

Online Learning Lessons for 6th Grade

Directions: Please complete the following work below for each subject. This work will count toward your final grade and must be complete to get credit for attendance.

Student Name _____ FOR 5/1/2020

ELA

Geri's Game: Watch the Pixar short film 'Geri's Game', then use it to complete the plot diagram on Google Slides or the worksheet.

Parent Initials: _____

Math

All Math Classes: Watch the video lesson online or view the notes page on Equivalent Expressions. Then complete the Extended Response on Google Classroom. (Paper copy attached.)

Parent Initials: _____

Science

Inner and Outer Planets

Parent Initials: _____

History/Social Studies

None

Parent Initials: _____

Parent Signature: _____

If you have questions, please email your teacher.

Thank you!

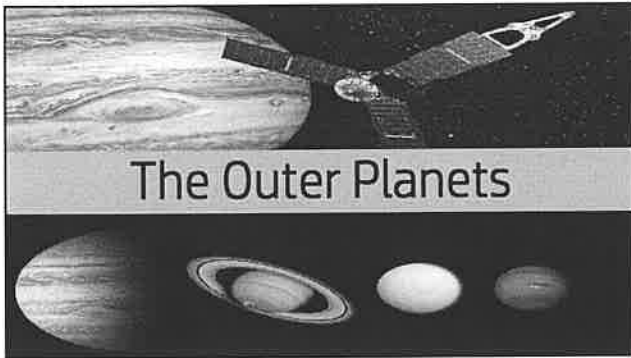
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Ms. Couch scouch@mcusd1.net

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Teacher Hours:
9:00 am - 11:30 am
12:30 pm - 2:30 pm



Introduction

- Far past Mars you will encounter thousands of obstacles in what is known as the asteroid belt.
- Once you get through the asteroid belt you come upon a planet bigger than any you have ever seen before.
- The surface looks like it is constantly moving and storms rumble throughout the entire planet.
- This is the largest planet in our solar system Jupiter, and its neighbors Saturn, Uranus, and Neptune make up the gas giants.

A Quick Look

Planet	Diameter (Miles)	Period of Rotation (Earth Days)	Distance from the Sun (Miles)	Period of Revolution (Earth Years)	Number of Moons
Jupiter	86,881.4	0.41	483.6 million	12	67+
Saturn	72,367.4	0.45	888.2 million	29	62+
Uranus	31,518	0.72	1.787 billion	84	27+
Neptune	30,599	0.67	2.795 billion	164	13+
Pluto (Dwarf Planet)	1,475	6.4	3.67 billion	248	38

Gas Giants and Pluto

- The four outer planets Jupiter, Saturn, Uranus, and Neptune are all much more massive than our planet.
- These planets are so large that we nicknamed them the gas giants.
- Until recently they used to be a fifth planet named Pluto, but it is now classified as a dwarf planet.
- Unlike Earth the gas giants do not have a solid surface. They are more like the sun and because of their massive size they have a stronger gravity.
- This gravity and pressure holds the gases in.

Jupiter

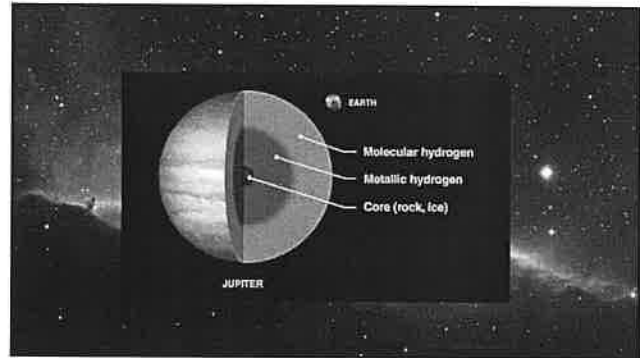
- Jupiter is the largest planet in our solar system.
- Its name comes from the Roman word Jupiter which was the leader of the gods (similar as Zeus was to the Greeks).
- If you could combine all the other planets Jupiter would still be 2 ½ times the size of that mass!

Jupiter's Atmosphere

- Jupiter's atmosphere is comprised of mainly hydrogen and helium.
- An interesting feature of this atmosphere is its Giant Red Spot.
- This spot is a storm larger than Earth and has not stopped or showed signs of slowing down since its discovery in the 1600s.
- There is no land to slow down the storm so scientists cannot determine if or when the storm will ever stop.
- Imagine a hurricane the size of three of our planets.

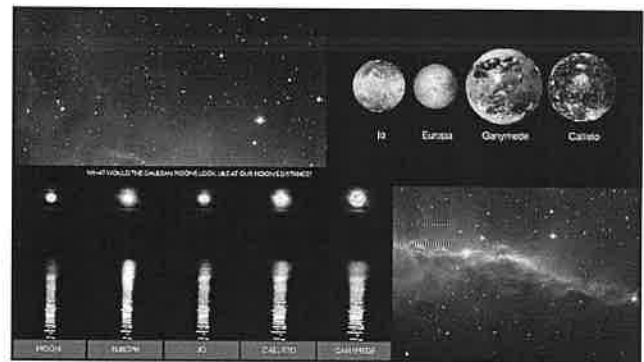
Jupiter's Structure

- Astronomers believe that Jupiter has a dense core of rock and iron at its center.
- Around the center is a thick mantle of hydrogen and helium.
- Because of this enormous pressure it is believed that the pressure at Jupiter's core is 30 million times greater than at Earth's surface.



Jupiter's Moons

- Galileo discovered Jupiter's four largest moons: Io, Europa, Ganymede, and Callisto.
- Since Galileo's time astronomers have discovered dozens of new moons and some even as recently as 2011 with new technology.
- Jupiter has a total of 67 moons and other satellites that have not been named yet.
- Jupiter's moons can almost make up their own solar systems with Ganymede being larger than Mercury and Pluto.

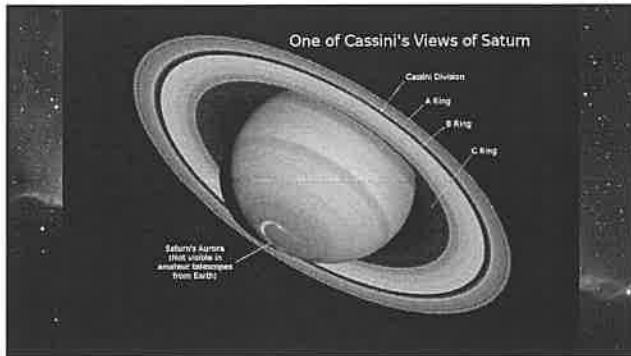


Saturn

- Saturn is the second largest planet in our solar system.
- Space probes have showed us that it has an atmosphere similar to Jupiter made up of hydrogen and helium.
- Saturn also has storms like Jupiter but they are much less intense.
- Saturn is the only planet in our solar system whose average density is less than water.

Saturn's Rings

- Saturn is very famous for its rings.
- They were first mentioned in Galileo's studies, but all he saw was things sticking out from the planet's sides. Future astronomers with better technology discovered that these were rings.
- The rings are made of chunks of ice and rock and each chunk has its own orbit around the planet.
- The Cassini space probe is currently orbiting the planet and studying its massive rings.



Saturn's Moons

- Saturn's largest moon is Titan which was discovered in 1665, but it was only known as a shadow until the Voyager space probes flew by.
- Titan is larger than the planet Mercury.
- The space probes showed that Titan has an atmosphere so thick that very little light can pass through it.
- Saturn has a total of 62 moons and only 53 have been named. The newest was discovered in 2009 by Cassini space probe.

Uranus

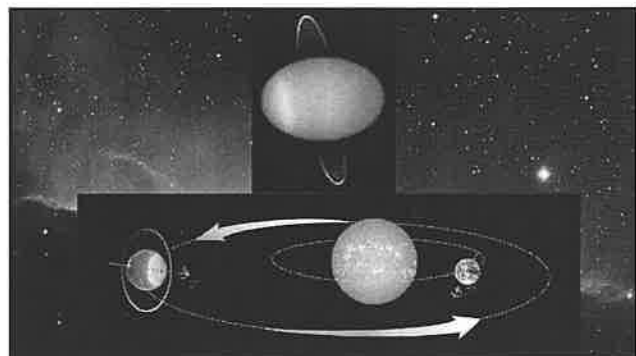
- The next gas giant is still four times the diameter of Earth, but it is significantly smaller than Jupiter and Saturn.
- Uranus is twice as far from the sun as Saturn so it is much colder.
- It has a blue-green appearance due to larger amounts of methane gas in the atmosphere.
- Like Saturn, Uranus also has rings but they are much darker in appearance.

Discovery of Uranus

- In 1781, Uranus was discovered by astronomer William Herschel.
- He discovered a fuzzy object in the sky that did not appear to be a star.
- He first believed that it was a comet, but then soon discovered it was another planet beyond Saturn.
- This discovery made him famous and started an active era of solar system discover.

Exploring Uranus

- 200 years after Herschel's discovery the voyager probes flew by the planet.
- Scientists were able to calculate that it takes 17 hours for Uranus to fully rotate on its axis.
- Scientists also discovered that Uranus's axis is tilted at 90 degrees so instead of spinning like a top it is rolling in its orbit.
- Astronomers believe that billions of years ago Uranus was hit by an object that knocked it on its side.



Uranus's Moons

- The Voyager probes showed that Uranus's five largest moons have icy surfaces with many craters.
- They also showed evidence of previous volcanic eruptions on some of these moons.
- Voyager 2 discovered 10 more moons.
- Uranus has a total of 27 moons that have been discovered to date.

Neptune

- The farthest gas giant is Neptune that is often paired with Uranus since they look similar.
- Neptune is a cold, blue planet that has visible clouds.
- Recent data has shown that Neptune might be shrinking causing the interior to heat up.
- When this heat rises it cause clouds and sometimes storms in the planet's atmosphere.

Discovery of Neptune

- The discovery of Neptune happened mathematically.
- Scientists trying to predict the orbit of Uranus realized that it wasn't following its predicted path.
- Scientists hypothesized that another planet's gravity was affecting it.
- In 1846 Neptune was first observed where scientists predicted it.

Exploring Neptune

- When the Voyager 2 made its pass by Neptune it observed a large dark spot similar to Jupiter's Great Red Spot.
- It is a large storm, but five years later when scientists tried to observe the dark spot again it was gone.
- Storms are constantly coming and going on the surface of Neptune.

Neptune's Moons

- Astronomers have observed 13 moons around Neptune.
- The largest of these moon is known as Triton.
- Voyager 2 has images that show Triton's show pole covered in frozen nitrogen.

Pluto

- Pluto is a dwarf planet which was once categorized as an outer planet with the gas giants.
- Pluto is very different from the gas giants. It is very small and dense.
- It is closer in structure to the inner planets with a solid surface.
- This planet is smaller than our moon and it has three moons of its own. One of its moons, Charon, is half its size.

Pluto's Orbit

- Pluto is so far from the sun it takes 248 years to complete an orbit.
- During part of its orbit Pluto gets closer to the sun than Neptune because of its shape.



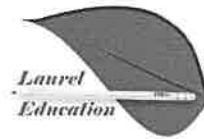
Pluto as a Dwarf Planet

- Pluto was always thought to be an oddball because of its small size and unusual orbit.
- Scientists began to discover other objects beyond Pluto that were similar size and behavior.
- After discovering something larger and farther than Pluto scientists created a new class of objects known as "dwarf planets".
- Scientists have classified Pluto and two other objects as dwarf planets.

Conclusion

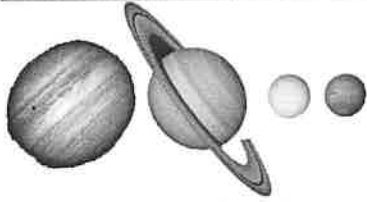
- Our outer planets are enormous balls of gas orbiting around our sun.
- The largest of all, Jupiter, has over 67 moons!
- Saturn has rings made of rock and ice. Space probe Cassini is currently studying these rings.
- Uranus rolls through its orbit on its 90 degree axis.
- Neptune was discovered when scientists tried to predict Uranus's orbit.
- Pluto recently became classified as a dwarf planet.

Thank you from:

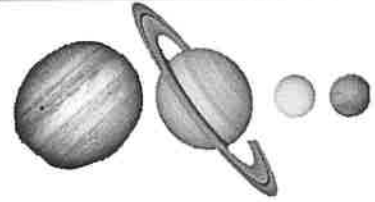


NAME:

DATE:



The Outer Planets Worksheet



1. Name the four outer planets.
2. _____ Is the largest planet in our solar system.
3. What two elements make up a majority of Jupiter's atmosphere?
4. Because of the enormous pressure it is believed that the pressure at Jupiter's core is _____ times greater than at Earth's surface.
5. Saturn is the only planet in our solar system whose average density is less than _____.
6. What do scientists believe is the reason Uranus's axis is tilted at 90 degrees?
7. Recent data has shown that Neptune might be _____ causing the interior to heat up.
8. How did scientists discover Neptune?
9. What is Pluto categorized as?

NAME:

DATE:



Pluto: Planet or Not???

Debate Activity



In this activity you will pick a side. One side is debating that Pluto should not be a planet while the other says that Pluto should keep its planetary title as our ninth planet. You and your group will be given ten minutes to come up with six reasons why you believe Pluto should keep its title or be classified as a dwarf planet. You may use examples from the presentation or other source, but make sure to state where you got your information.

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

Geri's Game



Climax ★
The most suspenseful moment

Event #3

Event #1

Event #2

Event #2

★ **Falling Action**
How do they start to fix the conflict?

★ **Rising Action**
What events make the conflict worse?

★ **Conflict**
What is the main problem?

★ **Resolution**
How is the main conflict resolved?

3

MOVIE MOMENT: After Geri has won the chess game, why does he ask for his teeth back?

Characters (who / background) Setting (where/when)

★ **Exposition**

Equivalent Expressions

Page 1

Which expressions are equivalent to

$$15 + 5x ?$$

$$3(3 + x)$$

$$5(3 + x)$$

$$2(x + 2) + 3(x + 4) - 1$$

$$3(x + 3) + 9 - 2x$$

$$7x + 3x - 5x + 8 + 7$$

Page 2

Which expressions are equivalent to

$$15 + 5x ?$$

$$3(3 + x) \quad 9 + 3x \quad \text{Not equivalent.}$$

$$5(3 + x) \quad 15 + 5x \quad \text{equivalent.}$$

Page 3

Which expressions are equivalent to

$$15 + 5x ?$$

$$\begin{aligned} & 2(x + 2) + 3(x + 4) - 1 \\ & 2x + 4 + 3(x + 4) - 1 \\ & \underline{2x + 4} + \underline{3x + 12} - 1 \\ & 5x + 15 \\ & 5x + 15 \quad \text{equivalent} \end{aligned}$$

Page 4

Which expressions are equivalent to $15 + 5x$?

$$\begin{array}{l} 3(x+3) + 9 - 2x \\ \underline{3x+9+9-2x} \\ x+18 \quad \text{Not equivalent} \end{array}$$

$$\begin{array}{l} \underline{7x} + \underline{3x} - \underline{5x} + \underline{8} + \underline{7} \\ 5x + 15 = 15 + 5x \\ \text{equivalent} \end{array}$$

Page 5

Which expressions are equivalent to $15 + 5x$?

$$3(3+x)$$

$$5(3+x)$$

$$2(x+2) + 3(x+4) - 1$$

$$3(x+3) + 9 - 2x$$

$$7x + 3x - 5x + 8 + 7$$

Page 6

PRACTICE EXTENDED RESPONSE

Make sure you have shown WHAT you have done and WHY you have done it!
Please take your time, double check everything, and then turn in when finished.

Which expressions are equivalent to $6 + 12x$?

Explain for each expression why it is equivalent or why it is not equivalent.

A. $3(2 + 4x)$

B. $3(2 + 6x) + 2x$

C. $5(1 + 2x) + 1 + 2x$

D. $7(1 + 2x) - 2x - 1$

E. $7(1 + 2x) + 2x - 1$

