

WORKSHEET
Science on Saturday

Health in Space: Developing New Tools for the Trip to Mars

Video Links:

[Health in Space: Developing New Tools for the Trip to Mars](#)

Presenters:

Matt Coleman, Matthias Frank – LLNL Scientists
David Loftus – NASA Ames Research Center Physician-Scientist
Erin M. McKay – Biology Teacher – Tracy High School

Student Lecture Notes:

1. Compare Earth and Mars orbits' around the sun.
2. Distance and time:
 - a. True/False: It only takes 49 seconds to travel the ISS (International Space Station).
 - b. How long will it take to travel to and from Mars?
3. Describe two of the risks/ medical problems in space.
4. True/False: If traveling into deep space and there is a medical emergency, a medical evacuation back to earth is possible.
5. Briefly describe one how medical problems are dealt with “close” to earth on the ISS.
6. Blood
 - a. Describe something we can learn from blood samples.
 - b. What is the purpose of microfluidics?
7. Breath
 - a. Breath marker composition depends on _____, diet, physiology, and environmental exposures.
 - b. Describe one example of Breath diagnostics in current use.
8. Describe the design and function of the NASA E-Nose.
9. Why do you think it would be useful to combine both microfluidic blood testing and the E-Nose into one diagnostic tool that could be taken on future space missions?