

Solar System Research Project

Name: _____

Due: Friday, August 31st

Research Question: What makes Earth suitable for life, and where else in the solar system might life exist?

Background:

The class slides for this unit cover the formation of the solar system, the planets, the Sun, and the conditions found on different worlds. **Your task is to use evidence from class notes, videos, and your own research to explain why Earth supports life and where scientists might search for life beyond Earth.**

Part 1: Why Does Life Exist on Earth?

There are many conditions that are thought to be necessary in order for a planet to support life, including the presence of liquid water, moderate temperatures, an atmosphere, energy input, protection from harmful radiation, and essential chemical elements.

Choose 4 of the conditions listed above and explain:

- What it is like on Earth
- Why it helps life survive
- What would happen if Earth did not have this condition

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Part 2: Comparing Earth to Other Worlds

Choose two planets where life would be unlikely to exist (Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune). For each planet, describe the:

- Surface
- Atmosphere
- Presence of water
- Temperature

And identify at least two reasons why life would have difficulty surviving there.

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Part 3: Where Should Scientists Search for Life?

Choose one location that scientists might explore for signs of life. Options:

- Mars
- Europa (moon of Jupiter)
- Enceladus (moon of Saturn)
- Titan (moon of Saturn)

Answer the following questions:

Why are scientists interested in this world?

What evidence suggests that life might be possible there?

If you were in charge of a space mission, what would you send to investigate? What would you hope to discover?

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Part 4: Final Reflection

Are life supporting planets like Earth rare or common in our universe?

Write a well-developed response using the evidence you collected in parts 1-3.