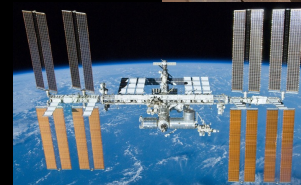
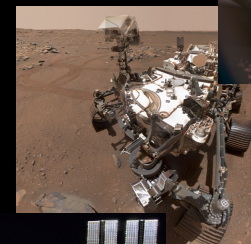
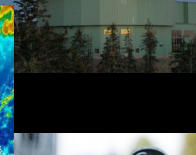
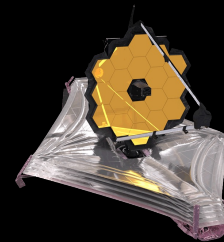
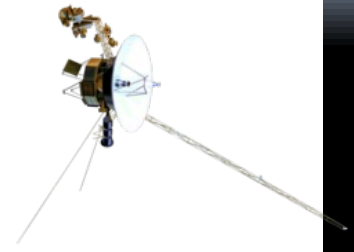


Space Exploration Technologies

- What is Space Exploration and why is it important?
- Early Space Exploration Technologies
- Telescopes – Earth-bound, Hubble, and Webb
- Spacecrafts - shuttles, rovers, and space stations
- Satellites
- How Space Technology Helps Us Understand Space
- Space Technology on Earth
- The Future of Space Exploration



Preview File

Please enjoy this preview of your Student Version of the presentation. Please note within this sample file:

- Some slides appear blank because they have been removed
- Student versions have portions of the text removed which is given in the teacher version and appear as _____ which the students are to fill in
- Other slides may have on them, this represents writing that has been removed on this sample

**The paid full version of your resource includes
both Google Slides and PowerPoint and is
Google Classroom Ready**



What is Space Exploration?

- _____
- It involves observing space as well as sending spacecraft, satellites, and even humans into space



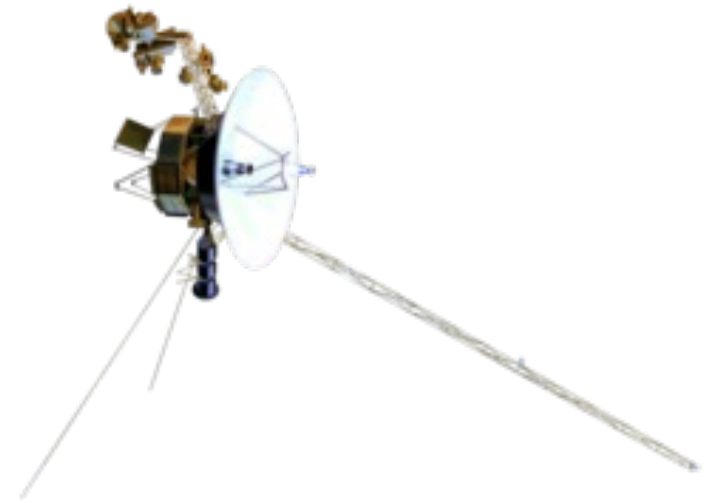
Why is Space Exploration Important?

- Increases our knowledge of the universe
- Leads to new technologies we use on Earth
- _____
- Helps us understand and protect our own planet



Early Space Exploration Technologies

- Rockets: Used to launch spacecraft into space
- _____
- Space probes: Unmanned spacecraft sent to explore other planets and moons



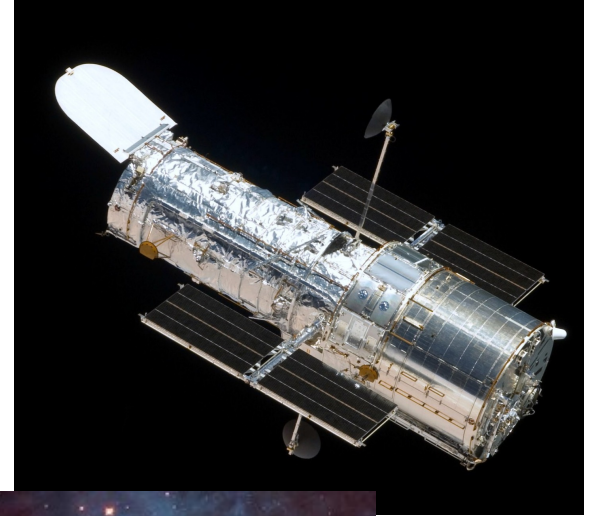
Voyager 1 – space probe

- Launched 1977
- 1979 Jupiter flyby
- 1980 Saturn flyby
- 2012 exited our solar system and entered interstellar space

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Hubble Space Telescope

- Launched in 1990 and orbits Earth at about 540 km (340 miles) above the surface
- Takes super clear pictures of stars, galaxies, and planets without Earth's atmosphere getting in the way
- _____
- Still working today and has taken over 1 million observations of space

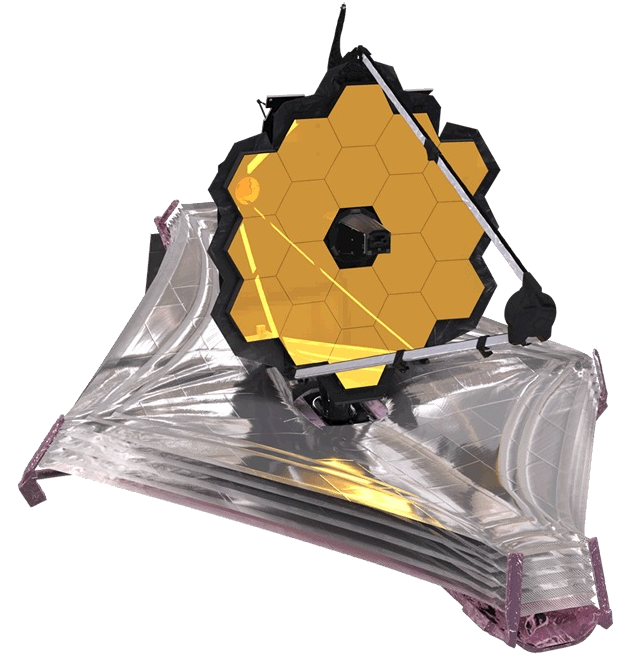


One of Hubble's most famous images, Pillars of Creation, shows stars forming in the Eagle Nebula.

James Webb Space Telescope

- Launched in 2021 and orbits the Sun about 1.5 million km (1 million miles) from Earth

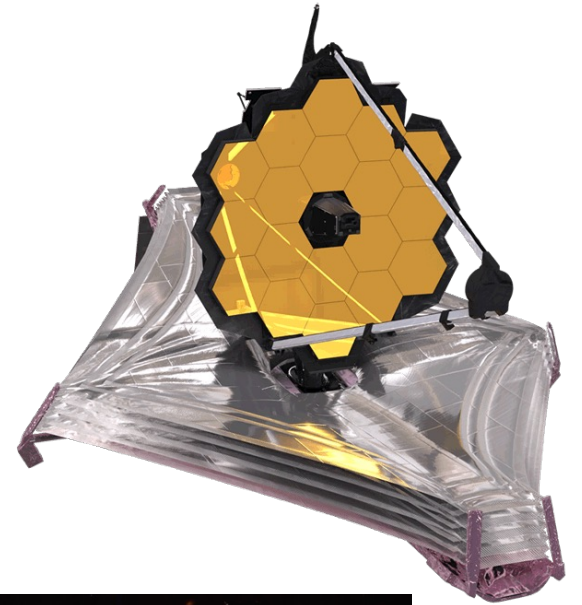
- _____



"Cosmic Cliffs" in Carina

James Webb Space Telescope

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Southern Ring Nebula

Spacecrafts

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Reusable Rockets

- Many companies like SpaceX are looking for ways to get to space cheaper

- _____



Communication Satellites

- _____
- Satellites serve many important functions
- Some are as small as a shoebox while others are as big as a school bus
- Most satellites are about 2,000 km or less above Earth's surface



Communication Satellites

Earth satellites have many functions.

1. Communication

- Relay telephone calls, TV signals, and internet data around the world



2. Navigation

- GPS satellites help people find their way on Earth



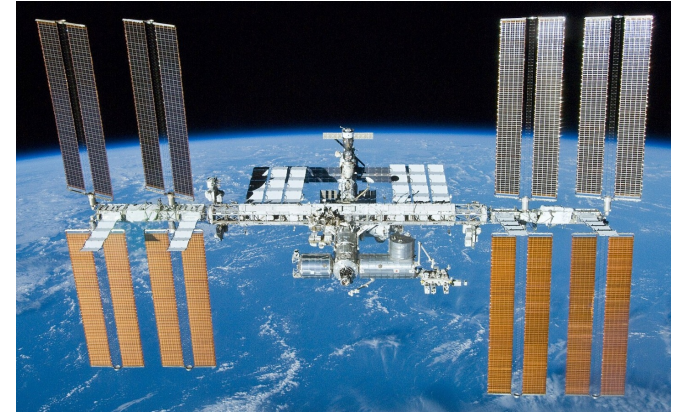
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Communication Satellites

5. Scientific Research

- The International Space station's role is largely for research
- Study space weather, like solar flares
- _____



The International Space Station



Science Officer Michael Foale conducts experiments on the effects of Microgravity



Communication Satellites

6. Military and Defense

- Used for communications
- _____



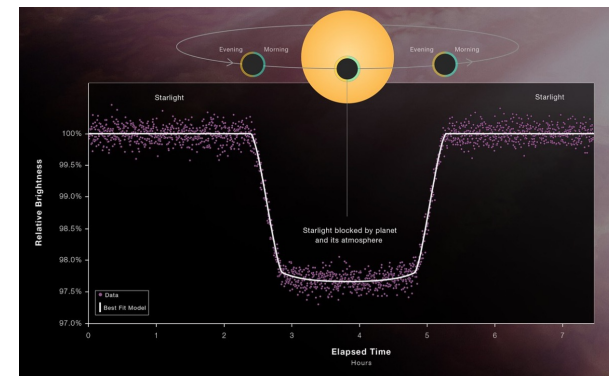
Illustration of the Defense Satellite Communications System which is a United States Space Force satellite that provides the United States with military communications

How Space Technology Helps Us Understand Space

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Orion Nebula



Graph showing how light from a star is blocked by a passing planet – NASA, James Webb telescope.

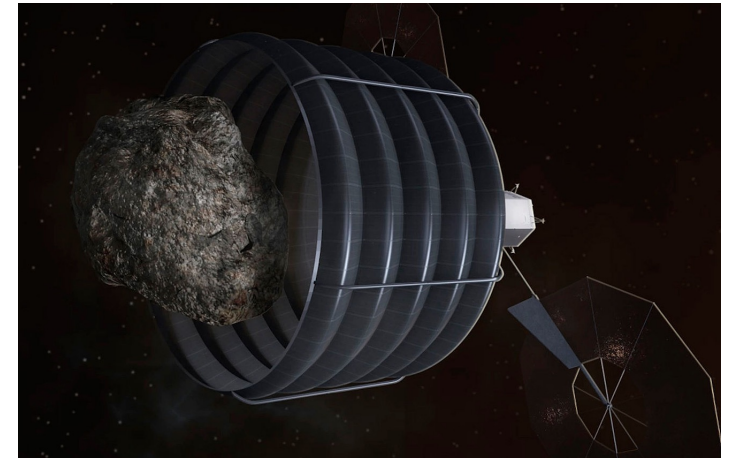
Space Technology on Earth

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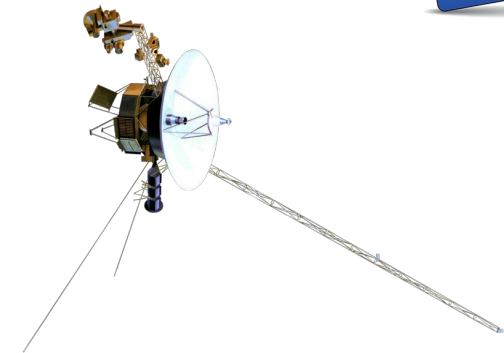
The Future of Space Exploration

- Mars missions: Plans to send humans to Mars
- Asteroid mining: Extracting valuable resources from asteroids
- Interstellar probes: Exploring beyond our solar system

- _____



Artist image of a future asteroid-capturing satellite.



Voyager 1 is a space probe

Discussion Questions

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Review

- Space exploration technologies have greatly expanded our understanding of the universe.
- These technologies continue to improve, allowing us to explore further and learn more.
- Space exploration inspires us and leads to innovations that benefit life on Earth.