



# Middle and High School Teaching



# Career Compass Geosciences

This career compass provides options, tips, suggestions, and strategies for how a student can obtain critical skills, experiences, and competencies in order to launch their geoscience career based on their academic standing. The content herein is based on data from the U.S. Bureau of Labor Statistics, interviews with personnel in the occupation, and research on available student opportunities.

## Job Summary

Science teachers educate children from grades six to twelve, developing and delivering lesson plans, and selecting age-appropriate materials that meet state or national standards. They observe and evaluate student understanding and skills, communicate with parents and school administrators on student progress, collaborate with other teachers to provide high-impact learning opportunities for all students. Middle school science teachers typically provide instruction in the life, physical, and Earth and space sciences while high school science teachers specialize in one discipline. Earth and space sciences related instruction at both levels addresses topics related to Earth's place in the universe, Earth's systems, and Earth and human activity.

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Connect

Grow

Build

## Undergraduate

- Member in a geoscience professional organization, attend meetings, and participate in education workshops and field trips that they sponsor
- Volunteer for science competitions (bowls, fairs, Olympiads, etc.)
- Engage in virtual communities with educators in the Earth and space sciences.
- Gain practical teaching experience working (e.g. afterschool science or environmental club)
- Gain practical experience working as a tutor for middle or high school Earth and space sciences students
- Participate in summer fieldwork opportunities and lead outreach activities within surrounding communities
- Complete a supervised student teaching internship in an Earth and space sciences classroom
- Take state-specific tests for educators
- Apply for state teaching license or certification
- Seek field experiences for undergraduates in the Earth and space sciences that have an education component
- Learn from engaging in online forums and discussions
- Volunteer in public Earth science-related educational events at local schools, in your community, etc.
- Become familiar with state and national science education standards
- Degree in environmental science, Earth science, geoscience, geology, oceanography, meteorology, physics, secondary education, or science education
- Middle or secondary level science teacher preparation program with a general or Earth science endorsement. Consider certification or licensure or alternative teaching certification if appropriate.
- Research project focusing on inquiry-based, solution-based, 'phenomenon-driven,' or problem-based Earth and space sciences curriculum
- Classroom observations of Earth and space sciences lessons and instruction
- Receive first Aid/AED/CPR training and laboratory safety training

## Graduate/Master's

- Member of a geoscience education/scientific professional organization and attend their meetings and participate in education workshops and field trips that they sponsor, seek their specialty teacher certifications
- Judge a science fair and/or mentor a student completing project
- Use assessment data and geoscience education research results to improve practice and student learning
- Form and/or lead an after-school science or environmental club or student chapter of professional scientific organization
- For initial licensure, take state-specific tests for educators and apply for state teaching license
- Workshops and programs on inquiry learning
- Enroll in field or laboratory geoscience research experiences for teachers
- Seek graduate-level professional development opportunities in specialty topics
- Degree in environmental science, Earth science, geoscience, geology, oceanography, meteorology, secondary education, science education, curriculum and instruction, teaching and learning or instructional technology
- For initial licensure, complete a middle level or secondary level science teacher preparation program with a general science or Earth and spaces sciences endorsement
- Courses that focus on secondary science and geoscience education. Consider certification or licensure if appropriate in your state
- Completion of professional portfolio or master's thesis topic related to secondary science education with a focus on Earth and space sciences

## Ph.D./Post-doc

- Publish research, collaborate with colleagues on projects
- Present research at professional conferences
- Member of a geoscience professional organization, attend conferences, participate in education workshops and field trips, seek their specialty teacher certifications
- Review and evaluate secondary level Earth and space sciences textbooks and curricula
- Work with school policy makers and other stakeholders to influence best practices in teaching geoscience education
- Gain teaching experience working as a middle or high school science teacher
- Lead workshops and programs on inquiry/problem-based/solution-based learning and application to geoscience classroom
- Lead field or laboratory geoscience research experiences for teachers
- Seek additional graduate-level professional development opportunities in specialty topics to extend your geoscience knowledge
- Engage in applied research in geoscience teaching and learning
- Degree in secondary education, science education, curriculum and instruction, educational theory and practice, learning and instructional technology, or geoscience education
- Advanced courses in secondary science and geoscience education. Consider certification or licensure if appropriate in your state.
- Teaching assistant for undergraduate class.
- Dissertation related to geoscience education

### Symbol Key

- Attend
- Communicate
- Network
- Participate
- Leadership
- Internship
- Scholarship
- Fellowship
- Academics