

Group Activity for Spacecraft 3D

| Spacecraft | Purpose | Unique Characteristics |
|---|---------|------------------------|
| Mars Odyssey | | |
| Mars Reconnaissance Orbiter | | |
| Curiosity | | |
| Mars Science Laboratory (MSL) Descent Stage | | |
| Mars Exploration Rover | | |
| MAVEN (Mars Atmospheric and Volatile EvolutionN) | | |

Some of the spacecraft are rovers and some are orbiters. What are the differences in what their purpose?

What characteristics are different between the rovers and the orbiters?

One of the spacecraft is neither a rover nor an orbiter but has a different role altogether. Which spacecraft is it and what is its role?

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| Mars Odyssey | mapped the amount and distribution of many chemical elements and minerals that make up the Martian surface | Captures data from the landers and rovers on Mars |
| Mars Reconnaissance Orbiter | Studying Mars in detail with a host of scientific instruments such as cameras, spectrometers, and radar used to analyze the landforms, stratigraphy, minerals and ice of Mars. | Captures data to help future spacecraft by monitoring Mars' daily weather and surface conditions to determine future landing sites |
| Curiosity | Does Mars have places (habitats) that could have supported small life forms called microbes? | A rover with robotic exploration of the surface of Mars |
| Mars Science Laboratory (MSL) Descent Stage | Carried Curiosity to the surface of Mars; to accommodate this advanced mission, engineers designed a sky-crane method that to lower the Curiosity rover to the surface. | A sky crane to safely land Curiosity on the surface of Mars without crashing |
| Mars Exploration Rover | Spirit's instruments found rocks containing minerals that can only form in the presence of water and deposits of nearly pure silica that could have come from the interaction of water and volcanic activity in a hot-springs like environment. Opportunity found evidence for clay minerals formed in a more neutral pH environment that might have been conducive to life. | A roving field geologist for gathering data on the surface to study minerals that could only form with the presence of water |
| MAVEN (Mars Atmospheric and Volatile EvolutionN) | to determine the role that loss of atmospheric gas to space played in changing the Martian climate through time. Where did the atmosphere and water go? | Solving Mars' climate mystery of where the water and atmosphere went |