Feedback for *draft 11*:

1. The Metaphor: The impression that a piece leaves with a reader is a reflection of how well it communicated its point. After reading the piece, write a concise summary of the metaphor that is being used in a few sentences of your own words. This will provide the author with a picture of what you took away from reading their writing. If this does not agree with what they intended for the reader to take away, it can be a valuable source of feedback for revision.

The metaphor in this draft is that of a student preparing themselves for a course where the student's bookbag serves as the main memory, a pencil case as cache, the notebook as the CPU registers, and the ALU the lecture and instructions of the professor.

2. The Elements: The prompt explicitly asks that the metaphor elements corresponding to the main memory, cache, registers and ALU be identified.

a. For each of the computing elements below, fill in the corresponding metaphor element that was identified by the author. If you think that one has not been clearly defined indicate that by writing "Not clearly specified."

i. The main memory: A bookbag served as the metaphorical main memory in this draft.

ii. The cache: A pencil case served as the cache.

iii. The CPU registers: The CPU registers were likened to a notebook.

iv. The ALU: The ALU was considered to be the professor's instructions and lecture.

b. Of the metaphor elements identified in part a:

i. Which one did you find the most effective in illustrating the role of the corresponding computing element in a system with caching? Briefly describe why you found this element more effective than the others.

The bookbag serving as the stand-in for main memory is probably the most effective at illustrating the role of main memory in stored program architecture. The bookbag is pretty

sizeable and come in varies size depending on the need of the user just like RAM sticks in real life. Because the bookbag is variable in size and speeds (some people might prefer handbags over traditional backpacks, etc.) it's a friendly way of informing people who might not know what main memory is understand what it is and why it's useful.

ii. Which one did you find the least effective in illustrating the role of the corresponding computing element in a system with caching? Give concrete suggestions for how this could be improved. You might suggest different metaphor elements that could be used or how the chosen element could be used more effectively.

The ALU being the lecture and the instructions of the professors is a bit misleading. The ALU is a piece of hardware that can perform different calculations depending on the data inside the registers. It has already been established notebook was the registers but the end of the assignment states "that are carried out on the notebook" which possibly implies that the ALU is also the notebook. Perhaps it would be better to say that the professor himself is the ALU unit. The professor can receive inputs and output different things to be stored inside the registers inside the notebook. It's simply a matter of being more clear to the reader what exactly the ALU is.

3. Hits and Misses: The prompt explicitly asks that the metaphor be sufficiently rich to be used to explain cache hits and cache misses.

a. Does the author use the metaphor to explain cache hits and cache misses? If no, make some concrete suggestions for how these ideas might be explained using the author's metaphor and then skip to question 4.

Unfortunately, this concept is not discussed in the draft. I would recommend adding a few words about how maybe you put the wrong writing instruments in your pencil case for a class resulting in a cache miss and thus requiring the go back into the main memory to fetch those instruments. For cache hit, it could simply mean that those tools are already there for use when they are required for some operation. The cache feels like it's touched upon lightly since spatial locality is mentioned, but it's brief and needs to be clear.

b. Were the explanations of cache hits and misses factually correct? If not, briefly explain the way in which you believe that they are incorrect.

c. Make at least one concrete suggestion for how you think the ideas of cache hits and cache misses might be improved.

4. Locality: The prompt explicitly asks that the metaphor be used to explain how spatial and temporal locality contribute to cache efficiency.

a. Does the author explain spatial and temporal locality? If no, make some concrete suggestions for how these ideas might be explained using the author's metaphor and then skip to question 5.

Partially. There seems to be seems to be a light exploration on what temporal locality: things that have been used are likely to be used with the line "as well as hold the things that were used recently". However, spatial locality isn't as clear in this draft. For the spatial locality, it could be something straightforward like writing utensils next to each other are likely to be used soon so you grabbed both and put them in the pencil case.

b. Were the explanations of temporal and spatial locality factually correct? If not, briefly explain the way in which you believe that they are incorrect.

Unclear/unspecified.

c. Make at least one concrete suggestion for how you think the ideas of temporal and spatial locality might be improved.

Briefly mentioned through the line "as well as hold the things that were used recently" but not mentioned by name. Needs extra lines to make it clear to the reader what these two localities are and why they are incredibly important to the cache and the process of caching

5. Length: The target length was 400-600 words. However, that is not a hard limit. More important here is whether the writing is of an appropriate length to address the prompt <u>both full and concisely</u>.

a. If the author were to add to their response, which topic(s) would benefit from additional explanation? What concrete suggestions do you have for doing so?

The two topics that would benefit greatly from a rewrite are spatial and temporal locality as well as cache hits and misses. I have made some suggestions above, but you should clearly state how they work in their metaphor as well as clearly define what they relate to. If somebody who hasn't never taken Computer Abstractions before read this, then they might feel confused about the metaphor if it doesn't explicitly state which parts of the metaphor refer to what hardware and processes.

b. If the author were to shorten their response, what topic(s) could be explained equally well in fewer words? What concrete suggestions do you have for doing so?

This assignment doesn't suffer from being too long. I think the writing thus far is pretty concise and to the point. It just needs a little work in some areas.

b. Would you recommend expanding or contracting the overall length of the draft? Briefly explain why and how you might suggest implementing your recommendation.

It would be beneficial to expand the overall length of the draft to further cover temporal and spatial locality as well as cache hits and misses. These are important topics, and I cannot see the author implementing these changes without the overall length of the assignment increasing as well.

6. Final Thoughts: Is there any additional praise or constructive feedback that you would like to offer that did not fit into your responses to earlier questions? This would also be an appropriate location to make constructive suggestions about structural or grammatical issues with the writing.

There were no issues with the grammar or structural aspects of your draft. I think you did a great job of creating a metaphor that people can relate to. You just require the extra push to explain some concepts that are critical to the understanding of caching and its place making programs run faster. I wish you the best on that endeavor.