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Korea's lunar orbiter begins moon flyby on Dec. 17

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The Danuri, Korea's domestically developed lunar orbiter, will slow down its speed on Saturday to be captured by lunar gravity as part of its plan to enter the moon's orbit, according to the science ministry and the Korea Aerospace Research Institute (KARI), Thursday.

Carried by SpaceX's Falcon 9 rocket, the Danuri was launched from Cape Canaveral Space Force Station in Florida, the United States on Aug. 5, and is scheduled to enter the moon's orbit at the end of December.

To enter the orbit of the moon, the Ministry of Science and ICT said

the Danuri will try to slow down its speed five times from Dec. 17 to Dec. 28, adding that it will be confirmed on Dec. 29 whether it has entered the lunar orbit.

"The Danuri flew a total of 5.96 million kilometers on a preprogrammed ballistic lunar transfer trajectory toward the moon after its launch on Aug. 5. It will approach a distance of about 108 kilometers from the moon on Dec. 17. After going through five lunar orbit entry maneuvers from Dec. 17 to Dec. 28, it is scheduled to settle into the moon's orbit, which is 100 kilometers above the moon," the ministry said.

The science ministry added that the first lunar orbit entry pro-

cess could be tricky and the most important one to ensure that Danuri is stably captured by lunar gravity while not flying past the moon. The time at which the Danuri will attempt the moon flyby is 2:45 a.m. on Dec. 17.

"During this process, the Danuri will operate a thruster for around 13 minutes to decelerate its speed from about 8,000 kilometers per hour to 7,500 kilometers per hour to reach at its target position," the ministry explained.

After it is confirmed to have successfully entered lunar orbit, the Danuri will conduct scientific missions for a year from January to December of 2023.

The missions the lunar orbiter will

carry out include finding a spacecraft moon landing site, measuring the magnetic field and gamma rays and testing space-based internet communication. The Danuri weighs 678 kilograms and is equipped with five pieces of observation equipment developed using Korean technology, as well as a ShadowCam device from the U.S. National Aeronautics and Space Administration (NASA) that can observe the darkest parts of the moon's surface.

The science ministry also unveiled a photo of the earth and the moon, taken by the Danuri on Nov. 28. The ministry added that the photo was taken at a time when the earth and the moon looked similar in size when viewed from the Danuri.