National Aeronautics and Space Administration

Educational Product	
Educators & Students	Grades 5-12

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Educational Topic

Geophysicist

Related Job Titles:

Geologist, Volcanologist, Seismologist, Hydrologist, Structural Geologist, Geomorphologist, Atmospheric Scientist

Job Description:

Geophysicists study many physical features of a planet, including its gravity, magnetic field, earthquakes, and internal heat and energy. They use the laws of physics to explore deep within a planet's interior and to examine a planet's surface and atmosphere. Geophysicists work in the field to collect data and take measurements. They also work with computers to create models of planetary processes.

Interests / Abilities:

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

Suggested School Subjects / Courses:

- Earth Sciences
- Physics
- Math
- Other Science courses (chemistry, astronomy, planetary science, biology, 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:

Geophysicists begin their careers with a bachelor's degree in Geophysics, Physics, Geology, Computer Science, or another related science. A strong background in math and science is necessary. You will most likely need at least a master's degree to become a Geophysicist, and a Ph.D. will greatly improve your chances of achieving your dream career. 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:

- *Geodesy:* the study of a planet's size, shape, gravity, rotation, and tides
- *Seismology:* the study of earthquakes, both on a planet's surface and in its interior, to learn about the planet's composition and to evaluate earthquake hazards and locate faults
- *Magnetism:* the study of a planet's magnetic fields to learn about heat flow and fluid motion in a planet's interior
- *Physical Oceanography:* the study of the physical features of the ocean, such as its currents, circulation, and interaction with the atmosphere
- *Atmospheric Physics:* the study of a planet's atmosphere and features related to the atmosphere, such as climate.
- *Environmental Consulting:* Determining environmental hazards and evaluating potential building sites

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.

- 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

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