

Homeostasis and Your Critter

At this point, you should have a good understanding of the complex systems and processes that are involved in the concept of homeostasis and living organisms. This helps living systems maintain an internal condition of dynamic balance even when external conditions change dramatically.

You now want to apply what you have learned about homeostasis to your critter.

1. Homeostasis summary

- a. Summarize your understandings of homeostasis. Include a definition in your own words and describe several examples.
- b. Explain why it is important for organisms to maintain homeostasis. Give examples of scenarios when homeostasis is disrupted.

2. Your critter and its environment

- a. Read over your description and look over your sketch of your critter. As you read, think about scenarios in which the homeostasis of your critter would be challenged.
- b. List at least 5 specific environmental stressors that your organism would likely experience in its environment.

3. Homeostasis and your critter

- a. Develop a response to this question:
 - i. In what ways does your critter maintain its internal environment, considering the external stressors that it experiences?
 - 1. You will know that you have adequately addressed the question if your response includes an explanation, illustration or demonstration of the following:**
 - a. How your critter responds to changes in external temperature
 - b. How your critter regulates water balance
 - c. How your critter responds to at least 2 other stressors caused by changes in the external environment
 - d. A discussion of the organ systems that are involved in a-c

Documents to add to your portfolio:

1. Summary of homeostasis
2. Explanation why it is important for organisms to maintain homeostasis
3. List of at least 5 stressors
4. Answer to question: In what ways does your critter maintain its internal environment, considering the external stressors that it experiences? Your answer should include a-d in statement #3 above.

Criteria	Excellent 5 4	Could Be Improved 3 2	Needs Substantial Improvement 1 0 (missing)
1. Homeostasis description	Paragraph describing homeostasis clearly summarizes the relationship between the external and the internal environments	Paragraph provides a general summary of relationship between external and internal environments	Paragraph briefly reviews differences between external and internal. Some information is inaccurate.
2. Importance of Homeostasis description	Description shows a clear understanding of the need for restoring normal internal conditions	Description shows general understanding of the need for restoring normal internal conditions	Description uses general terms to briefly describe need for responses that change internal conditions. Some information is inaccurate
3. List of 5 stressors	List of stressors includes at least 5 significant factors that would logically occur and require an internal response from a critter living in the habitat.	List of stressors includes fewer than 5 stressors.	List of stressors includes fewer than 3 stressors. Some information is inaccurate.
4. Explanation of temperature regulation	Explanation clearly describes both behavioral and physiological responses to hot and cold stressors, identifying organ system involved.	Explanation does not clearly describe behavioral and physiological responses to hot or cold stressors.	Explanations do not distinguish between behavioral and physiological responses. Some information is inaccurate
5. Explanation of water balance regulation	Explanation clearly describes behavioral and physiological responses, including organ systems involved..	Explanation does not clearly describe behavioral and physiological responses to a lack of water.	Explanations for organ systems involved are not logically tied to the stressors and responses.
6. Explanation of at least 2 other stressors	Explanations included clearly described behavioral and physiological responses, identifying all organ systems involved.	Description of the interactions between at least 2 systems shows a general understanding of homeostasis	Descriptions of the interactions of systems reveals misunderstandings or is inaccurate about systems/ homeostasis.
7. Explanation for organ system interactions involved in homeostasis	Description clearly evidences a thorough understanding of the complex and dynamic nature of homeostasis.	Description shows a general understanding of homeostasis.	Descriptions of the systems reveal misunderstandings about systems and homeostasis. Some information is inaccurate or incomplete
Total points _____/35	Subtotal points _____	Subtotal points _____	Subtotal points _____