**Transpiration Lab Report Guidelines**

**(30 points)**

Email:

Dear Dr. Frankenstein,

 How are you? How are things in the lab? Was your lab group able to conduct the transpiration lab that we discussed at our last meeting? If so, could you please share your data with me? Hope to hear from you soon.

Thanks,

Dr. Jekyll

Email reply:

Dear Dr. Jekyll,

 Thanks for your message. It’s been a while since we’ve talked. Yes, the students in my lab conducted the transpiration lab. I posted the data as an Excel file on the website. Please take a look. I’ve decided to focus most of my current research on the reanimation of dead tissue, so I was hoping you’d be able to analyze and make sense of the transpiration data. Let me know what you think. Don’t let your research drive you crazy.

Take care,

Dr. Frankenstein

Your task:

 Reply to Dr. Frankenstein. Analyze and interpret the transpiration lab data. Your reply should include the following:

 Data Analysis (15pts):

* Data table: For each condition, calculate the average transpiration rate, standard deviation, and standard error.
* Graph: Make a bar graph that shows the transpiration rate for each condition, include standard error bars.
* T.Tests: Do four T.Tests that compare normal vs. humid, normal vs. 24 hr light, normal vs. dark, and normal vs. windy.

Data Interpretation (15pts):

* What is transpiration? What are stomata?
* Why does a plant have to carefully balance gas exchange with water losses via transpiration?
* What signals/environmental conditions control whether a plant has its stomata open or closed? Why?
* Explain and interpret the results of the white pine transpiration lab. Explain the differences observed between the different environmental groups.
* Address the validity of the experiment. Discuss a way to change and improve the experiment. What experiment would you like to do next?

-Submit your lab report as a Word document to TurnItIn. Choose “Upload a file”; do not choose “Copy and Paste” when submitting to TurnItIn.

-Due 10:00pm Wednesday 2/11/15.