

What Life Needs Memory Card Game

To exist, life needs liquid water, nutrients and a source of energy, and protection. While the ways that organisms get their nutrients, energy sources, and protection can be different, ALL life as we know it needs WATER!

Earth is juuuuuuuuuuuuuuuust right! It is not too close to the Sun to be too hot for life, like Mercury and Venus. It is not too far from the Sun to be too cold for life, like Mars and the outer planets. It has a wonderful thick atmosphere that protects us from incoming radiation (unlike the thin atmosphere of Mars), but it is not too thick, like the atmosphere of Venus which traps too much heat and makes Venus too hot for life.

Mars- Mars once had liquid water on it, as dried river channels show us. Mars no longer has liquid water. The Martian polar caps do contain water ice and there probably is water ice under the surface. Mars has a very thin atmosphere that does not protect from solar radiation - but lots of bright Sunlight. Mars can be very windy (dust storms), and very cold (freezing temperatures on the warmest days).

Europa – a salty ocean lies beneath the icy surface. Europa may have deep-sea vents like on Earth. It is far from the Sun and has little Sunlight.

This memory activity will teach children what is necessary to sustain life in extreme environments. First, discover and explore what an extreme environment consists of by reading the background information below.

What You Need:

- ☀ Memory Cards
- ☀ Crayons
- ☀ Scissors
- ☀ Sheet of card stock



What to Do:

- ☀ Have your child color all squares on the card template.
- ☀ Cut out each square along the bold lines.
- ☀ Mix the playing cards and place them face down on the table.
- ☀ Have them pick two cards and place them face up on the table.
- ☀ If the cards do not match, turn them back over (face down)
- ☀ Have them continue trying to match two identical cards.

Parent Prompts:

Use the background information above to help your child investigate what all life needs and where life could possibly exist in our solar system.

- ☀ When they match the **Mars** cards ask them **“Could there be life on Mars?” Why?**
- ☀ When they match the **Earth** cards ask them **“What conditions allow life to exist on Earth?”**
- ☀ When they match the **Europa** cards ask them **“Could there be life on Europa?” Why?**
- ☀ When they match the **water** cards ask them **“What does all life need?”**
- ☀ When they match the **protection** cards ask them **“What protects you?” “Give me an example of what protects other creatures”.**
- ☀ When they match the **food** cards ask them **“Why do we need food?”**

Using a sheet of cardstock (any color), invite your child to create their own cards, cut them out and try to match them!

Memory Cards



Earth



Earth



Mars



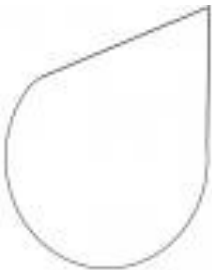
Mars



Europa



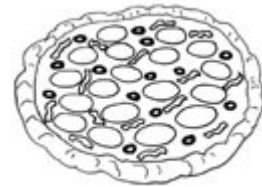
Europa



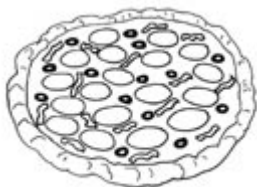
Liquid Water



Liquid Water



Food



Food



Protection



Protection