Earth System/Environmental Scientist
What do Environmental Scientist do?

They study the interactions of Earth’s atmosphere (air and climate), biosphere (people, animals, plants), hydrosphere (water cycle), lithosphere (surface, mountains, volcanoes), and cryosphere (ice, glaciers).
They try to solve issues on:

- managing energy sources
- conserving water resources
- saving endangered species
- control toxic substances
- living sustainability
- population growth
- other ecological issues.
How do Environmental Scientist use Math?

- They use a variety of math like algebra, statistics, calculus, and other math applications.

- Math is key to analyze and interpret data collected from research and satellite recordings.
Math Problem

An Environmental Scientist wants to know how long a water molecule stays in Big Bear Lake reservoir, to analyze the time it takes to fill or empty.

For this we can use the formula for residence time:

\[ Residence \ time = \frac{\text{amount inside the reservoir}}{\text{total source OR sink}} \]
Math problem cont.

1.5 km$^3$/year of Rain is our source

Reservoir = Big Bear Lake holds 9 km$^3$ of water

Evaporation is our sink

$Residence\ time = \frac{\text{amount inside the reservoir}}{\text{total source OR sink}}$

Residence time = $\frac{9 \text{ km}^3}{1.5 \text{ km}^3/\text{year}}$

= 6 years

It takes 6 years for a water molecule to stay in Big Bear.
Education

- **High School** (4 years): A-G requirements to obtain diploma.
- **Undergraduate** (4 to 5 years): Bachelors degree in Environmental Science and/or Earth System Science. You can minor in sustainability, geology, statistics, math and other sciences.
- **Masters** (2-3+ years): Work on Research project on a topic that is focused on your field such as environmental conservation, resource management, etc.
- **Doctorate** (3-6+ years): To earn a PhD you create an independent research project that will be fully elaborated from your dissertation.
Work Cited

- http://www.environmentalscience.org/degree
- http://www.environmentalscience.org/careers
- http://replay.uci.edu/media/uci-only/fall2014/ESS_1_Fall_2014_Lecture_2_-_20141006_135342_2.mp4
- https://elearningindustry.com/wp-content/uploads/2013/08/bfa9b7e5542153d134a3eed2bd0df6f6.jpg
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- http://cdn.ngkids.co.uk/dynamic/features_legacy/content/4bf07897f015c6c43ef4ef8d1d930c97
- http://4.bp.blogspot.com/-icB76gwDLJg/UDph_jilbnI/AAAAAAAdA/6jWm5wQKqPU/s1600/Environmental+Science+CSO+Wordle.PNG