

Student Name \_\_\_\_\_ Period \_\_\_\_\_

Date Launched	Mission Name	Destination	Type of space probe/craft	Purpose
<b>June 18, 2009</b>	<b>LRO (Lunar Reconnaissance Orbiter)</b>	<b>Moon</b>	<b>Orbiter</b>	<b>To map the surface of the moon like never before</b>
<b>May 5, 2018</b>	<b>Insight (Interior Exploration using Seismic Investigations, Geodesy, and Heat Transport)</b>	<b>Mars</b>	<b>Lander</b>	<b>To study Mars' interior structure to learn about the early formation of rocky planets in our solar system.</b>
<b>Will be launched from French Guiana in 2021</b>	<b>James Webb Telescope</b>	<b>Orbit the Sun between Earth and the Sun</b>	<b>Orbiter</b>	<b>Webb is different from Hubble. Webb will primarily look at the Universe in the infrared, while Hubble studies primarily at the visible and ultraviolet wavelengths. Webb has a much larger mirror than Hubble. The larger light collecting area means that Webb can look farther back into time than Hubble. Webb will orbit the Sun rather than Earth</b>
<b>Aug. 5, 2011</b>	<b>Juno</b>	<b>Jupiter</b>	<b>Orbiter</b>	<b>To understand the origin and evolution of Jupiter because Jupiter is covered by a thick atmosphere and we aren't sure what is underneath it.</b>
<b>Sept. 8, 2016</b>	<b>Osiris Rex</b>	<b>Asteroid 101955 Benu</b>	<b>Lander</b>	<b>The mission's main goal is to obtain a sample of at least 60 grams from 101955 Benu, a carbonaceous near-Earth asteroid, and return the sample to Earth for a detailed analysis</b>
<b>Aug. 12, 2018</b>	<b>Parker Solar</b>	<b>Our Sun</b>	<b>Orbiter</b>	<b>Flying into the outermost part of the Sun's atmosphere, for the first time, Parker Solar Probe will do a combination of measurements and imaging to revolutionize our understanding of the corona and expand our knowledge of the origin and evolution of the solar wind. It will also make critical contributions to our ability to forecast changes in Earth's space environment that affect life and technology on Earth.</b>
<b>Early 2020s</b>	<b>Orion</b>	<b>Deep space</b>	<b>Capsule to take astronauts further into space</b>	<b>Orion spacecraft is designed to meet the evolving needs of our nation's deep space exploration program for decades to come. Orion will serve as the exploration vehicle that will carry the crew to space, provide emergency abort capability, sustain astronauts during their missions and provide safe re-entry from deep space return velocities.</b>

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June 20, 2008	Jason 2	Earth's orbit	Orbiter	Jason 2 is an Earth satellite designed to make observations of ocean topography for investigations into sea-level rise and the relationship between ocean circulation and climate change. The satellite also provides data on the forces behind such large-scale climate phenomena as El Niño and La Niña.
April 7, 2001	Mars Odyssey	Mars	Orbiter	Its mission includes making the first global map of the amount and distribution of many chemical elements and minerals that make up the Martian surface.
Dec. 14, 2009	NEO WISE	Earth's Orbit	Orbiter (satellite)	Discover and catalog everything from asteroids to the coolest and dimmest stars to the most luminous galaxies. The spacecraft was later repurposed to search for Near-Earth Objects.
TBD	ARM (Asteroid Redirect Robot Mission)	Near Earth Asteroids	Flyby, Orbiter, AND Lander	To visit a large near-Earth asteroid, collect a multi-ton boulder from its surface, and redirect it into a stable orbit around the moon. Once it's there, astronauts will explore it and return with samples in the 2020s. This Asteroid Redirect Mission (ARM) is part of NASA's plan to advance the new technologies and spaceflight experience needed for a human mission to the Martian system in the 2030s. Ended in 2017 by Congress.
2020	NEA Scout	Asteroid Belt and beyond into outer space	Flyby	NEA Scout is a robotic reconnaissance mission that will be deployed to fly by and return data from an asteroid representative of NEAs that may one day be human destinations.
June 2023	Europa Clipper	Jupiter's moon, Europa	Orbiter	NASA's Europa Clipper will conduct detailed reconnaissance of Jupiter's moon Europa and investigate whether the icy moon could harbor conditions suitable for life.
2022	Psyche	Metal Asteroid Orbiting in the Asteroid Belt	Flyby/Orbiter	The purpose is to examine a world that is not made of ice or rock, but instead made of metal.

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2020	Lunar Flashlight	Moon	Orbiter	The purpose is to map the lunar's south pole for volatiles (ice deposits) and demonstrate several technological firsts, including being the first CubeSat to reach the Moon, the first mission to use an 80 m <sup>2</sup> solar sail, and the first mission to use a solar sail as a reflector for science observations.
Sometime July-August 2020	Mars 2020	Mars	Lander/Rover	The purpose is to study Mars' Habitability, Seek Signs of Past Microbial Life, Collect Samples, and Prepare for Future Human Missions.
March 2019	Deep Space Atomic Clock	Earth's Orbit	Clock/Orbiter	The purpose of this technology is designed to improve navigation of spacecraft to distant destinations and enable collection of more data with better precision and help eliminate two-way tracking. Normally a spacecraft could use a signal sent from Earth to calculate position and return the signal and wait for commands from the ground, a process that can take hours, but this Atomic Clock would decrease this time.