Explore a Career in Geology

• Protect human and ecological health
• Investigate environmental contamination
• Help turn an abandoned industrial site into productive land
• Investigate a collapsed road or help build a dam
• Explore for the minerals used in solar cells or the feedstock to make the plastic
Geology Students Happiest

- A 2015 UK National Survey polled 220,000 students*
- 95% of geology majors said they were satisfied with their major
- Geoscience ranked top 20%, #28 by the Most Valuable College Majors**

1. Allows you to pursue your curiosity.
2. Field Trips!
3. Geology can take you around the world
4. Solve Problems
5. Variety of different career paths
6. Cutting edge technology
7. Employment growth
8. Job opportunities right out of college with a BS and MS
9. Laid back field and small community of colleagues
10. Geology lets you study ROCKS!!!

**https://www.bankrate.com/career/most-valuable-college-majors/
What Geologists Do?

- Environmental Science/Protect Human Health
- Energy Resources
- Mineral Resources
- Engineering Geology and Natural Hazards
- Research
- Education
Environmental Science/Human Health

- Investigate environmental contamination, protect human and ecological health, remediate contaminants, assess water resources

- Jobs across the US, major metropolitan areas, cities, suburbs, towns, rural, and remote areas

Geologists make use of their special knowledge for the benefit of others. No profession affects the public more than geology. "Civilization exists by geological consent, subject to change without notice," William Durant
Industry / Consulting

- Brownfield’s/PA Act 2 – clean up a contaminated sites so they are safe for future re-use.
- Underground or Above-Ground Gas or Oil Storage Tanks (UST/ AST) Investigation and Remediation
- Landfill Design and Investigation
- Environmental Permitting
- Large Companies and utilities hire geologist ensure environmental compliance

http://www.ac-environmental.co.uk/


Before

Greater Lebanon Refuse Authority
Water Monitoring

After

Depgreenport.state.pa.us/
Greys Ferry Crescent

Greater Lebanon Refuse Authority
Government Agencies

Over 25% of Geologists are Employed by Public/Government agencies

- US Geologic Survey
- US Environmental Protection Agency
- PA Department of Environmental Protection
- Department of Conservation and Natural Resources
- PA Geological Services
- Susquehanna River Basin Commission
- County Conservation District Agencies
- Etc.
Energy Resources

- Study the subsurface and explore for oil, natural gas, coal, uranium, geothermal resources
- Responsibly extract resources

Jobs in PA, OH, & WV with Marcellus/Utica Shale Gas

- USA - Worlds #1 Producer of Natural Gas; PA produces 20% of US production
- Natural Gas Liquids (NGL) provide feedstock in petrochemical plants to make chemicals, plastics, synthetic rubber and fuels for heating, cooking, & drying.
- Projections show renewables gain significant market share through 2050 while fossil fuels remain important for the industrial, transportation and building sectors of the economy

- Many jobs in Gulf Coast states, Colorado, Dakotas, and overseas in Australia and the middle east
Mineral Resources

- Explore for mineral resources. Find aggregate, ore bodies, and direct mining operations.

- Identify and develop water resources
- Jobs available world-wide and in our backyard
Extraction Industries

• Coal Mining / Quarries
  • Steel
  • Cement

• Alternative Energy Needs Minerals for their Component Parts
  • Solar Photovoltaics*
    • Aluminum, cadmium, copper, gallium, indium, iron/steel, lead, nickel, silica, silver, selenium, tellurium, tin, zinc
  • Lithium Battery storage*
    • Aluminum, cobalt, iron, lead, lithium, nickel, manganese
  • Wind Turbines**
    • Bauxite(Aluminum), Coal, Iron Ore & molybdenum(steel), Cobalt and rare earth elements(magnets), Copper(wiring), Limestone, gypsum, silica sand, aggregate(concrete), zinc

Engineering Geology and Natural Hazards

• Investigate the physical properties of the Earth for our Nation’s infrastructure

• Mitigate natural disasters
Industry / Consultants / Public Safety

- Flooding
- Water Treatment
- Water Supply Management
- Solid Waste
- Earthquakes
- Landslides and Karst
- Road & Building Construction
International Options

• **Energy**
  - Petroleum – Saudi Arabia, Canada, Venezuela, Iran, Iraq, Kuwait, Russia, Libya, Nigeria, China
  - Natural Gas – Russia, Qatar, Iran, Canada, China, Norway, Netherlands, Algeria

• **Extraction**
  - Mining - Australia, Peru, Chile, South Africa, Mexico, Russia, China, Germany have a large mining industry
  - Coal, gold, uranium, bauxite, copper, lead, silver, zinc, diamonds, chrome, manganese, platinum, vermiculite, rare Earth elements

• **Environmental**
  - Geology, geophysics, geotechnical, hydrogeology, water resources, engineering, research science
  - Developing countries, Asia, India, Saudi Arabia, Africa
Research

- Pure and applied research to study all aspects of the earth, including laboratory, field, numerical, and theoretical fields.

- Developing new methods to support future generations.

- Research geoscientists work as college professors, government employees, and commercial research and development teams.
Education

- Teaching earth science and related fields in the early, middle, and secondary grades
- College professor

- Educate the next generation; Job security and competitive salary