

# Mars and Earth Debate

## Purpose

The purpose of this activity is to engage in discourse regarding similarities and differences between the planets Mars and Earth respectively. Students will develop writing skills, as well as verbal communication skills.

Students will be able to

1. Note and communicate specific characteristics of Mars and Earth.
2. Debate the pros/cons, advantages/disadvantages of future colonization of Mars.

## Important Vocabulary (key terms in bold)

<b>Mars</b>	<b>Earth</b>	weather	temperature	atmosphere
climate	humidity	wind speed	water	terrain
blueberries	ozone	seasons	gravity	geology
barometric pressure	plate tectonics	erosion	<b>debate</b>	<b>pro</b>
<b>con</b>	topography	colonization		

## Mars and Earth Q & A: Stimulating Thought

Students complete a brief Q & A form about Mars and Earth, in preparation for further discussion.

(\*\* See below for activity sheet and answer key.)

## Debate

Students use information learned to this point to develop arguments regarding the possibility of Mars' colonization in our future. (If necessary, further research can be done.) Students choose debate teams randomly, and flip a coin to determine which team will be pro colonization and which will be against it. A discussion of the rules of debate, etc. should precede this activity. This activity will take several class sessions—students will organize, formulate arguments, and practice delivery and other debate techniques before the actual debate takes place.

## MARS AND EARTH Q & A: STIMULATING THOUGHT

### Key

1. Compared to Earth, Mars is  
C) farther from the Sun and having a thinner atmosphere.
2. One reason that scientists in the early 1900s thought that Mars might have life was that...  
B) there seemed to be canals.
3. Which of the following best describes the atmosphere of Mars, as we understand it today?  
D) mostly carbon dioxide, with a pressure much less than Earth's
4. Which of the following best describes the surface of Mars, as we understand it today?  
A) heavily cratered, with giant volcanoes
5. Which of the following is the best evidence that life might be possible on Mars?  
B) The noontime temperature reaches 20 degrees Celsius in places.  
[or C) Liquid water can exist in places on Mars—if good arguments are made.]
6. If Mars were moved closer to the Sun, which of the following would be the **least** likely to happen?  
D) The length of the Martian year would increase.

## MARS AND EARTH Q & A: STIMULATING THOUGHT

1. Compared to Earth, Mars is
  - A) smaller and hotter.
  - B) larger and brighter.
  - C) farther from the Sun and having a thinner atmosphere.
  - D) smaller, with greater gravity.
2. One reason that scientists in the early 1900s thought that Mars might have life was that
  - A) the Viking spacecraft sent back images showing patches that looked like moss.
  - B) there seemed to be canals.
  - C) large volcanoes were visible on the surface.
  - D) the atmosphere was made up mostly of oxygen.
3. Which of the following best describes the atmosphere of Mars, as we understand it today?
  - A) mostly oxygen, and much colder than Earth's
  - B) mostly carbon dioxide, with significant quantities of water ice
  - C) mostly nitrogen, with a pressure much less than Earth's
  - D) mostly carbon dioxide, with a pressure much less than Earth's
4. Which of the following best describes the surface of Mars, as we understand it today?
  - A) heavily cratered, with giant volcanoes
  - B) heavily cratered, with polar caps made of water ice
  - C) mountainous, with canals
  - D) covered with dried-up riverbeds, some of which are filled with water ice
5. Which of the following is the best evidence that life might be possible on Mars?
  - A) The length of a Martian day is similar to the length of an Earth day.
  - B) The noontime temperature reaches 20 degrees Celsius in places.
  - C) Liquid water can exist in places on Mars.
  - D) Seasonal changes in the appearance of Mars as seen from Earth indicate vegetation.
6. If Mars were moved closer to the Sun, which of the following would be the **least** likely to happen?
  - A) Ice currently in the form of permafrost would melt, releasing water vapor.
  - B) The orbital period of Mars would decrease.
  - C) The atmospheric pressure would increase.
  - D) The length of the Martian year would increase.