NASA VISION AND MISSION

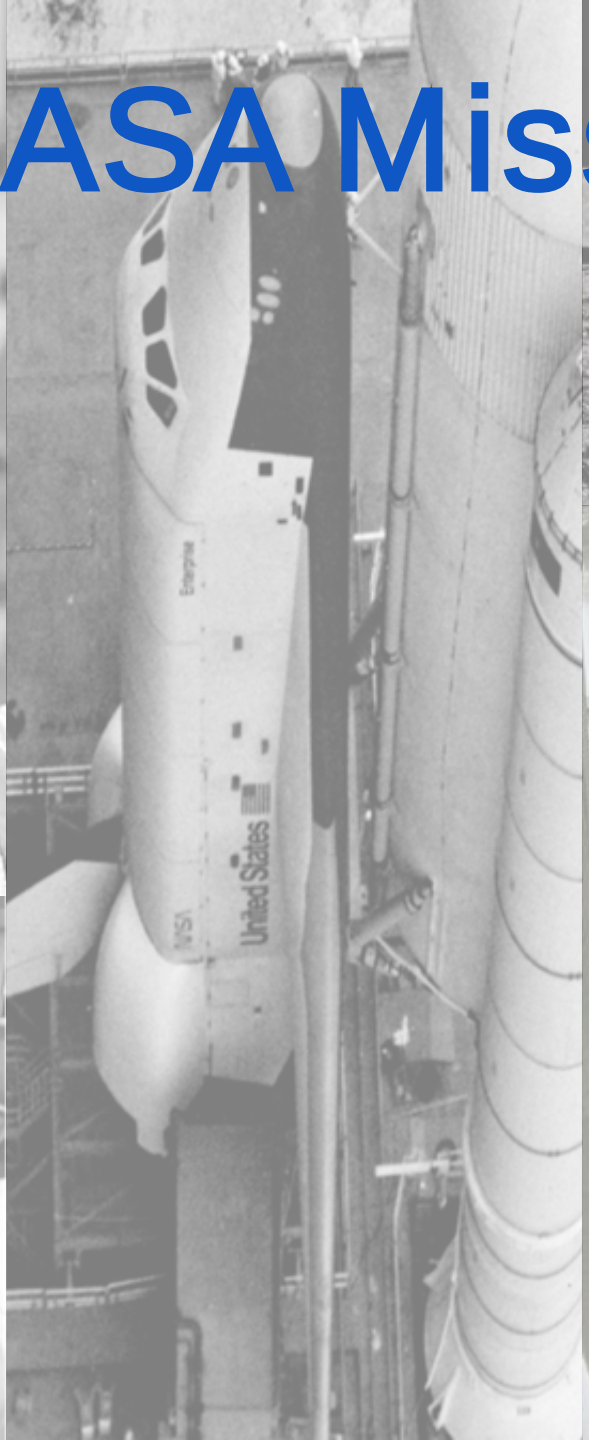
Vision

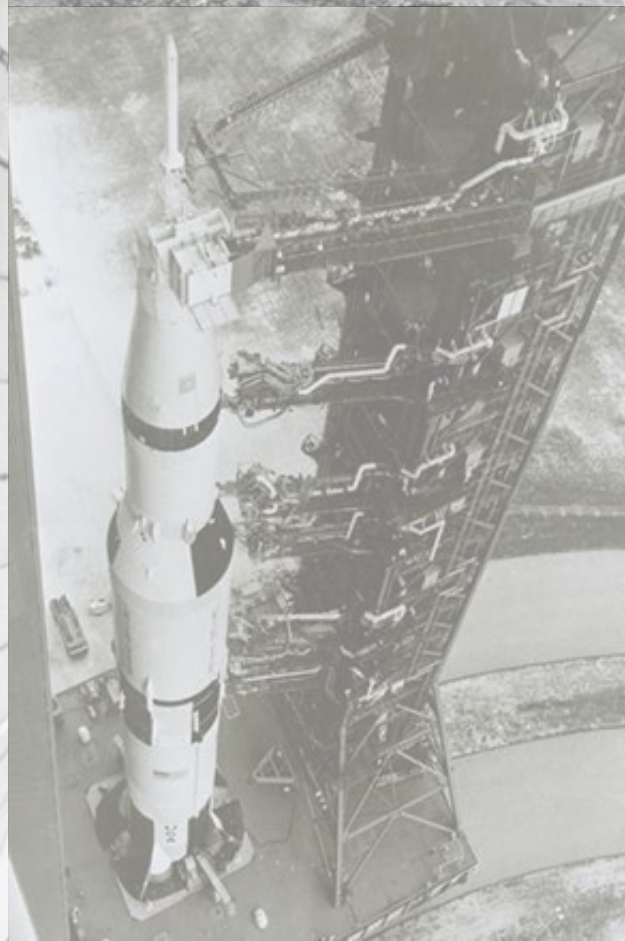
- *"To reach for new heights and reveal the unknown, so that what we do and learn will benefit all humankind"*

Mission

- *"Drive advances in science, technology, and exploration to enhance knowledge, education, innovation, economic vitality, and stewardship of the earth"*

Past NASA Missions





EARLY BEGINNINGS

- NASA was formed October 1st, 1958

- Project Mercury
  - Place a manned spacecraft in orbital flight around the earth and safely recover them.

BRIDGE TO THE MOON

- Project Gemini
  - Defined and tested the skills necessary to go to the moon

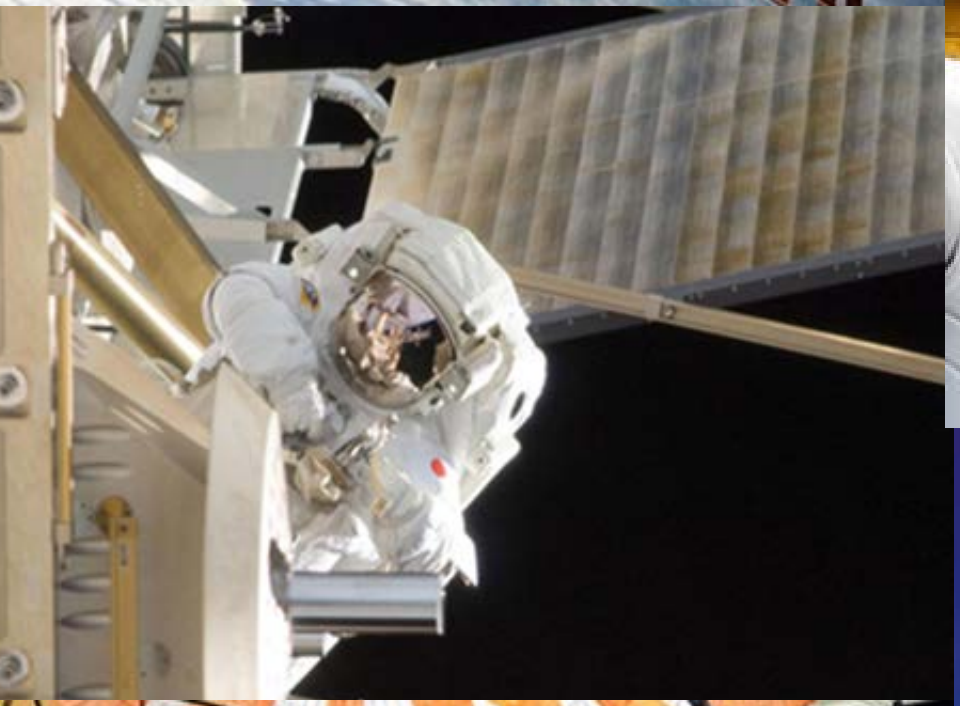
APOLLO PROGRAM

- Apollo 11 landed man on the moon
  - July 20, 1969
- 11 manned missions to and around the moon
  - 6 involved humans walking on the moon

"One small step for [a] man, one giant leap for mankind."

SPACE SHUTTLE PROGRAM

- 135 missions flown between 1981 and 2011
- Used to launch satellites and assemble the International Space Station



Current Missions

INTERNATIONAL SPACE STATION

- Main mission: Science Lab
  - Earth, space, physical, and biological sciences
- 200 people from 15 countries have visited the ISS

LIVING IN SPACE

- Developed by Donald Pettit (astronaut) and material scientists at JSC.
- Tanya Rogers (intern, pictured below) helped with this project from the very beginning and now has a full time job because of it.

Space Cup

LIVING IN SPACE

#YearInSpace

- Scott Kelly lived on the ISS for 340 days
- Both taller and younger when he got back to Earth
- The science is just beginning!

What will happen to Astronaut Scott Kelly's body during his #YearInSpace?

Astronaut Scott Kelly will see 10,944 sunrises and sunsets during his #YearInSpace. You will see 684.

About 383 experiments will be conducted during Astronaut Scott Kelly's #YearInSpace, including some created by Nobel Laureates.

Astronaut Scott Kelly will exercise more than 700 hours during his year-long mission to keep his bones, muscles and heart strong.

To get the same radiation exposure that Astronaut Scott Kelly will experience during a #YearInSpace, you would have to fly from Los Angeles to New York 5,250 times.

Astronaut Scott Kelly will drink 730 liters of recycled urine and sweat during his year aboard the International Space Station.

Astronaut Scott Kelly will produce about 180 pounds of feces that will burn up in the atmosphere and look like shooting stars. Your feces will not be shooting stars.

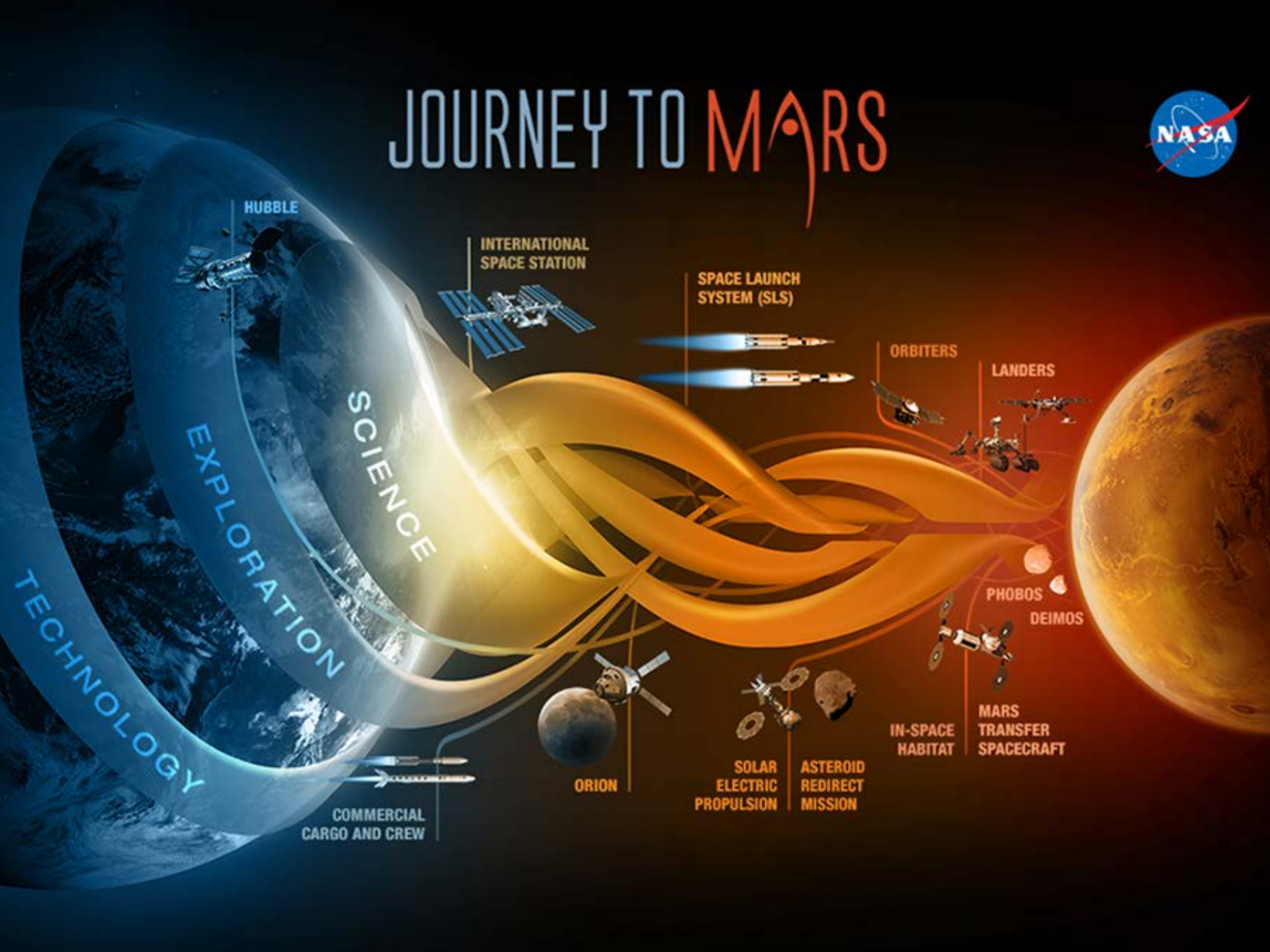
Astronaut Scott Kelly will run about 648 miles on a specialized treadmill during his #YearInSpace. At that rate, it would take him more than 216,000 years to run to Mars, which is 140 million miles from Earth.

The amount of fluid that will shift out of Astronaut Scott Kelly's legs and toward his head is equivalent to a 2 liter bottle of soda.

INTERNATIONAL SPACE STATION

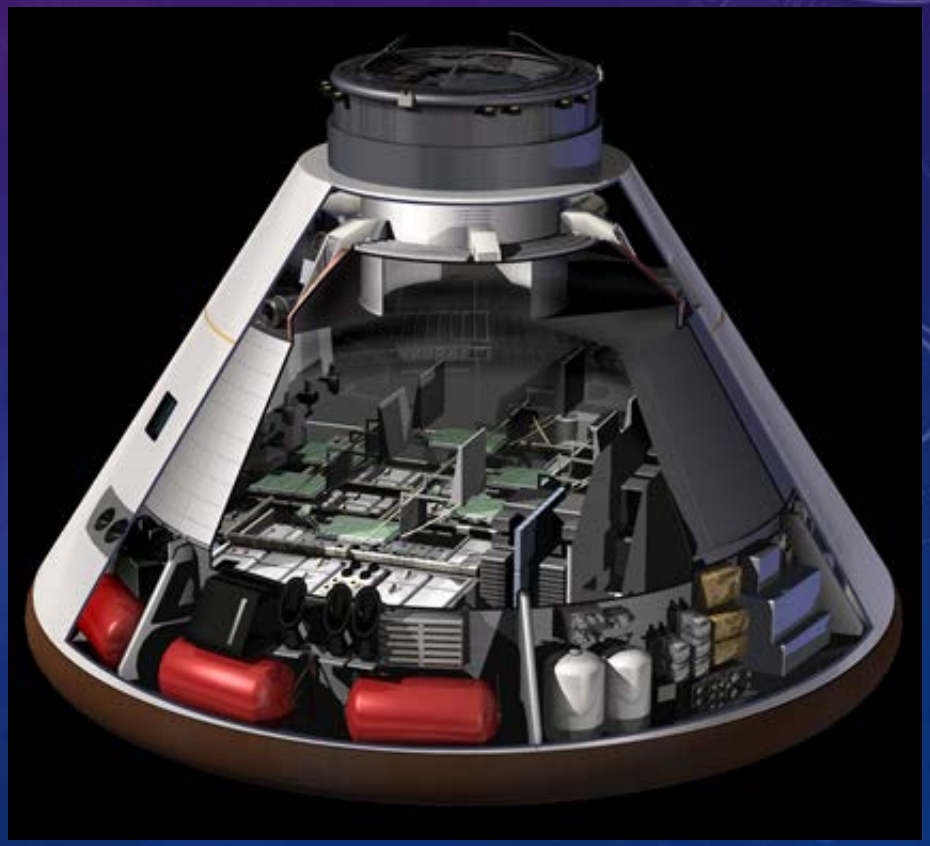
OFF THE EARTH. FOR THE EARTH.

RETURNING TO EARTH


JOURNEY TO MARS
NASA
HUBBLE
INTERNATIONAL SPACE STATION
SPACE LAUNCH SYSTEM (SLS)
ORBITERS
LANDERS
SCIENCE
EXPLORATION
TECHNOLOGY
PHOBOS
DEIMOS
IN-SPACE HABITAT
MARS TRANSFER SPACECRAFT
ORION
SOLAR ELECTRIC PROPULSION
ASTEROID REDIRECT MISSION
COMMERCIAL CARGO AND CREW

ORION

- Multi-Purpose Crew Vehicle
  - Take humans deeper into space than ever before



SPACE LAUNCH SYSTEM (SLS)

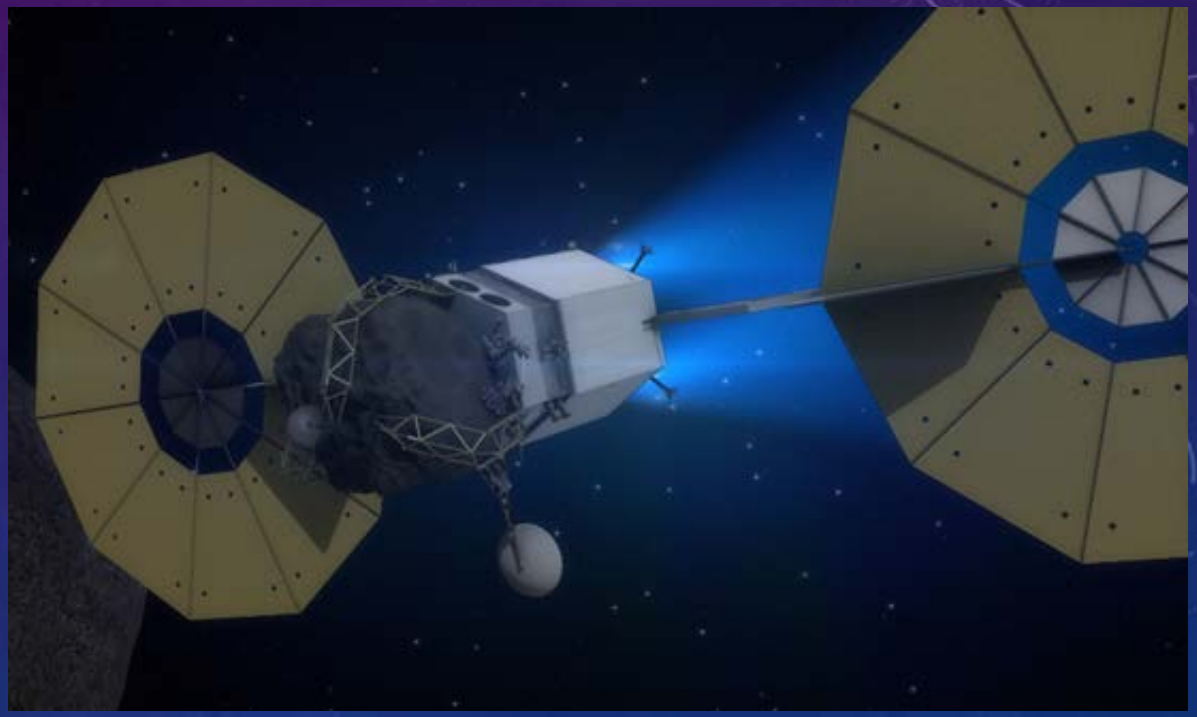
- Most powerful rocket ever built

AMERICA'S ROCKET - SPACE LAUNCH SYSTEM

ASTEROID REDIRECT MISSION (ARM)

- Collect boulder from near Earth asteroid and redirect it to a stable lunar orbit

- Astronauts will explore asteroid and return samples to Earth



SPACE EXPLORATION VEHICLE (SEV)

- Modular cabin that can be used as either as part of a rover system or as a spacecraft

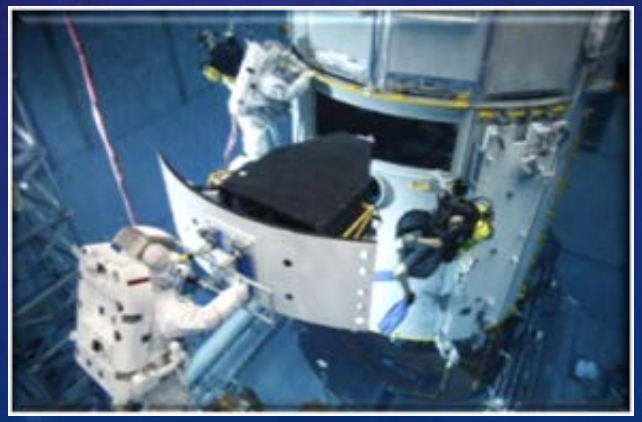
Johnson Space Center

JOHNSON SPACE CENTER

- Leads NASA's efforts in human space exploration
  - Primarily manned flight facility from Gemini forward

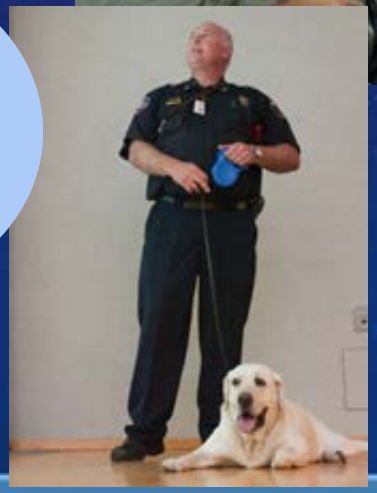
ADDITIONAL FACILITIES OF JSC

- Ellington Field
  - Primarily used for training astronauts for space flight and base for multi-use aircrafts
- Sonny Carter Training Facility – Neutral Buoyancy Lab
  - Pool that is 40 feet deep and holds 6.2 million gallons of water and used to train crew for Extravehicular Activity (EVA)
- White Sands Test Facility
  - Tests and evaluates spacecraft materials, components, and propulsion systems to enable safe space exploration



Student Programs

WHO WORKS AT NASA?



Mission Success

- Engineers
- Scientists
- Law Enforcement
- Lawyers
- Business Professionals
- Medical Professionals

EDUCATION PROGRAMS

NASA Community College Aerospace Scholars

High School Aerospace Scholars

NASA COMMUNITY COLLEGE AEROSPACE SCHOLARS

- Semester-long learning experience and design project

- Apply through:
  - http://ncas.aerospacescholars.org/
  - U.S. Citizen
  - Minimum of 9 hours in a STEM field
  - Registered for both fall and spring semesters

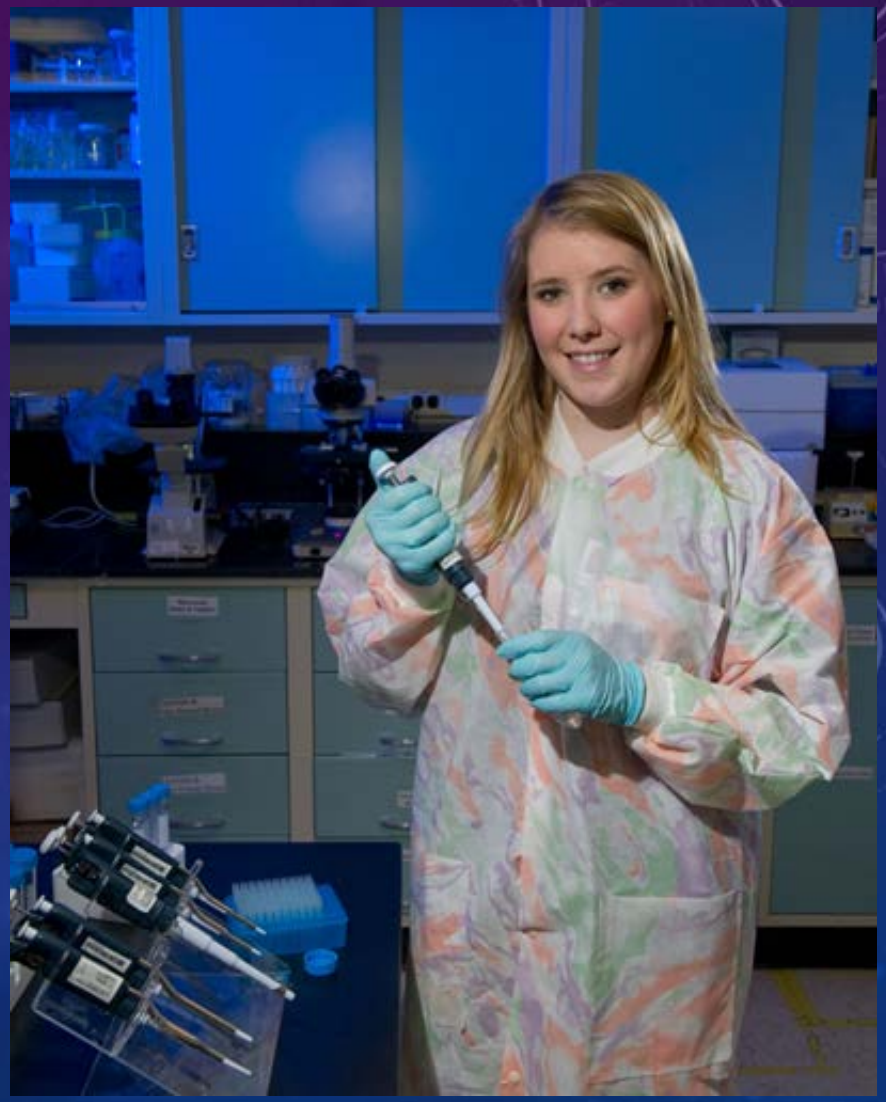
HIGH SCHOOL AEROSPACE SCHOLARS

- Online learning activities during the school year followed by a six-day experience at JSC during the summer
- Hand-on engineering activities with NASA mentors, tours, and lectures
- Apply Online at https://nas.okstate.edu/has/
  - U.S. Citizen
  - Texas High School Junior
  - Internet Access Required

NASA INTERNS, FELLOWS, AND SCHOLARS

- Semester-long project experience at a NASA center.

- Apply through http://intern.nasa.gov/
  - U.S. Citizenship
  - Accepted/enrolled full-time in an accredited U.S. college or university
  - Minimum 3.0 GPA



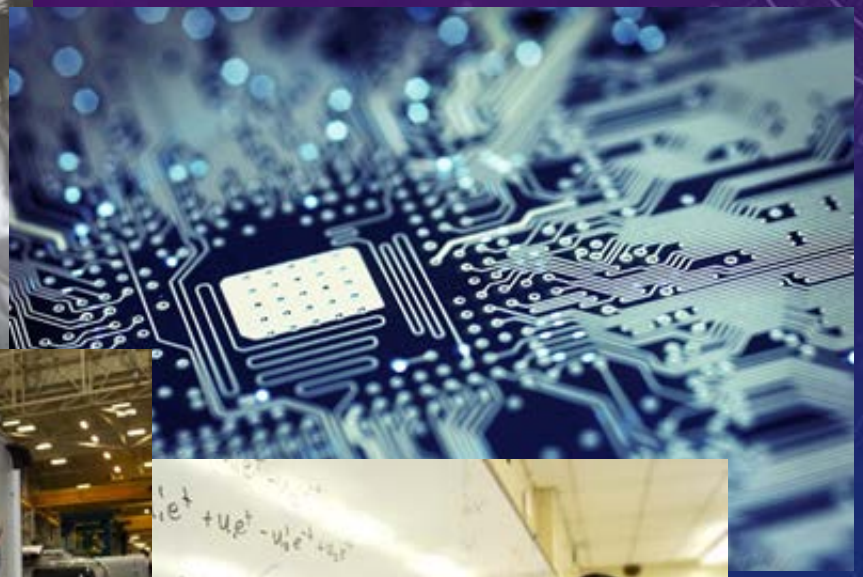
PATHWAYS INTERNSHIP (CO-OP)

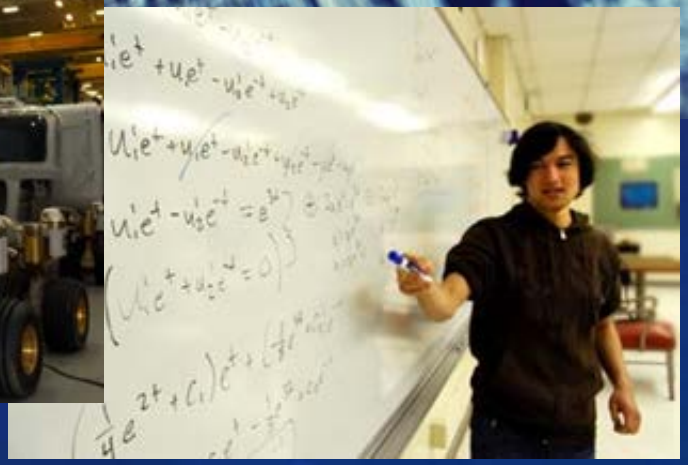
- Multiple terms exploring the various opportunities at a NASA center.
  - Alternate between school and NASA.
- U.S. Citizenship
- Attend a four-year accredited University.
- Have at least sophomore standing. (Graduate students also welcome)
- Maintain a good academic standing .
  - 2.9 GPA required, 3.0 GPA and up preferred
- How to apply
  - http://www.usajobs.gov

STEM MAJORS

Science

Technology





Engineering

Math

BUSINESS

Common Business Majors

- Business Administration
- Management
- Finance
- Accounting
- Communications

TYPICAL STUDENT CHARACTERISTICS

- Pursuing higher education
- Strong academic record
- Campus / community involvement and leadership
- Proactive and demonstrates initiative
- NASA Educational Program experience
- Previous work experience

REACH FOR THE FUTURE

"To recognize that the greatest error is not to have tried and failed, but that in trying, we did not give it our best effort"

– Gene Kranz, flight director for Apollo 11 and 13

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