

NASA's Viper mission

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In news- NASA will launch its **Volatiles Investigating Polar Exploration Rover, or VIPER**, in 2023 to get a closer view of the Moon's South Pole and evaluate the concentration of water as well as other potential resources on its surface.

Key updates-

- NASA is undertaking the mission to understand if it is possible for human life to sustain on the Moon, by using locally available resources.
- The **VIPER mobile robot** is NASA's **first mobile robotic mission to the Moon**, and the **first resource mapping mission on any other celestial body**.
- NASA's **Commercial Lunar Payload Services (CLPS)** will be providing the launch vehicle and lander and it is going to be a **100-day mission**.
- VIPER measures 5 feet by 5 feet and weighs 430 kilograms.
- VIPER will be the largest and heaviest payload delivered by a CLPS provider.
- The **Moon rover will directly analyse the water ice on the surface and sub-surface** of the celestial body.
- The VIPER will also evaluate the same at varying depths and temperatures within four main soil environments on the moon.
- It will transmit the data to Earth which will then be utilised in the creation of resource maps.
- It will also help scientists determine the location and concentration of frozen water on the Moon and varied forms such as ice crystals or molecules chemically bound to other materials.
- VIPER's findings will inform future landing sites under the Artemis program by helping to determine locations where water and other resources can be harvested to

sustain humans over extended stays.