# Unit 04: Earth's Place in the Universe- Week 13- 19

Content Area: **Template**
Course(s):
Time Period: **Full Year**
Length: **7 weels**
Status: **Published**

## Standards Alignment

**Unit 6: Astronomy:**

- o **MS-ESS1-1:** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- o **MS-ESS1-2:** Construct and interpret graphical displays of data to identify the scale properties of objects in the solar system.
- o **MS-ESS1-3:** Analyze and interpret data to determine scale properties of objects in the universe.

## New Jersey Student Learning Standards

**Performance Expectations:**

- **MS-ESS1-1:** Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system.
- **MS-ESS1-2:** Develop and use a model to describe the role of the Sun as a provider of energy for Earth's climate system.
- **MS-ESS1-3:** Analyze and interpret data to determine scale properties of objects in the solar system.

|  | Key Ideas and Details |
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| LA.K-12.NJSLSA.R1 | Read closely to determine what the text says explicitly and to make logical inferences and relevant connections from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text. |
| LA.K-12.NJSLSA.R5 | Analyze the structure of texts, including how specific sentences, paragraphs, and larger portions of the text (e.g., a section, chapter, scene, or stanza) relate to each other and the whole. |
|  | Integration of Knowledge and Ideas |
| LA.K-12.NJSLSA.R7 | Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. |
| LA.K-12.NJSLSA.R8 | Delineate and evaluate the argument and specific claims in a text, including the validity of the reasoning as well as the relevance and sufficiency of the evidence. |
| LA.RST.6-8 | Reading Science and Technical Subjects |
| LA.RST.6-8.1 | Cite specific textual evidence to support analysis of science and technical texts. |
| LA.RST.6-8.5 | Analyze the structure an author uses to organize a text, including how the major sections contribute to the whole and to an understanding of the topic. |
|  | Integration of Knowledge and Ideas |
| LA.RST.6-8.7 | Integrate quantitative or technical information expressed in words in a text with a version |

of that information expressed visually (e.g., in a flowchart, diagram, model, graph, or table).

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| LA.RST.6-8.8 | Distinguish among facts, reasoned judgment based on research findings, and speculation in a text. |
| SCI.MS-ESS1 | Earth's Place in the Universe |
| SCI.MS-ESS1-1 | Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. |
| SCI.MS-ESS1-2 | Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. |
| SCI.MS-ESS1-3 | Analyze and interpret data to determine scale properties of objects in the solar system. |
| SCI.MS-ESS2 | Earth's Systems |
| SCI.MS-ESS2-2 | Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. |
| SCI.MS-ESS2-3 | Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. |
| SCI.MS-ESS2-4 | Develop a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity. |

## Integration of Career Readiness, Life Literacies and Key Skills

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| CRP.K-12.CRP1 | Act as a responsible and contributing citizen and employee. |
| CRP.K-12.CRP2 | Apply appropriate academic and technical skills. |
| CRP.K-12.CRP3 | Attend to personal health and financial well-being. |
| CRP.K-12.CRP4 | Communicate clearly and effectively and with reason. |
| CRP.K-12.CRP5 | Consider the environmental, social and economic impacts of decisions. |
| CRP.K-12.CRP6 | Demonstrate creativity and innovation. |
| CRP.K-12.CRP7 | Employ valid and reliable research strategies. |
| CRP.K-12.CRP8 | Utilize critical thinking to make sense of problems and persevere in solving them. |
| CRP.K-12.CRP9 | Model integrity, ethical leadership and effective management. |
| CRP.K-12.CRP10 | Plan education and career paths aligned to personal goals. |
| CRP.K-12.CRP11 | Use technology to enhance productivity. |
| CRP.K-12.CRP12 | Work productively in teams while using cultural global competence. |

## Technology / Integration of Computer Science and Design Thinking

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| TECH.8.2.8 | Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment. |
| TECH.8.2.8.A | The Nature of Technology: Creativity and Innovation: Technology systems impact every aspect of the world in which we live. |
| TECH.8.2.8.A.1 | Research a product that was designed for a specific demand and identify how the product has changed to meet new demands (i.e., telephone for communication - smart phone for |

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| | mobility needs). |
| TECH.8.2.8.A.2 | Examine a system, consider how each part relates to other parts, and discuss a part to redesign to improve the system. |

## Interdisciplinary Connections: NJSLS for ELA, Social Studies, Science and/or Math Section

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|---|---|
| LA.RL.1 | Reading Literature Text |
| | Craft and Structure |
| LA.K-12.NJSLSA.R4 | Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone. |
| | Integration of Knowledge and Ideas |
| LA.K-12.NJSLSA.R7 | Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words. |
| | Range of Reading and Level of Text Complexity |
| LA.K-12.NJSLSA.R10 | Read and comprehend complex literary and informational texts independently and proficiently with scaffolding as needed. |
| LA.RL.1.10 | With prompting and support, read and comprehend stories and poetry at grade level text complexity or above. |
| LA.RI.6 | Reading Informational Text |
| LA.K-12.NJSLSA.W | Writing |
| LA.K-12.NJSLSA.W2 | Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content. |
| LA.RI.6.4 | Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings. |
| LA.RI.6.7 | Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue. |
| LA.K-12.NJSLSA.SL | Speaking and Listening |
| | Comprehension and Collaboration |
| LA.K-12.NJSLSA.SL1 | Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively. |
| LA.W.6.2.D | Use precise language and domain-specific vocabulary to inform about or explain the topic. |
| LA.K-12.NJSLSA.SL5 | Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations. |
| LA.K-12.NJSLSA.L | Language |
| LA.K-12.NJSLSA.L2 | Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. |
| LA.SL.6.1.A | Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. |
| LA.SL.6.5 | Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information. |

| LA.L.6.2 | Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. |
| LA.L.6.2.A | Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements. |
| LA.L.6.2.B | Spell correctly. |

## Integration of Diversity, Equity and Inclusion; Climate Change; Informational and Media LiteracyNew Section

see Crosswalks

## 21st Century Life and Careers

## Stage I: Desired Results

## Transfer/Overview/Rationale

| **Transfer / Overview / Rationale** |
| --- |
| Unit Rationale<br>The purpose of this unit…<br><br>The purpose of teaching "Earth's place in the Universe" is to explain what our solar system is made of and how the motion of Earth can explain seasons and eclipses. Students will also gain a broader understanding of space exploration and celestial bodies. |

## Meaning

## Essential Questions

Essential Questions

1. How can learning about space help us to better understand our own world?
2. What knowledge has been gained by human exploration into space?
3. What is the benefit of future space missions?
4. Why do we have day and night and different seasons?
5. How can we better understand Earth by studying the solar system?
6. How vast is the universe?

## Enduring Understanding/Indicators of Understanding

Enduring Understanding/Indicators of Understanding

1. Humanity has benefited from research done for space programs.

2. Seasons, phases of the Moon, eclipses and tides are caused by relationships between the Sun, Earth and the Moon.

3. The solar system is made up of eight planets and numerous other objects that orbit the sun.

4. Billions of galaxies with all their stars make up the universe.

## Acquisition (Student Learning Objectives)

## Knowledge

Knowledge

Students will know…

1. The purpose of space probes and satellites.

2. The difference between rotation and revolution of the Earth.

3. How the moon affects tides.

4. Reasons why Earth is the only planet known to support life.

## Skills

Skills

Student will be skilled at …

1. Comparing and contrasting natural and artificial satellites.

2. Explaining the history of the race to the moon.

3. Comparing and contrasting the planets and moons in the solar system.

4. Explaining that Earth is the only planet known to support life.

## Stage 3: Learning Plan

## Resource and Mentor Texts

Resources and Mentor Texts

textbook

internet

https://www.youtube.com/watch?v=GoW8Tf7hTGA&t=2s

'Cosmos'- Neil DeGrasse Tyson

https://www.modernconstellations.com/constellationhistory.html

## Formative Assessment Strategies

Formative Assessment Strategies

lab conclusions

exit tickets

Science Starters

quizzes

Tests

Design a Satellite

cosmic poetry- pre assessment

moon circuit activity

2nd 9 weeks Benchmark exam.docx
6th_Grade_Science_matter_test (1).docx
properties-of-matter-quiz.doc
Quiz_rotationrevolutionplanetstars.pdf
cosmic_poetry_web.pdf

Design a satellite

## Learning Activities/Unit of Study

Learning Activities/Unit of Study

Notes/explanations the history of space exploration

Exploring models of artificial and natural satellites

Notes/explanations/videos on the biogeochemical make-up of Earth

Historical significance of constellations

Compare and contrast Earth with other planets

cosmic_poetry_web.pdf
Cosmic Address.gdoc
size comparison in space

The moon - Circuit Activity

intro video about space ..use with a KWL
Prezi- exploring space- 1st set of notes
electromagnetic spectrum notes prezi.docx
Constellation Activity
Optical Telescopes ppt.pptx
Planet Project Procedure.docx
Solar System ppt- goes with fill in blank notes
2nd 9 weeks Benchmark exam.docx
2nd 9 weeks Review Sheet for Benchmark Exam.docx
Floating Planets.docx

## Modifications and/or Accommodations
**Suggested Modifications (ELL, Sp. Ed, GIfted, At-risk of Failure)**

### English Language Learners

Native language support: The teacher provides auditory or written content to students in their native language.

Adjusted Speech: The teacher changes speech patterns to increase student comprehension. This could include facing the students, paraphrasing, clearly indicating the most important ideas, and speaking more slowly.

Visuals: The teacher uses graphics, pictures, visuals, and manipulatives. This helps ELL students better understand and comprehend the subjects at hand.

Front-Loading Vocabulary: The teacher front loads vocabulary. This means providing students with a list of important vocabulary words they will need to know for a book, lesson, etc. prior to the lesson being taught. Including pictures to go with the vocabulary words is also very beneficial for the students.

### Special Education Students

Chunking: The teacher presents information in a way that makes it easy for students to understand and remember. Chunking is based on the presumption that our working memory is easily overloaded by excessive detail. The best way to deliver information is to organize it into meaningful units. Because students with special needs get overloaded easily, chunking is an effective strategy to use with them.

Checking for Understanding: It is important to constantly check for understanding, especially for students who have accommodations. Teachers want to make sure students understand the concepts being covered in a way that makes sense to them.

Extra time: The teacher provides students with special needs extra time to complete work or answer questions. It is important to give students enough time to process their thoughts.

Oral Reading: The teacher will read work orally to students. Class work such as tests and literature circles may need to be read aloud to the student.

Timers: The teacher will use timers as an instructional tool. The use of timers is beneficial for students who have trouble completing tasks. Timers can be helpful so the student is aware of how much time they have to complete an assignment.

## Students with 504 Plans

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## Gifted & Talented Strategies

Extensions/Enrichments: Teachers will provide gifted and talented students with extension/enrichment projects. Students will be challenged to further their understanding, to apply acquired knowledge, and/or to produce something in reference to acquired knowledge.

Modify/Change Activities:  Teachers will monitor and modify activities to accommodate those students who need to be challenged further. Additional reading, problem-solving, writing, or project work is necessary for those students who are ready to move on at a rate more accelerated than their peers. In this way, G & T students are provided the same opportunity for support as special needs students.

## Students at Risk of School Failure

Directions or Instructions: Make sure directions and/or instructions are given in limited numbers. Give directions/instructions verbally and in simple written format. Ask students to repeat the instructions or directions to ensure understanding occurs. Check back with the student to ensure he/she hasn't forgotten.

Peer Support: Peers can help build confidence in other students by assisting in peer learning. Many teachers use the 'ask 3 before me' approach. This is fine, however, a student at risk may have to have a specific student or two to ask. Set this up for the student so he/she knows who to ask for clarification before going to you.

Alternate or Modified Assignments: Always ask yourself, "How can I modify this assignment to ensure the students at risk are able to complete it?" Sometimes you'll simplify the task, reduce the length of the assignment or allow for a different mode of delivery. For instance, many students may hand something in, the at-risk student may jot notes and give you the information verbally. Or, it just may be that you will need to assign an alternate assignment.

Increase One to One Time: When other students are working, always touch base with your students at risk and find out if they're on track or needing some additional support. A few minutes here and

there will go a long way to intervene as the need presents itself.

Contracts: It helps to have a working contract between you and your students at risk. This helps prioritize the tasks that need to be done and ensure completion happens. Each day write down what needs to be completed, as the tasks are done, provide a checkmark or happy face. The goal of using contracts is to eventually have the student come to you for completion sign-offs.

Hands On: As much as possible, think in concrete terms and provide hands-on tasks. This means a child doing math may require a calculator or counters. The child may need to tape record comprehension activities instead of writing them. A child may have to listen to a story being read instead of reading it him/herself.

Tests/Assessments: Tests can be done orally if need be. Break tests down in smaller increments by having a portion of the test in the morning, another portion after lunch and the final part the next day.

Seating: Seat students near a helping peer or with quick access to the teacher. Those with hearing or sight issues need to be close to the instruction which often means near the front.