Name_____ Test Date _____ Hour__

Astronomy #1 - Notebook

The Space Age

Learning Targets

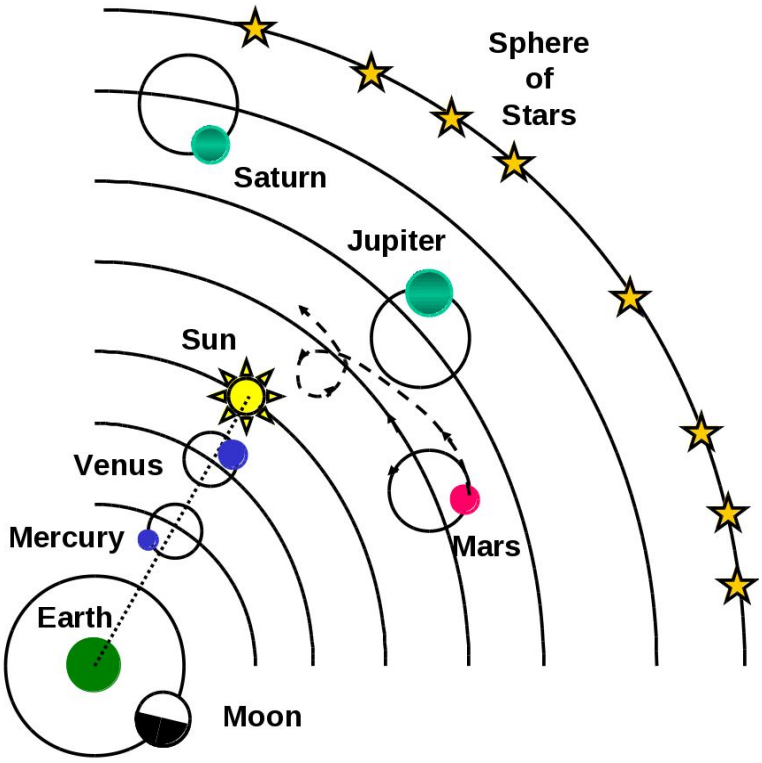
- ❑ **I can define Astronomy.**
- ❑ **I can explain the importance of Copernicus and Galileo.**
- ❑ **I can explain the difference between the Earth-centered theory and the Sun-centered theory.**
- ❑ **I can explain what a rocket is.**
- ❑ **I can explain the difference between a satellite and an artificial satellite.**
- ❑ **I can explain orbit.**
- ❑ **I can define gravity.**
- ❑ **I can defend my position on the role of the use of animals in study of space.**
- ❑ **I can identify the important events in the Space Race.**
- ❑ **I can describe current uses of satellites.**
- ❑ **I can describe current uses of space probes.**
- ❑ **I can describe the purpose of the Space Shuttle.**
- ❑ **I can describe the purpose of the International Space Station.**
- ❑ **I can defend my position on space related topics using evidence to support my position.**

Scientific Language

1. **Astronomy** – The study of the moon, planets, stars and other objects in space.
2. **Satellite** – An object that revolves around another object in space.
3. **Artificial Satellite** – Any human made object placed in orbit around a body in space.
4. **Orbit** – The curved path an object follows as it moves around another object.
5. **Gravity** – A force that pulls objects towards Earth.
6. **Rocket** – A device that expels gas in one direction to move in the opposite direction.
7. **NASA** – An agency of the United States government responsible for aviation and spaceflight.
8. **Space Shuttle** – A reusable spacecraft that takes off like a rocket, lands like an airplane and carries astronauts, satellites and cargo into space.
9. **Space Probe** – An unmanned spacecraft carrying scientific instruments to collect data and visual images.
10. **Space Race** – A competition of space exploration between the United States and the Soviet Union.

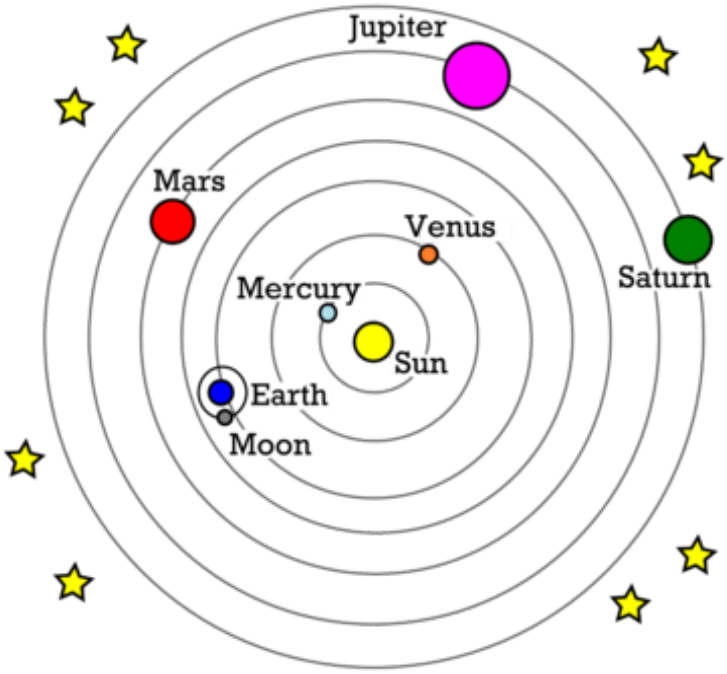
Astronomy

Astronomy is the study of the _____ and anything in it. Astronomers study the _____, _____, _____, and other objects in space like galaxies and comets.
Astronomy was the _____ of the natural sciences. Astronomy was not considered a true modern science until the _____'s.



Until about _____ years ago, people believed that the _____ was the center of the Universe. This was the _____ theory. This _____, or explanation, stated people thought that the moon, the sun the planets and the stars were supported by _____ _____ that turned at different rates. However, this belief could not explain the _____ looped paths that the _____ appeared to make.

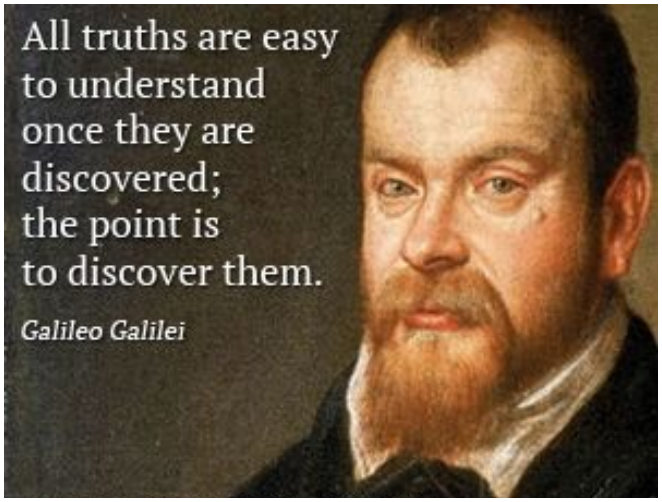
In the 1500's, Nicholas _____ gathered evidence and wrote several books explaining a _____ - centered theory. He explained how the irregular loops made sense if we pictured the Earth and planets moving around the _____.



Sun at the Center

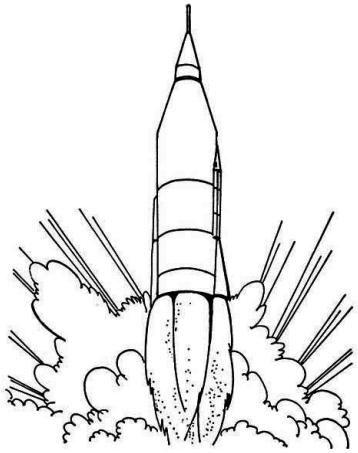
_____ Galilei supported the _____ theory. He built a telescope and observed the movement of _____. He used his observations and explanations of Venus's orbit as _____ to support his claim of a _____-centered universe. Unfortunately, this went _____ the beliefs of the time and the people in power did not want to have their beliefs _____.

Galileo was sentenced to _____ in prison and his _____ were burned. Thanks to his work and others like him, people now know the sun in the center of our solar system, which is part of the milky way galaxy, which is one of millions of galaxies in the universe.

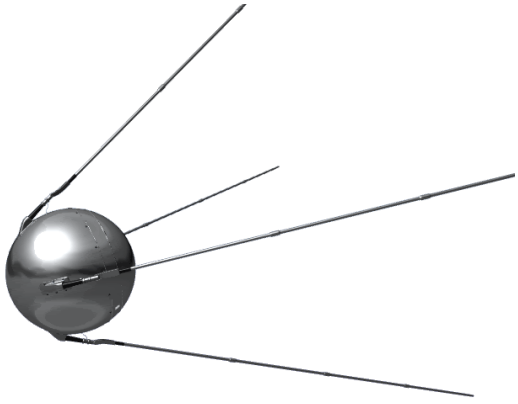


The Space Race Begins

Astronomy finally became a household topic when the _____ and _____ entered into a competition to control _____. On October 4, _____, the _____ (Soviet Union) successfully used a rocket to launch _____. A _____ is a device that expels gas in one direction to move in the _____ direction. Rockets need to carry enough fuel to overcome the force of _____. Gravity is the force that _____ objects toward the Earth.



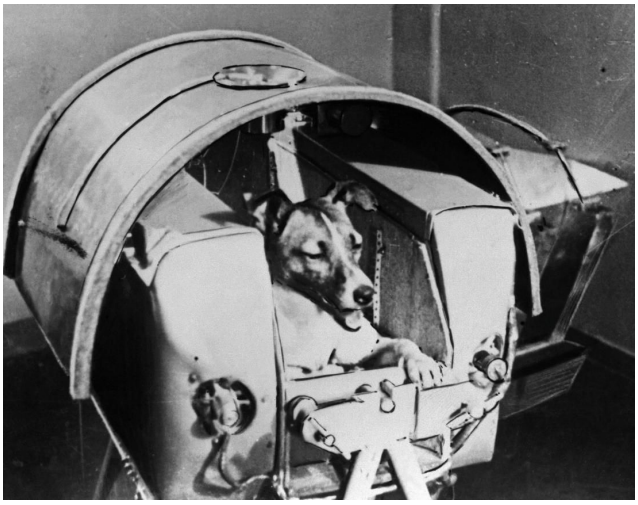
Sputnik I was the world's first _____ satellite to orbit the Earth. A _____ is an object that _____ around another object in space, like the moon orbiting around the Earth. _____ satellites are _____ made objects placed in orbit around a body in space, like Sputnik 1.



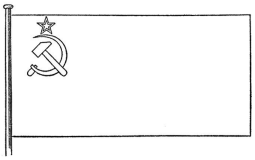
Sputnik I, about the size of a _____ weighing _____ pounds, took about _____ minutes to orbit the Earth. To orbit means it followed a _____ path while moving around another object, like the Earth. Sputnik orbited Earth about _____ times a day until January 4, 1958 when it _____ back to Earth and _____ up in the atmosphere.

The Sputnik 1 launch marked the start of the _____ _____ and the U.S. -- U.S.S.R. space _____.

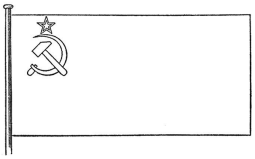
A _____ after Sputnik I was launched, the former Soviet Union launched _____. Sputnik 2 carried a _____, named Laika. Laika was the first animal in _____.



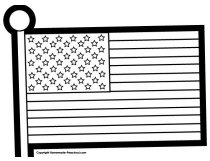
Important Dates in the Race to Space



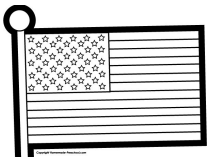
1957 – October 4 – _____ was launched by the USSR



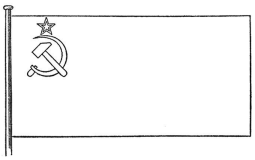
1957 – November 3 – _____ was launched by the USSR carrying the first _____ _____ into space, a dog named _____



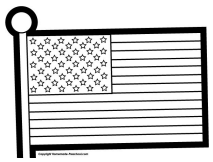
1958 – January 31 – _____ was launched by the US



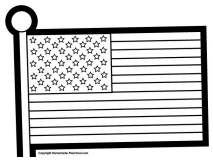
1958 – July 29 – Congress passed the National Aeronautics and Space Act and _____ was established.



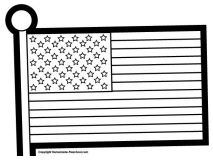
1961 – April 12 – _____ cosmonaut Yuri A. Gagarin became the first _____in space.



1961- May 5 – Alan B. Shepard was the first _____ citizen in space.



1961 – May 25 – President John F. _____ called for the U.S. to send humans to the _____ and return them safely.



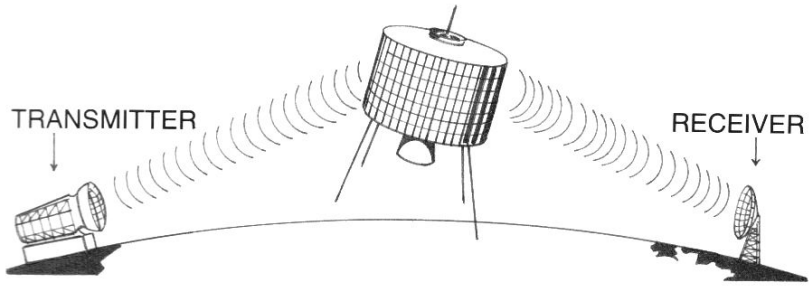
1969 – July 20 – _____ landed on the Moon's surface and _____ was the first human to set foot on the moon. A total of _____ Americans have walked on the moon.

Space Today

Satellites

The early space missions included the launch of both _____ and _____ into space. Artificial satellites are used widely today for _____, _____, communication, _____ forecasting, and global positioning systems (_____). The _____ of the satellite determines the _____ that it orbits above Earth's surface.

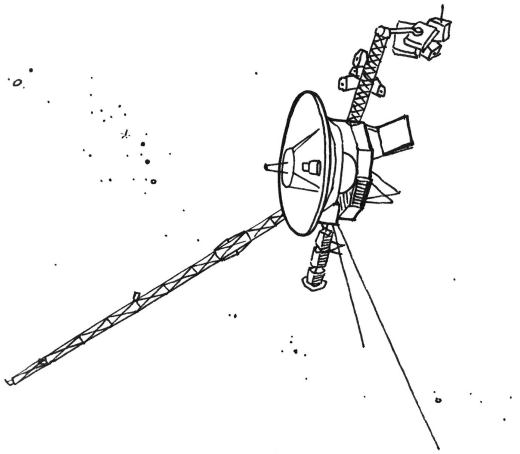
There are currently over _____ artificial satellites orbiting Earth, many of them are no longer _____. The oldest one has been there since _____ , it is not functioning.



Probes

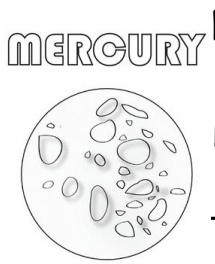
Probes are designed to travel _____ into and out of the solar system. Many of the _____ we have of faraway places are because of probes. Probes are used to study _____ , the _____ , _____ and _____. Probes can cost up to 3 _____ dollars!

Launched back in 1977, the famous probes, _____ 1 & 2 are still traveling beyond the edge of our solar system.

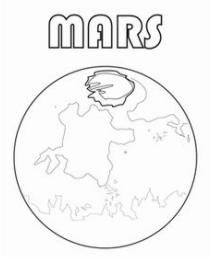


Other probes are used to study _____ of our solar system.

Sun Probes are used to study solar _____, and to better predict space _____.

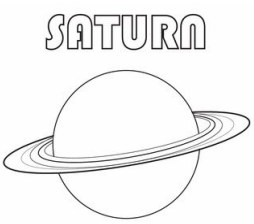


Mercury are used to look for _____ ice and _____ materials.



Venus are used to study the _____.

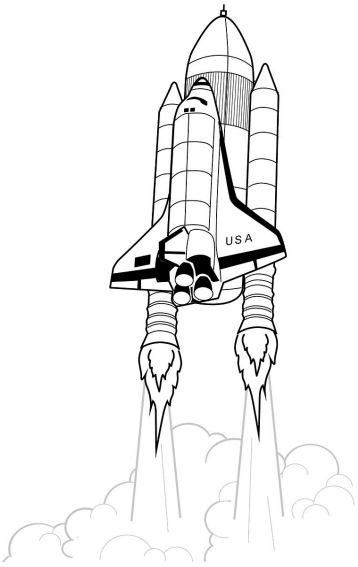
Mars are used to look for _____.



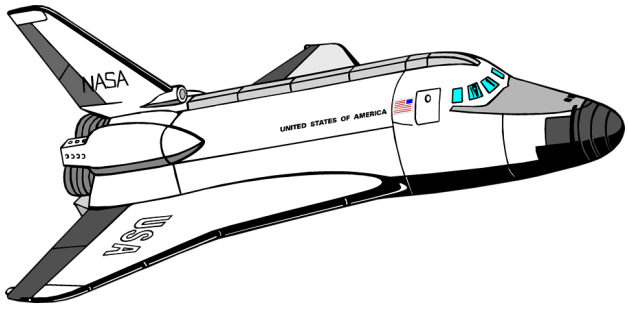
Jupiter are used to study the _____.

Saturn are used to study the _____ and _____.

Space Shuttles



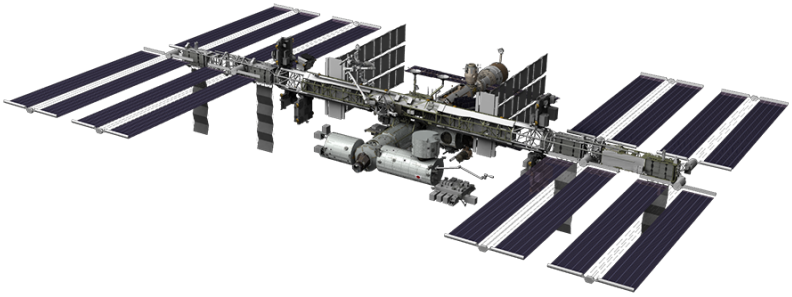
In the _____ , NASA created the first _____ spacecraft. The space shuttle was a reusable spacecraft that takes off like a _____ , lands like an _____ and carries _____ , _____ and cargo into space. Five orbiters flew more than _____ times, carrying over _____ people into space and travelling more than half a _____ miles. 2011 marked the _____ flight of the space shuttles. The total cost of the 30 year shuttle program was $196 _____ .



International Space Station

http://www.ustream.tv/channel/live-iss-stream

A _____ laboratory in which an international crew of ___ people live and work. The station orbits the Earth every _____ minutes. The station's construction began in 1998 when American _____ , Russian _____ Zarya module was launched into orbit. Sixteen _____ have been involved in the project. The cost has been about $150 _____ .
Crew members conduct _____ to advance scientific knowledge of Earth, space, physical and biological sciences. To get to the ISS, scientists take a _____ Soyuz vehicle. It only takes _____ hours to get there!!!



NASA Spin Offs

President _____ signed the Space Act in 1958 creating the National Aeronautics and Space Administration, or _____ for short. Since its creation, it has done much more for us than just space _____ . The act also said that the research and technologies discovered by NASA should benefit all of _____ .
The NASA missions technologies can turn into _____.
Spinoffs are items that can also be used to _____ our daily lives.

TOP 10 NASA SPINOFFS are:

10 -

9 -

8 -

7 -

6 -

5 -

4 -

3 -

2 -

1 -

Thank you NASA!!