

Introduction to Anatomy and Physiology
Chapter One Study Guide
Tortora & Derrickson

1. What is the purpose of science?
2. Why should you want to study science? (Science is a _____ and science is an _____!)
3. What is the difference between a man-made law and nature's-laws?
4. What is the scientific method?
5. What is a hypothesis?
6. What is a theory?
7. What is the modern cell theory? Significance?
8. What is evolution? Significance of a mutation?
9. What is natural selection? (Explain this using brown bears and polar bears.)
10. What is the relationship between evolution and natural selection?
11. When scientists and laypeople (i.e. non-scientist) debate topics, they often use the same words but their understanding of what the words mean often differ. Unfortunately, this breakdown in “language” results in mistrust and misunderstanding. This often then results in bad public policy. How are the terms hypothesis and theory used differently by scientist and lay-people and how has this resulted in a confused public discourse? (Do this in the context of evolution.)
12. In a survey, more people said that they are more likely to believe in gnost than in evolution. Is this a problem?
13. What is physiology?
14. What is anatomy?
15. Why do we study physiology and anatomy together?
16. What is histology?
17. What do humans and bacteria have in common?
18. What is the “hierarchy of complexity”? Significance? What are the individual steps between atoms and organisms?
19. What is the only non-essential system for life?
20. What is metabolism? Where does metabolism occur?
21. What is a metabolic pathway?
22. What are the two forms of metabolism?
23. What molecule is required for metabolism? (Hint: It's a biocatalyst.)
24. What is a second newly recognized molecule that acts like a biocatalyst? (new science)
25. What molecule provides energy for cellular work (i.e. metabolism)? Nick-name?
26. What is homeostasis? Significance?
27. What occurs when homeostasis fails?
28. What “two communication systems” regulate homeostasis? What is the “boss” of these two systems?
29. What two word phrase best describes the “state of the internal environment” in the human body?
30. What are the two feedback mechanisms used to “regulate” the human body?

31. What feedback mechanism is similar to how a furnace regulates your house temperature?
32. Which regulatory mechanism “returns or restores” the body to its normal state following a change?
33. Which regulatory mechanism is “self-amplifying”? What does this mean?
34. Explain how these terms (receptor / integrating center / effector) apply to both negative and positive feedback mechanisms.
35. What do we call the event detected by a receptor?
36. What are examples of negative and positive feedback mechanisms?