

Space Exploration

Past, Present, Future

Mr. Cloud



Space Exploration

The Big Picture

- Space exploration is still in infancy.
- The cost of space exploration mandates that we work together with other countries.

Example: International Space Station (ISS)



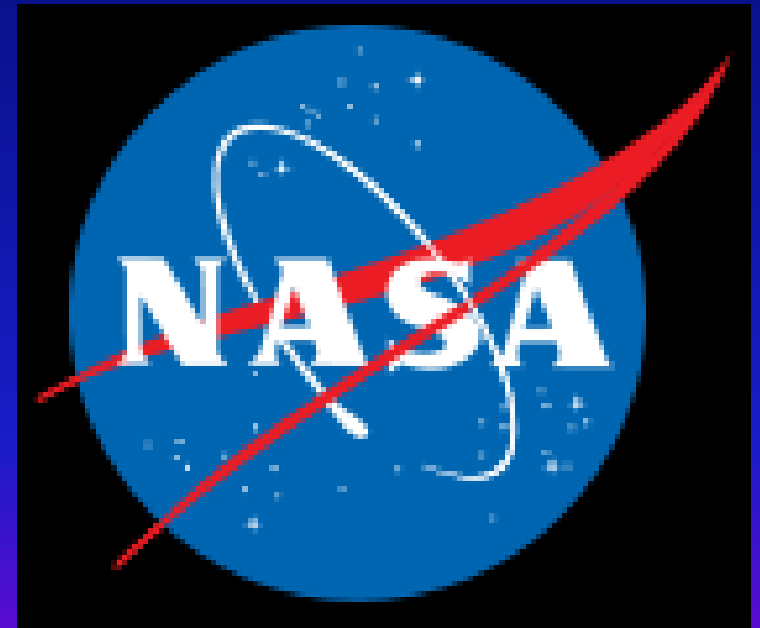
NASA

National Aeronautics and Space Administration

Accomplishments:

- First to land someone on the moon
- Invented the space shuttle
- Developed many products for space that we now use as everyday products

Example: Velcro



We Are Curious

...and so we study space.

Things that we need to know about space exploration include:

- Rockets
- Artificial satellites
- Space probes
- Space stations
- Space shuttles
- Remote sensing devices
- Space suits
- Radar
- Computers
- Fuel sources
- Landing modules
- Materials that can survive heat and pressure
- Solar panels
- Living quarters
- Biomedical equipment
- Air purification devices
- Telescopes**
- And many more...

Space Exploration History



- The space age began on October 4, 1957, when the Soviet Union launched Sputnik, the first artificial satellite to orbit Earth.

- The Soviets also achieved the first piloted space flight on April 12, 1961.



I got this...

Let's Go to the Moon



- Apollo 8 orbited the moon 10 times and returned to Earth safely on December 21, 1968

- Neil Armstrong and Buzz Aldrin landed Apollo 11 on the moon on July 20, 1969.

- Neil Armstrong was the first person to set foot on the moon.

- The laptops in our classroom are more powerful than the computers used to run the Apollo program!

Space Shuttles

- A space shuttle is a reusable space craft.
- First used in **1981**.
- Able to land on an ordinary airfield.
- Two shuttle tragedies in **1987 and 2003**.
- Shuttles replaced the previous method of space flight – Rockets and capsules.



The Space Race and Cold War



Khrushchev & Kennedy

- Our ability to achieve our space goals became an indicator of our status as a great nation, and the Soviets were our top competitors.
- This occurred during a time in our history known as the **Cold War**.
- This was a time when our relationship with the Soviets was, well, cold.
- The intense rivalry between our two countries led us to some amazing accomplishments.

Probes Vs. Human Pilots

- Probes can make space flight cheaper, safer, and faster.
- Human pilots can make decisions when things don't go as planned.



The Future

- Exploration at greater distances
- Extended stays
- Humans need to be ready and educated for the space travel of the future



Some Difficulties Include

- Radiation exposure
- Lunar dust
- Food and Nutrition
- Exercise
- Differing levels of pressure, atmosphere composition, and gravity
- Sleep loss
- Risk of bone fracture
- Reduced muscle mass
- Reduced aerobic capacity
- Mental disorders arising from extreme, confined, and isolated conditions