Erika M. Mehlhaff
Discover Space
http://www.discoverspace.org

Mars Rovers in Motion

Purpose

The purpose of this activity is to focus students for work in the area of energy and motion. (This should be used in conjunction with other science lessons about energy and motion, as it only introduces related terms/concepts.)

Students will be able to

1. Note terms related to energy and motion.
2. Recognize the relationship between force and motion.

Important Vocabulary/Key Terms (essential terms in bold)

Mars Exploration Rover (MER)	Olympus Mons	**motion**
kinetic energy	**potential energy**	**velocity**
acceleration	**deceleration**	**speed**
momentum	**power**	**work**
force		

A-Maze-ing Mars

Guide the Rover from its landing site on Mars to Olympus Mons, the largest volcano on the planet and in our solar system.

*** Please see below for printable activity sheet. NOTE: No images/clip art/… of a rover nor volcano are included on the printable sheet; please insert them as available. (This could also be an interactive, online activity requiring use of the arrow keys for movements, or possibly a 'clickable compass.')*

Balloon Rovers on Mars (Physical Education/Science)

Each student gets a rover (deflated balloon). Students split into 2 (or more) equal teams. From a starting point (landing site), one student blows up a balloon, using only three breaths, and then lets it go in direction of the ending point (designated topographical feature, e.g. Olympus Mons) and runs to end of his/her line. The next student in line runs to where 1st balloon landed and repeats the process. This continues until all students have had at least one turn and the ending point is reached. Each team should time their progress. The first team to reach Mars wins the race. (Depending on the number of kids, the distance between the starting and ending points will need to be adjusted.)

Discussion should follow, comparing the progress of the teams: Were there any particular problems/obstacles? What variables affected the progress of each team--the fullness of each balloon? the stride of each team member? anything else? Did anything unexpected occur? The discussion should branch off, shifting focus to actual terms related to energy and motion, and then to energy/motion/force as related to space.

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Resources for Further Study

As this is just a "jumping off point" for discussions about energy and motion, other resources should be consulted for a more in depth study of this area of science. Some resources that might be of interest include, but are not limited to, the following:

Texts

1. **Turning Kids on to Science in the Home: Book 3, Forces & Motion: Easy to Follow Recipes for Doing 100 Science Activities on Forces and Motion on Earth** by Tik L. Liem, © 1992 by Science Inquiry Enterprise
2. **Energy, Forces and Motion** by Alistair Smith, © 2001 by Usborne Publications
3. **Motion, Forces, and Energy** by Michael J. Padilla, ©1997 by Prentice Hall School Group
4. **Forces, Motion, and Energy (Scientific Magic Series)** by Robert Friedhoffer, Richard Kaufman, Linda Eisenberg, © 1992 by Franklin Watts, Inc.
5. **Eyewitness: Energy** by Jack Challoner, © 2000 by DK Publishing
6. **Eyewitness: Force & Motion** by Peter Lafferty, © 1999 by DK Publishing

Internet

1. http://www.isset.org/library.php?location=101
2. http://www.novan.com/spcenrgy.htm
3. http://www.visionlearning.com/library/module_viewer.php?mid=46
4. http://www.sciencemaster.com/jump/physical/newton_law.php
5. http://www.stcms.si.edu/emm/emm.htm

VHS/DVD

1. **ENERGY**, © 2000
2. **MOTION**, © 2000
3. **FORCE & NEWTON'S LAW**, © 2000
4. **Bill Nye the Science Guy: Energy**, © 1995
5. **Bill Nye the Science Guy: Motion**, © 1998

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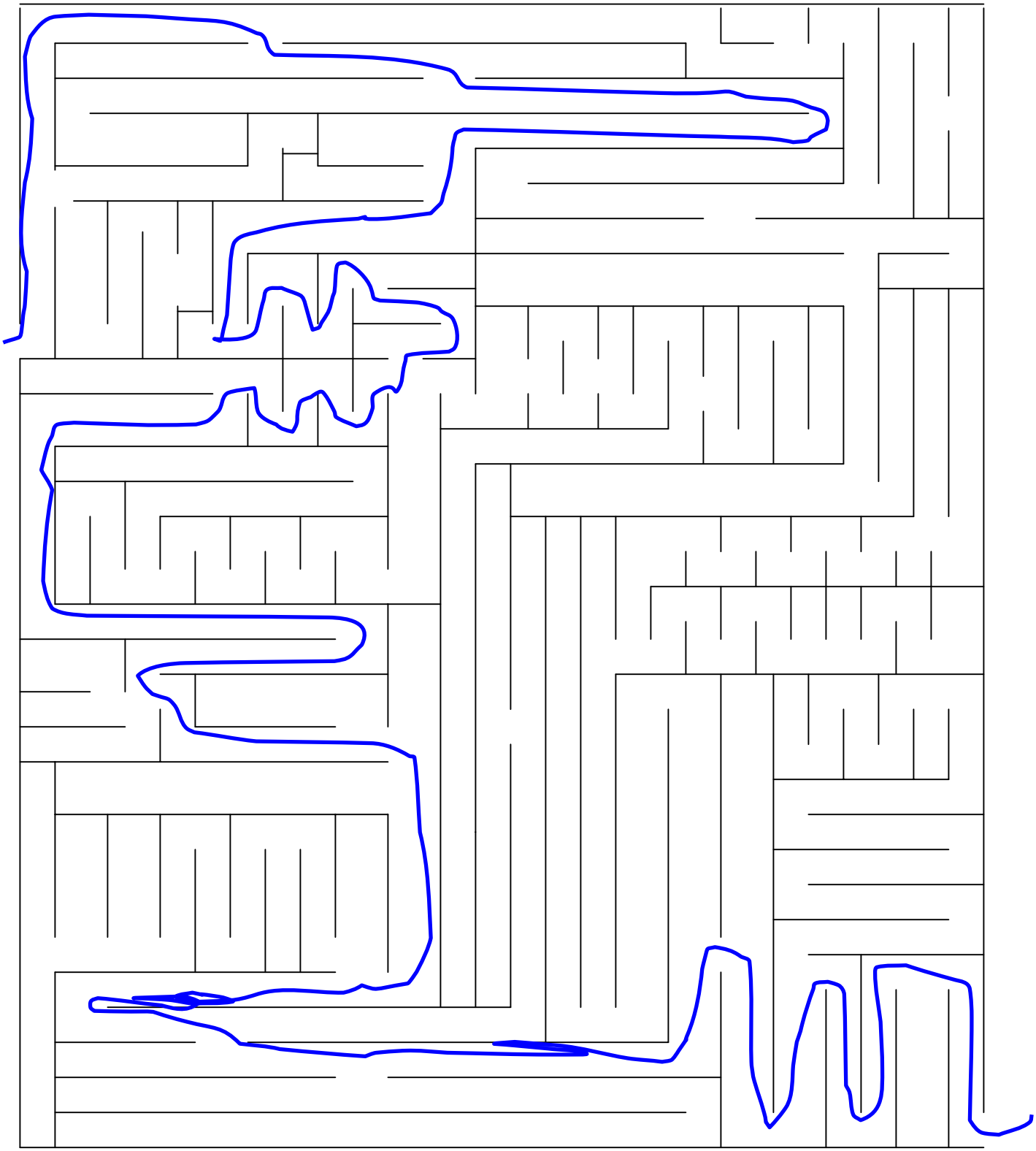
A-MAZE-ING MARS

KEY



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A-MAZE-ING MARS

Directions: Guide the Rover from its landing site on Mars to the largest volcano in our solar system, Olympus Mons.