



# What's The Buzz?

## Out of This World

Over the next nine weeks the students at GUES are headed out of this world. The students are going to blast off into outer space in order to learn more about the planets, sun, comets, asteroids, and our moon. During our journey the students will research information on the planets that make up our solar system. They will create a scale model of the solar system in order

to understand the planets' sizes in relationship to the sun and each other. During this activity they will learn how to calculate diameter and radius of a circle. The students will also get the opportunity to see the Star Theater Planetarium with Interactive Meteor Maker. This system projects hundreds of stars, the planets and much more. The students are going to learn about the seasons of

of the year and what causes the seasons by focusing on the earth's tilt and revolution. The students will end the unit by learning about solar and lunar eclipse and the phases of the moon. The students will be creating a model of the moon phases using Oreo cookies. Yes, parents I will need your help. We will need 5,200 Oreo cookies in order for all students to complete this fun activity.

## Greatest Discoveries in Astronomy

### The Earth Moves (1543)

Nicolaus Copernicus places the sun, not the Earth, at the center of the solar system.

### Planetary Orbits Are Elliptical (1605 – 1609)

Johannes Kepler devises mathematical laws that successfully and accurately predict the motions of the planets in elliptical orbits.

### Jupiter Has Moons (1609 – 1612)

Galileo Galilei discovers that Jupiter has moons like the Earth, proving

that Copernicus, not Ptolemy, is right. Copernicus believes that Earth is not unique, but instead resembles the other planets, all of which orbit the sun.

### Halley's Comet Has a Predictable Orbit (1705 – 1758)

Edmund Halley proves that comets orbit the sun like the planets and successfully predicts the return of Halley's Comet. He determines that comets seen in 1531 and 1607 are the same object following a

76-year orbit. Halley's prediction is proven in 1758 when the comet returns. Unfortunately, Halley had died in 1742, missing the momentous event.

### Planets Around Other Stars (1995 – 2004)

Astronomers find a host of extra solar planets as a result of improved telescope technology and prove that other solar systems exist, although none as yet resembles our own.



Discovery Lab

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### 5th Grade Objectives for Out of This World

<p><b>1. Develop and demonstrate an understanding of scientific inquiry using process skills.</b></p> <p>a. Form a hypothesis, predict outcomes, and conduct a fair investigation that includes manipulating variables and using experimental controls. (DOK 3)</p> <p>b. Distinguish between observations and inferences. (DOK 2)</p> <p>c. Use precise measurement in conjunction with simple tools and technology to perform tests and collect data. (DOK 1)</p> <p>* Types of data (height, mass, volume, temperature, length, time,</p>	<p>distance, volume, perimeter, area)</p> <p>d. Organize and interpret data in tables and graphs to construct explanations and draw conclusions. (DOK 2)</p> <p>e. Use drawings, tables, graphs, and written and oral language to describe objects and explain ideas and actions. (DOK 2)</p> <p>f. Make and compare different proposals when designing a solution or product. (DOK 2)</p> <p>g. Evaluate results of different data (whether trivial or significant). (DOK 2)</p>	<p>h. Infer and describe alternate explanations and predictions. (DOK 3)</p> <p><b>4. Develop an understanding of the properties of Earth materials, objects in the sky, and changes in Earth and sky.</b></p> <p>e. Predict the movement patterns of the sun, moon, and Earth over a specified time period. (DOK 1)</p> <p>f. Compare and contrast the physical characteristics of the planets (e.g., mass, surface gravity, distance from the sun, surface characteristics, moons). (DOK 2)</p>
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### 4th Grade Objectives for Out of This World

<p><b>1. Explain and use skills necessary to conduct scientific inquiry.</b></p> <p>a. Form hypotheses and predict outcomes of problems to be investigated. (DOK 3)</p> <p>b. Use the senses and simple tools to gather qualitative information about objects or events (size, shape, color, texture, sound, position, change). (DOK 1)</p> <p>c. Demonstrate the accurate use of simple tools to gather and compare information (DOK 1)</p> <p>* Types of data (height, mass/weight, temperature, length, distance, volume, area, perimeter)</p> <p>d. Use simple sketches, diagrams, tables, charts,</p>	<p>and writing to draw conclusions and communicate data results. (DOK 2)</p> <p>e. Interpret and describe patterns of data using drawings, diagrams, charts, tables, graphs, and maps. (DOK 2)</p> <p>f. Explain why scientists and engineers often work in teams with different individuals doing different things that contribute to the results. (DOK 2)</p> <p>g. Draw conclusions about important steps (e.g., making observations, asking questions, trying to solve a problem) that led to inventions and discoveries. DOK 3</p> <p><b>4. Develop an understanding of the properties of Earth materials, objects in the sky, and changes</b></p>	<p><b>in Earth and sky.</b></p> <p>e. Compare and contrast the seasons and explain why seasons vary at different locations on Earth. DOK 2</p> <p>f. Describe objects in the universe including their movement. (DOK 2)</p> <p>* Physical features of the moon (craters, plains, mountains)</p> <p>* Appearance and movement of Earth and its moon (e.g., waxing/waning of the moon and lunar/solar eclipses)</p> <p>* Why a planet can be seen in different constellations (locations) at different times.</p>
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### Preparing for Science Fair

All science fair boards should display the following things very neatly:

**Title** of the Experiment (Make it something fun or catchy)

**Problem** (What question are you trying to answer?)

**Hypothesis** ( What do you think the answer is to your question?)

**Experiment/Procedures** (What materials do you use to do the experiment? What steps did you do in your experiment?)

**Results/Observation** ( What happened during the experiment? Use tables or charts to help show the results.)

**Conclusion** (What is the answer to the question in your “Problem”? Does your conclusion agree with your hypothesis? If so, you have shown that your hypothesis was right. If not, what did you learn from the experiment?)

**Include in your notebook/ binder for your table:**

Journal/notes that you took

during the experiment.

**Resources:** Make a list of resources you used, You need to give credit to books or people that helped you with your work. Include this in your notebook.

Photos of you conducting the experiment. Make sure that the photos do not show your face from the front. Side shots or pictures of just your hands or the objects being used is fine.

Any extra charts or graphs that do not fit on your display board.

### What Parents Can Do To Help

The Discovery Lab needs your help with the following items:

**Kleenex**

**Clorox wipes**

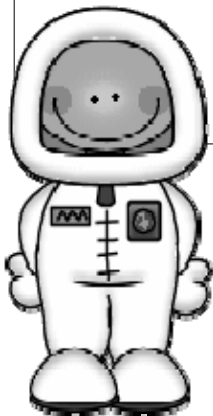
**Paper Towels**

If you can donated any of these we would greatly appreciate it. :)

Please continue to support your child during science discoveries at home. The students are very excited about Science and that is great.

Start now working through your thoughts and ideas for Science Fair. It will be here before you now it. The earlier you plan for this the better experience your child

will have working on this project. Science Fair can be lots of fun. Remember judges like to see new and different ideas. Try to focus on areas that your child is most interested in. I am here to help if you have any questions about Science Fair.



Gaining  
Understanding through  
Exciting Investigations in  
Science

