

## LCM Formal Loop

<p><b>LCM Lesson Plan: Our Solar System (YES, I'M STICKING WITH THE 9 PLANETS)</b>  <b>Unifying Concept: measurement</b>  <b>Standards: Science - A.1, D-3</b>  <b>Language Arts (Reading C.4, D.3), Cultural Awareness (E)</b>  <b>Science concept:</b> The students will now the objects in our solar system, and the relationship between them.</p>		<p><b>Name: Drew Larrabee</b>  <b>Grade level: Level 4 science</b>  <b>8<sup>th</sup> Grade</b></p>
	<b>Process Skills</b>	<b>Materials</b>
<p><b>Gear- Up: (1 class period)</b> Have the students draw a picture of the solar system, and label as many things as they know as they know it. Ask the students to puts the planets in correct order, include moons/rings, and composition. This will illustrate their present knowledge and what areas need work, or what areas they may have formed prejudice.</p>	Classifying	<ul style="list-style-type: none"> <li>• Poster Board</li> <li>• Colored pencils</li> <li>• Rulers</li> <li>• Circle Compass</li> <li>• Data sheet (planet information)</li> <li>• Solar System Books</li> </ul>
<p><b>Explore: (2 class periods)</b> The students will be provided with a list of appropriate websites to use. Each student will do research on a specific object in our solar system (see vocab list). They will each produce a page, and the pages will be put together to form a book. The book will be a resource for the students to study. The format of the pages will be dictated by the teacher to give the book a uniform look. Before printing, all pages should be proofed by the teacher for accuracy.</p>	Questioning Communicating	
<p><b>Generalize: (1 class period)</b> Each student will receive a copy of the pages of the book that the class produced. These pages will be bound in correct order with additional celestial objects in rear. A creative cover for these books could be made by the teacher or a student volunteer. (I would suggest laminating the covers to give the students a sense of importance). The students will immediately use these books to fill out a data sheet about the solar system. The teacher could split the class into two teams and host a game between them. They would be allowed to use the book they made to answer the questions. This would show the students two things; how much they learned and how useful the books are.  <b>Examples of questions:</b>          1. What is the order of the nine planets?</p>	Classifying Recording data Predicting	<p><b>Vocabulary</b></p> <ul style="list-style-type: none"> <li>• Mercury</li> <li>• Venus</li> <li>• Earth</li> <li>• Mars</li> <li>• Asteroid Belt</li> <li>• Jupiter</li> <li>• Saturn</li> <li>• Neptune</li> <li>• Uranus</li> <li>• Pluto</li> <li>• Comets</li> <li>• The Sun</li> <li>• Orbit</li> <li>• Orbited</li> <li>• Light emitting</li> </ul>

<ol style="list-style-type: none"> <li>2. What do you think lays beyond our universe?</li> <li>3. How far is the end of our solar system?</li> <li>4. Do you think there are other solar systems like ours?</li> <li>5. Compare the inner planets to the outer planets.</li> </ol>		<ul style="list-style-type: none"> <li>• Light reflecting</li> </ul>
<p><b>Explore: (2 class periods)</b> Using the book and the information in it to calculate a scale model. Calculate size of planets compared to distance from sun. Create models of each of the planets (either on poster board or out of paper mache) The models will be mounted on posts at the given distance from the sun. This can be done on a smaller or larger scale depending on how far you would like the student to walk for the tour.</p>	<p>Measuring Creating models</p>	
<p><b>Apply/Assess: (1 class period)</b> Using the books that the students made, and the solar model from above they will take small groups of younger student on a tour of the solar system. On the tour they will teach the students about the different planets, and other objects in the solar system.</p>	<p>Communicating</p>	
<p><b>Generalize: (1 class period)</b> Ask the students to use the information they have learned to redraw the solar system from memory (including as many details as they can remember). Then ask them to compare their knowledge now to what they put before.</p> <ol style="list-style-type: none"> <li>1. What new things have you learned since the first test?</li> <li>2. How did the activities for this unit help you to remember things about our solar system?</li> <li>3. What things did you find most interesting?</li> </ol>	<p>Communicating</p>	
<p><b>Extensions: (Homework or Extra credit)</b> Have them write a traditional style story that could be told to young children to help them remember the planets when they get older.</p>		

Scoring Rubric for Solar System Lesson				
Due Date:				
	Emerging	Developing	Proficient	Advanced
Student Knowledge of 9 Planets including; order, composition, moons/ rings, size, distance from the sun. Std. 4.1	Knows some of the nine planets, and has learned a few of the fast to go with them	Knows the nine planets, but not in order, and has limited know of additional data	Knows the nine planet in order, and has a good knowledge of much of the additional data	Can apply the knowledge of the solar system to activities outside the assignment
Knowledge of other Celestial bodies Std. 4.1	has learned a few of the facts to go with them	Limited knowledge of additional data	a good knowledge of much of the additional data	Can apply the knowledge of the solar system to activities outside the assignment
Incorporates cultural influence in final project. Cultural std E	Understands there is cultural influence, but doesn't include it	Include a brief explanation of the cultural influence of this project	Has a crisp explanation and detailed explanation of the cultural influence	The detailed explanation is supported with facts, interviews, or other extras
Uses resources to track down and use appropriate facts to support work	Has a mix of facts and opinions	Differentiates between fact and opinion correctly	Supports work clearly with appropriate facts	Outlines resources used and facts use from each.

Follows directions to complete project correctly	Doesn't follow the directions and doesn't complete project	Completes the project but strays from the directions	Completed the project following all the guild lines	Finishes the project and goes above and beyond the requirements of the project
Does quality work	Project not complete	Project is complete but presentation is sloppy	Project is complete and looks good	Presentation of the project shows great care and pride