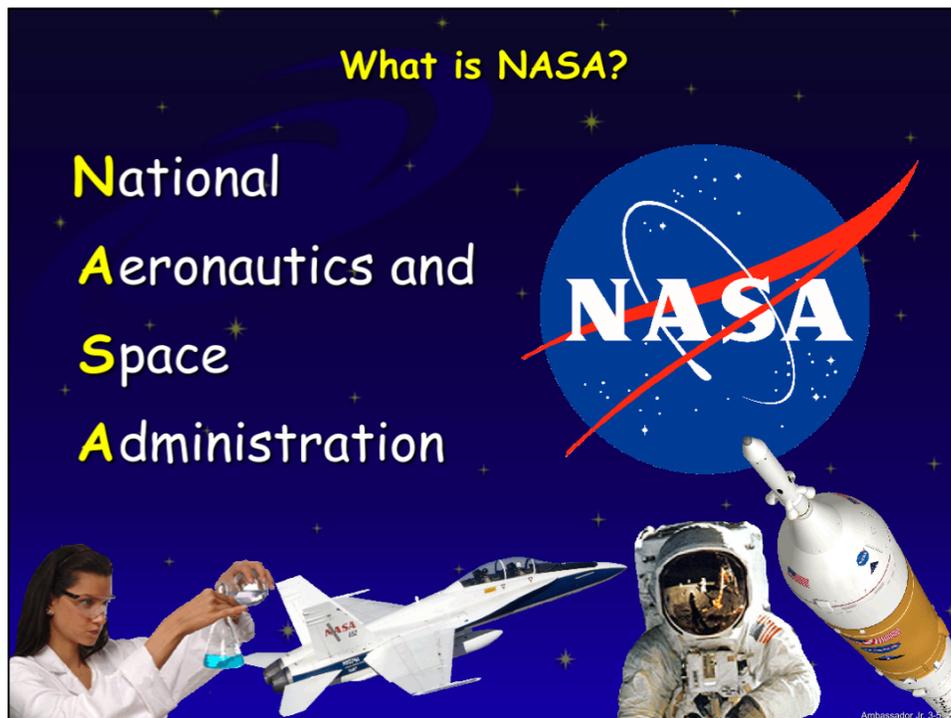




- Thank you for inviting me to speak to your group. I would like to share with you some of the exciting things being done by NASA.



- What Is NASA?

NASA stands for National Aeronautics and Space Administration.

NASA was started in 1958 as a part of the United States government.

NASA is in charge of U.S. science and technology that has to do with airplanes or space.

- What Does NASA Do?

NASA does a lot of different things. NASA makes satellites. The satellites help scientists learn more about Earth.

NASA sends probes out into space. NASA scientists study things in the solar system, and even farther away.

A new program will send humans to the moon, Mars and beyond. People at NASA work on ways to make air travel better for everyone on Earth, too.

People at NASA also share the things they learn with others. This can help make life on Earth better.

- The meatball design of the NASA logo is a sphere and represents a planet. The red wing represents aeronautics. The stars represent space.



- How far is the Moon from Earth?

- Discuss the following with the class: If the Earth was the size of a basketball, the Moon would be the size of a tennis ball. How far away do you think they would be from each other?

- Ask for a volunteer to take the tennis ball (Moon) and go to a spot in the classroom that they think is the correct distance the Moon is from Earth. After the child has chosen a spot, take a piece of string and wrap it around the basketball 9 ½ times to represent the distance from Earth to the Moon. Unwrap the string one time around and then stop and hold that part of string out away from the basketball. This is the distance where most communication satellites are located. Keep unwinding the string. Ask one person to hold the basketball. Keeping one end of the string on the basketball, keep unwinding the string. See how close the student came to the actual distance.

- The Moon is 240,000 miles from Earth. The Earth's circumference is 23,627 miles or about 24,000 miles and the average distance between the Earth and the Moon is 238,900 or about 240,000 miles. The Moon is about 30 times the diameter of the Earth.



- Why do we want to go back to the Moon? It only takes 3 days to get to the Moon and 3 days to get back. We can build a foundation of experience proving ourselves closer to home before we take on the much bigger job of going to Mars which would take six to nine months. The Moon is a stepping stone to the rest of the solar system.

- When we explored the Moon previously, we focused on regions near the equator, on the near side of the Moon. Now, we have the capability to explore the poles and the far side of the Moon.

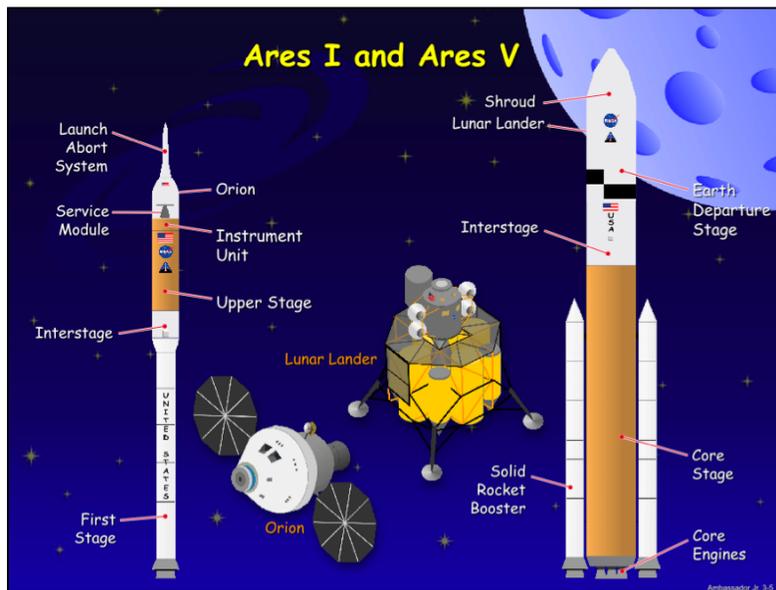
- NASA would like to set up Earth's first lunar base/outpost on the Moon. This would allow us to explore the Moon for longer periods of time.



- Why do we want to explore the Moon? Haven't we already been there? Well, imagine you live on Planet X and travel to Earth. You land right in the middle of the Sahara Desert and you go a mile to the north, south, east and west. You say, "Well, we have seen all of Earth."
- If you look at the picture, you can see that the yellow squares are where we have been on the Moon with the Apollo Missions. The red circles are possible landing sites. With the Apollo missions, the exploration was near the equator, but now we can explore the poles and the far side of the Moon.
- We can land anywhere on the Moon!



- The journey to the Moon will require a variety of vehicles, including the Ares I crew launch vehicle, the Ares V cargo launch vehicle, the Orion crew exploration vehicle, and a lunar lander.
- The architecture for lunar missions will use two launches, with the Ares V transporting the lunar lander and the Earth Departure Stage (EDS), followed by Ares I transporting the crew.

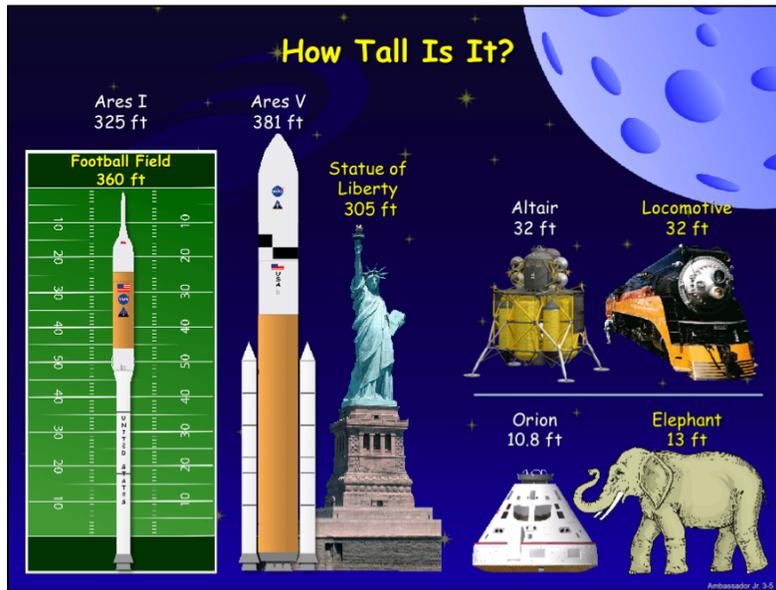


This is a stackable version of the Ares I.

- First Stage
- Interstage
- Upper Stage
- Instrument Unit
- Service Module
- Orion- Crew Vehicle – will carry a crew of four to the Moon and to the International Space Station
- Launch Abort System

This is a stackable view of the Ares V.

- Solid Rocket Booster - 5 ½ segments
- Core Stage
- Interstage
- Earth Departure Stage
- Lunar Lander
- Shroud



Ares I:

- The Ares I rocket will stand tall at 325 feet. It is almost the same size as a standard football field minus one end zone and five feet.

Ares V:

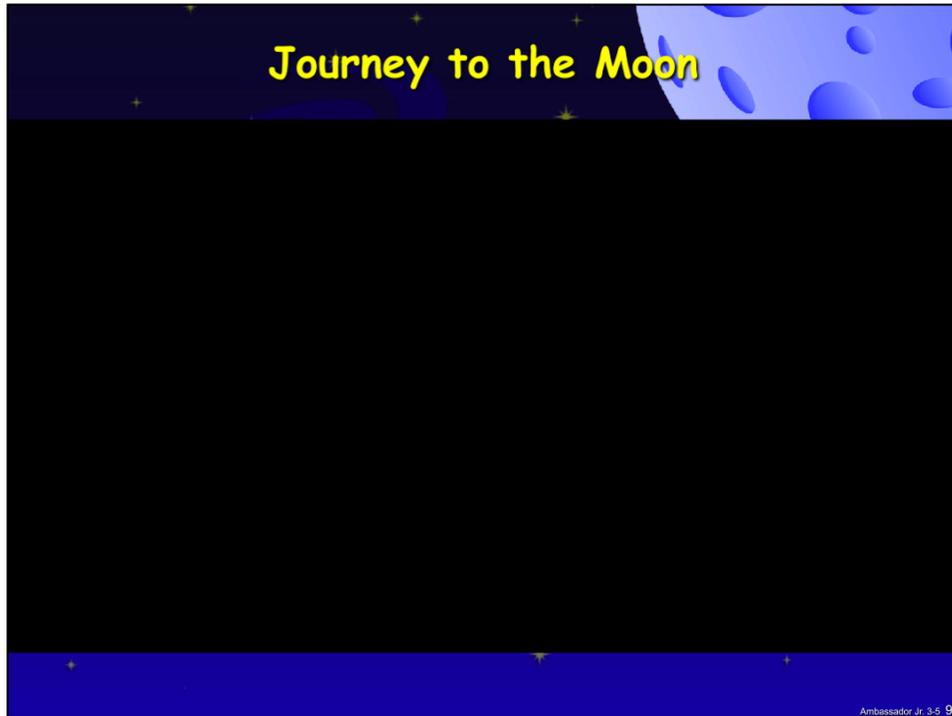
- The Ares V is 381 feet tall. It will be the largest launch vehicle ever built. The Saturn V was 363 feet tall. The Ares V is 76 feet taller than the Statue of Liberty which is 305 feet tall.

Lunar Lander:

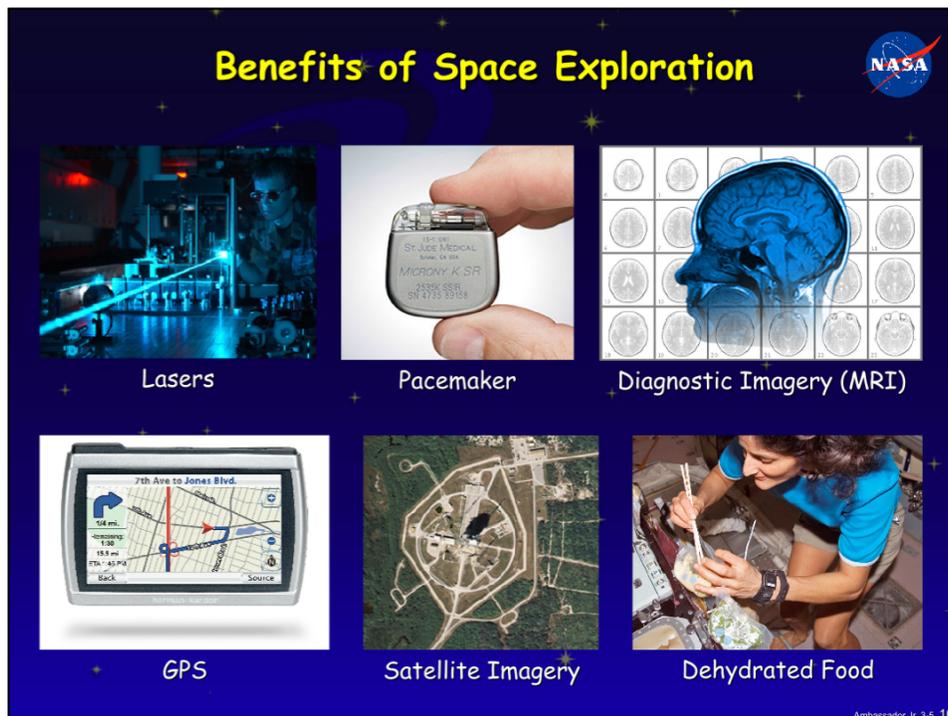
- The Lunar Lander is 32 feet tall and about the same height as a locomotive train. A locomotive train stands at 32 feet tall.

Orion:

- The Orion Crew Vehicle is 10.8 feet tall. The average size of an elephant is 13 feet tall, so the Orion is close to the size of an elephant.



- This video shows how all these pieces will fit together in a lunar mission.



- **LASER-** NASA has created technologies that have led to improvements in LASIK surgery. The expertise in the critical areas of eye tracking had its genesis in many years of contract research and development for the Strategic Defense Initiative and the National Aeronautic and Space Administration (NASA). More than \$35 million dollars has been invested by industry to develop this technology and its application to an excimer laser to correct vision beyond the original government research.
- **LASER ANGIOPLASTY -** Laser angioplasty with a "cool" type of laser, called an excimer laser, does not damage blood vessel walls and offers precise non-surgical cleanings of clogged arteries with extraordinary precision and fewer complications than in balloon angioplasty.
- **MICRO-LASERS-** Amoco Laser Company, a subsidiary of Amoco Corporation, has developed microlasers for the commercial market based on a JPL concept for optical communications over interplanetary distances. Lasers emit narrow, intense beams of light or other radiation. The beams transmit communication signals, drill, cut or melt materials or remove diseased body tissue. The microlasers cover a broad portion of the spectrum, and performance is improved significantly. Current applications include medical instrumentation, color separation equipment, telecommunications, etc.
- **PROGRAMMABLE PACEMAKER -** St. Jude Medical's Cardiac Rhythm Management Division, formerly known as Pacesetter Systems, Inc., incorporated Apollo technology into the development of the programmable pacemaker system. This consists of the implantable pacemaker together with a physician's console containing the programmer and a data printer. Physician can communicate with patient's pacemaker by means of wireless telemetry signals transmitted through the communicating head held over the patient's chest. Where earlier pacemakers deliver a fixed type of stimulus once implanted, Programalith enables surgery free "fine tuning" of device to best suit the patient's changing needs.
- **MRI (Medical Imaging)-** NASA developed ways to process signals from spacecraft to produce clearer images. This technology makes possible photo-like images of our insides.



- There are a variety of career opportunities available at NASA. NASA employs people from all walks of life. Not only are there engineers, mathematicians, scientists and technicians, but NASA also has accountants, historians, writers, computer support people, project managers, artists, educators, human resources personnel, public relations managers, physicians, lawyers -- and more.
- The most important thing for preparing to find a job at NASA is that you study what you like and work hard to achieve your goals.

