



Planets from the Sun

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Target Grade: 4th grade

Time Required: 90 minutes

Standards:

- S4E1. Obtain, evaluate, and communicate information to compare and contrast the physical attributes of stars and planets.
 - d. Evaluate strengths and limitations of models of our solar system in describing relative size, order, appearance and composition of planets and the sun. (Clarification statement: Composition of planets is limited to rocky vs. gaseous.)
 - c. Construct an explanation of the differences between stars and planets.
- ELAGSE4RL3: Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
- ELAGSE4RI3: Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Lesson Objectives:

Students will:

- Students will know planets are different from stars and are composed of different materials.
- Students will understand Each planet is different in their size, composition and appearance
- Students will be able to construct a model of our solar system with facts that describe the relative size, order, appearance, and composition of all the planets and the sun.

Central Focus:

In this lesson, students will be evaluating the different characteristics of each planet in our solar system. The teacher will upload a form to google classroom and the students will add information as they find it about their assigned planet. At the end of this lesson students will write a narrative essay using details on information they have learned about the planets.

Background Information:



Students will need to know and identify each planet in our solar system. They will need to recognize the differences in size, order, appearance, and compositions of each planet. Their guided notes will help students take down detailed notes during the lesson. The teacher will show a [video](#) to the class that shows the planets in order from the sun all the way to the last planet in our solar system. This video helps serve as a good visual aid to students, so they can see the difference in size of the planets. Students will also need to be familiar with google classroom.

Materials

- Chromebooks, iPads, computers (a way for the student to access google [classroom](#)).
- Styrofoam balls
 - Small
 - Large
 - Extra large
- Paint
- String
- Empty boxes
- Poster board
- Markers
- Glue
- Tape
- pencils

Instruction

Opening:

- <https://www.youtube.com/watch?v=octRYMsiLX0>
- Intro video will describe planets and their relative size to each other. The teacher will start off the lesson by stating: the solar system is so big that we cannot comprehend the actual size of each planet.
- Today, we will be talking about each planet and going over the specific that you need to know in order to reach your learning target which is to describe the size, appearance order, and composition of each planet in our solar system.

Guided Practice:

Step 1. The teacher will go through the PowerPoint provided below, which has information about each planet that the students need to know. This will be done quickly, because the goal is to have students be self-discovery learners in this lesson. The teacher will ask for a thumbs up or down to check for understanding.

Independent Practice:



Step 2. Students will then be split up into mixed groups (high students with low students).

Step 3. Assign each group one or two planets depending on how large your class is and how many groups you split them up into. Explain to your class that they will be conducting an investigation on their assigned planet. They can use the information provided in google classroom or they can search the web. When they find the information on their planet they are to add it to their assigned page in google classroom. This way the students can view information from other students. Upload provided handout (in materials section below) to your google classroom.

Activity Day 2:

Step 4. Today students will log onto google classroom (so they can view the information to make their model) and construct a model of the solar system using the information provided from the entire class. They will stay in their groups, but each group will make their own model including all of the planets.

Step 5. The teacher will walk around and assist students as needed.

Step 6. When the class is finished take a picture of model and upload it to the google classroom. You can make it competitive and have students vote for the most creative model on google classroom.

ELA extension:

Have students create their own document in google classroom and write a narrative piece with the prompt, "It is the year 2075 and I was chosen as one of the few participates to attend the ultimate space race! As I stand in line to board my spacecraft, I cannot help but feel the butterflies fluttering in my stomach..." Students are to finish this writing using information they have learned from the planets.

Differentiation

Students will be grouped in high to low skill levels so they can assist each other when the teacher isn't available. The teacher will model information about the planets before letting the students work independently.

Assessment

Formative

Through teacher observation students will be assessed on understanding by providing a thumbs up or down. Students will also be graded on their narrative essay for a in class activity grade.

Summative



Students will peer review the effort that their group members put in during the lesson. This ensure everyone was accountable.

Peer Review Rubric

- 1: My group member didn't help at all
- 2: My group member helped when I asked them to, and I had to ask them multiple times
- 3: My group member worked hard, but went off-task once or twice
- 4: My group member worked extremely hard and pulled all of their weight.

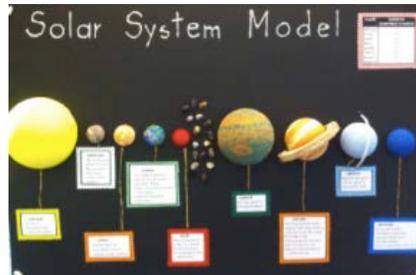
Group Member names	1,2,3, or 4	Notes

Resources for Google Classroom

Upload this link:

[https://www.aiaa.org/uploadedFiles/Education_and_Careers/STEM_K-12_Outreach/Kids_Place/Solar_System_and_Planets_Activities/Our%20Solar%20System%20-%20grades%202-5\[1\].pdf](https://www.aiaa.org/uploadedFiles/Education_and_Careers/STEM_K-12_Outreach/Kids_Place/Solar_System_and_Planets_Activities/Our%20Solar%20System%20-%20grades%202-5[1].pdf)

Sample Pictures of models



Planets

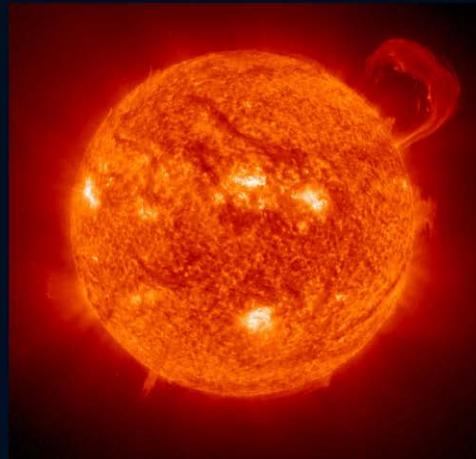
EIGHT PLANETS AND THE SUN

[HTTPS://WWW.YOUTUBE.COM/WATCH?V=OCTRYMSILXo](https://www.youtube.com/watch?v=OCTRYMSILXo)

THE SUN

IT TAKES ABOUT 8 MINUTES
FOR LIGHT TO HIT EARTH!

- Diameter: 1,392,000 km (865,000 miles)
- Temperature of Surface: 10,000 Degrees Fahrenheit
- Temperature of Core: 27,000,000 Degrees Fahrenheit
- History of Name: Romans called the sun "sol" meaning sun
- Interesting Fact:



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MERCURY

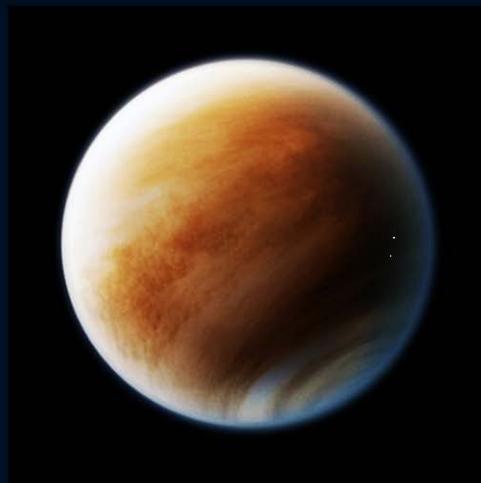
- Distance from Sun: 58,000,000 KM (36,000,000 MILES)
- Length of Orbit: 88 Days (about 3 months)
- Diameter: 4,878 km (3,032 miles)
- Climate: no atmosphere because Mercury is so close to the sun
- Composition: Rocky- Inner Planet
- Interesting Facts:
 - surface is 800 F and
 - nighttime can be -300 F



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VENUS

- Distance from Sun: 108,000,000 KM (67,000,000 MILES)
- Length of Orbit: 225 Days (about 7 months)
- Diameter: 12,100 km (7,520 miles)
- Climate: intense heat with volcanoes, mountains, and sand
- Composition: Rocky- Inner Planet
- Interesting Facts: atmosphere is mostly carbon dioxide



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EARTH

- Distance from Sun: 150,000,000 km (93,000,000 miles)
- Length of Orbit: 365 days
- Diameter: 12,742 km (7,928 miles)
- Climate: variety of conditions depending of region and time of year
- Composition: Rocky- Inner Planet
- Interesting Facts: Only planet that currently has sustainable life



MARS

- Distance from Sun: 228 million km (142 million miles)
- Length of Orbit: 687 Days (about 23 months)
- Diameter: 6,792 km (4,212 miles)
- Climate: has seasons like Earth
- Composition: Rocky- Inner Planet
- Interesting Facts: low temperature can reach down to -220 Degrees F and highs can reach up to 68 Degrees F.



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SATURN

- Distance from Sun: 1.43 billion km (889 million miles)
- Length of Orbit: 354 months (29.5 years)
- Diameter: 120,536 km (72,367 miles)
- Climate: average temp. 288 Degrees F.
- Composition: Gaseous- Outer Planet
- Interesting Facts: has no solid ground, just layers of clouds and heat comes from interior core- not sun



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JUPITER

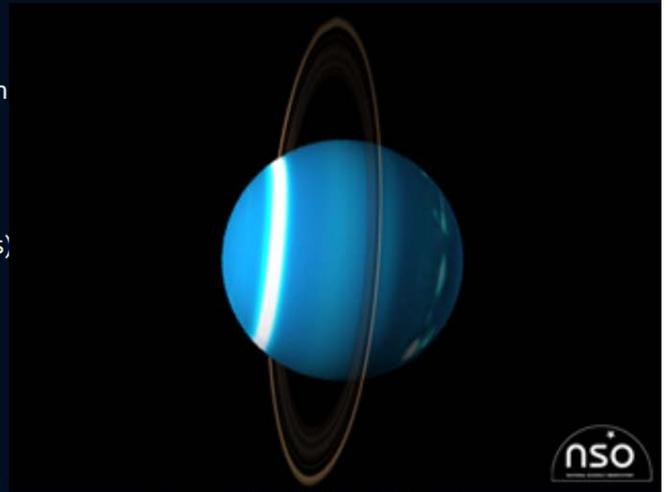
- Distance from Sun: 779 million km (484 million miles)
- Length of Orbit: 4,260 Days (about 142 months)
- Diameter: 142,984 km (86,881 miles)
- Climate: stormy with many clouds and hurricanes
- Composition: Gaseous- Outer Planet
- Interesting Facts: Aurorae on the north pole. Has 16 moons, but possibly gaining 11- 24 more moons



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URANUS

- Distance from Sun: 2.88 billion km (1.79 billion miles)
- Length of Orbit: 1009 months (about 84 years)
- Diameter: 51,118 km (31,518 miles)
- Climate: extremely cold
- Composition: Gaseous- Outer Planet
- Interesting Facts: known as the "ice giant" and may have a 5,000 degree ocean in the middle of the planet

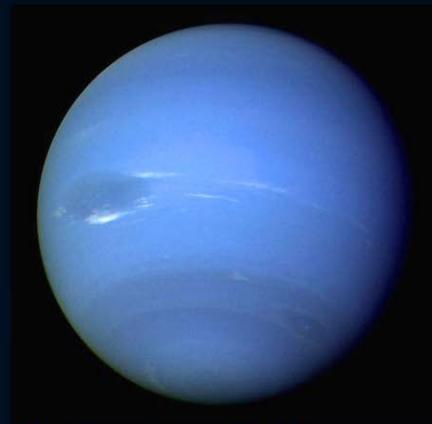


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NEPTUNE

- Distance from Sun: 4.50 billion km (2.8 billion miles)
- Length of Orbit: 1,979 months (165 years)
- Diameter: 49,528 km (30,599 miles)
- Climate: strong wind reaching 1,200 miles per hour
- Composition: Gaseous- Outer Planet
- Interesting Facts:
https://www.youtube.com/watch?time_continue=136&v=COI5LBpvDyU



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Add your team's information as you research your assigned planet.

<u>Mercury</u>	<u>Venus</u>	<u>Earth</u>
<u>Mars</u>	<u>Saturn</u>	<u>Jupiter</u>
<u>Uranus</u>	<u>Neptune</u>	