Dr. Westgate's Painless Pathway

This is what I call the painless pathway to critique writing. Follow this and you will find the process relatively simple. I have included examples from an imaginary paper on water. The flow I use is a bit different from the one outlined in the rubric but it covers all 10 of the listed points just in a different order.

First and foremost, read the Pechenik chapter on critiques as well as the rubric (on the class website) and follow these carefully. Your critique should be 4 paragraphs and a maximum of 1 to 1.5 pages in length. If it is longer you are either not getting your points across concisely or you are going into too much detail.

To start, read the paper carefully at least 2 times. Think about what question(s) are being asked and how they are being addressed. Look at the tables, graphs and figures and make sure you understand what they are saying. Ask yourself WHY about everything you read. Did the authors convince you that whatever they are reporting is true. Were the methods sound? Is the experiment repeatable? What was left unanswered?

Now start the actual critique……..

Start with the title of the paper.

"The boiling point of water"

Next line should be the complete reference.

Smith, W.W. and Hobson, A.Y. 1998. The boiling point of water. Journal of Water Science. 23: 23-44.

Para 1 The Introduction.

Start with a 2 sentence intro that summarizes the nature of the question and main findings of the paper.

"*Continuing their ongoing investigations into properties of water, Smith and Hobson (1998) conducted a series of elegant experiments to determine the exact boiling point (BP) of water. Unlike some recent studies that showed variation in BP, Smith and Hobson (1998) provided convincing evidence that water boiled at exactly 100 degrees C ".*

Flesh out the remainder of this short paragraph (2-3 more sentences) with more details about why the particular question/hypothesis is being addressed and the importance of the research in a broader scientific context. You can if you wish explicitly state the hypothesis…sometimes that is necessary other times not. You want to get across why they did the work in the first place.

" *The boiling point of water has been the subject of much debate and controversy with several recent studies reporting conflicting results ranging from 98 to 102 degrees C. In order to test the true boiling point of water, Smith and Hobson designed an elegant series of experiments, using precise electric hot plates and super conductive metal beakers, and over the course of 100 repetitions found that water*

boiled at exactly 100 degrees C. These new results confirmed many older studies on this subject and demonstrated, in a very convincing fashion, the true boiling point of water, refuting more recent claims to the contrary. "

Para 2 Methods

Provide only important details on the methods. Should take 4-6 sentences. Can be longer if the paper in questions is very technical. You want to include enough detail so the reader can understand what was done without going overboard on the nitty-gritty. What I usually do is write out what I think is crucial (which is usually too much), and then edit that down to length.

Too much detail:

During July 1997 the boiling experiments were carried out at the UNCW water labs using pure distilled water. In a climate controlled fume hood, a series of 10 x 1000 ml copper Erlenmeyer flasks were placed on electric hot plates, set to 120 degrees C. Temperature was recorded in the mid-point of each flask using a 50-cm glass mercury filled thermometer that had been previously calibrated. Temperatures were recorded when the water was at full boil which the authors defined as "steady bubbling". Experiments were repeated 10 times and an average boiling point was calculated from the 100 runs.

Better:

The authors conducted boiling experiments using pure distilled water. They placed water in flasks on hot plates set to 120º C, and recorded the temperature in the flask when the water was at full boil, which the authors defined as "steady bubbling". Experiments were repeated 10 times and an average boiling point was calculated from the 100 runs.

Para 3 Results

Report the main results of the work. Be as concise as possible. The length will be dictated by the actual number of results reported. Some papers will make only one main point, others will have lots more interconnected results. Report them all. Sometimes results can have different possible interpretations. In this section just report how the authors interpreted their data.

" The authors reported water temperatures from the 100 boiling flask ranging from 99.89 to 100.05 degrees C. Their mean result was 100.00 degrees C."

Para 4 Discussion

This is the heart of the critique. I always ask myself, " Did the authors provide a compelling enough reason for me to believe what they say?" I then try and explain why or why not. It is easy to be critical but if you believe the paper has good merits you should discuss those too. If you feel there were flaws then talk about exactly what they are. How important is this research? Were the methods sound or should it have been done differently? What changes would make this experiment better. Include what, if any, alternative interpretations could have been made from the results. Did the authors get it right?

Some papers will over reach their conclusions. Are all the conclusions supported by the results? What are smart follow-up studies that would complement and build on the results? Finish off the critique with a concise summary statement or two that describes the importance or lack thereof of the conclusions in a larger biological context.

Lastly cross check your critique with the rubric and make sure you have covered all 10 points and don't forget to check it over for spelling and grammar.

"*Sorry no example here…..*"