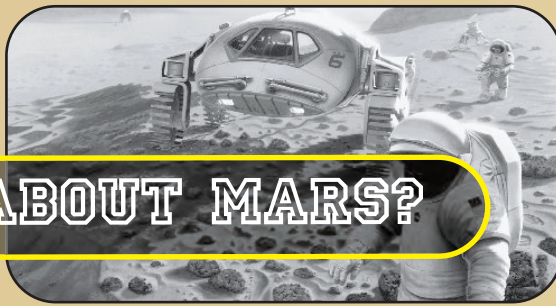


# CURIOUS ABOUT MARS?



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**I**s Mars really red? (Not really). Is it larger or smaller than the Earth? (Smaller). Is it warmer or colder than the Earth? (Much colder). How many moons does Mars have? (Two). How long does it take a radio signal to get from the Earth to the Curiosity rover? (Between 5 to 20 minutes). Could you breathe Martian air? (No way). Still curious about Mars? Here are some links and videos to help you follow what we are learning about this amazing planet.

**1. Is Mars really red?** According to <http://1.usa.gov/NbsP9y> the red color associated with Mars comes from iron oxide (or rust). On the surface, however, Mars has more of a butterscotch color.

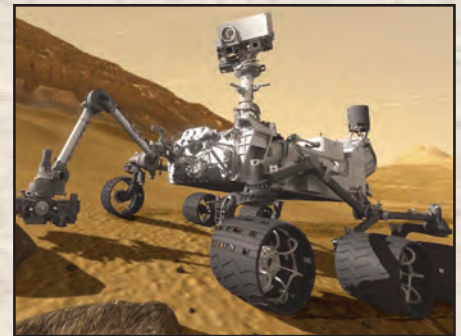
**2. Is the climate on Mars more like a hot summer or a cold winter?** The New York Times <http://nyti.ms/R1CNFy> reports the Curiosity Rover has measured swings in temperature from minus 103 to 28 degrees Fahrenheit. That's a very very cold winter. Brrr!

**3. If you were to step onto Mars without a space suit, would you survive?** According to Science Clarified <http://bit.ly/TG2xvg> you'd be dead in 15 seconds. First the low pressure would make your body fluids boil. Next, you'd freeze, even on the warmest day which won't get above freezing (see <http://1.usa.gov/OL1fM7>). If you were still alive, you'd suffocate because there is no oxygen. If you could survive that, you'd eventually starve, because there would be no way to grow food.

**4. How long does it take a radio signal to get to Mars?** The distance between Earth and Gale Crater can be as far as 150 million miles. That's 32 years for a 747 jet, or about 20 minutes for a radio wave. That's why you can't "drive" the rover in real time. Say you saw a cliff ahead. You'd hit the brakes, but that braking radio signal could take 20 minutes to activate the brakes. You'd already be over the cliff. See <http://bit.ly/OXyJIX>.

**5. T/F After two years, the Curiosity rover will be dead.** (Answer True). Unlike previous rovers, this one has its own generator. It is powered by a chunk of very hot, poisen radioactive metal called plutonium. The heat is used to warm the instruments and generate electricity for 10 instruments, plus motors, lasers and cameras... for about 2 years. After that, it will stop working. Learn more about Radioisotope Thermoelectric Generators at [http://www.nasa.gov/mission\\_pages/msl/index.html](http://www.nasa.gov/mission_pages/msl/index.html).

**6. If the Earth is a basketball, how big is Mars?** The Lunar and Planetary Institute <http://bit.ly/RaKYnf> says that if Earth were a basketball, Mars would be a softball.



## APPLICATION

**a) Make a true scale model solar system.** Want to really know how big the solar system is? Visit <http://www.noao.edu/education/peppercorn/pcmain.html> for instructions on making a 1000 yard solar system to scale. The sun will be a bowling ball, and the earth is a peppercorn, 26 paces away. Go another 14 paces to get to Mars, which is the size of a pinhead.

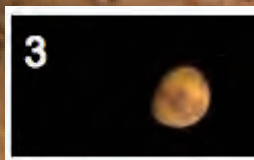
**b) Where is Mars, right now?** We found this real-time solar system calculator that tells you <http://www.solarsystemscope.com/>

**c) Play some games.** Visit the NASA Kids's Club [http://www.nasa.gov/audience/for\\_kids/kidsclub/flash/index.html](http://www.nasa.gov/audience/for_kids/kidsclub/flash/index.html) where you can practice driving a rover. You'll need a regular browser that can run Flash-based games.



## LittleClickers YouTube Playlist: Mars

<http://www.youtube.com/playlist?list=PL9A6A026D6852273A> To see NASA's movies, visit <http://1.usa.gov/Njyiw4>



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