

Websites for Further Exploration

Ways to Get Involved

Connect to the Moon

<http://www.lpi.usra.edu/education/lprp/>

This site includes paths for inquisitive adults, students, and formal and informal educators to find online resources, information, and opportunities for involvement in lunar science and exploration.

Moon Zoo

<http://www.moonzoo.org/>

Moon Zoo uses about 70,000 high resolution images gathered by the Lunar Reconnaissance Orbiter. Citizen scientists are invited to categorize craters, boulders and more, including lava channels and even all sorts of different spacecraft sitting on the Moon's surface.

Moon Mappers

<http://cosmoquest.org/mappers/moon/>

This citizen science effort invites the public to help map the history of the Moon, one crater at a time.

The Center for Lunar Science and Exploration

<http://www.lpi.usra.edu/nlsi/index.shtml>

This NLSI team site includes background science information, images, the traveling exhibits, high school research projects, and more.

The Year of the Solar System: Impacts

<http://solarsystem.nasa.gov/yss/display.cfm?Year=2011&Month=6>

Collisions are at the core of solar system formation, and continue to be one of the most important processes throughout our solar system. This NASA site includes activities related impacts, and a variety of powerpoints, articles, videos, interactives, and information.

The Year of the Solar System: Got Life?

<http://solarsystem.nasa.gov/yss/display.cfm?Year=2012&Month=8>

This NASA site explores one of the most fundamental questions: are we alone in the Universe? The site includes activities related to our search for life, and a variety of powerpoints, articles, videos, interactives, and information.

Origins of Life

http://www.lpi.usra.edu/science/kring/epo_web/impact_cratering/origin_of_life/index.html

This website by David Kring includes detailed information about the origins of life on Earth and explores the possibility that it was connected to the lunar cataclysm, for public adult audiences.

Terrestrial Impact Craters and Their Environmental Effects

http://www.lpi.usra.edu/science/kring/epo_web/impact_cratering/intro/index.html

This website by David Kring explores the environmental effects of impact cratering and the biological consequences of those effects, for public adult audiences.

Moon Poster: The Evolution of Our Moon

<http://www.lpi.usra.edu/education/moonPosters/Poster1/backb.pdf>

This is a description of the stages on lunar geologic evolution, written for teens to adults.

About Astrobiology

<http://astrobiology.nasa.gov/about-astrobiology/>

This NASA website describes NASA's efforts to study how life began and evolved on Earth, life beyond Earth, and the future of life on Earth and in the universe.

The First Spark of Life –3.8 Billion Years Ago

http://www.ccsf.edu/Departments/History_of_Time_and_Life/PDFs/FirstLifeEvidence36x36.pdf

This poster from and exhibit by the City College of San Francisco describes the earliest organisms on Earth as well as their relationship to impacts.

Books for Further Exploration

Check out
Your Library

There are several sections to look for information about the impacts and about the emergence of life on Earth in your local library; you may want to start with these sections:

- 525 Earth (astronomical geography)
- 574 Biology
- 575 Evolution & genetics
- 577 General nature of life
- 559 Earth sciences of other areas

Why is There Life on Earth?

Andrew Solway, Heinemann-Raintree, 2011, ISBN 1410941841.

This book explains the conditions that allow life to flourish on Earth, and the possibility of finding life on other planets. For ages 6 - 10.

From Lava to Life: The Universe tells Our Earth Story

Jennifer Morgan, Dawn Publications, 2003, ISBN 1584690429.

"Once upon a time" meets science in a children's picture book that tells the story of how life began on Earth, and how life triumphs over crisis to become bacteria, jellyfish, flowers...even dinosaurs! For ages 8 and up.

Life in Space

Helen Orme, Ransom Publishing, 2009, ISBN 184167690X.

Is our planet Earth the only place in the universe where there is life? Or could there be life on other planets? If so, where will we find it? On other planets? Mars? What do you need for life? How did life start? Did life on Earth start in space? Find out how weird life on Earth can be. For ages 10 and up.

Life on Earth – and Beyond: An Astrobiologist's Quest

Pamela Turner, Charlesbridge Publishing, 2008, ISBN 1580891349.

NASA astrobiologist Dr. Christopher McKay has searched the earth's most extreme environments in his quest to understand what factors are necessary to sustain life. This book takes an inside look at Dr. McKay's research, explaining his findings and his hopes for future exploration both on Earth and beyond. For ages 10 and up.

Astrobiology

Fred Bortz, Lerner Publications, 2007, ISBN 0822567717.

Are we alone in the universe? Is Earth the only planet that's a suitable home for life? These questions have long motivated scientists as central issues in astrobiology, the search for life in the universe. Astrobiologists compare life on Earth to signs of life on other planets. For ages 9 - 14.

Impact! The Threat of Comets and Asteroids

Gerrit L. Verschuur, Oxford University Press, 1997, 0195119193

Sites of Impact: Meteorite Craters Around the World

Stan Gaz, Princeton Architectural Press, 2009, ISBN: 156898815X

The eighty-five astounding black-and-white photographs collected in this book are large-scale, aerial landscapes--natural monuments to explosive destruction and concomitant creation. The images speak to the vulnerability of the Earth and the significance of our place in the universe. For adults.

Catastrophic Events Caused by Cosmic Objects

Edited by vitally Adushkin and Ivan Nemchinov, Springer, 2010, ISBN: 9048176441

An asteroid or comet will inevitably strike the Earth, and potentially cause great destruction. This volume considers hazards due to collisions with cosmic objects, particularly in light of recent investigations of impacts by the authors. Coverage describes and numerically estimates the main hazardous effects. Written for adults.