**8年级英语第28课时**

**《开启太空之旅—外星生命大猜想》学习指南**

**【学习目标】**

1. 能理清宇宙里天体之间的关系, 获取关于生命存在的四个必要条件；
2. 能推理分析火星是否有存在生命的可能性；
3. 能独立查找分析资料，并运用生命存在的必要条件，推理判断某一行星是否

有存在生命的可能。

**【学习任务单】**

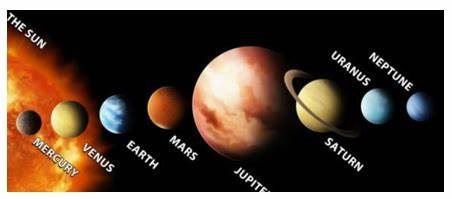
**任务一: 课前预习：浩瀚的宇宙中都有哪些天体? 阅读材料一，看看宇宙如何**

**构成的，把天体名称的单词填写在相应的方框中吧!**

材料一：**What’s In The Universe?**

About 4.6 billion years ago, way after [The Big Bang](https://www.ouruniverseforkids.com/the-big-bang.html) happened and started to create gases (气体) and stars, the solar system began to form (形成). There are 8 planets in the solar system that orbit (绕......运转) the sun, 160 moons orbiting (绕......运转) the 8 planets and 5 dwarf (矮的) planets, including the well-known Pluto. Yes, Pluto! Pluto was once seen as a planet, but is now classed as a dwarf planet.

The 8 planets that orbit (绕......运转) the sun in our solar system in order starting from the sun are:

1. Mercury
2. Venus
3. Earth
4. Mars
5. Jupiter
6. Saturn
7. Uranus

8. Neptune

A way of remembering these planets for your school test, or just as a good exercise, is the following saying.

###### ‘My Very Excellent Mother Just Served Us Noddles’

And this is the order in which these planets are in starting from closest to [the sun](https://www.ouruniverseforkids.com/our-star-the-sun/) to the furthest. Remember the saying, and have a go at naming the solar system planets off by heart.

In recent years and with the development in technology, we are discovering new planets almost all the time that exist (存在) outside of the solar system. So there are planets inside of our solar system and planets outside of our solar system. The solar system is a small part of a larger group of stars and planets, called the Galaxy or the Milky Way. There are billions of stars in the Galaxy, and our sun is only one of them. Scientists have also discovered many other galaxies in the universe, which are in different shapes. They are very far away and even the nearest one called Andromeda is 15 million million million miles away from the very edge of the Milky Way. So how large is the universe? It’s impossible to imagine.

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| solar system, universe, star, the Galaxy/Milky Way,  other systems, planet, moon, other galaxies |

**任务二: 宇宙中存在生命吗？外星存在生命有哪些必要条件呢？阅读材料找一找，并完成表格吧！**

材料二：**Necessary Conditions (条件) For Life On Other Planets?**

Are we alone in the universe? Is there life on other planets or moons? Scientists have been searching for decades (十年期) to see if there are signs (迹象) of life outside the Earth. To answer this question, we must take a look at what conditions (条件) are necessary for life to exist (存在) in the first place.

Life requires (要求) a lot of conditions to form (形成) and sustain (维持). Based on what we know about life on Earth, we can decide at least four main requirements.

The first requirement is carbon (碳), which is the only chemical (化学物质) that can help to form (形成) DNA or protein (蛋白质).

Another main requirement is liquid (液体的) water, which is necessary for many chemical reactions (化学反应). Liquid water allows for chemicals to dissolve (溶解) into smaller parts and travel in and out of cells (细胞).

The distance (距离) from its star is also an important condition (条件). If a planet is too close or too far away from its star, the temperature will be too high or too low, which will stop life forming (形成) or sustaining (维持). What’s more, the proper distance from its star can make sure the planet can be provided with enough energy (能量) for life to grow.

Fourth, atmosphere (大气) plays an important role in life existence (存在). It keeps the UV radiation (紫外线辐射) from a sun-like star out, while still keeping the planet warm.

If a planet meets the above four requirements (要求), then, there is a big chance you can have an alien (外星人) friend in the near future.

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| **Necessary conditions** | **Why they are necessary** |
| 1. carbon | It helps form \_\_\_\_\_\_\_\_ and protein. |
| 1. \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | It helps chemicals react with each other to form life. |
| 1. \_\_\_\_\_\_\_\_\_\_ from its star | It can provide energy and the proper \_\_\_\_\_\_\_\_\_\_\_\_ for life. |
| 1. atmosphere | It can protect the planet from the UV radiation and keep the planet \_\_\_\_\_\_. |

**任务三: 为了探索生命，科学家已经做出了哪些努力？阅读材料并填写表格吧！**

材料三：**How Much Have Scientists Explored So Far?**

Scientists have always asked the question: with so many stars in the universe, are we alone, or is there life out there in space? This is a good question, and it deserves a good answer! In order to search for the answer, a lot of efforts have been made to explore the vast and mysterious universe.

So far, scientists have sent spaceships to a lot of outer planets in our solar system, including Mars. They have even sent spaceships to travel outside the solar system. However, no spaceship has travelled far enough to reach other stars in our Galaxy. Although no signs of life haven been found, scientists are still hoping to hear from outer planets one day.

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| 1. What influence (影响) **have** these explorations **made** on humans? |
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| 1. How much **have** scientists **explored** so far? |
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3.（1）Which spaceship **has travelled** farthest outside the solar system?

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

（2）How long **has** the spaceship **travelled** in the outer space?

It \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ in the outer space.

（3）What does the spaceship carry? Why does the spaceship carry it?

It carries a golden \_\_\_\_\_\_\_ with humans’ \_\_\_\_\_\_\_ to greet

the aliens (外星人).

**任务四：火星为什么引起所有科学家的关注？火星上会不会存在生命？阅读材料，完成表格，寻找答案吧！**

材料四：**Is There Life on Mars?**

Mars is the fourth planet from [the sun](https://www.ouruniverseforkids.com/our-star-the-sun/). It has two small moons, Phobos and Deimos. The distance (距离) from the sun to Mars is over 224 million km. For years, people have wanted to know if there is life on Mars. There are no obvious signs (迹象) of life. But scientists are still trying to learn more. Some think there may have been life on Mars in the past.

Mars is the second-smallest planet in the solar system. The smallest is Mercury. Mars is red in color and has a thin layer (层) of atmosphere (大气), which does not trap (吸收) heat very well, so the planet can get very cold, not the coldest of planets in the solar system but very cold all the same. The temperature (温度) on Mars is on average (平均) -60 ℃, and can get a lot colder at times. At times in the summer near the Mars can reach 21℃. You may think it’s warm enough to live, however the atmosphere is very thin with carbon dioxide (二氧化碳) over 95%, with very little oxygen (氧气), and it’s difficult for the thin atmosphere (大气) to hold the heat on the surface until mid-night. Therefore, there is some water on Mars, but in the form of ice. Some scientists think Mars used to have liquid water. It may have even large seas. Mars orbits(绕......运转) the sun in 687 days, which means 1 Earth year on Mars is 687 days.

Astronauts have not been to Mars. Spacecraft have been sent there though. They have collected information about the planet. Scientists have a bigger dream. NASA plans to send astronauts to Mars in Mid-2030s. Will they be able to find life by then? Let’s wait and see!

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| **Basic Facts** | **Planet’s Name: Mars** |
| Color | red |
| Size | the 2nd smallest in the solar system |
| Distance from the sun |  |
| Temperature (average) |  |
| Water |  |
| Atmosphere |  |
| Carbon |  |
| The reasons why I think it's possible/impossible  to find life. |  |

**任务五：自主探究。除了火星，你认为还有哪个星球可能存在生命呢？查一查这个星球的资料，填写表格，分析判断这个星球是否可能存在生命并写出至少两条理由。温馨提示：如果你查找资料不方便的话，拓展资源里的资料可供使用喔！**

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| **Basic Facts** | **Planet’s Name: \_\_\_\_\_\_\_\_\_\_\_** |
| Color |  |
| Size |  |
| Distance from the sun |  |
| Temperature |  |
| Water |  |
| Atmosphere |  |
| Carbon |  |
| The reasons why I think it's possible/impossible  to find life. |  |

**任务六：根据中英文提示完成句子。**

1. 宇宙飞船已经到达了太阳系以外的星球。

The spacecraft \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ the planets outside the solar system.

1. “旅行者一号”刚刚从外太空传回了一张极其珍贵的照片。

Voyager 1 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ a precious photo from the outer solar system.

1. 宇航员还没有登陆过火星。Astronauts \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on Mar yet.