Aerospace Engineering

BY TEAM 39402A

Introduction to Aerospace Engineering

For our career path, we chose aerospace engineer. Aerospace engineering consists of aircraft, spacecraft and satellite design and construction. Aerospace engineers also test prototypes. A prototype is a new invention that needs to be tested. We chose this career because we love space and adventure!

NASA

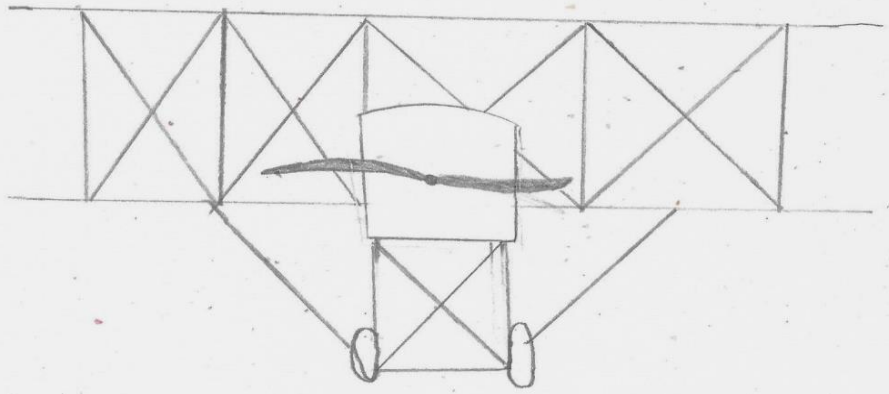
The main United States aerospace engineering company is the National Aeronautics and Space Administration, also known as NASA. This agency was created in 1958. NASA was the first space agency to get a human on the moon. Sent by NASA, Neil Armstrong, an astronaut and aeronautical engineer, was the first human to step on the moon in 1969. Now NASA is working on getting people back to the moon and going to Mars.


NASA

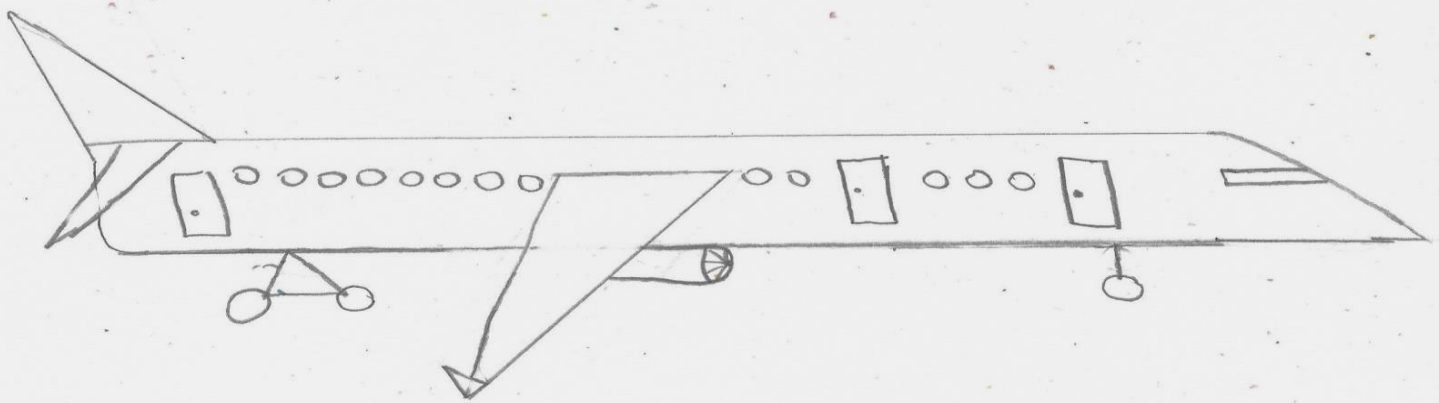
Aircraft

Aerospace engineering includes aircraft. There is one main difference between spacecraft and aircraft. Spacecraft are meant to break earth's gravitational pull, where as aircraft are meant to stay in earth's gravity. Aircraft also carry cargo and humans. The first airplane was created on December 17, 1903 by the Wright Brothers.

Frist airplane that flew

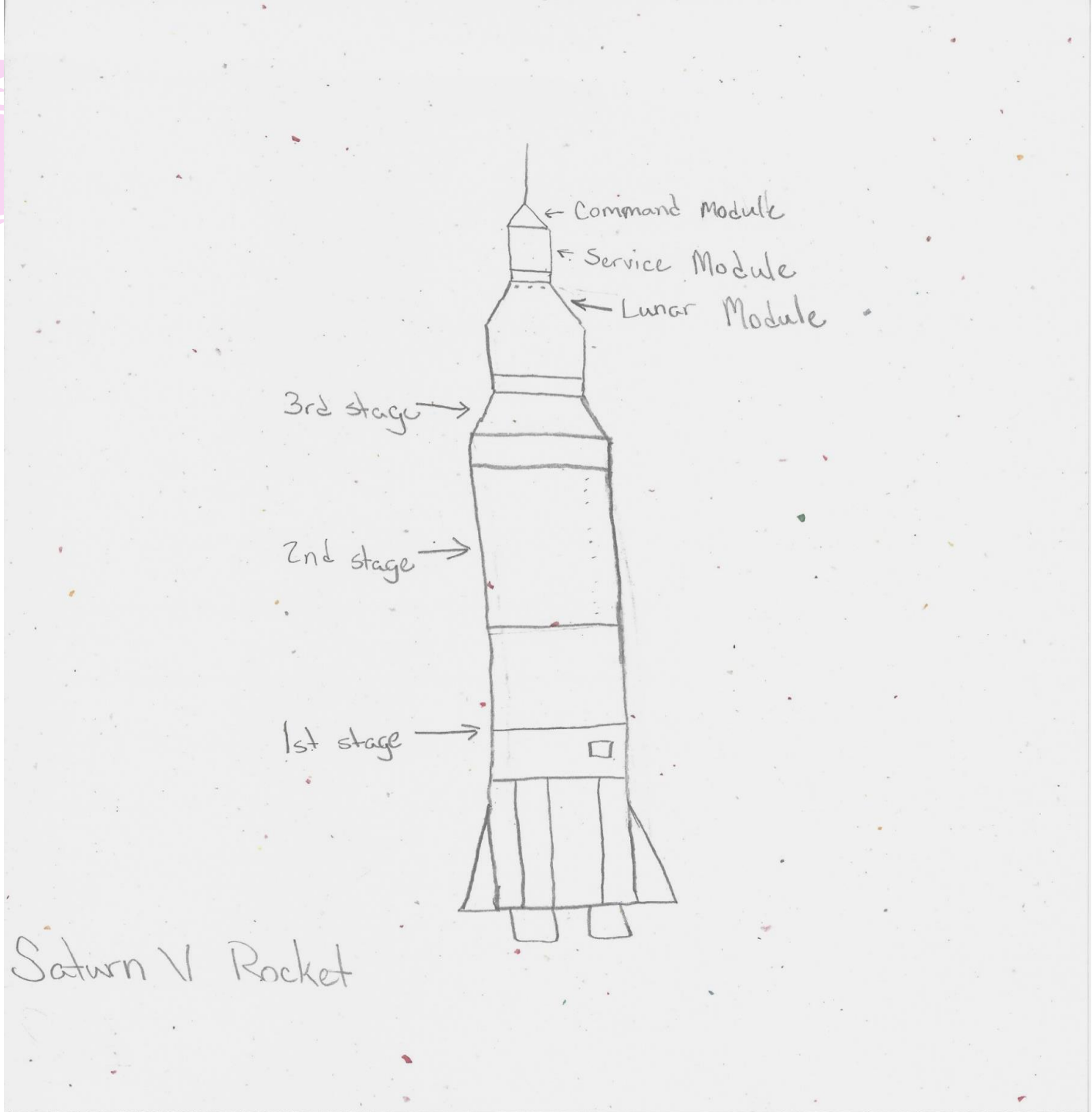


A modern airplane



Spacecraft

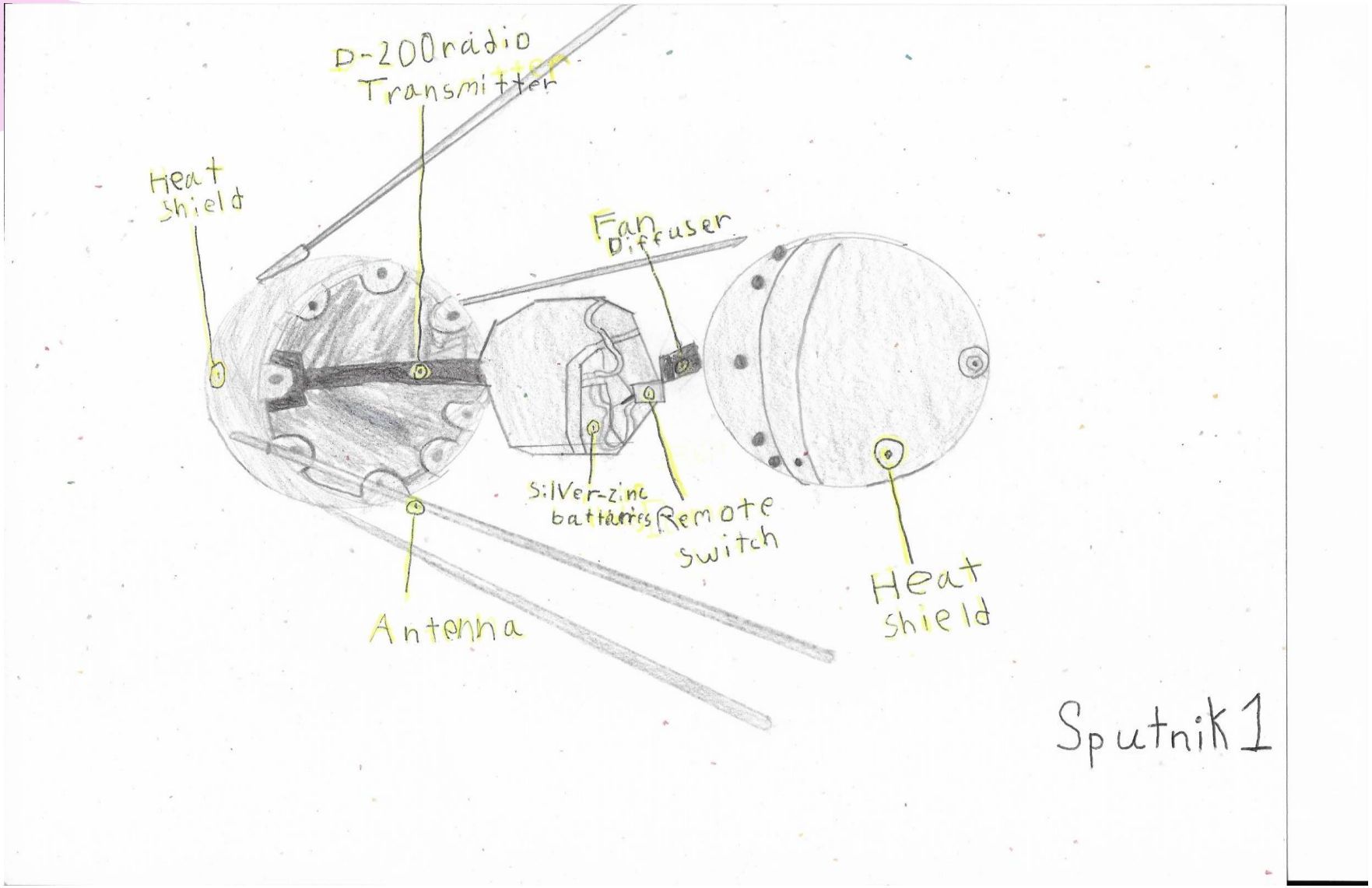
Spacecraft are another part of aerospace engineering. There have been many space shuttles launched into orbit. Throughout time, rockets and space shuttles have evolved. Aerospace engineers have made rockets and shuttles much safer. Rockets and shuttles not only transport humans, but also cargo and rovers.



Saturn V Rocket

Satellites

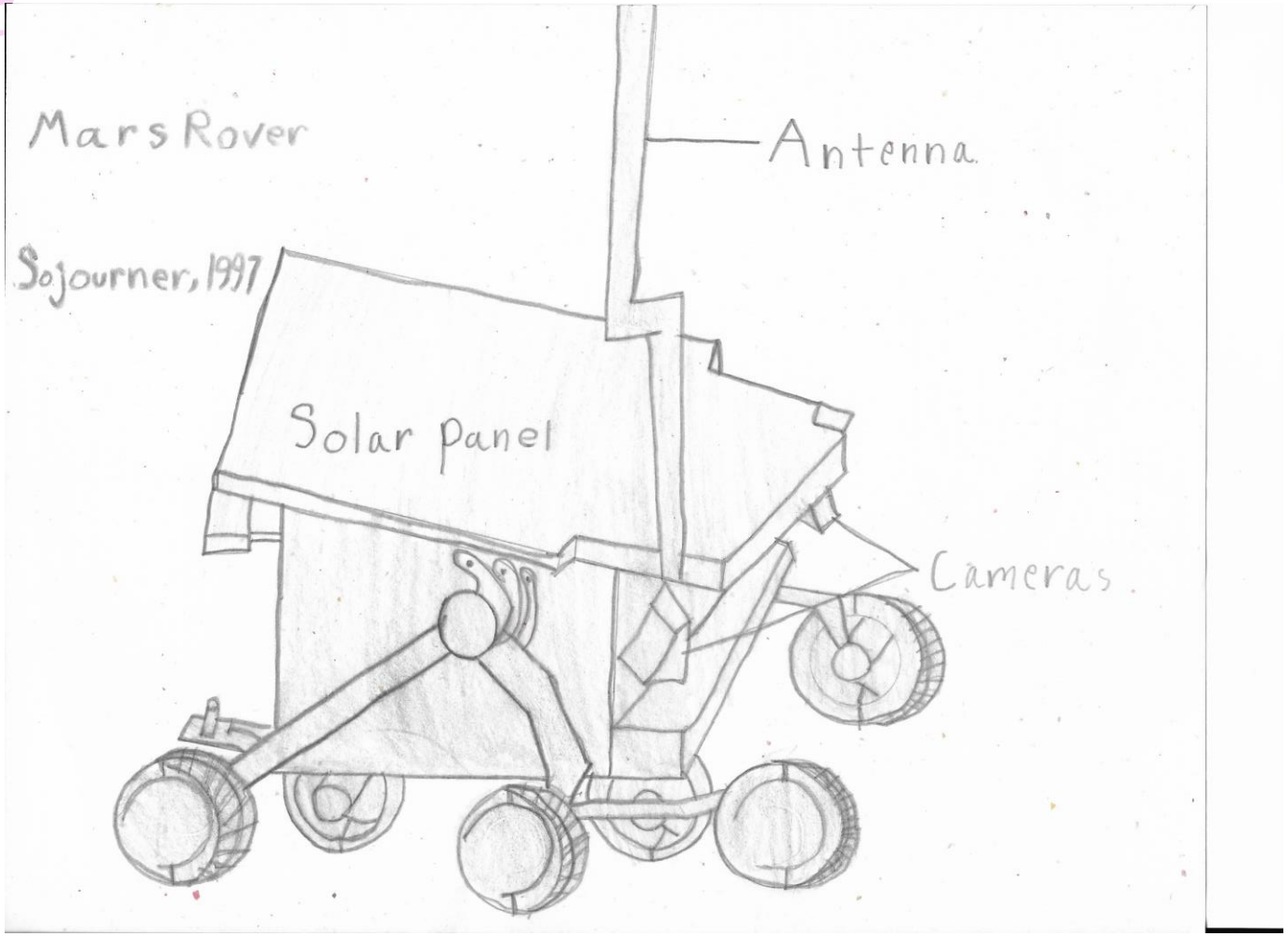
The first satellite was developed by Russia and was named Sputnik1on October 4, 1957. Sputnik travelled at a speed of 18,000 miles per hour. It went around earth every 93 minutes. The first American satellite was sent to space January 31, 1958. Wernher von Braun created the first American satellite, Explorer1. It orbited earth every 114.8 minutes.


D-200radio Transmitter
Heat shield
Fan
Diffuser
Silver-zinc batteries
Remote switch
Antenna
Heat shield

Sputnik 1

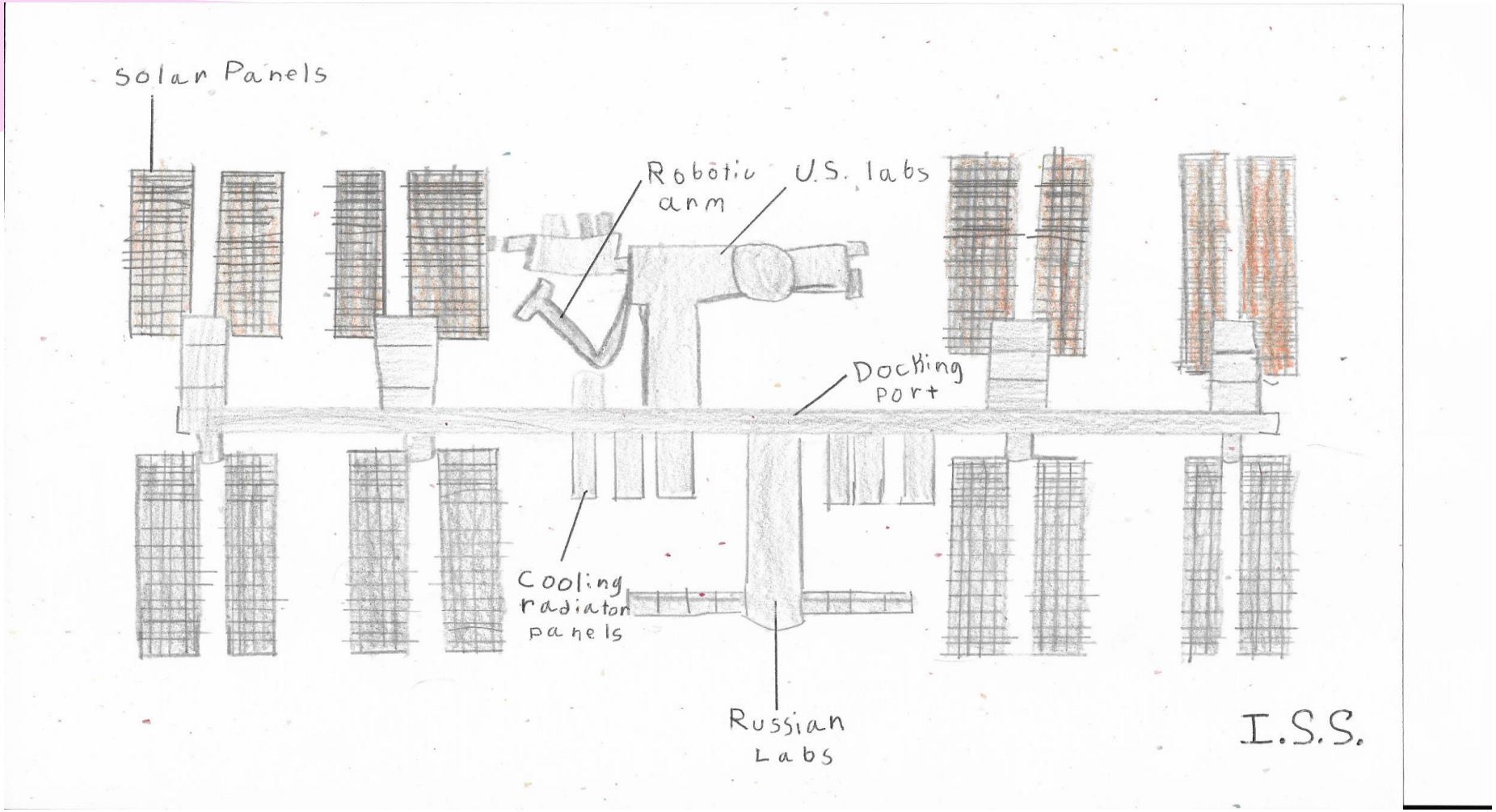
Rovers

There are two main types of rovers – Mars and moon. The rovers job is to map out land formations. One of the jobs of the Mars rover is to look for signs of water or life. The first moon rover launch was July 31, 1971. The first Mars rover launch took place July 4, 1997. Aeronautical engineers not only design rovers, they decide how rovers get to their destinations and their purpose once there.


Mars Rover
Sojourner, 1997
Antenna
Solar panel
Cameras

International Space Station

The International Space Station (I.S.S.) was one of the aerospace engineering world's best accomplishments. The I.S.S. was made by people from all over the world. The I.S.S. is a large habitat in space. It orbits the earth every 90 minutes. As of January 2018, 230 people from 18 countries have been on the I.S.S. The I.S.S which was made in 2000 has come so far.


Solar Panels
Robotic arm
U.S. labs
Docking port
Cooling radiator panels
Russian Labs
I.S.S.

Our Space Heroes

- Neil Armstrong was the first person to step foot on the moon.
- Sally Ride was the first American female to go into space.
- Scott Kelly was an engineer and commander while working from the International Space Station. He was also the commander of a space shuttle flight.
- Cady Coleman served as the chief of robotics for NASA. She completed 3 space missions. She was also in charge of the Chandra Telescope being deployed. We had the opportunity to meet her in 2019.

We had the honor to meet Cady Coleman, a chemist, United States Air Force Officer and NASA astronaut. She served as Chief of Robotics and was in charge of deploying the Chandra Telescope. She has also been an aquanaut. She served three space missions and lived on the I.S.S. for six months.

The Future of Aerospace

We believe that the employment of aerospace engineers will rapidly increase while NASA prepares to send people to the moon and to Mars. Sending humans to different places is a delicate procedure and will require precision to sustain human life and to detect lifeforms and water on other planets.

Conclusion

In conclusion, aerospace engineering brings many rewards, but is also a very challenging job. An aerospace engineer must pay attention to all details or many dangers might occur. Our time in VEX robotics has helped teach us how important designs and accuracy are when developing a new robotic project. Mars rovers are controlled by remote control, when we compete in robotic drives, this may be preparing us for driving rovers for NASA in the future.

Sources for Aerospace Engineering

- What is NASA? by Sarah Fabiny
- Who was Neil Armstrong? By Roberta Edwards
- Endurance by Scott Kelly, astronaut
- U.S Bureau of Labor Statistics website
- NASA website

Citations for Aerospace Engineering

- Team 39402A, Hub City Stackers
  - Marleigh Christensen
  - Kenzie Leggett