

Can Other Planets or Moons in Our Solar System Support Human Life?

With your partner, research to find out if other planets or moons in the solar system could possibly sustain human life. Make sure the planet contains or you can get somehow life essentials: water, oxygen, habitable temperature (somewhere near 60° F or 15° C), gravity similar to Earth's gravity, food or the ability to grow food, an atmospheric pressure close to or less than the Earth's, and a way to get energy.

Factors to consider:

- A. Is oxygen present in the atmosphere (if there is an atmosphere)? If not, how will oxygen be generated?
- B. Does the atmosphere have the correct pressure (close to the Earth's atmospheric pressure)? If not, how will your buildings provide pressure?
- C. Is water present either as ice or liquid water? If not, how will water be obtained?
- D. Is the planet's gravity similar to or less than Earth's gravity (you wouldn't want to have a gravitational field that would crush the human body)? If not, how will people overcome the problems of being in low or high gravity?
- E. Could the sun provide enough energy to power solar cells (or could you harvest some other form of energy such as heat, etc.)? If not, where else can you get energy?
- F. Does the planet/moon have a magnetic field to deflect solar radiation? If not, how will you protect people from the sun's radiation and radiation from space?
- G. Is the temperature on this planet or moon warm enough to keep people from freezing to death or is it cool enough to keep people from being fried?
- H. Is there a way to get or grow food?

As you find facts about possible planets in the solar system, fill out the table on the back with information you have discovered about each planet (or moon). You will use this data to make a claim about whether you think human life could be supported on another planet (or moon). See the example data for Mercury in order to understand how to fill out the table.

Read through this article to help you know what is good and bad about each planet/moon:

[Colonizing the Solar System - Advantages and Disadvantages](#)

Use the table on the next page to collect data that will help you know if a planet or moon could support life. This will help you make a decision on which planet or moon you will build your colony.

For each planet, moon, or dwarf planet, write the advantages and disadvantages for building a human colony there (in other words, what is good about the place and what is not good). Consider the questions listed on page 1 (Questions A-F above) to help you. You will then use this information to choose a new planet, moon, or dwarf planet for your new human colony. Look at the example for Mercury to help you know how to do this.

Things to consider - See Questions A - F on Page One (1)

Planet/Moon	Advantages and Disadvantages
Mercury	Advantages: - small so there is no problem with too much gravity - might be enough oxygen to use for humans - a little water found as ice at the poles - made of iron which could be used for make buildings - magnetic field to deflect solar radiation
	Disadvantages: - Way too hot to support life. - an atmosphere but it is VERY thin. - water is locked up as ice at the poles and may be hard to get - thin atmosphere, no surface pressure like Earth - sun is blasting it's atmosphere and materials into space
Moon	Advantages:
	Disadvantages:
Mars	Advantages:
	Disadvantages:
Enceladus	Advantages:
	Disadvantages:
Titan	Advantages:
	Disadvantages:
Europa	Advantages:
	Disadvantages:
Ceres	Advantages:
	Disadvantages:

Step 1. Select a planet or moon you think is the most habitable by humans. Make a claim stating which planet or moon you think would best support your human colony. USE COMPLETE SENTENCES.

Step 2. State your reasoning behind your claim you made in step 1. In other words, why do you think this planet or moon could support a human colony. List the reasons you chose this planet/moon here. USE COMPLETE SENTENCES.

Step 3. List the evidence you used to conclude that human life could survive on the planet or moon you chose (or planets or moons). In other words, what articles or websites did you use to find your evidence that helped you decide the place to colonize in question #1? The table on page 2 will help you make this list. USE COMPLETE SENTENCES.

Step 4. Using complete sentences,, state how you will get these resources or solve these problems:

- A. How will you get or generate oxygen?
- B. How will you protect people from low pressure? Suits? Pressurized buildings?
- C. How will you get water?
- D. How will you deal with low gravity? Exercise?
- E. How will you get energy? Solar panels or some other fuel?
- F. How will you protect people from the sun's harmful radiation? Special suits or shielded buildings?
- G. How will you get food? (VERY IMPORTANT)

