

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_



1. How does Europa compare in size with Earth's moon?

- It is smaller than Earth's moon.
- It is the same size as Earth's moon.
- It is larger than Earth's moon.
- The lecturer doesn't say.

2. How thick is Europa's icy surface believed to be?

- one mile
- many miles
- hundreds of feet
- only a few feet

3. How deep is Europa's ocean thought to be?

- many hundreds of miles
- thousands of miles
- about a hundred feet
- about a hundred miles

4. Which condition is mentioned that is necessary for life to thrive on Europa?

- a source of energy
- warm water temperatures
- a day and night cycle
- plants and animals

5. What is one of the purposes of the Europa clipper mission?

- to develop the European space agency
- to establish a moon base
- to find life
- to increase international space funding

6. How much will it cost to send spacecraft to study Europa?

- tens of millions of dollars
- perhaps billions of dollars
- almost a quarter of the EU total budget
- The lecturer doesn't say.

**Discuss these questions with a friend or classmate.**

1. Is it worth the cost to look for life in our solar system? Why? / Why not?
2. Do you think there may be alien life in the oceans of Europa? Why? / Why not?
3. Would you like to travel to Europa on holiday? Why? / Why not?
4. Why do humans like to explore?
5. What other places in our universe may have life?
6. How would you feel if alien fish were discovered on Europa? Why? Would you eat them at a sea food restaurant? Why? / Why not?

NAME: \_\_\_\_\_

DATE: \_\_\_\_\_



## Audio Script

Europa is a moon of Jupiter, that is believed to be one of the most promising places to look for evidence of extraterrestrial life, in our solar system. Europa is slightly smaller than Earth's moon, and is made up of a rocky core, surrounded by an ice layer, that is believed to be at least several miles thick.

One of the most interesting features of Europa, is the presence of a global ocean, that is thought to exist beneath its icy surface. This ocean is thought to be up to 100 miles deep and is believed to contain more water than all of the Earth's oceans combined. The existence of this ocean is supported by the presence of ice plumes that have been observed spewing from the moon's surface, as well as by the presence of a magnetic field, that is thought to be generated by the ocean's salty, conductive water.

The possibility of life existing in Europa's ocean has sparked the interest of scientists and space agencies around the world. It is thought that the ocean could provide the necessary conditions for life to thrive, such as a source of energy, a liquid medium for chemical reactions, and the necessary chemical elements. In addition, the presence of an icy crust could provide protection from the harsh radiation environment of Jupiter.

Despite the potential for life on Europa, the moon is a challenging place to study. Because its surface is covered in a layer of ice that is believed to be several miles thick, it is difficult to access the ocean below. However, NASA and other space agencies are planning a number of missions to study Europa, and search for signs of life.

In the coming years, NASA is planning to send a spacecraft called the Europa Clipper to conduct a detailed survey of the moon, and search for signs of life. The Europa Clipper mission will involve multiple flybys of the moon and will be equipped with a suite of instruments to study the surface and subsurface of the moon.

In addition to the Europa Clipper mission, there have also been proposals to send a lander or a submersible to Europa to study the moon's ocean more directly. These missions would be more challenging and would require more advanced technologies, but they could provide more conclusive evidence of the existence of life on Europa.

Overall, Europa is a fascinating, and mysterious, place, that continues to captivate the imagination of scientists and the general public alike. Its potential to host life, and the possibility of finding evidence of extraterrestrial life in our own solar system make it an important target for future exploration.

## ANSWER KEY

1. It is smaller than Earth's moon.
2. many miles
3. about a hundred miles
4. a source of energy
5. to find life
6. The lecturer doesn't say.