p. 140-141 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk, rubric

Materials Needed
National Geographic: Earth Science-Space Systems: pages 110-141 • **Additional Informational Text resources** • **Internet resources** • **Nat Geo online video clips /photographs** **Lab Materials** My NG Connect ❖ **Track sunlight chart throughout the year! – beginning in September!** Smart Board Science Journal crayons paper plates night sky model sheets of paper scissors pencil brass fasteners

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Reading- • *RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (K-2-ETS1-1)* • *W.2.6 With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers. (K-2-ETS1-1), (K-2-ETS1-3)* • *W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (K-2-ETS1-1), (K-2-ETS1-3)* • *SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (K-2-ETS1-2)* **Connections to NJSLS - Mathematics** • *MP.2 Reason abstractly and quantitatively. (K-2-ETS1-1), (K-2-ETS1-3)* • *MP.4 Model with mathematics. (K-2-ETS1-1), (K-2-ETS1-3)* • *MP.5 Use appropriate tools strategically. (K-2-ETS1-1), (K-2-ETS1-3)* • *2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (K-2-ETS1-1), (K-2-ETS1-3)* **Technology:** • *With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.* • *Use Smart Board and Internet for informational resources.* • *NGConnect* • *Online Videos from Nat Geo*	Creativity & Innovation · 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). · 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving · 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). · 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). · 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills ·9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. ·9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). ·9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). ·9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: · 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). · 9.4.2.TL.2: Create a document using a word processing application. · 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. · 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. · 9.4.2.TL.5: Describe the difference between real and virtual experiences. · 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). ·9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of

	information. · 9.4.2.DC.2: Explain the importance of respecting digital content of others. · 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). · 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Science
GRADE LEVEL: 1st
UNIT TITLE: Plants Unit 4
LENGTH OF STUDY: 2 1/2 months
START OF UNIT: April
END OF UNIT: June

Unit Learning Goals
Students will identify plants as living things. Students will identify the parts of a plant. Students will describe a plant life cycle. Students will describe how plants are alike and different.

Suggested Sequence of Lessons	NGSS Standards	Suggested Learning Goal	Instructional Materials	Modifications SE, ESL, & G&T	Assessment
Plants	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will identify plants as living things.	National Geographic Teacher's Guide p.42-43 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Roots, Stems, and Leaves	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will identify parts of a plant and explain how the roots, stems, and leaves help plants survive and grow.	National Geographic Teacher's Guide p. 44-45 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk

Flowers and Fruits	**LS1.A Structure and Function:** All organisms have external parts. Different animals use their body parts in different ways to see, hear, grasp objects, protect themselves, move from place to place, and seek, find, and take in food, water and air. Plants also have different parts that help them survive and grow.	Students will identify fruits and flowers as parts of plants, and explain how flowers and fruits help these plants survive and grow.	National Geographic Teacher's Guide p. 46-47 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Plants and Light *Investigate*	**LS1.D: Information Processing:** Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.	Students will observe and describe how a plant responds to light.	National Geographic Teacher's Guide p. 48-49 My NG Connect Smart Board Science Journal **Investigation Materials:** box with hole bean seeds soil pots	small group, science journals, graphic organizers	teacher observation, turn and talk

Root Growth *Investigate*	**LS1.D: Information Processing:** Animals have body parts that capture and convey different kinds of information needed for growth and survival. Animals respond to these inputs with behaviors that help them survive. Plants also respond to some external inputs.	Students will describe how the roots of a plant respond to gravity.	National Geographic Teacher's Guide p. 50-51 My NG Connect Smart Board Science Journal **Investiagation Materials:** masking tape black marker 2 clear plastic cups paper towels 2 bean seeds spoons clay ruler	small group, science journals, graphic organizers	teacher observation, turn and talk
Life Cycle of a Tomato Plant	**LS1.B: Growth and Development of Organisms** Adult plants and animals can have young in many kinds of animals, parents and the offspring themselves engage in behaviors that help the offspring survive.	Students will identify that adult plants can make a new young plant. Students will describe the stages of a tomato plant's life cycle.	National Geographic Teacher's Guide p. 52-53 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk

Young Plants Look Like Their Parents	**LS3.A: Inheritance of Traits** Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents.	Students will be able to identify that plants are like their parents.	National Geographic Teacher's Guide p.54-55 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
Plants Can Be Different	**LS3.B: Variation of Traits** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	Students will observe that plants of the same kind are similar.	National Geographic Teacher's Guide p.56-57 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk
How Are Plants Alike and Different	**LS3.A: Inheritance of Traits** Young animals are very much, but not exactly, like their parents. Plants also are very much, but not exactly, like their parents **LS3.B: Variation of Traits** Individuals of the same kind of plant or animal are recognizable as similar but can also vary in many ways.	Students will identify that plants are very much like their parents. Students will observe that plants of the same kind are similar.	National Geographic Teacher's Guide p. 58-59 My NG Connect Smart Board Science Journal	small group, science journals, graphic organizers	teacher observation, turn and talk

Make Observations *Think Like a Scientist*	**LS1-1:** Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs.	Students will make and record observations to show young plants are alike. Students will use evidence from their observations to explain that young plants are alike	National Geographic Teacher's Guide p. 60-63 My NG Connect Smart Board Science Journal **Investigation Materials:** books magazines plants rulers science notebook	small group, science journals, graphic organizers	teacher observation, turn and talk, Performance rubric

Materials Needed
National Geographic: Life Science-Plants 42-63 • **Additional Informational Text resources** • **Internet resources** • **Nat Geo online video clips /photographs.**
Lab Materials **Investigation Materials** masking tape black marker 2 clear plastic cups paper towels Spoons box with hole bean seeds soil pots My NG Connect Smartboard

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Reading- RI.1.1 Ask and answer questions about key details in a text. (1-LS3-1) • W.1.7 Participate in shared research and writing projects (e.g., explore a number of "how-to" books on a given topic and use them to write a sequence of instructions). (1-LS3-1) • W.1.8 With guidance and support from adults, recall information from experiences or gather information from provided sources to answer a question. (1-LS3-1) **Connections to NJSLS – Mathematics** • MP.2 Reason abstractly and quantitatively. (1-LS3-1) • MP.5 Use appropriate tools strategically. (1-LS3-1) • 1.MD.A.1 Order three objects by length; compare the lengths of two objects indirectly by using a third object. (1- LS3-1) **Technology:** • *With guidance and support from adults, use a variety of digital tools to produce and publish writing, including in collaboration with peers.* • *Use Smart Board and Internet for informational resources.* • *NGConnect* • *Online Videos from Nat Geo*	Creativity & Innovation · 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). · 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving · 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). · 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). · 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills ·9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. ·9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). ·9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). ·9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: · 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). · 9.4.2.TL.2: Create a document using a word processing application. · 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. · 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. · 9.4.2.TL.5: Describe the difference between real and virtual experiences. · 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). ·9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of information. · 9.4.2.DC.2: Explain the importance of respecting digital content of others. · 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). · 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Physical Science
GRADE LEVEL: Second
UNIT TITLE: Structure and Properties of Matter Unit 1
LENGTH OF STUDY: 25 days
START OF UNIT: September
END OF UNIT: November

Unit Learning Goals
• Students will learn how to observe and record data like scientists • Students will recognize different kinds of matter and their properties • Students will make observations, analyze and investigate ways matter can be classified and changes that can occur

Suggested Sequence of Lessons	Suggested Lesson Goal	Materials	Standards	Modifications SE. ESL, G&T	Assessment/ Benchmarks
Sink and Float	Students will identify what it means for an object to sink or float and understand that this is a property of matter	Brainpop Jr: Sink or float video https://jr.brainpop.com/messages/logged-out-by-others/?refer=/science/forces/sinkorfloat/ Student National Geographic pp 22-23 Student Science Notebook SmartBoards	2-PS1-1 Different properties are suited to different purposes.	Visual Aid- SmartBoards display	Successful completion of graphic organizer "Sink or Float" Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment

Think Like a Scientist: Plan and Investigate	Students will plan and conduct an investigation to observe and classify objects based on their properties.	Student National Geographic pp 24-25 Student Science Notebook Various objects in varying size, shape, color and texture SMARTBoardhttps://njctl.org/courses/science/2nd-grade-science/matter/attachments/matter-classwork-homework	2-PS1-1 Plan and conduct an investigation to describe and classify different kinds of materials based on their observable properties.	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self Assessment Completion of graphic organizer for explore section- Rough/Smooth
Investigate: Materials that Absorb	Students will make predictions about the absorption of different materials and draw evidence-based conclusions about which materials absorb water.	Student National Geographic pp 26-27 Student Science Notebook SmartBoard Per group of 4: water, measuring cup, 4 plastic cups (10oz.), timer, paper, aluminum foil, cotton cloth, paper towel	PS1-2 Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose.	Visual Aid-SmartBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment

Build It	Students will describe how large objects can be built from many small pieces.	National Geographic pp 28-29	PS1.A A great variety of objects can be built up from a small set of pieces	Visual Aid-SmartBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment
Think Like a Scientist: Make Observations	Students will observe and conclude that objects made of many pieces can be disassembled and made into a new object.	Student National Geographic pp 30-31 Student Science Notebook Student gathered classroom materials used for building (unifix cubes, Legos, blocks) Student Rubric Teacher Rubrics	PS1-3 Make observations to construct evidence based account of how an object made of a small set of pieces can be disassembled and made into a new object.	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment

Cooling	Students will identify water in its solid and liquid states and describe how it changes when it is cooled.	Student National Geographic pp 32-33 Student Science Notebook SMARTBoard Per group of 4: water in a plastic cup, modeling clay (1 stick), small paper plate	PS1.A Different kinds of matter exist and many of them can be either solid or liquid, depending on the temperature. PS1.B Heating and cooling a substance may cause changes that can be observed	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment Science in a Snap observations and discussion
Heating	Students will describe how ice changes when it is heated and recognize that heating and cooling can happen over and over again.	Student National Geographic pp 34-35 Student Science Notebook Per group of 4: 8 in square of foil, small paper plate, ice cube, clock or timer	PS1.B Heating and cooling a substance may cause changes that can be observed. Sometimes these changes are reversible and sometimes they are not.	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment Science in a Snap observations and discussion

Change It?	Students will recognize that heating causes some changes to matter that cannot be reversed.	Student National Geographic pp. 36-37 Student Science Notebook SMARTBoard quart size plastic bag, ½ cup of milk, ½ cup heavy whipping cream, ¼ cup of sugar, and a ¼ teaspoon of vanilla, gallon-size plastic bag, ½ teaspoon table salt, 2 cups of ice.	PS1.B Heating and cooling a substance may cause changes that can be observed. Sometimes these changes are reversible and sometimes they are not.	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, Science Notebook Wrap it Up question answers, Learning Scale Self-Assessment
Think Like a Scientist: Make an Argument	Students will make an argument based on evidence that some changes caused by heating or cooling can be reversed and some cannot.	Student National Geographic pp. 38-39 Student Science Notebook	PS1-4 Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot.	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, ,Learning Scale Self Assessment
Science Career: Materials Scientist	Students will connect the concepts of matter, properties, and changes in matter with the work of scientist.	Student National Geographic pp. 40-41 Student Science Notebook SMARTBoard	**SCI.2.2-PS1-4.2.1** - [*Crosscutting Concept*] - Events have causes that generate observable patterns	Visual Aid-SMARTBoard display	Teacher observation of participation in discussions, Learning Scale Self-Assessment

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Connections to NJSLS - English Language Arts ● RI.2.1 Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text. (2-PS1-4) ● RI.2.3 Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in a text. (2-PS1-4) ● RI.2.8 Describe how reasons support specific points the author makes in a text. (2-PS1-2), (2-PS1-4) ● W.2.1 Write opinion pieces in which they introduce the topic or book they are writing about, state an opinion, supply reasons that support the opinion, use linking words (e.g., because, and, also) to connect opinion and reasons, and provide a concluding statement or section. (2-PS1-4) ● W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-PS1-1), (2-PS1-2), (2-PS1-3) ● W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-PS1-1), (2-PS1-2), (2-PS1-3) ***Connections to NJSLS - Mathematics*** ● MP.2 Reason abstractly and quantitatively. (2-PS1-2) ● MP.4 Model with mathematics. (2-PS1-1), (2-PS1-2) ● MP.5 Use appropriate tools strategically. (2-PS1-2) ● 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-PS1-1), (2-PS1-2)	Creativity & Innovation • 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills •9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. •9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). •9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). •9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: • 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). • 9.4.2.TL.2: Create a document using a word processing application. • 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. • 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. • 9.4.2.TL.5: Describe the difference between real and virtual experiences. • 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). •9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of information. • 9.4.2.DC.2: Explain the importance of respecting digital content of others. • 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). • 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Earth Science
GRADE LEVEL: Second
UNIT TITLE: Earth Systems: Processes that Shape the Earth Unit 2
LENGTH OF STUDY: 16-18 lessons
START OF UNIT: December
END OF UNIT: February

Unit Learning Goals

- Students will identify how the Earth experiences changes in different ways and processes
- Students will distinguish between slow changes versus changes that take place over a long time
- Students will understand that wind and water can affect the Earth's surface
- Students will recognize maps and their uses

Suggested Sequence of Lessons	Suggested Lesson Goal	Materials	Standards	Modifications SE, ESL, & G&T	Assessment/ Benchmarks
Earthquakes	Students will identify what an earthquake is and the effects that earthquakes can have on Earth	Brain Pop Jr. video on Fast Land Changes from beginning of video to 1minute and 55 seconds (Earthquakes) National Geographic pp76-77, Student Science Notebook SMARTBoard	2-EES1-1 Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.	Visual Aid- SMARTBoard display and interactive materials on pp 76-77 Extension activity: Explore http://easyscienceforkids.com/all-about-earthquakes/ to find fun facts about Earthquakes for kids and see a video about how Earth changes through earthquakes	Teacher observation to questions, Student Science Notebook, Learning Scale Self-Assessment
Volcanoes	Students will identify what a volcano is and the effects that volcanoes can have on Earth	Brain Pop Jr video Fast Land Changes beginning at 1 minute and 55 seconds thru 3 minutes and 10 seconds National Geographic pp78-79, Student Science Notebook Explore http://easysciencefor kids.com/volcano-facts-for-kids-video/ to find fun facts about volcanoes for kids and see	2-EES1-1 Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe.	Visual Aid- SMARTBoard display and interactive materials on pp 78-79	Teacher observation to questions, Science Notebook answers, Learning Scale Self-Assessment

		a video about how Earth changes through volcanoes SMARTBoard			
Weathering and Erosion	Students will explain how water and wind change the shape of land. Also, know that it can happen quickly or slowly.	National Geographic pp 80-81, Student Science Notebook SMARTBoard	ESS1.C Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. ESS2.A Wind and water can change the shape of land	Visual Aid- SMARTBoard display and interactive materials on pp 80-81	Teacher observation to questions, Science Notebook answers, Learning Scale Self-Assessment
Wind Changes Land	Students will explain how wind can quickly or slowly change the shape of the land.	Read aloud or YouTube video read aloud: Pat Hutchins The Wind Blew National Geographic pp 82-83, Student Science Notebook SMARTBoard	ESS1.C- Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. EES2.A- Wind and water can change the shape of the land	Visual Aid- SMARTBoard display and interactive materials on pp 82-83	Teacher observation to questions, Science Notebook answers, Learning Scale Self-Assessment
Water Changes Land	Students will explain how water can quickly or slowly change the shape of land.	Brain Pop, Jr. Slow Land Changes National Geographic pp 84-85, Student Science	ESS1.C- Some events happen very quickly; others occur very slowly, over a time period	Visual Aid- SMARTBoard display and interactive materials on pp 84-85	Teacher observation to questions, Science Notebook answers,

		Notebook SMARTBoard	much longer than one can observe. EES2.A- Wind and water can change the shape of the land		Learning Scale Self-Assessment
Wind and Water Move Sand	Students will explain how water and wind can move sand and change the shape of land either quickly or slowly.	You Tube video: Scishow kids Grand Canyon (Stop at 2:13) https://www.youtube.com/watch?v=oZZEJMtLOKU National Geographic pp 86-87, Student Science Notebooks SMARTBoard	ESS1.C- Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. EES2.A- Wind and water can change the shape of the land	Visual Aid- SMARTBoard display and interactive materials on pp 84-85	Teacher observation to questions, Science Notebook answers, Learning Scale Self-Assessment
Investigate: Erosion	Students will observe how water can change the shape of the land quickly and devise a way to slow or prevent erosion of soil.	For groups of 4: 2 plastic trays, potting soil, water, measuring cup, gravel, 5-6 small rocks, 3-4 chenille stems, 2-3 craft sticks Teacher use: Spray bottle National Geographic pp 88-89, Student Science Notebook SMARTBoard	ESS1.C- Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. EES2.A- Wind and water can change the shape of the land	Visual Aid- SMARTBoard display and interactive materials on pp 88-89 Hands-on Learning opportunity for all learners.	Teacher observation to questions, Science Notebook answers, Prediction/Observation chart, Learning Scale Self-Assessment,

Think Like a Scientist: Making Observations	Students will observe pictures of Earth events to determine whether the event happened quickly or slowly. Students will be required to cite evidence from the pictures as proof.	National Geographic pp. 90-91, Student Science Notebook, SMARTBoard	2-ESS1-1 Use information from several sources to provide evidence that Earth events can happen quickly or slowly.		
Students will understand that there are some ways to prevent erosion and flooding from happening Students will identify what it means when something floods Students will identify what a levee is and its purpose Students will identify what beach dunes are and their purpose	National Geographic pp 92-97 Student Notebook entry: Beach dunes	2-ESS1-1 2-ESS2-2 2-ESS2-1 ESS2.A	Some events happen very quickly; others occur very slowly, over a time period much longer than one can observe. Wind and water can change the shape of the land. Because there is always more than one possible solution to a problem, it is useful to compare and test designs.	Visual aid (photographs) Glossary reference	Student Notebook: We live near the coast. Many of our beaches have dunes, dune grass and beach projects to add more sand. Why do you think this is being done? How does this help erosion and flooding (See boxes with this printed on them to glue in journal)

Students will identify that maps can show us the shape of land and water and where things are located Students will recognize maps can represent continents, countries, states, oceans, rivers and lakes	Explore Map Champs student books to view examples of continents, countries and states, and water National Geographic pp102-105 Students will pick a state in the US that has rivers and or water located there Additional possible activity: Major US Rivers map worksheet	2-ESS2-2 2-ESS2-3	Maps show where things are located. One can map the shapes and kinds of land and water in any area. Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.		
Students will create a physical model of a US state and highlight any rivers or lakes (2-3 day lesson)	STEM activity: Individual physical maps of states and water using salt dough and state cut outs (NOTE: students should choose a state that does have at least one river. See Major US River map printout in folder for student reference)	2-ESS2-2 2-ESS2-3	Maps show where things are located. One can map the shapes and kinds of land and water in any area. Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.	Visual aid Highly engaging activity Technology support Extension activity: How has the water in your state changed the land structure? How did it form?	Completed physical maps with labels

	Students will paint the salt dough on day 2 and type labels for water areas on laptops (divide class) and label maps with cut out words and toothpicks				
Students will be able to identify that not all of Earth's water is liquid, but can be solid too Students will locate where ice is mostly located on Earth Students will identify how glaciers can change the Earth's surface and how they can affect the planet	National Geographic pp 108-113 YouTube Video: All About Glaciers for Kids: Free school (4:01) https://www.youtube.com/watch?v=PbYXiJsF5mw Glacier make a book activity	2-ESS2-1 2-ESS2-3 ESS2.B	Water is found in the ocean, rivers, lakes, and ponds. Water exists as solid ice and in liquid form.	Visual aid Extension activity: Student Notebook What problems could occur if glaciers continue to melt on Earth?	Glacier book activity

Materials Needed
iPads Pic Collage App Membership to Brain Pop Jr. Become an Expert Leveled Readers (Optional) Earthquake reading passage and question page Graham Cracker Plate Tectonics journal response Data Sheet for Wind erosion activity (straw one) Data Sheet for water erosion activity (eyedropper one) Wind Prediction Activity: Desktop Fan, Feather, Plastic Spoon, Crayon, Pencil, Paper Clip, Wood Block, Kleenex, Straw, Data Sheet Sand Dune Journal Page The Wind Blew by Pat Hutchins Graham Cracker Models Activity: 2 Graham Crackers per student, 6 Cool Whip containers per class, Red and Orange food coloring one per class, 1 plate per student Wind Erosion Activity: Plates, Cup of Sand, Straws (one set per partner pairs) Water Erosion Activity: Plates, Cup of Sand, Water Droppers (one set per partner pairs) Coastal Erosion Activity: (One set per group) Sand, Straw, paint-roller pan liners, Water, Empty plastic water bottle, additional STEAM materials as instructor sees fit Beach project/erosion prevention journal boxes US State Map Activity: Modeling clay (or salt dough) , toothpicks, Tempera Paint, Aluminum Tin (one per student), iPad, US Rivers printout Glacier Make-a-Book

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Connections to NJSLS - English Language Arts ● W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1) ● W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS2-1) ● SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2) Connections to NJSLS - Mathematics ● MP.2 Reason abstractly and quantitatively. (2-LS2-1) ● MP.4 Model with mathematics. (2-LS2-1), (2-LS2-2) ● MP.5 Use appropriate tools strategically. (2-LS2-1) ● 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-LS2-2)2	Creativity & Innovation • 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills •9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. •9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). •9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). •9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: • 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). • 9.4.2.TL.2: Create a document using a word processing application. • 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. • 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. • 9.4.2.TL.5: Describe the difference between real and virtual experiences. • 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). •9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of information. • 9.4.2.DC.2: Explain the importance of respecting digital content of others. • 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). • 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).

SUBJECT: Plants (Life Science)
GRADE LEVEL: Second
UNIT TITLE: Plants, Animals, and Living Things Unit 3
LENGTH OF STUDY: 19-21 days
START OF UNIT: March
END OF UNIT: May

Unit Learning Goals
● Students will identify interdependent relationships and how they function in ecosystems ● Students will understand the characteristics of plants and how they play a role in our world ● Students will understand how plants are affected by change ● Students will identify how plants reproduce and what pollination is ● Students will recognize how animals interact with plants in our ecosystem

Suggested Sequence of Lessons	Performance Expectations	Standards	Disciplinary Core Ideas	Modifications SE, ESL, & G&T	Assessment/ Benchmarks
Students will understand that plants and animals depend on each other 2 day lesson	Make a list or chart of how some animals and plants depend on each other (monarch butterflies and eggs on milkweed/birds and nests in trees/hollowed out trees and creatures living inside/ Sloths in rain forest trees/Bees and pollen/etc. Read aloud: Cactus Hotel Cactus Hotel follow up page on interdependence	2-LS2 2-LS4-1 LS4.D	Interdependence relationships in ecosystems: Plants depend on animals for pollination or to move their seeds around. There are many different kinds of living things in any area, and they exist in different places on land and in water.	Pair learners to make list of other interdependent relationships Show story through Smartboard viewing through YouTube read aloud	Responses for list of interdependent relationships Responses for Cactus Hotel follow up

Students will identify what plants need to survive	National Geographic pp 44-45 Student notebook: Respond to questions on page 45 Craftivity TPT What plants need	2-LS2	Plants depend on water and light to grow	Visual aide/Model Extension activity: Sketch or draw an animal or insect to add to your plant that might create an interdependent relationship Label plant parts with Spanish words	Completed Plant model with plant needs* Student Journal responses from pp 45*
Students will determine if plants need light to grow 1 day lesson and will need to check in and revisit over the next several days periodically at beginning of science lessons to note what occurred and discuss	Plant investigation experiment National Geographic pp 46-47 in cooperative groups (note: may use other seeds besides radish seeds such as lettuce, pea etc.)	2-LS2-1	Plants depend on water and light to grow	Hands on learning Cooperative learning groups with high-low learners Plant labels may also be written in Spanish Extension activity: Predict what is going to happen and why to support prediction	Observation and planning sheet for Student Notebook*

Students will make a plan and investigate how different liquids or the lack of water can affect plant growth 2 day lesson Also students will need to check in and revisit over the next several days periodically at beginning of science lessons to note what occurred and discuss	Plan and investigate like a scientist (based on National Geographic pp 48-49 but modified using experiment options of using different liquids (see print out of experiment on different liquids) Make a student driven list of possible liquids that groups may try as part of their investigation (ex: Soda, orange juice, salt water, vinegar, sugar water, etc.) Students will prepare and label cups and predict outcomes on data sheets Cooperative groups will test regular water, NO water and then may choose 2 other liquids to test Students will note the effects of the liquids and complete data sheets	2-LS2-1 K-2-ETS1-1 K-2-ETS1-3	Plants depend on water and light to grow. Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people. A situation that people want to change or create can be approached as a problem to be solved through engineering. Asking questions, making	Hands on learning Cooperative learning groups with high-low learners Plant labels may also be written in Spanish Extension activity: Groups may create their own data sheets to show results and make predictions	Observing what liquids students labeled on cups and completed data sheets showing predictions and observations Student Notebooks: What liquids worked best? What did not allow the plant to grow at all?

			observations, and gathering information are helpful in thinking about problems. Because there is always more than one possible solution to a problem, it is useful to compare and test designs.		
Students will identify what pollen is and understand that plants depend on animals and nature to spread pollen in order to reproduce	Reading passage on pollination from Readworks.org whole class shared reading Students will get to examine what pollen looks like up close by using magnifying glasses and lily samples of flowers Sketch the flower and pollen in student notebooks and answer: <u>Why is pollination important to plants?</u>	LS2.A	Plants depend on animals for pollination or to move their seeds around.	Passage may be read aloud for lower readers Extension activity: Label all of the parts of the plant sketch using ipad search as resource diagram	Student notebook responses and sketch

Students will identify what pollen is and understand that plants depend on animals and nature to spread pollen in order to reproduce	Magic School Bus video " Goes to Seed" https://www.youtube.com/watch?v=cGO32f68KCY Worksheet Follow up on Magic School Bus video	LS2.A	Plants depend on animals for pollination or to move their seeds around.	Visual aid /auditory aid Extension activity: Using student notebook, write a list of additional facts you learned from the movie	Worksheet responses
Students will understand how plants depend on animals and nature to spread pollen in order to reproduce and be able to model how insects transfer pollen	National Geographic pp 50-51 STEM ACTIVITY Flower Power spreading activity with partners using Kool-Aid and Q-tips (pair students to work together but each will get their own materials to do it)	LS2.A 2-LS2-2 K-2-ETS1-2	Plants depend on animals for pollination or to move their seeds around. Designs can be through conveyed sketches, drawings, or physical models. These representations are useful in communicating ideas for a problem's solutions to other people.	How does the shape of a flower help in their pollination	Follow up sheet for Flower Power activity

Students will identify facts about bees and why they are important to our world 2 to 3 day lesson	Bee reading passage on pollination and importance shared reading Fun bee facts to share with kids http://www.itsybitsyfun.com/bee-facts-for-kids.html Writing activity on facts you learned about bees (3 facts) Bee art project with labels of bee anatomy (type labels on laptops and attach to bee OR take picture of bee project and load to pic collage and add text labels.	2-LS2-2	Plants depend on animals for pollination or to move their seeds around.	Read passage out loud for lower readers Provide sentence starters for writing facts if writing support is needed Visual aid- Smartboard to view facts and info from website Extension activity: Write additional bee facts you learned Technology integration	Writing responses of bee facts Labeled anatomy parts on bee craftivity
Students will identify that there are less bees in the world today and we need to do something to help solve this problem	National Geographic pp 54-55 STEM ACTIVITY Design your own bee house to protect the bees (design on paper) and share with your group. Then with your group, create a way you think we	K-2-ETS1-1 K-2-ETS1-2 K-2-ETS1-3	A situation that people want to change can be approached as a problem to be solved through engineering. Asking	Cooperative learning activity High/low group members Extension activity: Build your own bee house at home and bring it in to	Design your own bee house graphic organizer (TPT) Group plan sketch or drawing of bee protection idea

4 day lesson	could help protect the bee population. (plant a massive flower garden, build a bee city, learn how to be a beekeeper, build a protective bee dome, etc Sketch your design as a group and add important facts as to why you think this will work and present to the other groups. Groups will assess each plan and list pros and cons that they see to compare results		questions, making observations, and gathering information are helpful in thinking about problems. Before beginning to design a solution, it is important to clearly understand the problem. Designs can be conveyed through sketches, drawings, or physical models. these representations are useful in communicating ideas for a problem's solution to other people. Because there	share with the class	Recording sheet of pros and cons for group presentation*

			is always more than one possible solution to a problem, it is useful to compare and test designs.		
Students will review how animals can spread seeds to assist in pollination Students will review how plants and animals are dependent on each other	National Geographic pp 56-57 Scholastic news article Thank You, Cockatoo (Archive April 2016) shared reading on smartboard or iPad with app. Follow up question page from Scholastic News article			Scholastic News Spanish version Visual aid Extension activity: In your science notebook, write about 2 things in nature that have an interdependent relationship	Follow up page from Scholastic News article *
Students will conduct a lab investigation to determine how seeds travel to reproduce 1 to 2 day lesson	NJTCL Lab: How do seeds travel? STEM ACTIVITY Cooperative groups will test how various seeds may travel to reproduce. Students will collect and record data from their observations and cite evidence to support it	2-LS2-2 2-LS4-1	Designs can be conveyed through sketches, drawings, or physical models. These representations are useful in communicating ideas for a	High/low learners in cooperative groups Hands on activity for high interest Extension activity: Students may research their seeds online to	Data table recording sheet results (NJCTL website) Analysis recording sheet (NJCTL website)

			problem's solutions to other people. There are many different kinds of living things in any area, and they exist in different places on land and in water.	determine the true method of dispersal	

Materials Needed		
7 Packs of radish seeds or other (pea, lettuce, etc.)	TPT print out of what plants need	Flip, Float, Fly Book (7) Bee-lieve Craftivity
Plastic cups	Lily Flowers	Bee Reading Passages (TpT)
Soil	Cupcake Liners	Design Your Own Bee House (TpT)
Student Notebooks	Scholastic News follow up from Thank You, Cockatoo article Various Seeds (milkweed, thistles, cattail, cocklebur, burdock, acorns, dandelion etc.) Fan	Save the Bees Recording Sheet (Pros & Cons)
Q-tips	Flower Power Follow up Sheet Alternate Liquids (OJ, Vinegar, Sugar/Salt Water)	Cactus Hotel printout for interdependence 3 Types of Kool-Aid Pollination Page Magnifying Glasses Cactus Hotel storybook Magic School Bus Worksheet
Habitat STEM Activity Response Sheet	"How Do Seeds Travel? " Lab Sheets from NJCTL	Fabric Swatches (leather, Velcro, felt. feather) Tubs of Water

Interdisciplinary Connections	21st Century Themes and Skills (Life and Career)
Connections to NJSLS - English Language Arts ● W.2.7 Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations). (2-LS2-1) ● W.2.8 Recall information from experiences or gather information from provided sources to answer a question. (2-LS2-1) ● SL.2.5 Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings. (2-LS2-2) Connections to NJSLS - Mathematics ● MP.2 Reason abstractly and quantitatively. (2-LS2-1) ● MP.4 Model with mathematics. (2-LS2-1), (2-LS2-2) ● MP.5 Use appropriate tools strategically. (2-LS2-1) ● 2.MD.D.10 Draw a picture graph and a bar graph (with single-unit scale) to represent a data set with up to four categories. Solve simple put-together, take-apart, and compare problems using information presented in a bar graph. (2-LS2-2)2	Creativity & Innovation • 9.4.2.CI.1: Demonstrate openness to new ideas and perspectives (e.g., 1.1.2.CR1a, 2.1.2.EH.1, 6.1.2.CivicsCM.2). • 9.4.2.CI.2: Demonstrate originality and inventiveness in work (e.g., 1.3A.2CR1a). Critical Thinking and Problem Solving • 9.4.2.CT.1: Gather information about an issue, such as climate change, and collaboratively brainstorm ways to solve the problem (e.g., K-2-ETS1-1, 6.3.2.GeoGI.2). • 9.4.2.CT.2: Identify possible approaches and resources to execute a plan (e.g., 1.2.2.CR1b, 8.2.2.ED.3). • 9.4.2.CT.3: Use a variety of types of thinking to solve problems (e.g., inductive, deductive). Information, Media, & Technology Skills •9.4.2.IML.1: Identify a simple search term to find information in a search engine or digital resource. •9.4.2.IML.2: Represent data in a visual format to tell a story about the data (e.g., 2.MD.D.10). •9.4.2.IML.3: Use a variety of sources including multimedia sources to find information about topics such as climate change, with guidance and support from adults (e.g., 6.3.2.GeoGI.2, 6.1.2.HistorySE.3, W.2.6, 1-LSI-2). •9.4.2.IML.4: Compare and contrast the way information is shared in a variety of contexts (e.g., social, academic, athletic) (e.g., 2.2.2.MSC.5, RL.2.9). Technology Literacy: • 9.4.2.TL.1: Identify the basic features of a digital tool and explain the purpose of the tool (e.g., 8.2.2.ED.1). • 9.4.2.TL.2: Create a document using a word processing application. • 9.4.2.TL.3: Enter information into a spreadsheet and sort the information. • 9.4.2.TL.4: Navigate a virtual space to build context and describe the visual content. • 9.4.2.TL.5: Describe the difference between real and virtual experiences. • 9.4.2.TL.6: Illustrate and communicate ideas and stories using multiple digital tools (e.g., SL.2.5.). •9.4.2.TL.7: Describe the benefits of collaborating with others to complete digital tasks or develop digital artifacts (e.g., W.2.6., 8.2.2.ED.2). Digital Citizenship: 9.4.2.DC.1: Explain differences between ownership and sharing of information. • 9.4.2.DC.2: Explain the importance of respecting digital content of others. • 9.4.2.DC.3: Explain how to be safe online and follow safe practices when using the internet (e.g., 8.1.2.NI.3, 8.1.2.NI.4). • 9.4.2.DC.4: Compare information that should be kept private to information that might be made public. 9.4.2.DC.5: Explain what a digital footprint is and how it is created. 9.4.2.DC.6: Identify respectful and responsible ways to communicate in digital environments. 9.4.2.DC.7: Describe actions peers can take to positively impact climate change (e.g., 6.3.2.CivicsPD.1).