



Skills:

Can understand in detail lengthy, complex texts, whether or not they relate to their own area of speciality, provided he/she can reread difficult sections.

Can give clear, detailed descriptions of complex subjects.

Adults / teens

Group

1 Brainstorm and discuss:

1. In your opinion, what are the biggest challenges that humans will face when attempting to establish a permanent settlement on Mars?
2. Do you believe it is ethical for humans to colonize another planet like Mars? Why or why not?
3. What advancements in technology do you think will be necessary for successful long-term habitation on Mars?
4. Do you think moving to Mars could potentially solve some of the problems currently facing humanity on Earth, such as overpopulation and resource depletion?

2 Read the article (Page 2) and based on the context explain the meaning of the following words to your partner.

Student A

satellite extraterrestrials flyby
deployment rovers to tilt upon
physically shroud ice caps

Student B

magnetic field tint hazy
clog amateur staple
plains interfere with

Then listen to your partner explaining their list of words and check if their definitions are correct by using the glossary: page 3 (St. A) or 4 (St. B).

3 Fill in the gaps in the article with the following sentences. And then answer the questions.

- But with a gravity that's only 38 percent of Earth's
- Since then, there have been numerous successful missions to the Red Planet
- The surface of Mars offers up a few great opportunities for sightseeing
- The southern hemisphere is pointed away from the Sun when the planet is farthest from it
- Mars' temperature variations often result in powerful dust storms
- With these clear skies

- So, how would life on Mars differ from life on Earth according to the article?
- If given the opportunity, would you personally choose to move to Mars? Why or why not?

The idea of living on Mars has been a staple of science fiction since the 19th century, when American astronomer Percival Lowell speculated that the channels on the Red Planet were really ancient canals built by intelligent extraterrestrials.

But if this sci-fi dream were to ever become reality, what would it be like to actually live on Mars?

In 1965, NASA's Mariner 4 spacecraft completed the first Martian flyby, and six years later, the Soviet Union's Mars 3 lander became the first spacecraft to land softly on Mars. _____ (1), including the deployment of four Mars rovers — the now-defunct Sojourner and Spirit, and the still-active Opportunity and Curiosity — and NASA's Mars Odyssey spacecraft, which produced a map of the entire planet.

Like Earth, Mars has seasons due to the planet's tilt upon its axis, but it also has a secondary seasonal effect because of its highly elliptical orbit. _____ (2), resulting in far colder winters (and far hotter summers) than those in the northern hemisphere.

If you were to live in the northern hemisphere, you'd enjoy about seven months of spring, six months of summer, a little more than five months of fall and only about four months of winter. (A year on Mars is about 1.88 Earth years, and a day lasts a little more than 24 hours.)

The average temperature on Mars is minus 80 degrees Fahrenheit (minus 60 Celsius), but temps can range from minus 195 F (minus 126 C) in winter near the poles to 68 F (20 C) during summer near the equator. The temperatures can also change dramatically within a single week.

_____ (3), which can sometimes shroud the entire planet after just a few days. Though these storms probably wouldn't physically harm you, the dust could clog electronics and interfere with solar-powered instruments, Vasavada said.



"The No. 1 thing an astronaut would be worried about is the radiation from space," Vasavada said. Unlike Earth, Mars doesn't have a global magnetic field and thick atmosphere to protect its surface from radiation.

If you were to experience some unfortunate incident, a message sent home to Earth would take an average of 15 minutes to get there. While not terribly long, "it's definitely annoying enough that it'd be hard to Skype with anybody," Vasavada said.

_____ (4), the Martian night is full of stars. Amateur astronomers would want to look out for Mars' moons, Deimos and Phobos, which can come out at the same time. These satellites, both of which are far smaller than Earth's moon, can also partially eclipse the sun during the day.

The daytime sky generally has an orange tint to it because of all the dust, Vasavada said. Sunrise and sunsets look similar to those on Earth during a very hazy day, except that the area around the sun is blue.

_____ (5). "If we were to completely colonize Mars, there are certainly places that would become national parks," Vasavada said.



For example, Olympus Mons is the tallest volcano in the solar system, reaching 16 miles (25 kilometers) above its surrounding plains. Valles Marineris, on the other hand, is a giant system of valleys about the distance from Los Angeles to New York. And you'd also probably want to visit the Viking landers and Mars' tremendous polar ice caps, which sometimes get dry ice snowfall, Vasavada said.

_____ (6), getting around on Mars would be challenging at first. "Running and fast movements would probably take quite a bit of relearning," Vasavada said. "But it'd be better than moving around on the moon."

4 In pairs, discuss what a day/week of your life on Mars would be like. Try to use at least 3 words from Exercise 2.

Glossary (Student A)

magnetic field - a region around a magnetic object where its influence can be detected.

tint - a slight coloration or hue added to something.

hazy - unclear or indistinct due to lack of clarity or visibility.

clog - to block or obstruct with an accumulation of material.

amateur - someone who engages in a particular activity for pleasure rather than as a profession.

staple - a large or important part of something.

plains - large, flat areas of land without significant changes in elevation.

interfere with - prevent something from working properly.

Glossary (Student B)

satellite - an artificial object placed in orbit around a planet or moon for communication or scientific purposes.

extraterrestrials - beings from other planets or galaxies.

flyby - a close approach to a celestial object, such as a planet or moon, by a spacecraft.

deployment - the act of positioning or arranging something for use or action.

rovers - robotic vehicles designed to explore and collect data on other planets or moons.

to tilt upon - to lean or incline towards something.

physically shroud - to cover or envelop something physically.

ice caps - large masses of ice covering the polar regions of a planet or moon.

Correct answers

1

Created in “Discussion questions” .



Teacher tip

It is recommended to divide your students in groups of 3-4 or (if the group is small) have a frontal discussion.

2

Created in “Fill in the Gap” + “Word-Definition Matching”.

3

Created in the “Fill in the Gap” tool. The questions were created in “Open Questions”.

1. Since then, there have been numerous successful missions to the Red Planet
2. The southern hemisphere is pointed away from the Sun when the planet is farthest from it
3. Mars' temperature variations often result in powerful dust storms
4. With these clear skies
5. The surface of Mars offers up a few great opportunities for sightseeing
6. But with a gravity that's only 38 percent of Earth's

The answer to: “How would life on Mars differ from life on Earth according to the text?”

1. Seasons and Orbit: Mars has seasons similar to Earth due to its axial tilt, but these are influenced by its highly elliptical orbit. This causes extreme seasonal changes, especially in the southern hemisphere where winters are much colder and summers much hotter than in the northern hemisphere.
2. Temperature and Climate: The average temperature on Mars is around minus 80 degrees Fahrenheit, with a range that varies significantly, from as low as minus 195 F near the poles in winter to around 68 F near the equator during summer. These temperatures can change dramatically within a single week. Mars also experiences powerful dust storms that can cover the entire planet, potentially clogging electronics and interfering with solar-powered instruments.
3. Radiation: Mars lacks a global magnetic field and a thick atmosphere, unlike Earth, which means it doesn't offer the same level of protection from space radiation. This is a primary concern for astronauts.
4. Communication Delays: Communication with Earth would be delayed, with messages taking about 15 minutes to reach Earth. This delay would make real-time communication, like video calls, challenging.
5. Night Sky and Atmosphere: The Martian night sky is full of stars, offering views of its moons, Deimos and Phobos. The daytime sky generally has an orange tint due to the dust, with blue around the sun during sunrise and sunset.
6. Geographical Features: Mars offers unique sightseeing opportunities, like the Olympus Mons, the tallest volcano in the solar system, and Valles Marineris, a vast system of valleys. The planet's polar ice caps also present unique features, including occasional dry ice snowfall.
7. Gravity and Movement: With gravity only 38 percent that of Earth's, movement on Mars would require some adaptation. Activities like running and fast movements would need to be relearned, although it would be easier than moving on the Moon.



Teacher tip

It is recommended to divide your students in pairs (different from exercise 2) for this task.

4

The idea was generated in “Lead-in activities”.

Article source

