

**Educational Product** 

Educators & Students

Grades 5-12

ET-2004-10-102-ARC

# **Educational Topic**

# **Astrobiologist**

#### **Related Job Titles:**

Exobiologist, Life Scientist, Space Scientist

## **Job Description:**

Astrobiologists study life in the universe: how it began, where it's located and how it has evolved or changed over time. Three main questions drive their research: How did life begin and evolve? Is there life elsewhere in the universe? What is the future for life on Earth and beyond? Astrobiologists need to understand how many different kinds of science work together. These kinds of science may include biology (microbiology, botany, physiology, zoology), chemistry, physics, geology, paleontology, and astronomy. Some Astrobiologists spend time writing proposals to ask for funding for their research. They usually work regular hours in laboratories and use microscopes, computers, and other equipment. Some use plants and animals for experiments. Many do research outside, and many work with a team.

#### **Interests / Abilities:**

- Do you enjoy doing experiments?
- Are you interested in how animals and plants function?
- Are you curious about whether there is other life in the universe?
- Do you work well on your own?
- Do you work well with a team?
- · Do you enjoy investigating mysteries or problems?

# **Suggested School Subjects / Courses:**

- Science (biology, chemistry, physics, astronomy, planetary science with laboratory research and fieldwork)
- Math

# **Education / Training Needed:**

The minimum education required for this position is a bachelor's degree in Biology, Astronomy, Space Science, Chemistry or another appropriate subject from an accredited college or university. This course of study must include at least 20 semester hours of Physical Science, Engineering, or experience that leads to the understanding of the equipment used for aerospace flights. To do research, a Ph.D. is highly desired for this position.

#### Areas of expertise:

- Chemical and biological evolution: study what life is, where it's located, how it began and changed over time
- Biogeochemistry: study rocks for evidence of life
- Microbiology: study microscopic organisms and the conditions of the environments where they can survive (especially very hot/cold environments)
- Solar system analysis: research and design new experiments and instruments to explore the solar system
- Paleontology: study fossils to understand early life on Earth or other planets.

## **Additional Resources:**

- American Institute of Biological Sciences http://www.aibs.org
- American Physiological Society http://www.faseb.org/aps
- Astrobiology at NASA http://astrobiology.arc.nasa.gov
- Astrobiology Summer Academy http://academy.arc.nasa.gov/
- Biotechnology Industry Organization http://www.bio.org/welcome.html
- Biophysical Society http://www.biophysics.org/biophys/society/biohome.htm
- Education Pays Calculator
   http://www.educationpays.org/calc.asp
- Graduate Student Researchers Program http://spacelink.nasa.gov/Instructional.Materials/NASA.Educa tional.Products/Graduate.Student.Researchers.Program.Brochur e/.index.html
- MATHCOUNTS Competition http://mathcounts.org/
- Minority University Research and Education Programs http://mured.nasaprs.com/
- NASA Cooperative Education Program for college students

http://spacelink.nasa.gov/Educational.Services/ NASA.Education.Programs/Student.Support/NASA.Cooperative .Education.Program/.index.html

- NASA Jobs http://nasajobs.nasa.gov/
- NASA Office of Life and Microgravity Sciences and Applications http://www.hq.nasa.gov/office/olmsa
- NASA Office of Space Science http://www.hq.nasa.gov/office/oss

# What can I do right now?

- · Join a local environmental club or organization.
- · Participate in Earth Day activities.
- Take summer jobs or internships at parks, farms, plant nurseries, laboratories, museums, or camps.
- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit. (202) 783-7200
- · Participate in science fair projects.

- NASA SHARP Internship Program for high-schoolers http://www.mtsibase.com/sharp/
- NASA Specialized Center of Research and Training (NSCORT) / Exobiology http://exobio.ucsd.edu
- NASA Student Employment
  http://nasajobs.nasa.gov/stud\_opps/employment/index.htm
- NASA Student Involvement Program student contests http://www.nsip.net/index.cfm
- Student's Guide to Astrobiology http://www.astrobiology.com/student.html
- Tech-Interns.com http://www.tech-interns.com/
- The Astrobiology Web http://www.astrobiology.com
- Please take a moment to evaluate this product at:
- http://ehb2.gsfc.nasa.gov/edcats/educational topic
- Your evaluation and suggestions are vital to continually improving NASA educational materials.
- Thank you.



http://quest.nasa.gov/people/index.html

Astrobiologist ET-2004-10-102-ARC