

**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 author uses the metaphor of a student preparing for classes as a metaphor for caching and its processes. The main memory is compared to a backpack, the cache is compared to a pencil case, the registers are the notebook, and the ALU is the lecture/instructions from 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: [Backpack](#)
- ii. The cache: [Pencil case](#)
- iii. The CPU registers: [Notebook](#)
- iv. The ALU: [Lecture/Information from professor](#)

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.

[Describing the backpack as the main memory was effective. It was clear how the backpack acts as the main memory because it contains all of the materials a student would need, like how the main memory stores the data needed in a program.](#)

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.

I believe describing the ALU as the lecture/information from the professor could be strengthened. The ALU is what performs operations, so it may be a stronger metaphor if you compare the ALU to the student's brain.

**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.

No, cache hits and misses are not explained. Using the author's metaphor, I would describe a cache hit as if a student had the materials they needed in their pencil case. Conversely, a cache miss would be if a student did not have the materials they needed in their pencil case and they had to go into their backpack (main memory) to get the correct materials.

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.

N/A- these are not explained

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

N/A- these are not explained

**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.

No, spatial and temporal locality is not explained. Spatial locality could be described as the student having materials in their pencil case that will be needed to use in succession, such as a pen and a highlighter. For example, the student writes something with a pen, and then highlights it to show its importance. This is similar to grabbing 2 data instructions that need to be used in succession. Temporal locality can be described as the student keeping something like their calculator in their pencil case because they will need to use it again and again for multiple problems.

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.

N/A- these are not explained

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

N/A- these are not explained

**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 both full and concisely.

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?

Currently this essay is around 360 words. I would suggest adding sections where you describe cache hits/misses, and spatial/temporal locality. By doing that, I am sure that you will be within the target length.

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?

I think that the author concisely describes their metaphor in a way that shortening their response would take away from the clarity. Therefore, I suggest that nothing is taken out.

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

I recommend expanding the overall length of the draft. As stated above, adding to your metaphor to describe cache hits/misses and spatial/temporal locality would be helpful.

**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.

I believe it may be helpful to the reader to split your essay into separate paragraphs. I suggest doing this by having an introduction paragraph about the main parts of the metaphor, a

paragraph for spatial/temporal locality, and a paragraph for cache hits/cache misses. Additionally, I suggest that you should describe the metaphor in the beginning of the essay, rather than at the end. (when you say what the cache, ALU, registers, etc. are)