

Heritage Center Constellations Technology Integration- 4th Grade

<p>Grade: 4</p> <p>Materials: -Promethean Board</p> <p>-Night Sky Simulation/interactive</p> <p>-“Coyote Places the Stars” picture book</p> <p>-Primary Resources: Aurora Borealis (Northern Lights) images from N.D., compass and telescope</p>	<p>Subject: Science- Social Studies</p> <p>Technology Needed: Promethean Board</p>																								
<p>Instructional Strategies:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Direct instruction</td> <td><input type="checkbox"/> Peer teaching/collaboration/cooperative learning</td> </tr> <tr> <td><input type="checkbox"/> Guided practice</td> <td><input type="checkbox"/> Visuals/Graphic organizers</td> </tr> <tr> <td><input type="checkbox"/> Socratic Seminar</td> <td><input type="checkbox"/> PBL</td> </tr> <tr> <td><input checked="" type="checkbox"/> Learning Centers</td> <td><input type="checkbox"/> Discussion/Debate</td> </tr> <tr> <td><input type="checkbox"/> Lecture</td> <td><input type="checkbox"/> Modeling</td> </tr> <tr> <td><input checked="" type="checkbox"/> Technology integration</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other (list)</td> <td></td> </tr> </table>	<input checked="" type="checkbox"/> Direct instruction	<input type="checkbox"/> Peer teaching/collaboration/cooperative learning	<input type="checkbox"/> Guided practice	<input type="checkbox"/> Visuals/Graphic organizers	<input type="checkbox"/> Socratic Seminar	<input type="checkbox"/> PBL	<input checked="" type="checkbox"/> Learning Centers	<input type="checkbox"/> Discussion/Debate	<input type="checkbox"/> Lecture	<input type="checkbox"/> Modeling	<input checked="" type="checkbox"/> Technology integration		<input type="checkbox"/> Other (list)		<p>Guided Practices and Concrete Application:</p> <table border="0"> <tr> <td><input checked="" type="checkbox"/> Large group activity</td> <td><input type="checkbox"/> Hands-on</td> </tr> <tr> <td><input type="checkbox"/> Independent activity</td> <td><input checked="" type="checkbox"/> Technology integration</td> </tr> <tr> <td><input checked="" type="checkbox"/> Pairing/collaboration</td> <td><input type="checkbox"/> Imitation/Repeat/Mimic</td> </tr> <tr> <td><input type="checkbox"/> Simulations/Scenarios</td> <td></td> </tr> <tr> <td><input type="checkbox"/> Other (list)</td> <td></td> </tr> </table> <p>Explain: Large group activity: different learning centers- students will be broken up into groups of about 10-12</p> <p>Pairing: Students will be paired up at each station with objects that were used to track constellations and stars</p> <p>Technology integration: night sky simulation/interactive board to identify stars</p>	<input checked="" type="checkbox"/> Large group activity	<input type="checkbox"/> Hands-on	<input type="checkbox"/> Independent activity	<input checked="" type="checkbox"/> Technology integration	<input checked="" type="checkbox"/> Pairing/collaboration	<input type="checkbox"/> Imitation/Repeat/Mimic	<input type="checkbox"/> Simulations/Scenarios		<input type="checkbox"/> Other (list)	
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<p>Standard(s)</p> <p>Social Studies Standard: 4.5.3 Identify the location and characteristics of significant features of North Dakota</p> <p>Science Standard: 4-ET1-3 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.</p>	<p>Differentiation</p> <p>Below Proficiency: Students will not be able to identify constellations through the activeboard with guided instruction; student will not asked science/history inquiry questions to stimulate their learning.</p> <p>Above Proficiency: Student will be able to identify constellations on the activeboard; student will ask good science/history inquiry questions about the hands on station materials</p>																								
<p>Objective(s)</p> <p>Students will be able to:</p> <ul style="list-style-type: none"> Identify important tools used in historical North Dakota astronomy and their purposes Compare and contrast the historical tools and current technology used to study astronomy Explore components of the night sky through images and interactives <p>Bloom’s Taxonomy Cognitive Level: Knowledge and Analyze</p>	<p>Approaching/Emerging Proficiency: Student will participate and identify constellations on the activeboard, but will not be able to ask “What I want to know” inquiry questions during demonstration and hands on learning center.</p> <p>Modalities/Learning Preferences:</p> <p>Auditory: Whole group and small group discussions and interactions</p> <p>Visual: Primary resources and the Promethean Board.; Kinesthetic: Movement and interaction with the Promethean Board and the primary resources</p>																								

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<p>Classroom Management- (grouping(s), movement/transitions, etc.) Make sure that students are being respectful of the materials during the hands on center.</p> <p>Since we are using a Learning Lab area, there is going to be video going on during the rotation. In order to keep students at the Table rotation focused on the primary resources, not the Promethean Board, We will have them at the back two tables in our area with their backs to the Promethean Board.</p> <p>-Whole group and small group discussion -Hands-on Interactives -Primary and secondary resources</p>	<p>Behavior Expectations- (systems, strategies, procedures specific to the lesson, rules and expectations, etc.)</p> <p>Voices should be at a 0 or 1 depending on if the teacher is instructing.</p>
Minutes	Procedures
20	Set-up/Prep: See classroom management for more information.
	<p>Engage: (opening activity/ anticipatory Set – access prior learning / stimulate interest /generate questions, etc.)</p> <ol style="list-style-type: none"> 1. Students are all together. We introduce by asking the students the following question: “What does an astronomer do?” Take time to let them think and have one or two suggestions. <ol style="list-style-type: none"> a. Answer: someone who studies or learns about the night sky (stars, planets, etc) b. Today we are going to be astronomers: two different types actually! 2. We are going to be astronomers before technology (using the primary resources such as compasses and telescope and photographs) and with modern technology (using the promethean board and interactive maps) 3. Your job today is to explore! (and be respectful of the materials)
	<p>Explain: (concepts, procedures, vocabulary, etc.)</p> <p>-Astronomer: someone who studies and learns about elements in the night sky (stars, planets)</p> <p>-Aurora Borealis: scientific name for Northern Lights</p>
	<p>Explore: (independent, concrete practice/application with relevant learning task -connections from content to real-life experiences, reflective questions- probing or clarifying questions)</p> <ol style="list-style-type: none"> 1. Students will be in two rotation groups with us (5-6 students in each group). One group will be at the tables with the primary resources, the other group at the Promethean board with the interactives. <ol style="list-style-type: none"> a. Table Rotation: The purpose of this rotation is to prompt and guide students with reflective questions on the primary resources (tools) used before the technology was available:

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- i. "What was the compass used for?" "Would it still be helpful today in researching and learning about the night sky? Or is there a tool or technology that you think would work better?"
 - ii. Similar questions for the telescope.
 - iii. Allow students time to observe the tools before asking the questions.
- b. Promethean Rotation: The purpose of this rotation is to give students insight on how far technology has come and the role it has played in being able to learn and study the night sky.
- i. Students will participate in an interactive that will display how easily we can view images of constellations up close and the night sky as a whole.
 - ii. "Is the technology we have beneficial or challenging if you are an astronomer?"
"Are there tools from the past that you see at work in the technology we experience?"

Review (wrap up and transition to next activity):

1. What were some of the differences and challenges with both of the rotations as an astronomer?
Was one station easier than the other based on the tools and technology used?

Formative Assessment: (linked to objectives)

Progress monitoring throughout lesson- clarifying questions, check-in strategies, etc.

Participation in discussion and reflective questions, able to verbalize understanding of the differences in the tools based on before and after technology. Participates in Promethean Board interactive.

Consideration for Back-up Plan:

Science/History Inquiry Worksheets:

KWL CHART		
TOPIC _____		
WHAT I KNOW	WHAT I WANT TO KNOW	WHAT I LEARNED

Summative Assessment (linked back to objectives)

End of lesson: Students would create a persuasive piece on what tools and technology would be best to use when studying as an astronomer and why.

If applicable- overall unit, chapter, concept, etc.: above assessment would be perfect for the end of the unit including a test

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Reflection (What went well? What did the students learn? How do you know? What changes would you make?):

This lesson plan went extremely well- it was the perfect combination of small centers, curriculum integration, technology integration, and the timing was perfect for the rotations. Because this lesson plan was based on a field trip, we decided not to give the students a worksheet, however I think this would have been a really great way to check on the student's inquiry questions as well as to keep them focused on what they were observing being apart of.

This lesson was mainly a chance for students to explore different aspects of being an astronomer and the old and new ways to track and count for constellations- I think we provided the students with this. This would definitely be a great in the middle of a unit plan formative assessment.