



Educational Topic

Structural Geologist

Related Job Titles:

Geologist, Geological Scientist, Geoscientist, Earth Scientist

Job Description:

Structural Geologists study the deformation of a planet that is caused by faulting and folding of a planet's crust. They make maps of regions, such as mountain ranges or ocean basins, that show the location of the faults and folds that they discover. They examine the composition of the rocks that have been deformed and try to figure out what planetary processes, like earthquakes and plate tectonics, caused the deformation. Structural geologists try to reconstruct events in a planet's history based on the way it has been deformed. They also apply their knowledge of the Earth's composition and structure to aid in the construction of buildings and dams, oil and petroleum exploration, and environmental concerns.

Interests / Abilities:

- Are you interested in volcanoes?
- Do you enjoy the open air and four-wheel-drive travel?
- Are you interested in what goes on inside the Earth?
- Would you like to visit countries around the world?
- Do you like camping?
- Do find it fun to play with maps and various devices?
- Do you like to hit rocks so hard they break?
- Would you like meet people from all over the world?
- Do you enjoy solving mysteries?
- Do you like to collect rocks?

Suggested School Subjects / Courses:

- Earth Sciences
- Physics
- Math
- Other Science courses (chemistry, astronomy, planetary science, courses involving laboratory research and fieldwork)
- Geography
- Computer skills are a must!
- Another course that can help greatly is English, to help with written and verbal communication in the reports, meetings, and presentations that are a part of many careers.
- As in other sciences, a second language is very valuable because geologists do a great deal of traveling.

Education / Training Needed:

Structural geologists begin their careers with a bachelor's degree in *Geology*, *Geochemistry*, *Geophysics* or a related science. A strong background in math, science, and geography is necessary. You may need a master's or Ph.D. for advanced geology research. Project managers and consultants may also be expected to have further education, and possibly, Business Administration courses. Part-time fieldwork and laboratory work during college is highly recommended to gain hands-on experience. Field experience is invaluable to your studies and to your later career.

Areas of expertise:

- *Planetary deformation*: study the faults, folds, and other types of rock deformation that result from earthquakes and other plate tectonic activity
- *Oil and Petroleum Exploration*: using field work and other technology to create maps of the rock layers below the Earth's surface to locate oil, petroleum, and natural gas.
- *Environmental Consulting*: identifying potential hazards and risks, such as landslides or faults, to help companies decide where to place construction sites or build dams.

Additional Resources:

- American Geological Institute
<http://www.agiweb.org/>
- Astrobiology Summer Academy
<http://academy.arc.nasa.gov/>
- Graduate Student Researchers Program
<http://spacelink.nasa.gov/Instructional.Materials/NASA.Educational.Products/Graduate.Student.Researchers.Program.Brochure/.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 SHARP Internship Program for high-schoolers
<http://www.mtsibase.com/sharp/>
- NASA Student Employment
http://nasajobs.nasa.gov/stud_opps/employment/index.htm
- NASA Student Involvement Program student contests
<http://www.nsip.net/index.cfm>
- National Science Foundation
<http://www.nsf.gov>

What can I do right now?

- Call the American Association of Science and Technology Centers for information on science museums in your area that you might visit. (202) 783-7200
 - Join a local environmental club or organization.
 - Take summer jobs or internships at parks, laboratories, museums, or camps.
 - Participate in science fair projects.
 - Start a rock collection and learn about the rocks you gather.
 - Obtain a geology field guide and use it when you travel.
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- Student's Guide to Astrobiology
<http://www.astrobiology.com/student.html>
 - Tech-Interns.com
<http://www.tech-interns.com/>
 - U.S. Geological Survey
<http://www.usgs.gov>

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- 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.
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<http://quest.nasa.gov/people/index.html>

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