

# Chapter 30 & 31 Essential Knowledge

1. How is seed germination affected by the availability of water and temperature?
2. How is genetic engineering being used to improve plant crops?
3. Explain apoptosis (programmed cell death).
4. Read the following article: <http://onlinelibrary.wiley.com/doi/10.1111/j.1469-8137.2008.02549.x/pdf> and explain how apoptosis plays a role in the normal development and differentiation of organisms. (also see pg. 315) This should be at least 1 paragraph in length.
5. Describe how a plant's environment acts as a stimulus for plants in the following processes:
  - a. phototropism
  - b. photoperiodism
6. Copy figure 31.14 (pg 628) and explain how the phytochrome molecule is using external signals to control the plant's physiological processes.
7. Summarize figure 31.24 (pg 637).
8. Explain how the external environmental signals in the yeast cell communication lab regulated the reproductive cycle of yeast.
9. How does photoperiodism in plants regulate flowering and preparation for winter. Hint: Look at figure 31.16.
10. Describe plant defenses against pathogens in the following categories:
  - a. molecular recognition systems
  - b. infection triggering chemical responses
  - c. How do plants destroy infected cells to keep the infection localized?