

Name: _____ Date: _____ Block: _____

Miller and Spoolman's Living in the Environment 16th ed.

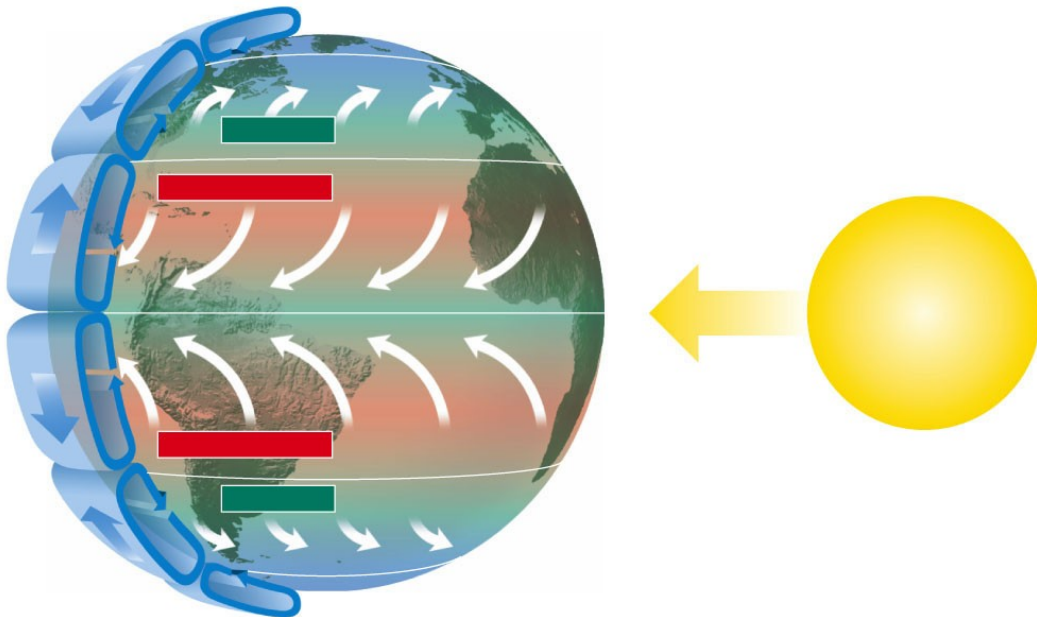
Chapter 7 Reading Guide – Climate and Terrestrial Biodiversity

Case Study – Blowing in the Wind: Connections between Wind, Climate, and Biomes

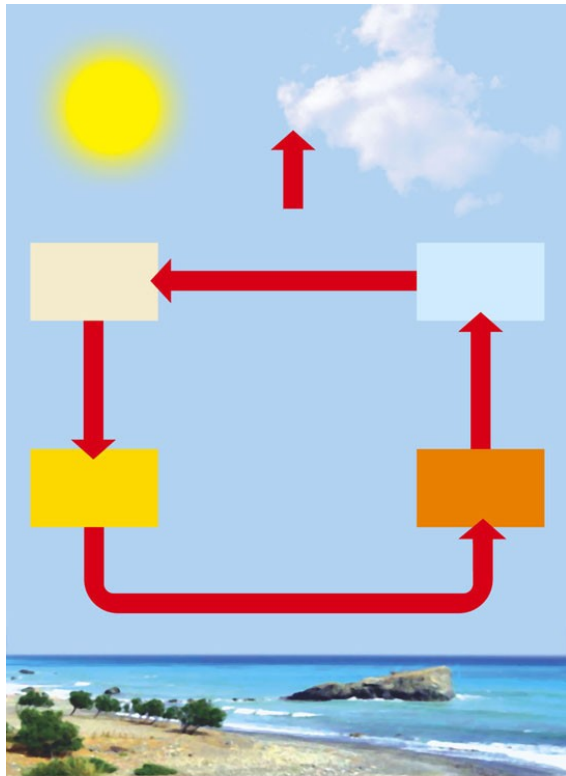
1. Explain the importance of wind and its negative effects.
2. Using wind, make the case that everything is connected.

Section 7-1 – What Factors Influence Climate?

3. Explain uneven heating of Earth's surface by the sun, and the important effect of this on global climate.
4. Explain rotation of the Earth on its axis and how it affects global climate.
5. How do properties of air, water, and land affect global climate?
6. Label the following diagram and use it to explain how global wind patterns affect climate in particular areas.

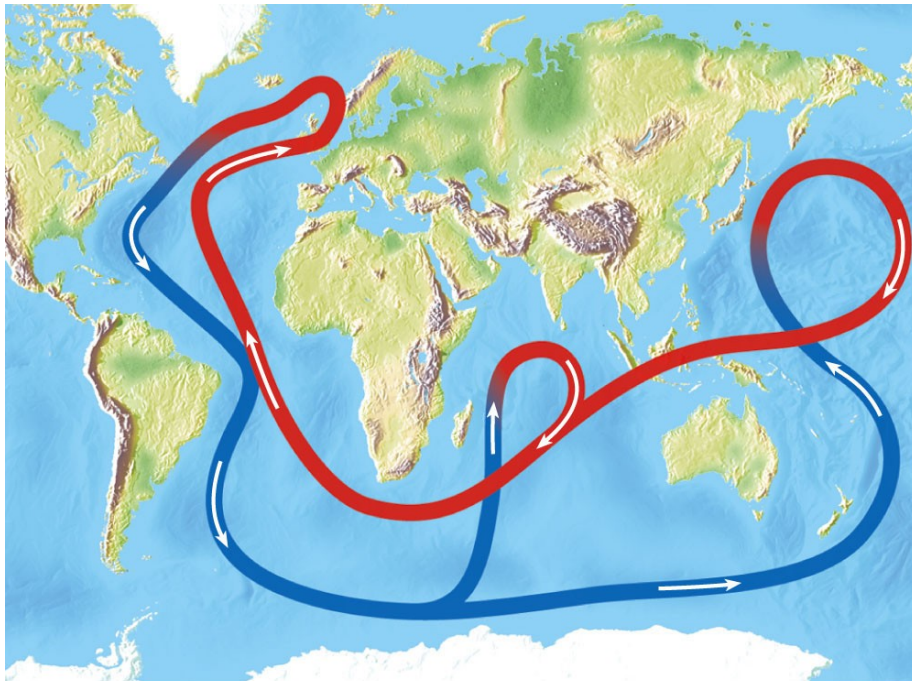


7. Label the following diagram to explain convection currents in the atmosphere.



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8. Label the following diagram and explain the effects of ocean currents on climate.



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9. Explain the importance of the greenhouse effect in global climate.
10. Distinguish between greenhouse effect and human-induced global warming.
11. Explain the rain shadow effect.

Section 7-2 – How Does Climate Affect the Nature and Locations of Biomes?

12. Using Supplement 4 (p. S20) and the figures in 7-2, explain the mosaic patchwork of biomes, and relate it to the other important components in Earth's biodiversity.
13. Compare and contrast the three types of desert biomes.
14. Why do deserts and arctic tundra support a much smaller biomass of animals than do tropical forests?
15. Compare and contrast the three major types of grassland biomes.
16. Describe temperate shrubland. Why is it considered both nice and risky?
17. Compare and contrast the three major types of forests.
18. List a limiting factor for each of the following ecosystems:
 - a. Desert
 - b. Arctic tundra
 - c. Temperate grassland
 - d. The floor of a tropical rain forest
 - e. Temperate deciduous forest
19. Explain the phrase "islands of biodiversity" as it relates to mountains.
20. What are mountains ecological roles?
21. Why do most species living in high altitudes tend to have generalist ecological niches while those living in the tropics tend to have specialist ecological niches?

Section 7-3 – How Have We Affected the World's Terrestrial Ecosystems?

22. According to the 2005 Millennium Ecosystem Assessment and supplement 4, explain the current state of the world's biomes (major terrestrial ecosystems).

23. Be familiar with the Major Human Impacts on Terrestrial Ecosystems as listed in Figure 7-20.
24. List any questions you have after reading this chapter. We will discuss these at the beginning of class.