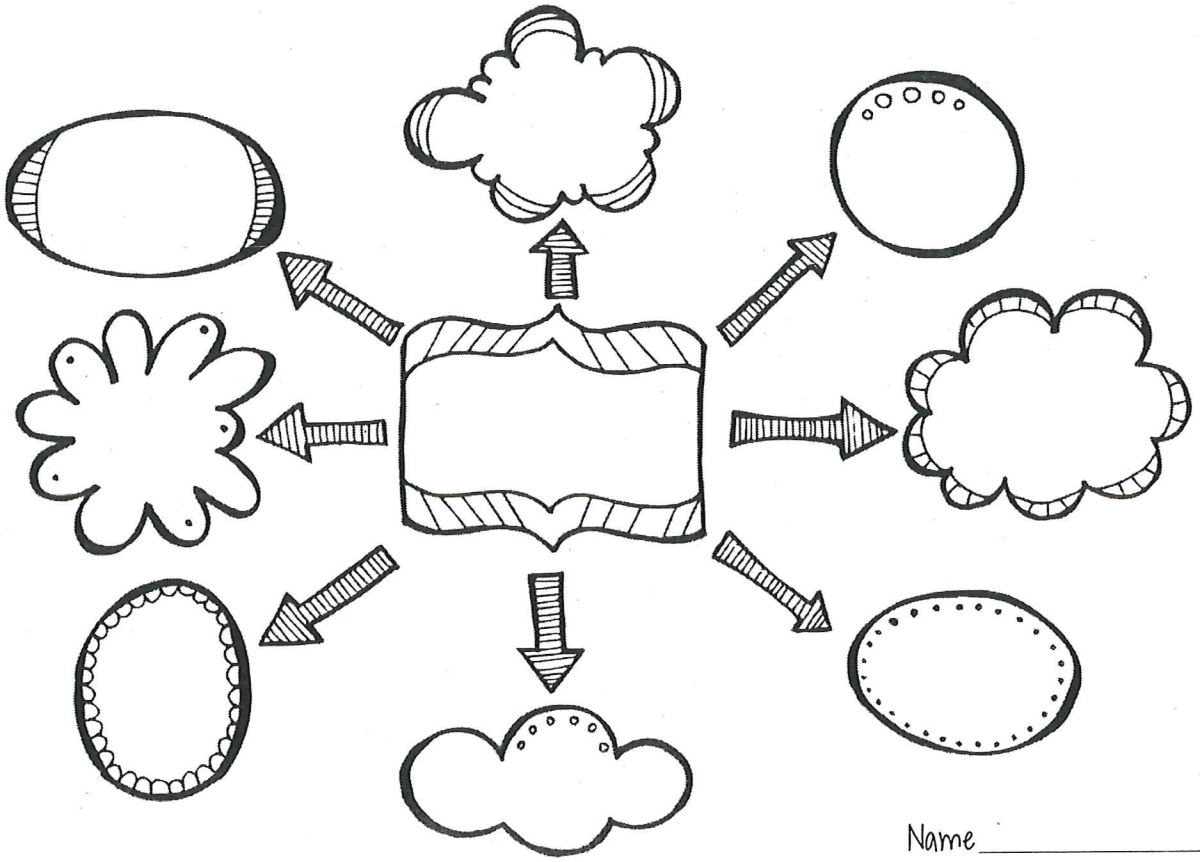
Description

No human has ever walked on another planet, but scientists hope to change this current reality into an untrue statement within the next fifty years. Which planet do we hope to set foot on first? Mars!

One of Earth's neighbors, Mars is the fourth planet from the sun. It is often described as the "Red Planet" because of its reddish appearance. Mars is the second smallest planet in the solar system; it is about half of the diameter of Earth. Despite its small size, it has several distinctive features. Mars is known to have the largest dust storms in our solar system, sometimes known to cover the *entire* planet! It is also home to Olympus Mons, the largest mountain in our solar system, and Valles Marineris, the largest canyon in our solar system. Two small moons orbit Mars.



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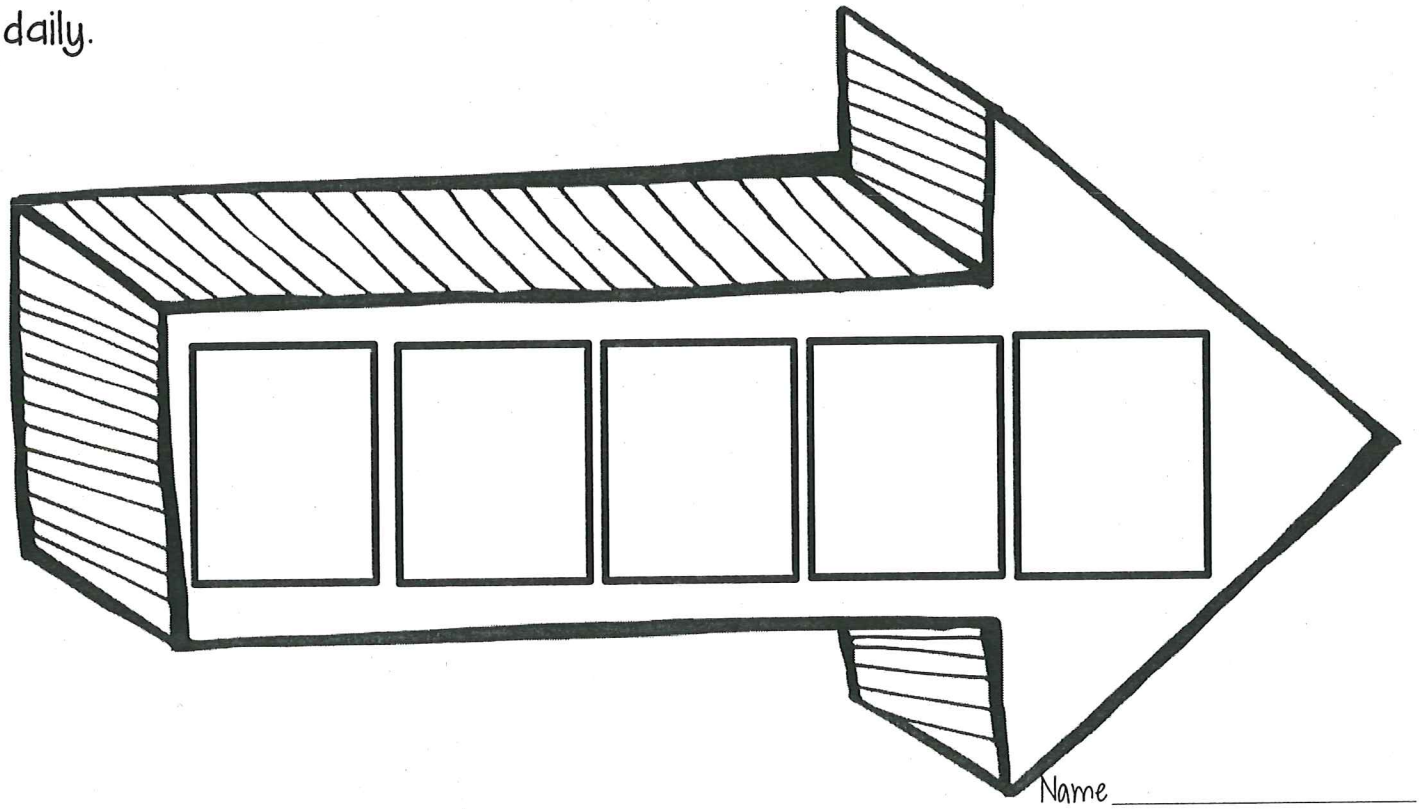
Sequence

Humans have been trying to explore Mars for several years. The Soviet Union was the first country to attempt to send a spacecraft to the Red Planet. They launched Marsnik 1 on October 10, 1960, but it failed to reach the planet. They tried again in 1971, but this time the lander *crashed* into Mars. The United States sent Mariner 9 to Mars just two weeks later. It became the first spacecraft to orbit another planet. In 1975, the United States landed a spacecraft, the Viking 1, on Mars- the first *successful* landing on the planet. In 1997, the United States landed a two-foot rover on Mars, making it the first wheeled vehicle to explore another planet. It operated for about two months. The most successful Mars mission to date began on August 5, 2012, when the United States landed a science laboratory, called Curiosity, on Mars. This rover, as big as a car, conducts science experiments daily.



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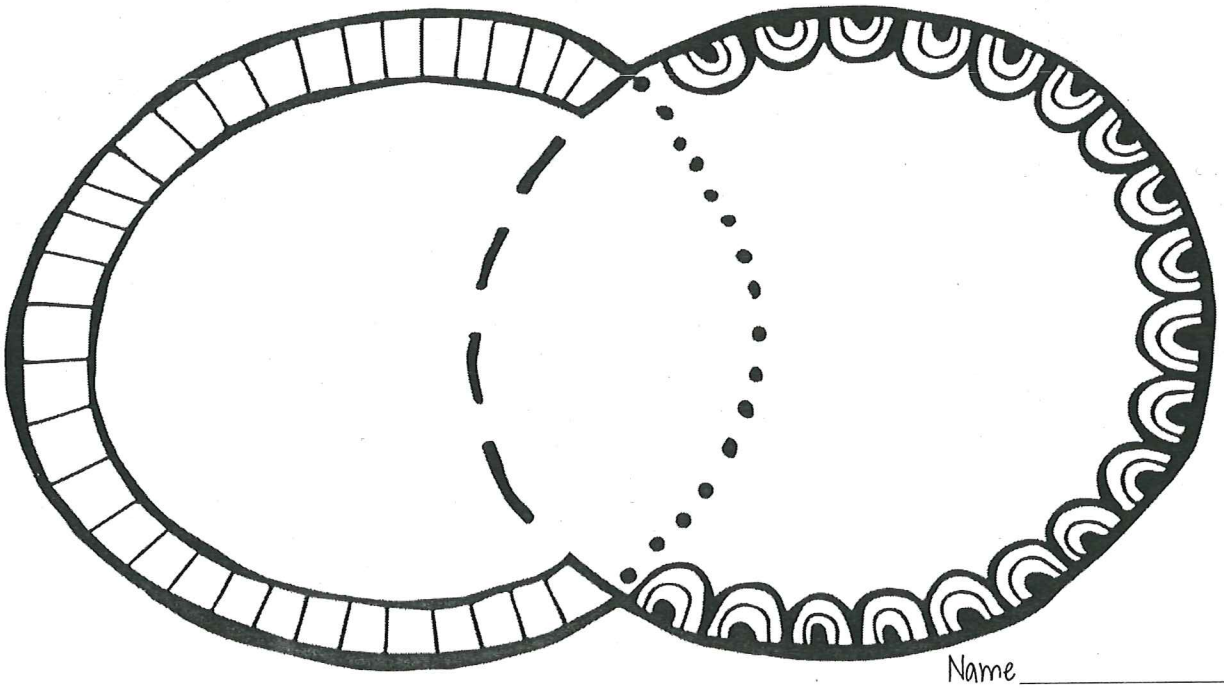
Compare & Contrast

Mars and Earth look very different. After all, the surface of Mars is covered with a red mineral (and therefore is called the Red Planet), while Earth is covered with blue oceans and green land. There are other significant differences, as well. Two moons orbit Mars, while one moon orbits Earth. It takes Earth about 365 days to orbit the sun, while it takes Mars 687 Earth days to make a complete revolution around the sun. The most obvious difference is that humans live on Earth, while no life is known to exist on Mars.

Despite these noticeable differences, unmistakable similarities exist, as well. Both Mars and Earth contain polar ice caps made up mostly of frozen water. Mars is tilted on its axis like Earth, causing it to have seasons similar to Earth seasons. Mars and Earth are also similar in terms of their day lengths. (A Martian day is just 39 minutes longer than an Earth day.)



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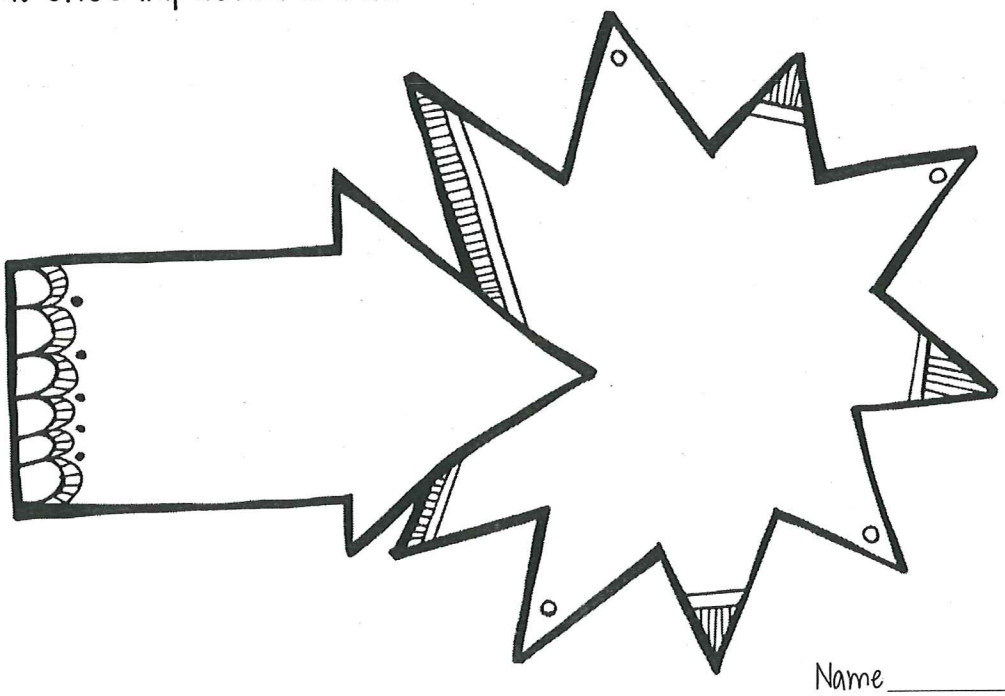
cause and effect

A quick glance at Mars reveals that its surface has been repeatedly pounded by asteroids, leaving thousands of craters behind. In fact, researchers recently counted 635,000 craters on Mars that were a kilometer or larger in diameter! In contrast, scientists know of about 180 such craters on Earth.

Why does Mars have so many more craters than Earth? Scientists report three main reasons why Earth has such a small number of craters on its surface. First, Earth has a thick atmosphere. (The atmosphere of Mars is less than 1% the thickness of Earth's atmosphere.) Because of this atmosphere, a lot of erosion occurs on Earth. Wind, water, and plants wear down the ground, eventually erasing any evidence of a once-existing crater. The second reason is tectonics. The Earth's crust is covered in plates that move. When plates shift, craters can become invisible. The third reason for the small number of craters on Earth is the presence of volcanoes. Volcanic flow has certainly filled in many craters over billions of years. These three features erase evidence of asteroids that once impacted Earth.



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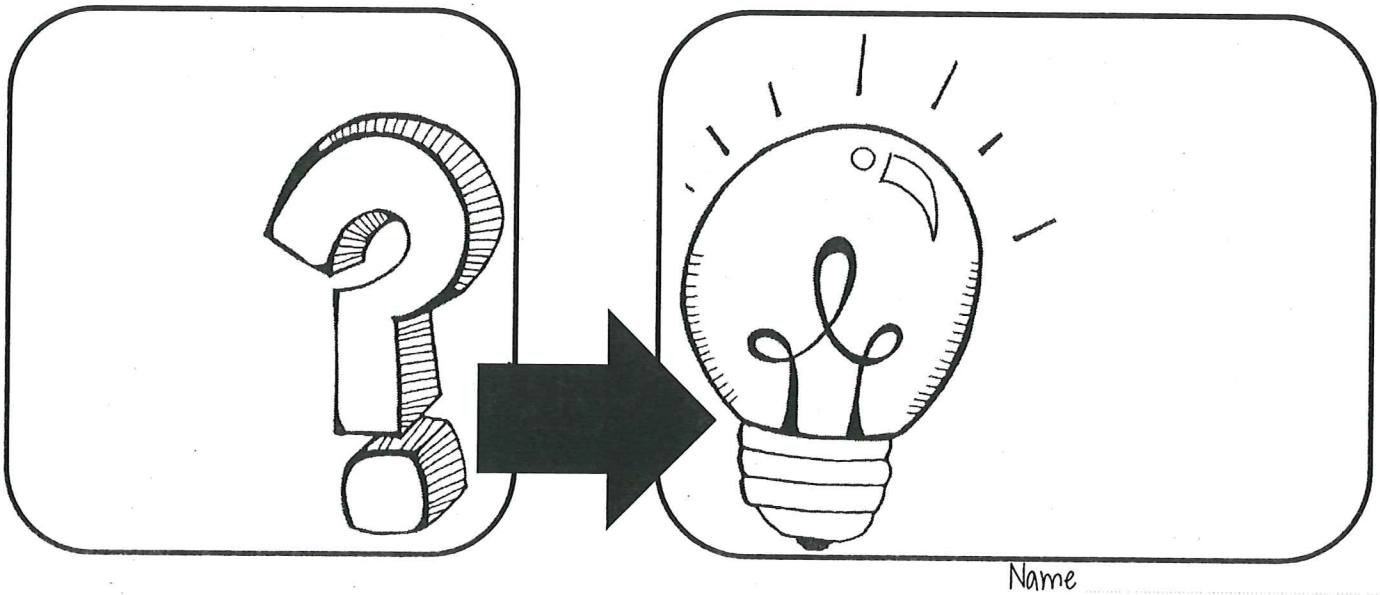
Problem & Solution

Humans are eager to explore Mars. However there are dozens of problems that need to be solved before humans can safely land there and live successfully. Just *one* of the many problems centers around dust. Mars is known to have the largest dust storms of any planet in our solar system. The dust grains are so tiny that they are unlike anything we have here on Earth. Scientists fear that the Mars dust could clog machinery, making them inoperable. To make matters worse, Martian dust is thought to be toxic. As the Mars rover, Curiosity, conducts soil experiments on the planet, scientists are learning that Martian soil is full of chemicals dangerous to humans.

Fortunately, scientists are working on a solution to the dust problem. A company called Paragon Space Development, which specializes in making life-support systems for space, is working to develop seals that will keep the dust out. Their engineers are doing extensive testing and experimentation to make sure these seals will work to protect humans and machines.



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