

Science Lesson Plan

Learning Segment Focus: Space Systems

Lesson 1 of 1 Topic: The Nine Planets and their moons Date: 4/13/21 Grade: 8th

Student Outcomes

Specific learning objectives for this lesson.	Students will be able to identify each planet in Earth’s Solar System and the amount of moons each planet has, and a few names of the moons.
Justify how learning tasks are appropriate using examples of students’ prior academic learning .	Students should be familiar with some of the planets, and this lesson is to check for to see how familiar students are with the planets. Not many of the students will be familiar with other planets moons, so that will be new information. This will be to set up a lesson on gravity.
Justify how learning tasks are appropriate using examples of students’ personal, cultural, linguistic, or community assets .	Every night if we go outside, we look up and we see stars, planets, moons, this lesson will familiarize students with what some of those planets are called, and why everything in the universe is the way it is. We live in the middle of a big universe, so it should be very personal to everyone to know exactly why we are here. Many farmers of the past used constellations and rotations to determine when it was time to plant certain crops, so it can be culturally appropriate as well.

State Academic Content Standards

List the state academic content standards with which this lesson is aligned. Include abbreviation, number & text of the standard(s).	8-ESS1-2/3 -The solar system consists of the sun and a collection of objects, including planets, their moons, and asteroids that are held in orbit around the sun by its gravitational pull on them.
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Key Vocabulary

What vocabulary terms/content specific terminology must be addressed for students to master the content?	<ul style="list-style-type: none"> ● Planet ● Dwarf ● Axis ● Rotation ● Moon ● Galaxy ● Star ● Solar System
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Academic Language Support

<p>What are the Academic Language Function(s) (the content and language focus of the learning task represented by the active verbs within the learning objectives/outcomes) and explain how they are utilized in the lesson plan?</p> <p>What planned Academic Language Supports will you use to assist students in their understanding of key academic language to express and develop their content learning and to provide varying supports for students at different levels of Academic Language development? How do these supports address all three Academic Language Demands (vocabulary, syntax, and discourse)?</p>	<p>Based on what something is asking the student, they should be able to know what I am asking for them and it should help them limit their answer. What I mean is, if I ask them to name a certain planet, their mind should have no more than 8 potential answers or 9 if you include Pluto. If a student has trouble saying one of the terms or planets then I will assist them in doing just so. I will give them ways to understand the content and help them recall it, because it is a lot of information.</p>
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Materials

Materials needed by the teacher for this lesson. (such as books, writing materials, computers, models, colored paper, etc.)	<ul style="list-style-type: none"> • Computer • Projector • Padlet/Link/QR Code for students to follow • Bubbl for discussion • Online Planet Guide (Find One) • Kahoot • Quiz • Activity • Chart with info about planets • Weight website • Homework assignment
Materials needed by students for this lesson. (computers, journals, textbook, etc.)	<ul style="list-style-type: none"> • Science Notebook for notes • Pencil or Pen • School Issued Device

Lesson Timeline with Instructional Strategies & Learning Tasks

Amount of Time	Teaching & Learning Activities (This should be a BULLETED LIST)	Describe what YOU (teacher) will be doing and/or what STUDENTS will be doing during this part of the lesson. (This should be VERY DETAILED)
15 Minutes	<p><u>Introduction:</u></p> <ul style="list-style-type: none"> - Introduction - Planet Song - Kahoot Quiz - Begin Discussion 	<p>I will welcome students to class, and I will begin by introducing the topic of Space Science, or astronomy. We will be using Padlet to complete our lesson, and I will have a link for students to find the lesson and they will be able to comment any questions they might have in there as well, but I must approve them before they show up on the board. I will mention that some of the content is familiar to students based on what they may have learned in previous grades. Nevertheless we will be going over it again today. First I want to see what students may or may not know, so I will open up Padlet which will have a direct link to a Kahoot quiz. I will have my students pull out their school issued device and we will take the short quiz. I will remind them it is not for a grade but rather to see what they already know. Take the quiz and interpret the scores, either way you'll still go into the lesson. I will start out by introducing the discussion, I will mention that we are going over the planets and moons in our solar system, and in this discussion I want to know what they know before I intervene with information they don't know. But before that I will play the planet song that is in Padlet.</p>
45 Minutes	<p><u>Instruction:</u></p> <ul style="list-style-type: none"> - Planet Discussion - Activity - Quiz 	<p>I will then go back to Padlet and click on the discussion. It will be blank with in the middle, except for it will say in the middle Milky Way Galaxy. I will than introduce the term star, and ask if anyone knows what our star is? Hopefully</p>

		<p>someone will answer the Sun and I will tell them that it can also be referred to as Sol. I will put the Sun and the middle and then ask if they can name any of the planets. We will then discuss planets, and eventually put all 8 and even Pluto but mark it as a dwarf planet. I will put the planets in a circle around the sun, and I will mention how each planet rotates around the sun. It takes each planet a different amount of time to get around the sun. "Does anyone know how long it takes Earth to get around the Sun?" The answer is 365 & ¼ days technically but I will take 365 days or 1 year. "Does anyone know how long it takes for any of the other planets to orbit the Sun?" Expect crickets, "That's okay we'll look at that later." "Each planet also spins on its own axis." Do a representation with a globe spinning around a pencil. Then ask, "Does anyone know how long it takes the earth to spin around (complete a full rotation on its axis)? Someone might get this one, but it's 24 hours or 1 day. "Each planet does this, and Uranus even rotates on its side and I will tell you how long each one takes later." "Just as the planets rotate the sun, some planets have moon(s) that rotate the planet. "Does anyone know how many moons Earth has?" Its 1. "Does anyone know what Earths' moon is called?" The Moon, but some refer to it as Luna. Now that we have the mind map of Earth complete, we will fill out the other planets data. Some planets have way too many moons to fill out the names, so just put the most common (3-5). "So now let's talk about gravity, gravity is what keeps you able to walk on the ground, it is the around of force that it takes to keep everyone and everything from floating into space. Gravity is how your weight is determined, and your weight is different on different planets because gravity is different." Pull up the weight on different planets site. Without giving up anyone's weight, say "let's see how much a 120 pound man weighs on different planets and the moon. After that, introduce the activity where students have to look up the weight of 5 different household items and see how much they will weigh on different planets. After they are done, we will share some of our findings with the class. I will then ask if everyone is ready for the quiz? If we run out of time I will just tell them about the homework that is due at the end of the week. I will tell them to take the quiz by hitting the link for the quiz, this one is for a grade.</p>
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15 Minutes	<p>Closure:</p> <ul style="list-style-type: none"> - Homework Assignment - Conclusion 	<p>I will have them look at the next post on Padlet which is their homework assignment. I will explain it and remind them that some of the answers for the questions they need to answer were given in the notes. I will then conclude the lesson by recapping what the learned today. If there is any time left students can begin working on their homework.</p>
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Technology Integration

<p>Provide your rationale for your technology choices that accurately reflects those choices within your teaching context. Identify what technology(s) you are using as part of your lesson plan. Describe how the use of technology aligns to your learning objectives, content standards, and central focus. Explain how technology-based instructional strategies are essential to students accomplishing the learning objectives (beyond what could be accomplished without using the technology). Specify how the technology selections meet or exceed the needs/strengths of all students. Justify the “fit” of chosen technologies, showing how the content, instructional strategies, and technology “fit” together.</p>	<p>Technology is becoming more and more available, especially in the classroom. In this lesson we are using a lot of technology, the whole lesson is taking place using an online Application Padlet, which has websites, pictures, and even quizzes attached to it. From my experience, students are very engaged to technology, and I believe we can better interest them in doing their school work and participate if activities involve the use of technology and the internet. Technology is both a blessing and a curse, when it is used for educational purposes, it is a blessing and should be taken advantage of. The technology also really assists me and makes it easier to to teach the content, it is much more engaging than me reading all these facts off of a PowerPoint. It gives student’s ownership of their learning, which will motivate them to be involved more.</p>
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Accommodations/Modifications

<p>How might I modify instruction for: <i>Remediation?</i> <i>Intervention?</i> <i>IEP/504?</i> <i>LEP/ESL?</i> (All students who have plans mandated by federal and state law.)</p>	<p>For remediation, I will go over with them in a smaller group and slow it down, I will also check in on them as they go. For intervention I will make sure that they are on task, and ask them questions either during the lecture or after to check for understanding. For students with an IEP or 504 I will give them a completed copy of the discussion mind-map and give them an easier homework assignment as well. I will make sure they are paying attention during discussions and lessons, and check with after. I will make sure to meet all accommodation’s as well. I will call my ESL students after lessons and coordinate with them if they don’t understand any words I have said.</p>
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Differentiation

<p>How might you provide a variety of techniques (enhanced scaffolding, explicit instruction, contextualized materials, highlighters/color coding, etc.) to ensure all student needs are met? (All students who are not on specific plans mandated by federal and state law.)</p>	<p>I will expect my higher performing students to lead the discussion at times and participates, I believe when students take the lead, it will encourage other students to participate as well. I will make sure to emphasize important concepts or ideas for those who struggle with studying or knowing what to study. On the mind mapping discussion I will color coordinate to make sure students know what goes where.</p>
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Assessments: Formative and/or Summative

Describe the tools/procedures that will be used in this lesson to monitor students' learning of the lesson objective(s) (include type of assessment & what is assessed).	<input type="checkbox"/> Formative / <input type="checkbox"/> Summative	As a formative assessment I will check to see what students already know with a pre-quiz on Kahoot.
	<input type="checkbox"/> Formative / <input type="checkbox"/> Summative	As a formative assessment, I will call on students to contribute what they know on during the classroom discussion/mind mapping.
	<input type="checkbox"/> Formative / <input type="checkbox"/> Summative	For a summative assessment, I will have students take a quiz to check for learning of the lesson. It will be a sum of what they had learned today.

Research/Theory

Explain connections to theories and/or research (as well as experts in the field or national organization positions) that support the approach you chose and justify your choices using principles of the connected theories and/or research .	Bloom: This theorist is known for having students remember facts and create something new in regards to what content they are learning. Students will be asked to recall concepts they have learned from earlier in their educational journeys and use it to make conclusions. They will also be asked to construct something based on a new concept they just learned.
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Lesson Reflection/Evaluation

What went well ? What changes should be made? How will I use assessment data for next steps?	<i>TO BE FILLED IN AFTER TEACHING</i>
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Include supporting material such as slides, pictures, copy of textbook, and handouts for any activities students will be using as part of your lesson.

*adapted from: <http://webcache.googleusercontent.com/search?q=cache:EsQcNWuG1ZoJ:web.mnstate.edu/harms/StudentTeachers/edTPA-LessonPlan.doc+&cd=2&hl=en&ct=clnk&gl=us>; <http://www.moreheadstate.edu/getmedia/cd3fd026-939f-4a47-a938-29c06d74ca01/Lesson-Plan-and-Reflections.aspx>;
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