

Erin R. Burkett, Visiting Guest Speaker
Gilford Middle School, Gilford, NH
December 21, 2010

Four 8th grade Earth Sciences classes (separately, 15-20 students each class)
(Connection: invited by my aunt, their teacher)



Gave a brief presentation outlining:

- (1) my career path to present:
 - a. As a kid: liked outdoors, rocks, exploring
 - b. High school: liked physics (great teacher, hands-on experiments: potato guns, trebuchets...)
 - c. College: Physics Major (4 yrs)
 - d. Graduate school: PhD geophysics (6 yrs)
 - e. Now: Post-doctoral researcher at Caltech
- (2) Asked kids what they imagine when they think of geologists...previously, Mrs. Allen had them respond to the question, "What do you think are the characteristics of a geologist?", so I had a couple volunteers mention what they wrote (see complete answers below).
- (3) Photos of geologists I've known (particularly in field, not wearing lab coats!)
- (4) Outline some different kinds of geoscientists (structural geologist, paleontologist, planetary geologist, volcanologist, geophysicist...)
- (5) Give example jobs geologists can end up with: researcher (earthquakes, volcanoes, mapping, climate), geologic hazard consultant, geology consultant for

- engineering/building applications (image underground rock/soil for holes, water), work for oil companies, teacher/professor
- (6) What a geoscientist might do day-to-day (field work/trips, camping, computer work, teaching, write papers to share research results, conferences (often traveling!)
- (7) My research (PhD) ...big pic (subduction-> plate breaking off), including movie and mention it takes 450 computers together running for 10 days for one model/movie! Also showed simulation of EPR collision with western N Am to put in context why we want to know what happens when a spreading ridge meets a subduction zone...since it's important for understanding transition from subduction to strike-slip along the San Andreas!): <http://emvc.geol.ucsb.edu/download/pacnorth.php>
- (8) Showed a number of simulations representing results of research by other scientists, particularly at Caltech:
- Continental Drift plate reconstructions
<http://www.tectonics.caltech.edu/outreach/animations/drift2.html>
 - Seafloor spreading allowing the continents to drift
<http://www.tectonics.caltech.edu/outreach/animations/seafloor.html>
 - Himalayas movie (as a zoom-in of what's going on in cross-section where india collides so rapidly with asia)
http://www.tectonics.caltech.edu/outreach/animations/himalayas_small.html
 - Sumatra Tsunami simulation
<http://www.tectonics.caltech.edu/outreach/animations/tsunami.html>
 - ShakeOut simulation
http://www.tectonics.caltech.edu/movies/outreach/scec/ShakeOut_LosAngeles.mov
- (9) Had students break into lab groups and make small spaghetti-raisin cities on Styrofoam (spaghetti of different heights with raisin stuck on top represents a building). Then demonstrated when you shake at different frequencies, different buildings may shake more for a particular frequency while others might 'remain undamaged'
- (10) Earthquake machine demo (rough version of: http://earthquake.usgs.gov/research/modeling/earthquakemachine.php#model_Description)

A local newspaper journalist from the Gilford Steamer was present by invitation of my aunt for the second class, wrote up an article published December 30th (see article).

One particularly interesting question from one of the students:

"If you were scuba diving in a trench, could you get sucked into the subduction zone?"

I clarified (a) too deep to scuba dive there (pressures so huge they'd squish you, (b) subduction and plate motions are so slow, ~the rate fingernails grow!

Before my visit, my aunt (Mrs. Allen) had the students write answers to the following question on a sheet of paper (answers as written from all classes included below):

"What do you think are the characteristics of a geologist?"

- they wear lab coats
- they do experiments
- they study rock compositions and chemicals
- calm and focused
- geeky and nerdy
- passion for what they do
- enjoy hands-on experiences
- apply abilities they've learned before
- ability to "think outside the box"
- they know a lot about rocks

- smart
- studies rocks
- magnifying glass
- organized
- handle different weather types
- person who studies earth
- examines soil
- travels the world
- amazing
- curious
- accurate
- social
- imaginative
- adventurous
- interesting
- has a good imagination

- they study how the land was and is made up, they also take the time to go to different places seeing why certain things happen
- they study a lot of rocks and how things form, like the land
- they have very scientific ideas and minds, they study a lot of rocks, and how the earth was made
- They have different theories about the earth and the things on it, which they study. Rocks and such is mainly what they study.
- They study earth and the inorganic material on it such as rocks, and chemicals
- They study the earth and how it formed and they study rocks.
- they study rocks
- they like rocks
- They study the Earth and rocks
- They study OLD rocks
- A person who has no life why would you want to look at rocks all day
- [arrow pointing to above comment with:] give him an F
- Nerds who like rocks

- They know a lot about the planets
- They're wicked boring!
- They wear cute outfits
- They are smart
- They went to college
- They study the Earth and land formations & geology & those maps that have the lines that say how high or deep things are.
- they study rocks
- Smart keep to themselves like dirt
- study the Earth and land formations
- know about rocks and gems
- study the formation of the rocks on Earth
- They study rocks and Earth
- They study ROCKS
- They study the Earth
- They're smart
- SMART
- Study rocks
- They need to be attentive and they need to know about science
- They are good looking/cute/handsome
- They know a lot about rocks