Grade Five Science Curriculum

Course Title: Fifth Grade Science Curriculum
Grade Level(s): Fifth Grade

Content Area: Science
Date Developed: June 26, 2019

Course Description:

Unit 1: Engineering and Technology
3-5 ETS1 Engineering Design- In this unit students discover how science and math are used in engineering; investigate a design process; explore how technology decisions affect society.

Unit 2: Matter
5-PS1 Matter and Its Interactions- In this unit students discover the different states of matter and how to measure matter; explore the different properties of matter along with dissolving rates of certain matter; compare and contrast physical and chemical changes of matter.

Unit 3: Earth's Systems
5 ESS2 Earth's Systems- In this unit students explore the hydrosphere, geosphere, biosphere, and atmosphere; learn how Earth's systems interact.

Unit 4: Earth and Human Activity
5-ESS3 Earth and Human Activity- In this unit students explore how human activity affects the Earth and its systems; learn about ways to keep Earth and its systems healthy.

Unit 5: Energy and Matter in Organisms
5-LS1 From Molecules to Organisms: Structures and Processes and 5-PS3 Energy- In this unit students investigate how living organisms get energy; explore how living organisms use energy and how they interact in their environments.

Unit 6: Energy and Matter in Ecosystems
5-LS2-1 Ecosystems: Interactions, Energy, and Dynamics- In this unit students explore phenomena of predator–prey population interactions and native and invasive species interactions; use models to develop explanations of the energy inputs and energy and matter flows within ecosystems.

Unit 7: Systems in Space
5-PS2 Motion and Stability: Forces and Interactions and 5-ESS1-1 Earth's Place in the Universe- In this unit students use evidence to explain that Earth's orbit, the moon's orbit and Earth's rotation cause predictable patterns; explain

why the sun appears so large and bright from Earth; explain that Earth is a sphere and that gravity pulls objects toward Earth's center.

Total Number of Units: 7

Pacing Guide			
Unit	**Week**	**Standard NJSLS**	**Skill What we want students to"DO"**
Unit 1: Engineering and Technology	**6 Weeks**	**3-5-ETS1-1.** **3-5-ETS1-2.** **3-5-ETS1-3.**	**Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.** **Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.** **Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.**

Unit 2: Matter	**8 Weeks**	**5-PS1-1.** **5-PS1-2.** **5-PS1-3.** **5-PS1-4.**	**Develop a model to describe that matter is made of particles too small to be seen. [** **Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved.** **Make observations and measurements to identify materials based on their properties.** **Conduct an investigation to determine whether the mixing of two or more substances results in new substances.**
Unit 3: Earth's Systems	**6 Weeks**	**5-ESS2-1.** **5-ESS2-2.**	**Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact.** **Describe and graph the amounts of saltwater and freshwater in various reservoirs to provide evidence about the distribution of water on Earth.**
Unit 4: Earth and Human Activity	**5 Weeks**	**5-ESS3-1.**	**Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.**
Unit 5: Energy and Matter in Organisms	**5 Weeks**	**5-PS3-1.** **5-LS1-1**	**Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun.** **Support an argument that plants get the materials they need for growth chiefly from air and water.**

Unit 6: Energy and Matter in Ecosystems	**4 Weeks**	**5-LS2-1.** **5-LS4-4.**	**Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment.** **Make a claim about the merit of solution to a problem caused when the environment changes and the types of plants and animals that live there may change.**
Unit 7: Systems in Space	**6 Weeks**	**5-PS2-1.** **5-ESS1-1.** **5-ESS1-2.**	**Support an argument that the gravitational force exerted by Earth on objects is directed down.** **Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.** **Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.**

Unit 1: Engineering and Technology
<u>3-5 ETS1 Engineering Design</u>

Time Frame: 6 Weeks (Throughout the year)

Essential Questions

- **Why is lab safety so important in a science class?**
- **How do we apply the scientific method during experiments?**
- **Will our solution solve the problem and meet the criteria within the constraints?**
- **Why would understanding the scientific method help conduct an experiment?**
- **Why is developing a hypothesis important before beginning an experiment?**
- **Why is it important to have evidence when stating your hypothesis?**
- **Why is it essential to conduct the experiment with multiple trials?**

Standards / CPIs (Cumulative Progress Indicators) taught and assessed:

Science Standards:

3-5-ETS1-1. Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.

3-5-ETS1-2. Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.

3-5-ETS1-3. Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

ELA/Literacy Standards:

L.5.1 Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. (3-5-ETS1-1), (3-5- ETS1-2), (3-5-ETS1-3)

SL.5.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on *grade 5 topics and texts*, building on others' ideas and expressing their own clearly. (3-5-ETS1-1), (3-5- ETS1-2), (3-5-ETS1-3)

RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (3-5-ETS1-2)

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (3-5- ETS1-2)

RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (3-5-ETS1-2)

W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (3-5-ETS1-1),(3-5-ETS1-3)

W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (3-5-ETS1-1),(3-5-ETS1-3)

W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (3-5-ETS1-1),(3-5-ETS1-3)

Mathematics Standards:
MP.2 Reason abstractly and quantitatively. (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)

MP.4 Model with mathematics. (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)

MP.5 Use appropriate tools strategically. (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3)

3-5.OA Operations and Algebraic Thinking (3-5-ETS1-1),(3-5-ETS1-2)

Prerequisite Standards:
K-2.ETS1.A (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3); K-2.ETS1.B (3-5-ETS1-2); K-2.ETS1.C (3-5-ETS1-2),(3-5-ETS1-3);

MS.ETS1.A (3-5-ETS1-1); MS.ETS1.B (3-5-ETS1-1),(3-5-ETS1-2),(3-5-ETS1-3); MS.ETS1.C (3-5-ETS1-2),(3-5-ETS1-3)

Technology Standards:
8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

Highlighted Career Ready Practices:
CRP4. Communicate clearly and effectively and with reason.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP12. Work productively in teams while using cultural global competence.

SEL Practices & Competencies:
- **Self-Awareness**
- **Self-Management**
- **Social Awareness**

• Responsible Decision-Making 2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation. 2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others. 2.2.6.B.1 Use effective decision-making strategies. 2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities 2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships. 2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.

Overall Goal (What is the big idea?) Students will demonstrate how science and math are used in engineering and how it assists in the design process when conducting investigations.
Pre-Assessment: SGO Baseline and HMH Engineering and Technology: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
Science Standards: 3-5-ETS1-1, 3-5-ETS1-2 We are learning how to conduct an	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 3-5.OA,	Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that

experiment using the scientific method through testing our created hypothesis.	-Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	ELA Standards: L.5.1, SL.5.1, RI.5.1, RI.5.7, RI.5.9, W.5.7, W.5.8, W.5.9 Reflexes Lab Report: How Fast are You? -Students work in collaborative groups to complete an experiment to test their reflexes and prove whether or not their hypothesis were correct. This activity consists of creating a hypothesis, gathering data and finding averages. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 3-5.OA, ELA Standards: L.5.1, SL.5.1, RI.5.1, RI.5.7, RI.5.9, W.5.7, W.5.8, W.5.9 Conclusion Reflexes Lab Report: How Fast are You?	are authentic, relate to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: ● Instructional Supports and Scaffolds ● Provide students with relevant background knowledge about a topic to be discussed in class.

			-Students work independently to complete a graphic organizer to assist in writing a conclusion. Once, graphic organizer was complete, students write a final report on their findings.	**Suggested Strategies for Students at Risk:** ● Home/School Communication ● Monitor Homework *Enrichment activities were included to meet the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.*
Science Standards: 3-5-ETS1-3 We are learning how to design a model and prototype that can be improved.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 3-5.OA, ELA Standards: L.5.1, SL.5.1, RI.5.1, RI.5.7, RI.5.9, W.5.7, W.5.8, W.5.9 BrainPop Scientific Method -Students view and take notes on the video and complete the assessment. Students complete the activities that align with the video. For reading, students have four passages	

			that relate to the video. **Activity 2:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 3-5.OA,** **ELA Standards:** **L.5.1, SL.5.1, RI.5.1, RI.5.7, RI.5.9, W.5.7, W.5.8, W.5.9** **HMH Unit Project: Dropping Off, Picking Up** **-Students will work together to design a school entranceway that will improve access to the school during congested time periods. They will ask questions and identify a problem to solve.**	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy Health Literacy) **Global Awareness, Economics, Business and Entrepreneurial Literacy**
21st Century Skills Targeted

Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
Reflexes Lab Report: How Fast are You? -Drawing and explanation of the reflexes experiment.	Strange Case of BeriBeri/How was Penicillin Discovered Close Read and Text Based Questions Modified Strange Case of BeriBeri/How was Penicillin Discovered Close Read and Text Based Questions HMH Leveled Readers	Scientific Method: Quizlet Scientific Method Song	Study Jams Video and Assessment	Reflexes Lab Report: How Fast are You? - Experiment in which students test their own reflexes.	Careers in Science and Engineering Close Reading in HMH Textbook
Summative Assessments: (include rubrics & exemplars) Text Based Questions Rubric BrainPop Scientific Method Quiz Scientific Method Quiz- Multiple Formats Reflexes Lab Conclusion Rubric Lab Group Rubric Unit Assessments in HMH Textbook					

Unit 2: Matter 5-PS1 Matter and Its Interactions Time Frame: 8 Weeks
Essential Questions ➢ In what ways are mixtures and solutions different?

- How can mixtures be separated?
- Where does the solid material go when a solution is made?
- In what ways can mixtures and solutions be separated?
- How does evaporation work to separate the parts of a solution?
- How can a dry mixtures be separated?
- How can matter change?
- How can you determine which solution is more concentrated?
- Are all solutions of salt water the same concentration?
- How will it prove that matter is conserved after physical or chemical changes?

Standards /CPIs (Cumulative Progress Indicators) taught and assessed:

Science Standards:

5-PS1-1. Develop a model to describe that matter is made of particles too small to be seen. [Clarification Statement: Examples of evidence supporting a model could include adding air to expand a basketball, compressing air in a syringe, dissolving sugar in water, and evaporating salt water.] [Assessment Boundary: Assessment does not include the atomic-scale mechanism of evaporation and condensation or defining the unseen particles.]

5-PS1-2. Measure and graph quantities to provide evidence that regardless of the type of change that occurs when heating, cooling, or mixing substances, the total weight of matter is conserved. [Clarification Statement: Examples of reactions or changes could include phase changes, dissolving, and mixing that form new substances.] [Assessment Boundary: Assessment does not include distinguishing mass and weight.]

5-PS1-3. Make observations and measurements to identify materials based on their properties. [Clarification Statement: Examples of materials to be identified could include baking soda and other powders, metals, minerals, and liquids. Examples of properties could include color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility; density is not intended as an identifiable property.] [Assessment Boundary: Assessment does not include density or distinguishing mass and weight.]
5-PS1-4. Conduct an investigation to determine whether the mixing of two or more substances results in new substances.

ELA/Literacy Standards:

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS1- 1)

W.5.7 Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic. (5-PS1-2),(5-PS1-3),(5-PS1-4)

W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-PS1-2),(5-PS1-3),(5-PS1-4)

W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (5-PS1-2),(5-PS1-3),(5-PS1-4)

Mathematics Standards:

MP.2 Reason abstractly and quantitatively. (5-PS1-1),(5-PS1-2),(5-PS1-3)

MP.4 Model with mathematics. (5-PS1-1),(5-PS1-2),(5-PS1-3)

MP.5 Use appropriate tools strategically. (5-PS1-2),(5-PS1-3)

5.NBT.A.1 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-PS1-1)

5.NF.B.7 Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. (5-PS1-1)

5.MD.A.1 Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multi-step, real-world problems. (5-PS1-2)

5.MD.C.3 Recognize volume as an attribute of solid figures and understand concepts of volume measurement. (5-PS1-1)

5.MD.C.4 Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. (5-PS1-1)

Prerequisite Standards:
2.PS1.A (5-PS1-1),(5-PS1-2),(5-PS1-3); 2.PS1.B (5-PS1-2),(5-PS1-4); MS.PS1.A, (5-PS1-1), (5-PS1-2), (5-PS1-3),

(5-PS1-4); MS.PS1.B (5- PS1-2),(5-PS1-4)

Technology Standards:
8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

Highlighted Career Ready Practices:
CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

SEL Practices & Competencies:
- **Self-Awareness**
- **Self-Management**
- **Social Awareness**
- **Responsible Decision-Making**

2.1.6.E.1 Examine how personal assets and protective factors support healthy social and emotional development.

2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.

2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others. **2.2.6.B.1 Use effective decision-making strategies.** **2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities** **2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships.** **2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.**

Overall Goal (What is the big idea?). Students will discover the different states of matter and how to measure it. Explore the different properties of matter along with dissolving rate of certain matter. Compare and contrast physical and chemical changes of matter.
Pre-Assessment: Mixtures and Solutions Pre Assessment and HMH Matter: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	**Student Learning Strategies**	**Formative Assessment ***suggested but not limited to the following*** **	**Activities ***suggested but not limited to the following*** **	**Modifications & Reflections ***suggested but not limited to the following*** **
Science Standards: 5-PS1-1, 5-PS1-2 **We are learning to describe that matter is made of particles too small to be seen and that matter is conserved even**	**-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion**	**-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing**	**Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4 ELA Standards:**	**Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that are authentic, relate to students' interests, social/family**

through dissolving and evaporation.	-Cooperative Learning -Generating and Testing Hypothesis	-Evidence Notebooks	RI.5.7, W.5.7, W.5.8, W.5.9 Mixtures and Solutions Investigation Part 1: Making and Separating Mixtures -Identify the physical properties of substances and create mixtures. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4 ELA Standards: RI.5.7, W.5.7, W.5.8, W.5.9 Mixtures and Solutions Investigation Part 2: Separating a Solution -Dissolving a solute in water experiment separating with filter	background and knowledge of their community. ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: ● Instructional Supports and Scaffolds ● Provide students with relevant background knowledge about a topic to be discussed in class. Suggested Strategies for Students at Risk: ● Home/School Communication

			papers or screens. Then we use evaporation to see salt crystals. Activity 3: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4 ELA Standards: RI.5.7, W.5.7, W.5.8, W.5.9 Mixtures and Solutions Investigation Part 3: Making and Measuring a Solution -Measuring mass of solution using grams and a balance.	• Monitor Homework *Enrichment activities were included to meet the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.*
Science Standards: 5-PS1-3. We are learning to make observations and measurements to identify materials	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4	

based on their properties.	-Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	ELA Standards: RI.5.7, W.5.7, W.5.8, W.5.9 Mixtures and Solutions Investigations Part 4: Separating a Dry Mixture -Separation of dry materials using magnetic forces. Using physical properties to identify materials. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4 ELA Standards: RI.5.7, W.5.7, W.5.8, W.5.9 Mixtures and Solutions Investigations Part 5: Salt Concentration	

			-Measuring the different concentrations of different solutions.	
Science Standards: 5-PS1-4. We are learning to conduct an investigation to determine whether the mixing of two or more substances results in new substances.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4 ELA Standards: RI.5.7, W.5.7, W.5.8, W.5.9 Mixtures and Solutions Investigations Part 6: Investigation 3 Part 1: Fizz Quiz -Mixture of materials to result in chemical reaction. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, MP.5, 5.NBT.A.1, 5.NF.B.7, 5.MD.A.1, 5.MD.C.3, 5.MD.C.4	

			ELA Standards: **RI.5.7, W.5.7, W.5.8, W.5.9** **HMH Unit Project: Conservation of Matter** **-Students will design an experiment to prove that matter is conserved during physical or chemical changes.**	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy, Health Literacy) **Global Awareness, Financial, Economic**					
21st Century Skills Targeted					
Creativity & Innovation	**Information Literacy**	**Media Literacy**	**Critical Thinking & Problem Solving**	**Communication & Collaboration**	**Life & Careers**
HMH Vocab Game **Picture It**	**Differentiated Mixtures and Solutions Passages** **HMH Leveled Readers**	**StudyJams Mixtures** **-Students view and take notes on the video and complete the assessment.** **Why are Oceans Salty?**	**PlayPosit: The Great Picnic Mix Up Kids Crash Course**	**HMH Unit Project: Conservation of Matter** **-Students will design an experiment to prove that matter is conserved during physical or chemical changes.**	**Careers in Science and Engineering Close Reading in HMH Textbook**

				Mixtures and Solutions Lab Sheets	

Summative Assessments: (include rubrics & exemplars)

Lab Group Rubric
Text Based Questions Rubric
Separating Mixtures and Solutions Quizizz
Open Notes Separating Mixtures and Solutions Quiz
Open Notes Solutions Concentration Quiz
Unit Assessments in HMH Textbook
Mixtures and Solutions Unit Assessment

Unit Title: Unit 3: Earth's Systems
5 ESS2 Earth's Systems

Time Frame: 6 Weeks

Essential Questions

- **What is salinity?**
- **How can you tell the salt content of a glass of water?**
- **Why would humans might want to reduce the salt content of some water?**
- **How do Earth's Systems interact with each other to help us survive?**

Standards / CPIs (Cumulative Progress Indicators) taught and assessed:

Science Standards:
5-ESS2-1. Develop a model using an example to describe ways the geosphere, biosphere, hydrosphere, and/or atmosphere interact. [Clarification Statement: Examples could include the influence of the ocean on ecosystems, landform shape, and climate; the influence of the atmosphere on landforms and ecosystems through weather and climate; and the influence of mountain ranges on winds and clouds in the atmosphere. The geosphere, hydrosphere, atmosphere, and biosphere are each a system.] [Assessment Boundary: Assessment is limited to the interactions of two systems at a time.]

5-ESS2-2. Describe and graph the amounts of saltwater and freshwater in various reservoirs to provide evidence about the distribution of water on Earth. [Assessment Boundary: Assessment is limited to oceans, lakes, rivers, glaciers, groundwater, and polar ice caps, and does not include the atmosphere.]

ELA/Literacy Standards:

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS2- 1),(5-ESS2-2)

W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS2-2)

SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5- ESS2-1),(5-ESS2-2)

Mathematics Standards:

MP.2 Reason abstractly and quantitatively. (5-ESS2-1),(5-ESS2-2)

MP.4 Model with mathematics. (5-ESS2-1),(5-ESS2-2)

5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS2-1)

Prerequisites Standards:

2.ESS2.A (5-ESS2-1); 2.ESS2.C (5-ESS2-2); 3.ESS2.D (5-ESS2-1); 4.ESS2.A (5-ESS2-1); MS.ESS2.A (5-ESS2-1);

MS.ESS2.C (5-ESS2- 1),(5-ESS2-2); MS.ESS2.D (5-ESS2-1); MS.ESS3.A (5-ESS2-2)

Technology Standards:

8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

Highlighted Career Ready Practices:
CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP9. Model integrity, ethical leadership and effective management.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP12. Work productively in teams while using cultural global competence.

SEL Practices & Competencies:
- **Self-Awareness**
- **Self-Management**
- **Social Awareness**
- **Responsible Decision-Making**

2.1.6.E.1 Examine how personal assets and protective factors support healthy social and emotional development.

2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.

2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others.

2.2.6.B.1 Use effective decision-making strategies.

2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities

2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships.

2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.

Overall Goal (What is the big idea?) Students will explore the hydrosphere, geosphere, biosphere, and atmosphere and will learn how Earth's systems interact in order to learn how to be more conservative of our Earth's resources.
Pre-Assessment: HMH Earth's Systems: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
Science Standards: 5-ESS2-1. We are learning to research the four sphere and model how they interact with one another.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.G.A.2 ELA Standards: RI.5.7, W.5.8, SL.5.5 Better Lessons Earth's Systems Overview and Research Earth's Systems Graphic Organizer -Students work together to research the Earth's Systems	Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how they can represent

			using online resources (Google Classroom Powerpoint Graphic Organizer). Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.G.A.2 ELA Standards: RI.5.7, W.5.8, SL.5.5 Better Lessons Earth's Systems Poster Earth's Systems Research and Poster -Students use the research from the graphic organizer and create a poster on all four spheres. Demonstrate the main four spheres and how they interact.	their understandings (e.g. multisensory techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: ● Instructional Supports and Scaffolds ● Provide students with relevant background knowledge about a topic to be discussed in class. Suggested Strategies for Students at Risk: ● Home/School Communication ● Monitor Homework

Science Standards: 5-ESS2-2. We are learning to make a graph to show the distribution of water on Earth and write about my observations.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.G.A.2 ELA Standards: RI.5.7, W.5.8, SL.5.5 Better Lessons: Hydrosphere-Water Distribution Water Distribution on Earth Circle Graph -Students explore the distribution of water on Earth by completing an investigation. Then students construct a circle graph to further analyze the Earth's water. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.G.A.2 ELA Standards: RI.5.7, W.5.8, SL.5.5	*Enrichment activities were included to meet the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.*

			HMH Unit Project: Cleaning Water -Students work together to design a system to remove salt from salt water to make it drinkable.	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy Health Literacy) Global Awareness, Civic Literacy, Health Literacy					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
Earth's Systems Poster	HMH Leveled Readers	Kids Crash Course: Four Spheres Part 1 (Geo and Bio) Kids Crash Course: Four Spheres Part 2 (Hydro and Atmo) Kids Crash Course Water: The Basics of Freshwater	BrainPop: Water Supply	Water Distribution on Earth Circle Graph HMH Unit Project: Cleaning Water -Students working together will design a system to remove salt from salt water	Careers in Science and Engineering Close Reading in HMH Textbook

				to make it drinkable.	

Summative Assessments: (include rubrics & exemplars)

Lab Group Rubric
Text Based Questions Rubric
Earth's Systems Quizizz
Poster Project Rubric
Unit Assessments in HMH Textbook

Unit 4: Earth and Human Activity
5-ESS3 Earth and Human Activity

Time Frame: 5 Weeks

Essential Questions

- **How often do you personally recycle?**
- **What materials found in your home or at school can you recycle?**
- **How do human activities affect the Earth?**

Standards / CPIs (cumulative Progress Indicators) taught and assessed:

Science Standards:
5-ESS3-1. Obtain and combine information about ways individual communities use science ideas to protect the Earth's resources and environment.

ELA/Literacy Standard:

RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-ESS3-1)

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS3-1)

RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS3-1)

W.5.8 Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work, and provide a list of sources. (5-ESS3-1)

W.5.9 Draw evidence from literary or informational texts to support analysis, reflection, and research. (5-ESS3-1)

Mathematics Standards:
MP.2 Reason abstractly and quantitatively. (5-ESS3-1)

MP.4 Model with mathematics. (5-ESS3-1)

Prerequisite Standards:
MS.ESS3.A (5-ESS3-1); MS.ESS3.C (5-ESS3-1); MS.ESS3.D (5-ESS3-1)

Technology Standards:
8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

8.2.5.A.1 Compare and contrast how products made in nature differ from products that are human made in how they are produced and used.

8.2.5.A.4 Compare and contrast how technologies have changed over time due to human needs and economic, political and/or cultural influences.

Highlighted Career Ready Practices:
CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

SEL Practices & Competencies:
- **Self-Awareness**
- **Self-Management**
- **Social Awareness**
- **Responsible Decision-Making**

2.1.6.E.1 Examine how personal assets and protective factors support healthy social and emotional development.

2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.

2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others.

2.2.6.B.1 Use effective decision-making strategies.

2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities

2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships. **2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.**

Overall Goal (What is the big idea?) Students will explore how human activity affects the Earth systems and learn about ways to keep Earth systems healthy in order to help enhance our world in the future.
Pre-Assessment: HMH Earth and Human Activities: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
Science Standards: 5-ESS3-1. We are learning to see how humans impact Earth's resources and will obtain an understanding of how we can protect the environment.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2 R, MP.4 ELA Standards: RI.5.1 RI.5.7, RI.5.9, W.5.8, W.5.9 Environmental Issues Websites and Poster -Students use websites to complete a graphic	Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how

			organizer and then create a poster. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2 R, MP.4 ELA Standards: RI.5.1 RI.5.7, RI.5.9, W.5.8, W.5.9 Environmental Issues Research Graphic Organizer -Students will research different environmental issues and create a poster based on one. Activity 3: Math Standards: NJ SLS-M. 5.NBT, MP.2 R, MP.4 ELA Standards: RI.5.1 RI.5.7, RI.5.9, W.5.8, W.5.9	they can represent their understandings (e.g. multisensory techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: ● Instructional Supports and Scaffolds ● Provide students with relevant background knowledge about a topic to be discussed in class. Suggested Strategies for Students at Risk: ● Home/School Communication ● Monitor Homework

			BrainPOP: Humans and the Environment **-Students view and take notes on the video and complete the assessment. For an extension, students can complete the activities that align with the video. For reading, students have four passages that relate to the video.** **Activity 4:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2 R, MP.4** **ELA Standards:** **RI.5.1 RI.5.7, RI.5.9, W.5.8, W.5.9** **HMH Unit Project: My Environmental Impact** **-Students will work together to determine their**	***Enrichment activities were included to meet the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.***

			impact as individuals on the world around them. They will focus on how much recyclable material they use, making predictions about the usage over their lifetimes.	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy, Health Literacy) Global Awareness, Economic, Civic Literacy, Health Literacy					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
Environmental Issues Websites and Poster	HMH Leveled Readers	BrainPOP: Air Pollution Related Reading BrainPOP: Water Pollution Related Reading	HMH Unit Project: My Environmental Impact	How Does Resource Use Affect Earth? Performance Task Think-Pair-Share	Careers in Science and Engineering Close Reading in HMH Textbook
Summative Assessments: (include rubrics & exemplars) HMH Unit Assessment Lab Group Rubric					

Text Based Questions Rubric
Poster Project Rubric

Unit 5: Energy and Matter in Organisms
5-LS1-1 Ecosystems: Interactions, Energy, and Dynamics
5-PS3 Energy

Time Frame: 5 Weeks

Essential Questions

- **How do abiotic and biotic factors interact with each other in an ecosystem?**
- **How do the different parts of a food chain interact with each other?**
- **How does light affect plants?**
- **Why is it important to control variables in an investigation?**
- **How is energy transferred?**

Standards / CPIs (cumulative Progress Indicators) taught and assessed:

Science Standards: Energy

5-PS3-1. Use models to describe that energy in animals' food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. [Clarification Statement: Examples of models could include diagrams, and flowcharts.]

ELA/Literacy Standards:

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-PS3- 1)

SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5- PS3-1)

Prerequisite Standards:
K.LS1.C (5-PS3-1); 2.LS2.A (5-PS3-1); 4.PS3.A (5-PS3-1); 4.PS3.B (5-PS3-1); 4.PS3.D (5-PS3-1); MS.PS3.D (5-PS3-1); MS.PS4.B (5- PS3-1); MS.LS1.C (5-PS3-1); MS.LS2.B (5-PS3-1)

Science Standards: Ecosystems
5-LS1-1 Support an argument that plants get the materials they need for growth chiefly from air and water. [Clarification Statement: Emphasis is on the idea that plant matter comes mostly from air and water, not from the soil.]

ELA/Literacy Standards:
RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-LS2- 1)

SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5- LS2-1)

Mathematics Standards:
MP.2 Reason abstractly and quantitatively. (5-LS2-1)

MP.4 Model with mathematics. (5-LS2-1)

Prerequisite Standards:
2.PS1.A (5-LS2-1); 2.LS4.D (5-LS2-1); 4.ESS2.E (5-LS2-1); MS.PS3.D (5-LS2-1); MS.LS1.C (5-LS2-1); MS.LS2.A (5-LS2-1); MS.LS2.B (5-LS2-1)

Technology Standards:
8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

8.1.5.A.3 Use a graphic organizer to organize information about the problem or issue.

8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

Highlighted Career Ready Practices:
CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP7. Employ valid and reliable research strategies.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

SEL Practices & Competencies:
- **Self-Awareness**
- **Self-Management**
- **Social Awareness**
- **Responsible Decision-Making**

2.1.6.E.1 Examine how personal assets and protective factors support healthy social and emotional development.

2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.

2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others.

2.2.6.B.1 Use effective decision-making strategies.

2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities

2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships. **2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.**

Overall Goal (What is the big idea?) Students will investigate how living organisms get energy and explore how living organisms use energy and how they interact in their environments along with how humans can make an impact.
Pre-Assessment: HMH Energy and Matter in Organisms: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
Science Standards: 5-PS3-1. We are learning to create models to describe that energy in animals' food.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4 ELA Standards: RI.5.7, SL.5.5 What is an Ecosystem: Better Lesson -Students will research several	Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community.

			sources to answer the question, "What is an ecosystem?" At the end of today's lesson, students will compile their research in a class idea web. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4 ELA Standards: RI.5.7, SL.5.5 Ecosystems Vocabulary Worksheet Definition/Sentence /Drawing -Students research the given vocabulary words, creating sentences and drawing. Activity 3: Math Standards:	• Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: • Instructional Supports and Scaffolds • Provide students with relevant background knowledge about a topic to be discussed in class. Suggested Strategies for Students at Risk:

			NJ SLS-M. 5.NBT, MP.2, MP.4 **ELA Standards:** **RI.5.7, SL.5.5** **Food Webs: Better Lesson** **-Create an accurate food web for a given ecosystem when provided organisms that live in that ecosystem.**	**● Home/School Communication** **● Monitor Homework** ***Enrichment activities were included to meet the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.***
Science Standards: **5-LS1-1** **We are learning to support an argument that plants get the materials they need for growth mainly from air and water.**	**-Think-Pair-Share** **-Collaborative Learning** **-Daily Do Nows** **-Homework** **-Close Reading** **-Vocabulary Games** **-Note Taking** **-Group Discussion** **-Cooperative Learning** **-Generating and Testing Hypothesis**	**-Self Check** **-Lesson Check** **-Exit Slips** **-Vocab Quiz** **-Graphic Organizers** **-Unit Assessment** **-Teacher Observation/ Anecdotal Notes** **-Conclusion Writing** **-Evidence Notebooks**	**Activity 1:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4** **ELA Standards:** **RI.5.7, SL.5.5** **HMH Unit Project: The Best Light** **-Students work together to investigate how different kinds of light affect the growth of plants.**	

			Activity 2: **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4** **ELA Standards:** **RI.5.7, SL.5.5** **BrainPop: Plant Growth** **-Students work together to collect notes on the topic and take the assessment. For extension, there are provided close reading passages connected to the topic.**	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy Health Literacy) **Global Awareness, Financial, Economic**					
21st Century Skills Targeted					
Creativity & Innovation	**Information Literacy**	**Media Literacy**	**Critical Thinking & Problem Solving**	**Communication & Collaboration**	**Life & Careers**
Mystery Science: Web of Life Teacher Tips **Mystery Science - Web of Life Score Card**	**HMH Leveled Readers** **Ecosystems Passages**	**EcosystemsThe Doctor Binocs**	**Food Chain BrainPop** **- Students complete the focus question**	**HMH Unit Project: The Best Light** **-Students work together to**	**Careers in Science and Engineering Close**

Mystery Science - Web of Life Eat or Be Eaten Food Chain Game -Students conduct a card game in which they are to create food chains to represent the flow of energy.		Kids Crash Course Energy: 5-PS3-1 -Gotta Eat!: Video looks at why all living things need to eat. Plus, a way to investigate why all living things need to eat.	"What might happen if all the frogs suddenly died off?"	investigate how different kinds of light affect the growth of plants.	Reading in HMH Textbook
Summative Assessments: (include rubrics & exemplars) Lab Group Rubric Text Based Questions Rubric Unit Assessments in HMH Textbook					

Unit 6: Energy and Matter in Ecosystems 5-LS2-1 Ecosystems: Interactions, Energy, and Dynamics Time Frame: 4 Weeks
Essential Questions ➢ What are the characteristics of grassland ecosystems? ➢ What are the plant and animal organisms that you would find there? ➢ Which animals are herbivores? Which are carnivores? ➢ What is the food chain at an African grassland or watering hole?
Standards / CPIs (cumulative Progress Indicators) taught and assessed:

Science Standards

5-LS2-1. Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. [Clarification Statement: Emphasis is on the idea that matter that is not food (air, water, decomposed materials in soil) is changed by plants into matter that is food. Examples of systems could include organisms, ecosystems, and the Earth.] [Assessment Boundary: Assessment does not include molecular explanations.]

5-LS4-4. Make a claim about the merit of solution to a problem caused when the environment changes and the types of plants and animals that live there may change. [Clarification Statement: Examples of environmental changes could include changes in land characteristics, water distribution, temperature, food, and other organisms.] [Assessment Boundary: Assessment is limited to a single environmental change. Assessment does not include the greenhouse effect or climate change.]

Prerequisite Standards:

K.LS1.C (5-PS3-1); 2.LS2.A (5-PS3-1); 4.PS3.A (5-PS3-1); 4.PS3.B (5-PS3-1); 4.PS3.D (5-PS3-1); MS.PS3.D (5-PS3-1); MS.PS4.B (5- PS3-1); MS.LS1.C (5-PS3-1); MS.LS2.B (5-PS3-1)

ELA/Literacy Standards:

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-LS2- 1)

SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5- LS2-1)

Mathematics Standards:

MP.2 Reason abstractly and quantitatively. (5-LS2-1)

MP.4 Model with mathematics. (5-LS2-1)

Prerequisite Standards:

2.PS1.A (5-LS2-1); 2.LS4.D (5-LS2-1); 4.ESS2.E (5-LS2-1); MS.PS3.D (5-LS2-1); MS.LS1.C (5-LS2-1); MS.LS2.A (5-LS2-1); MS.LS2.B (5-LS2-1)

Technology Standards:

8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

Highlighted Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP5. Consider the environmental, social and economic impacts of decisions.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

SEL Practices & Competencies:

- **Self-Awareness**
- **Self-Management**
- **Social Awareness**
- **Responsible Decision-Making**

2.1.6.E.1 Examine how personal assets and protective factors support healthy social and emotional development.

2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.

2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others. **2.2.6.B.1 Use effective decision-making strategies.** **2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities** **2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships.** **2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.**

Overall Goal (What is the big idea?) Students will explore phenomena of predator-prey population interactions and native and invasive species interactions. Students will use models to develop explanations of the energy inputs and energy and matter flows within ecosystems. Students will also demonstrate how humans are the top of the food chain.
Pre-Assessment: HMH Energy and Matter in Ecosystems: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
Science Standards 5-LS2-1. We are learning to develop a model of	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4 ELA Standards: RI.5.7, SL.5.5	Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that are authentic, relate

movement among matter.	-Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Mystery Science: Web of Life Teacher Tips Mystery Science - Web of Life Score Card Mystery Science - Web of Life Eat or Be Eaten Food Chain Game -Students will conduct a card game in which they are to create food chains to represent the flow of energy. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4 ELA Standards: RI.5.7, SL.5.5 Food Chains and Food Webs: Kids Crash Course Food Chains: 5-LS2-1	to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: ● Instructional Supports and Scaffolds ● Provide students with relevant background knowledge about a topic to be discussed in class. Suggested Strategies for Students at Risk:

			Fabulous Food Chains: Video is about the way energy moves, or flows, through an ecosystem and how that movement forms Food Chains! **Activity 3:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4** **ELA Standards:** **RI.5.7, SL.5.5** **Kids Crash Course Food Webs: 5-LS2-1** **Food Webs: Last time we put a Polar Bear in the desert and we still feel bad about that, but there's a lot more going on in ecosystems than just temperature. In fact, there are so many elements in ecosystems, that if just one leaves or**	**● Home/School Communication** **● Monitor Homework** ***Enrichment activities were included to meet the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.***

			gets out of whack, it can be terrible for the whole thing. But today, let's talk about Spider Monkeys.	
Science Standards 5-LS4-4. We are learning to make a claim that environmental changes could cause changes in an ecosystem.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4 ELA Standards: RI.5.7, SL.5.5 BrainPop Ecosystem Videos: Tropical Rainforest Tundra Taiga Underwater World Savana Deserts -Students will pick ecosystems to review and take notes on. Students focus on how an environmental change can cause changes in an	

			ecosystem. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4 ELA Standards: RI.5.7, SL.5.5 "What are Ecosystems?" Poster -Students pick a specific ecosystems to represent. Create a poster of your choice and demonstrate a food chain and an environmental change.	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy Health Literacy) Global Awareness, Financial, Economic					
21st Century Skills Targeted					
Creativity & Innovation	Information Literacy	Media Literacy	Critical Thinking & Problem Solving	Communication & Collaboration	Life & Careers
BrainPop Ecosystem Videos:	HMH Leveled Readers	The Ecosystem of the Forest	Brainpop: Ecosystems	HMH Unit Project:	Careers in Science and Engineering

Tropical Rainforest Tundra Taiga Underwater World Savana Deserts -Create a poster of your choice and demonstrate a food chain.	Kids Crash Course Decomposers -The Dirt on Decomposers: Video is about food chains and how energy moves through an ecosystem.	Comprehension Reading		Modeling an Ecosystem -Students will work together to investigate how organisms at an African watering hole interact.	Close Reading in HMH Textbook
Summative Assessments: (include rubrics & exemplars) Lab Group Rubric Text Based Questions Rubric "What are Ecosystems?" Poster Rubric Unit Assessments in HMH Textbook					

Unit 7: Systems in Space 5-ESS1-1 Earth's Place in the Universe and 5-PS2 Motion and Stability: Forces and Interactions Time Frame: 6 Weeks
Essential Questions ➢ Why are certain stars visible only in certain months? ➢ How does the position of stars appear to change over time? ➢ What methods can you use to track the apparent movement of constellations?
Standards / CPIs (cumulative Progress Indicators) taught and assessed: Science Standards:

5-PS2-1. Support an argument that the gravitational force exerted by Earth on objects is directed down. [Clarification Statement: "Down" is a local description of the direction that points toward the center of the spherical Earth.] [Assessment Boundary: Assessment does not include mathematical representation of gravitational force.]

5-ESS1-1. Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. [Assessment Boundary: Assessment is limited to relative distances, not sizes, of stars. Assessment does not include other factors that affect apparent brightness (such as stellar masses, age, stage).]

5-ESS1-2. Represent data in graphical displays to reveal patterns of daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky. [Clarification Statement: Examples of patterns could include the position and motion of Earth with respect to the sun and selected stars that are visible only in particular months.] [Assessment Boundary: Assessment does not include causes of seasons.]

ELA/Literacy Standards:

RI.5.1 Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text. (5-ESS1-1)

RI.5.7 Draw on information from multiple print or digital sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently. (5-ESS1-1)

RI.5.8 Explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point(s). (5-ESS1-1)

RI.5.9 Integrate information from several texts on the same topic in order to write or speak about the subject knowledgeably. (5-ESS1-1)

W.5.1 Write opinion pieces on topics or texts, supporting a point of view with reasons and information. (5-ESS1-1)

SL.5.5 Include multimedia components (e.g., graphics, sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes. (5- ESS1-2)

Mathematics Standards:

MP.2 Reason abstractly and quantitatively. (5-ESS1-1),(5-ESS1-2)

MP.4 Model with mathematics. (5-ESS1-1),(5-ESS1-2)

5.NBT.A.2 Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. (5-ESS1-1)

5.G.A.2 Represent real world and mathematical problems by graphing points in the first quadrant of the coordinate plane, and interpret coordinate values of points in the context of the situation. (5-ESS1-2)

Prerequisite Standards:

1.ESS1.A (5-ESS1-2); 1.ESS1.B (5-ESS1-2); 3.PS2.A (5-ESS1-2); MS.ESS1.A (5-ESS1-1),(5-ESS1-2); MS.ESS1.B (5-ESS1-1),(5-ESS1-2)

Technology Standards:

8.1.5.A.1 Select and use the appropriate digital tools and resources to accomplish a variety of tasks including solving problems. Select and use applications effectively and productively.

8.1.5.A.2 Format a document using a word processing application to enhance text and include graphics, symbols and/ or pictures.

8.1.5.E.1 Use digital tools to research and evaluate the accuracy of, relevance to, and appropriateness of using print and non-print electronic information sources to complete a variety of tasks.

Highlighted Career Ready Practices:

CRP2. Apply appropriate academic and technical skills.

CRP4. Communicate clearly and effectively and with reason.

CRP6. Demonstrate creativity and innovation.

CRP8. Utilize critical thinking to make sense of problems and persevere in solving them.

CRP12. Work productively in teams while using cultural global competence.

SEL Practices & Competencies:

- **Self-Awareness**
- **Self-Management**
- **Social Awareness**
- **Responsible Decision-Making**

2.1.6.E.1 Examine how personal assets and protective factors support healthy social and emotional development.

2.1.6.E.3 Compare and contrast ways that individuals, families, and communities cope with change, crisis, rejection, loss, and separation.

2.2.6.A.1 Demonstrate verbal and nonverbal interpersonal communication in various settings that impact the health of oneself and others.

2.2.6.B.1 Use effective decision-making strategies.

2.2.6.C.3 Develop ways to proactively include peers with disabilities at home, at school, and in community activities

2.4.6.A.2 Analyze the characteristics of healthy friendships and other relationships.

2.4.6.A.4 Demonstrate successful resolution of a problem(s) among friends and in other relationships.

Overall Goal (What is the big idea?) Students use evidence to explain that Earth's orbit, the moon's orbit and Earth's rotation cause predictable patterns. Students will explain why the sun appears so large and bright from Earth. Students explain that Earth is a sphere and that gravity pulls objects toward Earth's center.
Pre-Assessment: HMH Systems in Space: Unit Pretest

Please include interdisciplinary connections resources and plan in each activity

(SLO) Student Learning Objectives (with standards)	Student Learning Strategies	Formative Assessment ***suggested but not limited to the following***	Activities ***suggested but not limited to the following***	Modifications & Reflections ***suggested but not limited to the following***
Science Standards: 5-PS2-1. We are learning to test gravitational force by seeing that objects are pulled toward the center of the Earth.	-Think-Pair-Share -Collaborative Learning -Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Self Check -Lesson Check -Exit Slips -Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	Activity 1: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2 ELA Standards: RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5 Introduction to Gravity: 5-PS2-1 -Defining Gravity Kids Crash Course: Video is about gravity and explains that when we talk about gravity pulling things down, what we really	Suggested Strategies for Students with Special Needs: ● Structure lessons around questions that are authentic, relate to students' interests, social/family background and knowledge of their community. ● Provide students with multiple choices for how they can represent their understandings (e.g. multisensory

			mean is gravity is pulling things. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2 ELA Standards: RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5 Down to Earth Kids Crash Course -Video is about why things on the bottom of the Earth, don't just fall off into space. Students work together to create a model of gravitational force based on the video. Activity 3: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2 ELA Standards: RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5	techniques- auditory/visual aids; pictures, illustrations, graphs, charts, data tables, multimedia, modeling). Suggested Strategies for English Language Learners: ● Instructional Supports and Scaffolds ● Provide students with relevant background knowledge about a topic to be discussed in class. Suggested Strategies for Students at Risk: ● Home/School Communication ● Monitor Homework *Enrichment activities were included to meet*

			Gravity Experiment -Using various sports balls like golf ball, tennis ball, basketball. Observing the gravitational downward pull towards the center of the Earth. Activity 4: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2 ELA Standards: RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5 PBS Gravity and Falling Objects Lab - Students investigate the force of gravity and how all objects, regardless of their mass, fall to the ground at the same rate.	*the needs of students with special gifts and talents. Extended activities will be provided as needed including those listed above.*
Science Standards: 5-ESS1-1.	-Think-Pair-Share -Collaborative Learning	-Self Check -Lesson Check -Exit Slips	Activity 1: Math Standards:	

We are learning to distinguish differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth.	-Daily Do Nows -Homework -Close Reading -Vocabulary Games -Note Taking -Group Discussion -Cooperative Learning -Generating and Testing Hypothesis	-Vocab Quiz -Graphic Organizers -Unit Assessment -Teacher Observation/ Anecdotal Notes -Conclusion Writing -Evidence Notebooks	NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2 ELA Standards: RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5 Kids Crash Course: 5-ESS1-1 Seeing Stars: Video about the Sun! But there are a lot of bright dots in the night sky and not all of them are stars. Today, let's play a game of "Star or Not a Star" to learn a little more about everything that's up there. Activity 2: Math Standards: NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2 ELA Standards: RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5	

			Activity 3: **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2** **ELA Standards:** **RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5** **Glow On** **-Video is about how stars glow and how astronomers judge their brightness.**	
Science Standards: **5-ESS1-2.** **We are learning to represent daily changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.**	**-Think-Pair-Share** **-Collaborative Learning** **-Daily Do Nows** **-Homework** **-Close Reading** **-Vocabulary Games** **-Note Taking** **-Group Discussion** **-Cooperative Learning** **-Generating and Testing Hypothesis**	**-Self Check** **-Lesson Check** **-Exit Slips** **-Vocab Quiz** **-Graphic Organizers** **-Unit Assessment** **-Teacher Observation/ Anecdotal Notes** **-Conclusion Writing** **-Evidence Notebooks**	**Activity 1:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2** **ELA Standards:** **RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5** **HMH Unit Project: Starry Sky** **-Students will do research in order to create a star guide that will enable them to track a limited number of**	

			constellations over time. **Activity 2:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2** **ELA Standards:** **RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5** **Kids Crash Course: 5-ESS1-2** **-Earth's Rotation and Revolution: Video is about the Earth's rotation and revolution and how these things contribute to night and day and how Earth's tilt gives us seasons.** **Activity 3:** **Math Standards:** **NJ SLS-M. 5.NBT, MP.2, MP.4, 5.NBT.A.2, 5.G.A.2**	

			ELA Standards: **RI.5.1, RI.5.7, RI.5.8, RI.5.9, W.5.1, SL.5.5** **Investigation 1** **- A Round, Spinning Earth** **- Earth/Sun Relationship** **Investigation 2** **-Seasons** **Day Length**	

21st Century Theme Targeted – Global Awareness, Financial, Economic, Business and Entrepreneurial Literacy, Civic Literacy, Health Literacy) **Global Awareness, Civic Literacy, Health Literacy**					
21st Century Skills Targeted					
Creativity & Innovation	**Information Literacy**	**Media Literacy**	**Critical Thinking & Problem Solving**	**Communication & Collaboration**	**Life & Careers**
HMH Unit Project: Starry Sky **-Students will do research in order to create a star guide that will enable them to track a limited number of constellations over time.**	**Gravity Comprehension Worksheet** **HMH Leveled Readers**	**PlayPosit: Gravity**	**Gravity Kahoot**	**Brainpop: Gravity** **-Students work together to collect notes on the topic and take the assessment.**	**Careers in Science and Engineering Close Reading in HMH Textbook**
Summative Assessments: (include rubrics & exemplars)					

Lab Group Rubric
Text Based Questions Rubric
Unit Assessments in HMH Textbook