1. Compare and contrast paracrine and endocrine signaling.
2. What distinguishes autocrine and paracrine signaling.
3. What chemical characteristic distinguishes signals that bind cytoplasmic receptors from membrane receptors?
4. What are the three major types of membrane receptors?
5. G proteins are often described as “molecular switches.” Why is this description apt?
6. Give an example of three different secondary messengers and explain how the cell generates each messenger? Explain how each secondary messenger results in “amplification” of the signal.
7. Explain how a kinase cascade “amplifies” a signal.
8. After an enzyme has been activated by phosphorylation, what inactivates it?
9. What is the significance that many signal transduction pathways end in activation of a transcription factor?
10. Explain how two different cell types might respond differently to the same signal.
11. What is “reverse ligand binding”?
12. Based on the figure in the powerpoint presentation, would nitric oxide best be described as a(n) autocrine, paracrine or endocrine signal?
13. What is ethylene?
14. Outline the molecular mechanism by which each of the following influence cell communication. Cholera, Botulism, Viagra
15. Discuss whether a ligand gated ion channel has the potential to directly amplify a signal?
16. Discuss whether a G protein has the potential to directly amplify a signal?

Complete the following concept check questions from within chapter 11
11.1 (1,2) 11.2 (1), 11.3 (1,2,3) 11.4 (1,2)

Complete the self quiz at the end of chapter 11 (questions 1-10)

Complete the activities quiz on the web site (questions 1-24)

Complete the chapter review on the web site (questions 1-37)