

## AP Environmental Science Lab format

Here are some notes (hopefully helpful) on writing labs:  
- AP environmental science is the study of cause and effect in the environment. Your labs should explore and clarify these relationships, and try to explain some sort of physical phenomenon. Usually this involves measuring mass, composition, energy of some sort, and time. Your labs should be clear, concise, and interesting to read. I give extra points for humor. Good humor. I'm the only one allowed to make bad jokes in AP environmental science class :-)

### Lab parts:

**Explanation-** why you think the lab worked out this way or that. Be creative, but don't try to snow me

**Data/Evaluation-** Did it work? Why or why not? What errors did you have? What possible reasons can you come up with? How would you improve the lab?

**Clarity of thought-** If you understand it, you should be able to explain it. Use your words, diagrams, and any analogies you think might help. Remember: this your creative writing about something you experienced. It should be fun to do, and interesting to read.

As labs and the lab format are important tools in learning how to study the physical world, we'll try to follow a format that has evolved in one form or another over many years. It's based on the premise that labs are meant to be replicated by someone else-not necessarily to prove that you are wrong, but to verify your processes and build on them.

Keep this in mind as you write a lab: it should recall what happened, show how to repeat it, and maybe even how to do it better next time. Think of making cookies: a lab report might be looked upon as a recipe, with the conclusions being the taste test. Watch:

~ Making cookies

Purpose: To make yummy cookies

Background: Cookies are a form of food baked in an oven, usually made of sugar, flour and some sort of filler. They are quickly devoured by cookie monsters.

Materials: Flour, sugar, oats, raisins, baking powder, sugar, salt, sugar, milk, eggs, sugar

Procedure: Mix ingredients in a bowl, except the raisins, which you should soak in hot water. Form into shapes on a cookie sheet and bake at 450° for 8-10 minutes.

Observations: As the cookies bake, the room filled with a yummy smell. Some were burned in the first batch.

Data: 14 cookies were made, most were yummy.

Discussion: The ones at the back of the oven were burned

Conclusions: Yummy cookies can be made with this procedure (note: look at purpose). Next time I would do this with a lower temperature oven, or use a convection oven.

You should notice that the conclusion refers back to the purpose. Ask yourself: did it work? How well? What would I do to make it better?

Data is usually diagrams and numbers, things not said in words.

Observations are things best said in words.

Grading:

I grade labs on a 100 point scale: 100 is great, 80 is average, below 80 means you either left something out, or you did not explain your experience adequately. Humor helps, remember I have to read lots of labs each week.

I also grade on these criteria:

Data: accuracy, presentation, organization, clarity of

thought Observations: completeness, "view"

accuracy

Explanation/ evaluation: Why? why not? How to improve? Was the basic premise proven? Where would you take this in the future?

If you find "see me" on a lab, that's ok, it means I'd like to discuss some part of the lab with you.

I hope this helps, let me know if you have any questions or comments on this. It is my wish that labs become a fun part of AP environmental science for you.