

Soaring Through the Universe

Project Purpose:

1. Students will understand the formation of the Universe and characteristics of stars contained within it.
2. Students will demonstrate understanding of measurement concepts pertaining to the solar system.
3. Students will be able to compare and contrast planets within the solar system.

TEKS Objectives:

112.48 Astronomy
(c) (4a-b) (8a-c)

Procedure:

Part 1- Lab groups will be assigned to research a specific topic within the big picture. In the first part of the project, we will be researching the stars and the galaxies. Specific job assignments will be given to each member of the team, but each team will be responsible for tying all their information together in order to present their findings to the class. A presentation of Part 1 will include each individual's myth and multimedia, which includes a power point presentation.

Part 2- This portion of the project will also include each group researching specific concepts about their assigned planet. In order to complete this portion, a presentation will be made in relation to the solar system and a large model of their planet will be presented. At the end of the project a second scale model of each planet will be arranged in a manner that allows us to represent a scale model of our solar system. Since the planet model will be arranged by scale, it is important for all groups to interact with one another during your research and development phase. This part will require the development of a web page.

Presentations will include the following information:

A. Stars and Galaxies

- Meteoroids, comets, and asteroids
- Formation of the Universe
- Characteristics of stars
- Formation of the solar system

B. The Solar System

- Facts about the planet
- Motion of the planets
- Features of the planets
- Model

Each individual's presentation must be multimedia. Depending on the portion of the project you are working on, one of these forms must be a PowerPoint presentation, your original myth, and/or your planet model. The other medias are each individual's choice. Options for other medias include: video clips, laser disks pictures, slides, books, movies, posters, computer links, and guest speakers. At the end of each presentation, be prepared to answer questions.

The attached sheets provide a detailed outline of what is expected from each student. Therefore, each job must be completed as assigned. Cooperation within groups and within role teams will be necessary in order to complete the project successfully. A grading rubric and expectation sheet is included in each packet; as a result you are in charge of your own learning and grade.

You will have (2) weeks to complete each part of this project. The second week will be reserved for presentations and building the scale model of the Solar System. A competition between my classes will be held in order to decide which solar system model will be displayed.

DETAILS:*Part 1: Stars and Galaxies***Writing an original myth:**

Chose a portion of your research or your entire section, and think about what shape, pattern, or idea it reminds you of. Tell of how your concept came to be what it is today and what it makes you think of, then write a short mythical story to explain it. Make sure to include at least one drawing and write your name on it. It might help you to pretend that you are telling a story to a young child about how your concept became what it is. You can be as fanciful or realistic as you wish.

Here is an example of what ancient people believed star groups, called constellations, resembled. They imagined that the stars formed pictures of people, animals, or objects. So, they made up stories or myths to go along with these constellations. The Coeur d'Alene Indians, who lived in Northern Idaho, thought the pattern of 7 bright stars in the northern sky to resemble a bear. Their myth for this constellation says that once there were three brothers who had a grizzly bear for a brother-in-law. The youngest brother liked him but the two older brothers didn't like him at all. They were all on a hunting trip and the two older brothers told the youngest that they planned to kill the brother-in-law. So he crept away to warn him. The brothers followed the youngest closely. They were just ready to shoot their arrows when the youngest looked back and shouted that the brother-in-law was about to be shot. Just as he said it all four were taken into heaven and transformed into the stars of the bear. We know this constellation as the Big Dipper. (Monroe, Jean. *They Dance in the Sky*. Boston: Houghton Mifflin. 1987.)

Your myth can be as long as you like. But once you have read your myth be ready to explain its meaning. **At the completion of this project, I will collect all myths and compile them into a book for our classroom. So make sure to type your myth and to add one or more illustrations.**

*Part 2: The Solar System***The Data Table-**

There is an example of the data table that is to be completed with your solar system project. I expect you to recreate this table on your computer and include it in your power point presentation.

Due Date:

Last in class workday: _____

Planet models due: _____

Presentations begin: _____

Online Discovery: Unit Outline

Week 1:

1. Research your topic
2. Write an original myth
3. Prepare your power point

Week 2:

1. Complete your power point
2. Present your findings
3. Read your myth

Week 3:

1. Research your planet
2. Build a model of your planet
3. Prepare your web page

Week 4:

1. Complete your power point
2. Present your findings
3. Build the scale model of solar system

Research Definitions:
Part 1: Stars and Galaxies

Role:	Research Grade:	Presentation Grade:
Meteoroids, comets, and asteroids	<ol style="list-style-type: none"> 1. Define 2. Types 3. Instruments for observation 4. Environmental Effects 	<ol style="list-style-type: none"> 1. Explain the composition and effects of meteoroids, comets, and asteroids. 2. Present findings of impacts on earth 3. Explanation and examples of instruments used by astronomers. 4. The atmospheres role 5. Read your myth
Formation of the Universe	<ol style="list-style-type: none"> 1. History of astronomy 2. The beginning 3. Galaxies 4. Interesting facts 	<ol style="list-style-type: none"> 1. Presentation explaining the history of astronomy. 2. Discuss the beginning of the Universe 3. Discuss the composition of the universe 4. Compare the different types of galaxies and give examples. 5. Read your myth
Characteristics of Stars	<ol style="list-style-type: none"> 1. Observing stars 2. Distances to Stars 3. Types of stars 4. Life of stars 	<ol style="list-style-type: none"> 1. Explain how we observe and study the stars. 2. Presentation of star characteristics. 3. Explanation of measuring distances in the Universe. 4. Discuss different types of stars and

		<p>characteristics. 5. Read your myth.</p>
<p>Formation of the Solar System</p>	<ol style="list-style-type: none"> 1. Define 2. Distances in the solar system 3. Inertia 4. Sun 	<ol style="list-style-type: none"> 1. Describe the different bodies that make up our solar system 2. Discuss distances in the solar system. 3. Explain inertia. 4. Discuss the main star in the solar system. 5. Read your myth

Rubric:*Part 1: Stars and Galaxies*

Role:	Presentation Guidelines:	Presentation Grade:
Meteoroids, comets, and asteroids	<ol style="list-style-type: none"> 1. Explain the composition and effects of meteoroids, comets, and asteroids. 2. Present findings of impacts on earth 3. Explanation and examples of instruments used by astronomers. 4. The atmospheres role 5. Read your myth 	
Formation of the Universe	<ol style="list-style-type: none"> 1. Presentation explaining the history of astronomy. 2. Discuss the beginning of the Universe, include age 3. Discuss the composition of the universe 4. Compare the different types of galaxies and give examples. 5. Read your myth 	
Characteristics of Stars	<ol style="list-style-type: none"> 1. Explain how we observe and study the stars. 2. Presentation of star characteristics. 3. Explanation of measuring distances in the Universe. 4. Discuss different types of stars and characteristics. 5. Read your myth. 	

Formation of the Solar System	<ol style="list-style-type: none">1. Describe the different bodies that make up our solar system2. Discuss distances in the solar system.3. Explain inertia.4. Discuss the main star in the solar system.5. Read your myth	
-------------------------------	--	--

Research Definitions*Part 2: The Solar System*

Planet:	Research Guidelines:	Model Guidelines:	Presentation Guidelines:
<i>Mercury</i>	<ol style="list-style-type: none"> 1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table 	<ol style="list-style-type: none"> 1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table. 	<ol style="list-style-type: none"> 1. Presentation covering the sun. <ol style="list-style-type: none"> a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table
<i>Venus</i>	<ol style="list-style-type: none"> 1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table 	<ol style="list-style-type: none"> 1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table. 	<ol style="list-style-type: none"> 1. Presentation covering the sun. <ol style="list-style-type: none"> a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table
<i>Earth</i>	<ol style="list-style-type: none"> 1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table 	<ol style="list-style-type: none"> 1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table. 	<ol style="list-style-type: none"> 1. Presentation covering the sun. <ol style="list-style-type: none"> a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table

Planet:	Research Guidelines:	Model Guidelines:	Presentation Guidelines:
<i>Mars</i>	1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table	1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table.	1. Presentation covering the sun. a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table
<i>Jupiter</i>	1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table	1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table.	1. Presentation covering the sun. a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table
<i>Saturn</i>	1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table	1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table.	1. Presentation covering the sun. a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table

Planet:	Research Guidelines:	Model Guidelines:	Presentation Guidelines:
<i>Uranus</i>	<ol style="list-style-type: none"> 1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table 	<ol style="list-style-type: none"> 1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table. 	<ol style="list-style-type: none"> 1. Presentation covering the sun. <ol style="list-style-type: none"> a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table
<i>Neptune</i>	<ol style="list-style-type: none"> 1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table 	<ol style="list-style-type: none"> 1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table. 	<ol style="list-style-type: none"> 1. Presentation covering the sun. <ol style="list-style-type: none"> a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table
<i>Pluto</i>	<ol style="list-style-type: none"> 1. Explore the sun 2. Features of the planets surface. 3. Features of the planets atmosphere and moon(s) 4. Rotation/ temperature/ seasons/day vs. night 5. Data Table 	<ol style="list-style-type: none"> 1. Develop a large model of your planet for the presentation. 2. Develop a scale model of your planet using the lab and data table. 	<ol style="list-style-type: none"> 1. Presentation covering the sun. <ol style="list-style-type: none"> a. Layers of the sun b. Activity on the sun 2. Describe the planets surface 3. Describe the planets atmosphere 4. Explain Motion of planets 5. Describe outcomes of your planets motion. 6. Present data table

Data Table:*Part 2: The Solar System*

Planet:	
Mean Diameter: (Km)	
Scale Diameter: (Cm)	
Mean distance form sun: (Million km)	
Scale distance from sun: (Cm)	
Travel time of light: (Sec.)	
Period of rotation:	
Main components of atmosphere:	
Known moons:	
Temperature: DAY ---- NIGHT ----	

Rubric:

Part 2: The Solar System

PLANET _____

Students:	Model:	Points	Presentation	Points
	1. Portrays the planet's features		1. Presentation covering the sun. a. Layers of the sun b. Activity on the sun	
	2. Accurately portrays the planet to the scaled solar system.		2. Describe the planets surface	
			3. Describe the planets atmosphere	
			4. Explain Motion of planets	
	3. Students worked together to develop a successful scale model of the solar system.		5. Describe outcomes of your planets motion.	
			6. Present data table	

