

# Science Lesson Planning Template

## Context Issues of the Lesson

<b>Unit or Lesson Title:</b>	Stars and The Solar System
<b>Grade Level</b>	5th
<b>Topic/Theme/Nature of the Investigation:</b>	Space Systems: Stars and The Solar System
<b>NGSS Performance Expectation(s)</b>	Developing and Using Models Science often involves the construction and use of a wide variety of models and simulations to help develop explanations about natural phenomena. Models make it possible to go beyond observables and imagine a world not yet seen. Models enable predictions of the form “if . . . then . . . therefore” to be made in order to test hypothetical explanations.
<b>NGSS Dimension 1 component</b>	<b>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.</b> [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).]
<b>NGSS Dimension 2 component</b>	
<b>NGSS Dimension 3 component</b>	
<b>Duration:</b>	

## Planning Stages Within the 5-E Inquiry Model

<b>Engage</b>	
<p><b>PURPOSE:</b></p> <ul style="list-style-type: none"> <li>• to convey the context of the lesson(s)/unit by conveying an important Key Question</li> <li>• to engage students in investigations that reveal their thinking to themselves and the teacher</li> <li>• to record the initial ideas of students</li> <li>• to engage their interest</li> <li>• Given a point of reference describe motion in terms of speed, distance, time, and direction.</li> <li>• Model Planetary sizes and distances</li> <li>• Model planetary motion</li> </ul>	
<p><b>What is the teacher doing? The teacher will be facilitating the activity.</b></p> <p><b>What are the students doing?</b></p> <ol style="list-style-type: none"> <li>1. Use tools and equipment to investigate the position and motion of objects in the sky.</li> <li>2. Gather various materials that will act as planets in the solar system to help them remember.</li> <li>3. Will be challenged to predict which objects represent which planet/sun and the order from the sun.</li> <li>4. Will make models of the solar system and share.</li> </ol>	
<b>Explore</b>	
<p><b>PURPOSE:</b></p> <ul style="list-style-type: none"> <li>• to test ideas and develop knowledge using explorations, investigations, experiments</li> <li>• to demonstrate their understanding of the position of the planets, dwarf planets, asteroids and comets through illustrations and written explanations.</li> <li>• To identify planets and other objects in the night sky</li> <li>• Compare and contrast each planet in the terms of their size, position from the sun, length of the day and year and composition</li> <li>• Explain that difference between asteroids and comets</li> </ul>	
<b>Activities (list)</b>	<b>Driving Question</b>
Small groups will make various models of the solar system.	Why do objects in the sky seem to change?
<p><b>Student Communication Product:</b> (written report, oral presentation, poster, etc.)</p> <ul style="list-style-type: none"> <li>*Create moon journals and illustrate the phases of the moon.</li> <li>*Apply concepts of scale to an Earth Moon Model</li> <li>*Demonstrate understanding through illustrations and models of the position of objects in the solar system.</li> </ul>	

## Explain

### PURPOSE:

- Students demonstrate their understanding of the position of the planets, dwarf planets, asteroids and comets through illustrations and written explanations.

### Content Media: (written material, video, teacher lecture, technology)

**\*Use posters to identify each planet in terms of size, position, from the sun and relative “scale”**

**\*Assign individual planets to each student to research to create a class book with drawings of the planets and written stories about various objects within our Solar System. Provide lots of books for students to use as research materials.**

**\*Use the internet to compare and contrast comets and asteroids. – AllAboutSpace.com; NASA.org**

**Student Communication Product: (assessment, unit test, written report, oral presentation, poster, etc.)**

\*Students will present their findings in oral presentations.

\*Graph the planets in order of size and/or distance from the sun.

\*Create a “shoe box” solar system model, label all parts and include a description of each planet.

## Elaborate

### PURPOSE:

- For students to be able to support an argument with evidence, data, or a model.

### Activities:

### Content Media: (written material, video, teacher lecture, technology)

### Extending/Application Questions for Whole/Small Group Discourse:

**Discuss some focus questions:**

**What are the objects in the sky and how do they move?**

**What are the planets in our solar system?**

**What is the closest object to the earth?**

**Student Communication Product (assessment):** (unit test, written report, oral presentation, poster, etc.)

\*Students will present their findings during class discussion in the form of an oral presentation.

**Evaluate**

**PURPOSE:**

Students will assess their understanding of the solar systems by:

\*creating a model that shows relative size and distance

\*describing the position and motion of planets, dwarf planets, comets and asteroids as they orbit the sun.

<b>Skill/Reasoning Learning Objectives</b>	<b>Assessment Instrument</b>
<b>Support an argument that objects other than planets are in our solar system.</b>	Project Presentations throughout the lesson in the form of models, illustrations, research, and presentations. Science rubric for each assignment.
<b>Knowledge Learning Objectives</b>	<b>Assessment Instrument</b>
<b>Describe the position and motion of planets, dwarf planets, comets, and asteroids as they orbit the sun.</b>	Project Presentations throughout the lesson in the form of models, illustrations, research, and presentations. Science rubric for each assignment.