



# Educational Topic

## Atmospheric Chemist

### Related Job Titles:

Atmospheric Scientist, Environmental Scientist, Air Quality Analyst, Meteorologist, Atmospheric Physicist

### Job Description:

Atmospheric chemistry is a multi-disciplinary field that is a sub-set in the broader field of atmospheric science. Atmospheric Chemists are interested in the chemical composition of the atmosphere and how the chemical constituents of the atmosphere interact with each other. Atmospheric Chemists make observations and collect data to understand how the atmosphere reacts and changes to sunlight and many parts of the Earth's surface including soils, vegetation, oceans, ice and snow. Some Atmospheric Chemists analyze the composition of our current atmosphere to compare with past data to understand the local, regional, and global impacts of our industrial practices. Atmospheric Chemists can also help gain an understanding of a distant planet's composition because they can analyze the chemistry of a planet's atmosphere remotely.

### Interests / Abilities:

- Are you interested in the world around you and the processes that effect our planet?
- Can you perform calculations quickly with great accuracy?
- Are you patient when it comes to completing forms requiring detailed information?
- Do you like to solve logic puzzles?
- Are you a good problem solver?

### Suggested School Subjects / Courses:

- Chemistry
- Math (algebra, trigonometry)
- Physics
- Meteorology
- Statistics
- Computer modeling
- Environmental studies
- Electronics

### Education / Training Needed:

The minimum education required for this position is a bachelor's degree in Atmospheric Sciences or Chemistry from an accredited college or university. Experience in hands-on laboratory techniques is extremely helpful for this job. To do research, at minimum a master's degree is required, and a Ph.D. is highly desired for this position.

### Areas of expertise:

- *Synoptic*: analyze data from satellites, radar, and surface-observing instruments
- *Research*: study atmospheric chemistry, refine theories and improve mathematical/computer models of atmospheric composition and its impacts on the planet
- *Environmental*: monitor pollution from traffic and industry and its effects on the planet

## Additional Resources:

- **American Meteorological Society**  
<http://www.ametsoc.org/AMS>
- **Astrobiology Summer Academy**  
<http://academy.arc.nasa.gov/>
- **Atmospheric Chemistry and Physics Interactive Science Journal**  
<http://www.copernicus.org/EGU/acp/>
- **Education Pays Calculator**  
<http://www.educationpays.org/calc.asp>
- **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](http://nasajobs.nasa.gov/stud_opps/employment/index.htm)
- **NASA Student Involvement Program student contests**  
<http://www.nsip.net/index.cfm>
- **NASA Jobs**  
<http://nasajobs.nasa.gov/>

## What can I do right now?

- Buy a chemistry set and learn how different substances interact with each other.
- Set up your own weather station and provide your local radio station with a daily report.
- Read newspapers and magazines to understand how governments and industries make policies related to atmospheric composition.
- Take samples of rain or soil in your neighborhood and analyze them using water and soil test kits from your local hardware store.

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- **National Center for Atmospheric Research -Atmospheric Chemistry Division**  
<http://www.acd.ucar.edu>
  - **National Oceanic and Atmospheric Administration**  
<http://www.noaa.gov>
  - **National Weather Service**  
<http://www.nws.noaa.gov>
  - **Student's Guide to Astrobiology**  
<http://www.astrobiology.com/student.html>
  - **Tech-Interns.com**  
<http://www.tech-interns.com/>

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Thank you.



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

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