



Review this study guide.



Review the planets we will visit during the show.



Turn off all electronic devices.



Respect the performers and those sitting around you.



Laugh and clap when appropriate and participate in the action when asked.



Discuss your favorite parts of the performance with friends.



Write a letter to Janet Ivey. She would love to know what you learned from her show.



Send letters to Janet@Janetsplanet.com

Credit for the basis of this study guide goes to the Clay Center

janetsplanet.com

theclaycenter.org



Janet's Planet



traveling at the speed of thought



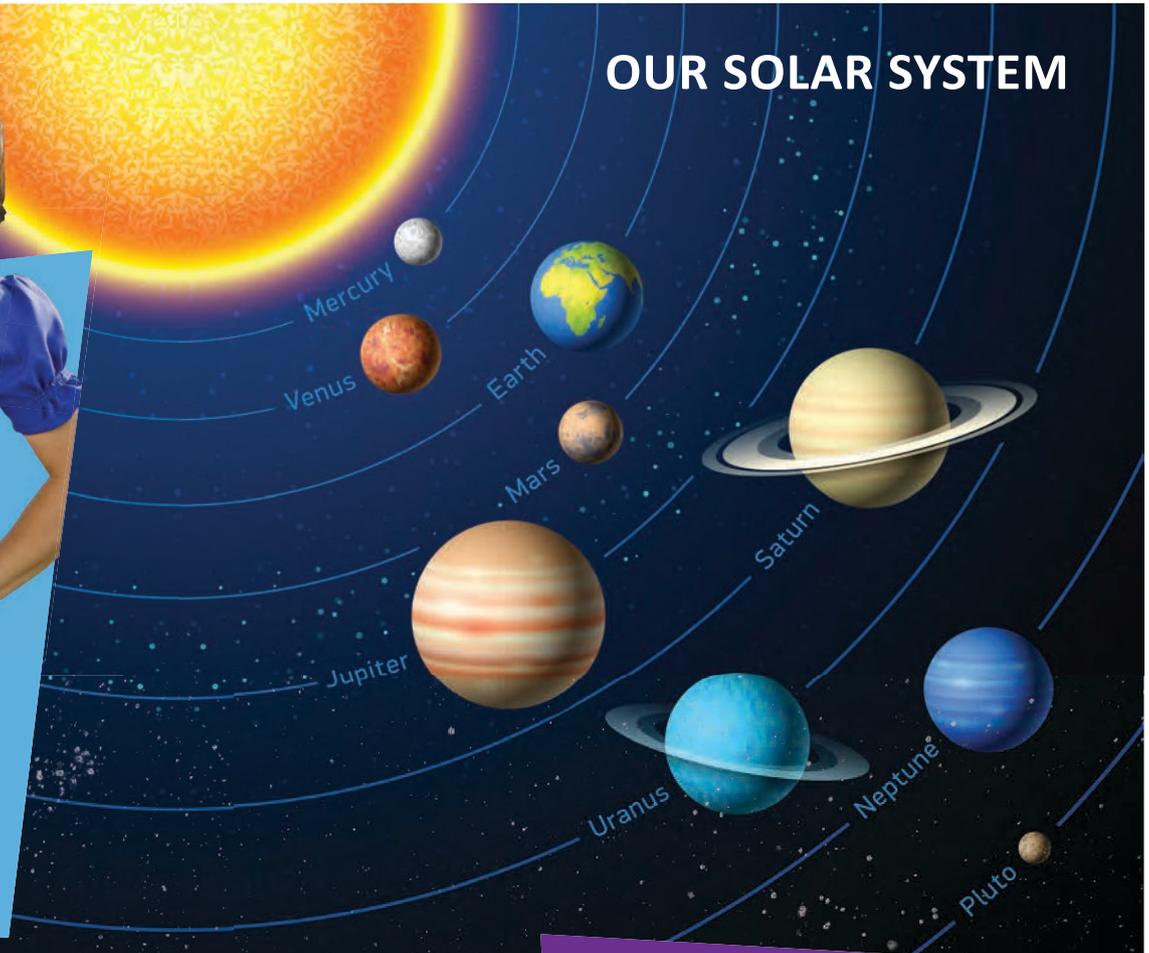
STUDY GUIDE

OUR SOLAR SYSTEM

Get ready for an out-of-this-world, galactic, learning adventure with Janet!

Janet Ivey, host of the award-winning PBS show *Janet's Planet*, will take you on a tour of the universe as you explore each planet on the way to a "Super Nova Pizza Picnic."

Travel at the speed of thought with Janet and her friends to the edge of our solar system to view a super nova, recently discovered by the Voyager 1 spacecraft. Explore the elements of science, technology, engineering, art and math in a fun and exciting journey to the cosmos.



SOLAR SYSTEM VOCABULARY

Revolution: the action of a celestial body going around in an orbit or elliptical course

Rotation: a turn around an axis within a body

Orbit: a curved path described by one body in its revolution around another

Planet: a body in space that orbits the sun, has enough gravity to become a sphere and can clear other objects out of its orbit

Satellite: a body (such as a moon) that revolves around a planet

In 2006, according to the International Astronomical Union (IAU), it was determined that Pluto did not meet the criteria to be a planet. In July 2015, New Horizons flew by Pluto for the first time, and our understanding of it is ever-evolving. What do you think?



NASA's New Horizons spacecraft captured this high-resolution enhanced color view of Pluto on July 14, 2015.

TEACHERS, PARENTS & STUDENTS

Do more, learn more! Bring Janet's resources into your classroom!

janetsplanet.com/teachers

Visit Janet's Teacher Resource Portal, where you'll find featured activities for your classroom, like "Create a Scale Model of the Solar System Using Playdoh & Math"!

Each activity includes free downloadable instructions, and you can filter the resources to meet your age group needs!



Janet's Planet activities and program meet the criteria for the following standards:



NGSS (Next Generation Science Standards)
ESS1-1, ESS1-2, ESS1-3, ESS1-4



CCSS (Common Core State Standards)
SL.1.2, SL.2.2, SL.3.2, SL.4.2, SL.5.2

To learn more about these standards, download the free NGSS and CCSS apps:
<http://apple.co/1bb08QG> & <http://apple.co/1517GP1>

Browse through some of Janet's favorite activities including:

Toilet Paper Solar System (Grade K-5)

Even in our own "cosmic neighborhood," distances in space are so vast that they are difficult to imagine. In this activity, participants will build a scale model of the distances in the solar system using a roll of toilet paper. This is a great follow-up to the Create a Scale Model of the Solar System with Playdoh activity, where students get a sense of the relative sizes of the planets.



Go Green! (Grades K-5)

Using Green Screen Technology in the Classroom with Do Ink App: A piece of green material, an app and a smartphone or I-pad turns a science report or experiment into a multimedia presentation!



Build Your Own NanoSat Toy Launcher (Grades 6-12)

To launch a NanoSat off the back of its host rocket is a lot like throwing a Frisbee, the basic mechanics are the same. In this experiment, you'll build and launch your own 'nanosat,' and learn the engineering, mechanics and technology employed in such an endeavor.



Make Your Own Virtual Reality Glasses With Your Smartphone (Grades 6-12)

Why buy Google Cardboard for \$6 when you can make your own Virtual Reality Glasses with your own cardboard pattern, tape and some binocular lenses? See the world in VR for pennies on the dollar!



If you had your own planet...

What would its name be?

Where would it be in the galaxy?

What color would it be?

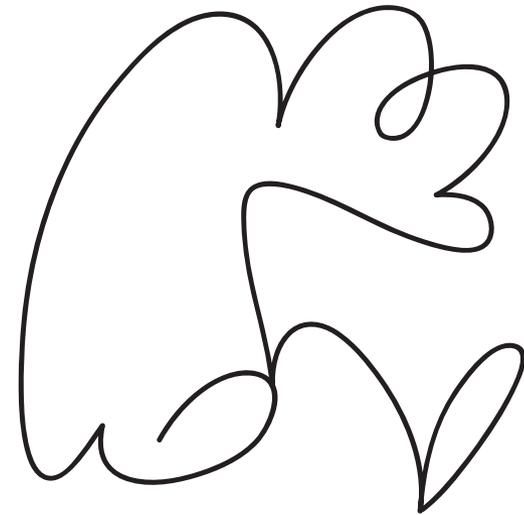
What type of atmosphere would it have?
(Atmosphere: the layer of gases surrounding a planet or another body.)

Follow the instructions below to create your Scribble on the next worksheet.



Look from every angle - what do you see? Then add lines, colors, and even a background!

What would your new Scribble see and do on your new planet?



THE PLANETS OP. 32

A SEVEN MOVEMENT ORCHESTRAL SUITE BY GUSTAV HOLST



- Mars - The Bringer of War
- Venus - The Bringer of Peace
- Mercury - The Winged Messenger
- Jupiter - The Bringer of Jolity
- Saturn - The Bringer of Old Age
- Uranus - The Magician
- Neptune - The Mystic

What do you think about when you listen to the music?
Do the titles reflect the mood expressed in the movements?

<http://bit.ly/2c4jceK>
gustavholst.info

DID YOU KNOW?

Sound waves cannot travel in the vacuum of space. They need to vibrate the molecules in a solid, liquid or gas in order to make sound. The waves given off by stars and other objects are electromagnetic and use magnetic and electric fields. Therefore, light can travel through space while sound cannot.

Listen to even more space-inspired music!
Wide Open Spaces: <http://bit.ly/2ciTRv6>
Zoom, Zoom, Zoom: <http://bit.ly/2cP7Atl>



THERE IS MORE TO STARS THAN MEETS THE EYE

The visible light you see in the night sky is only part of the electromagnetic spectrum that is produced by stars.

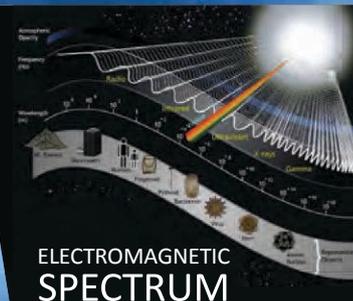
Below are pictures of the Horsehead Nebula in optical, infrared, radio and submm wavelengths. In the optical wavelength, dust obscures star-forming activity. In the infrared wavelength, the hot layer of dusk around the cloud glows.



At radio wavelength, both dust and molecules glow, providing a wealth of information on regions that are otherwise invisible in the optical range. Submm (seen on the fourth image) is another term for microwave and is used to pinpoint the birth of stars, planets and galaxies. Each wavelength of the electromagnetic spectrum has to be viewed with special equipment.

OUR ATMOSPHERE

The diagram shows the entire spectrum of electromagnetic waves. The scale at the bottom indicates representative objects that are equivalent to the wavelength scale. The atmosphere opacity determines what radiation reaches Earth's surface.



While light is helpful, some of the wavelengths of the spectrum can harm the Earth. Thankfully, our atmosphere protects us from some of the more harmful electromagnetic waves.



PICTURES IN THE STARS



There are a few ways to find North if you don't have a compass. One method that works well on a clear night is to find the North Star, or "Polaris." First, find the big dipper, and then use the two stars in the "cup" of the dipper to find the North Star.



What sort of pictures can you see when you look at the night sky?



During the day when you can't see the stars, you can use the sun. The sun always rises in the east, but if you aren't sure which direction is north, you can use the "stick and shadow" method. Place a stick in the ground and mark the tip of its shadow in the dirt. In an hour, mark the tip of where the shadow has moved. This will give you an East-West line with East being the first mark. If you put your right foot on the East and left foot on the West, you will be facing North.

People in ancient times looked into the night sky and used their imagination to create pictures with the stars. They used these pictures to help navigate and keep track of the seasons. Scientists still use constellations to label astronomical occurrences (Perseids Meteors appear in the constellation Perseus).

DID YOU KNOW?

There are 88 official constellations? Check out the full list!
<http://www.topastronomer.com/StarCharts/ConstellationViewer.aspx>