

Europa Mission Research Assignment 2

Europa Mission Details

<https://europa.nasa.gov/mission/about/>

Visit the website above and fill in details of the upcoming Europa Mission, featuring the Europa Clipper.

1. What is the launch date?
2. What will this mission accomplish?
3. How many times will the Europa Clipper spacecraft fly by Europa closely?
4. What is the size of the spacecraft?
5. What will the payload include?
6. What is the purpose of the thermal instrument?
7. How will the Europa Clipper's equipment be protected from the radiation trapped in Jupiter's magnetic field?

NASA's Europa Clipper official page

<https://europa.nasa.gov/>

Visit the website above. Explore this website as you learn about the upcoming mission plans to travel to Europa in the 2020s. Then complete the exercise below.

Name 2 things you learned that you didn't know from your previous Europa assignments.

What did you find the most interesting or surprising about the Europa mission?

Under Galleries, click Videos. Choose any 2 and summarize what you learned.

Video Name:

Summary:

Video Name:

Summary:

ANSWER KEY

What is the launch date? **TBD – sometime in the 2020s**

What will this mission accomplish? **It will conduct a detailed survey of Europa to determine whether the icy moon could harbor conditions suitable for life**

How many times will the Europa Clipper spacecraft fly by Europa closely? **45**

What is the size of the spacecraft? **20 feet high, with solar arrays that will stretch 72 feet long**

What will the payload include? **Cameras and spectrometers to produce high-resolution images and compositional maps of Europa's surface and thin atmosphere, an ice-penetrating radar to search for subsurface water, and a magnetometer and gravity measurements to measure the moon's magnetic field and unlock clues about its ocean and deep interior.**

What is the purpose of the thermal instrument? **To pinpoint locations of warmer ice and perhaps recent eruptions of water, and instruments to measure the composition of tiny particles in the moon's thin atmosphere and surrounding space environment.**

How will the Europa Clipper's equipment be protected from the radiation trapped in Jupiter's magnetic field? **Europa Clipper's payload and other electronics will be enclosed in a thick-walled vault; vault walls — made up of titanium and aluminum — will act as a radiation shield against most of the high-energy atomic particles, dramatically slowing down the aging effect that radiation has on the spacecraft's electronics.**

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