Name _____ Period _____

Chapter 37: Soil and Plant Nutrition

Concept 37.2 Plants require essential elements to complete their life cycle

1. What is an *essential nutrient*?

2. What are the nine *macronutrients*? List them in order of relative abundance in plants. (You may use atomic symbols.)

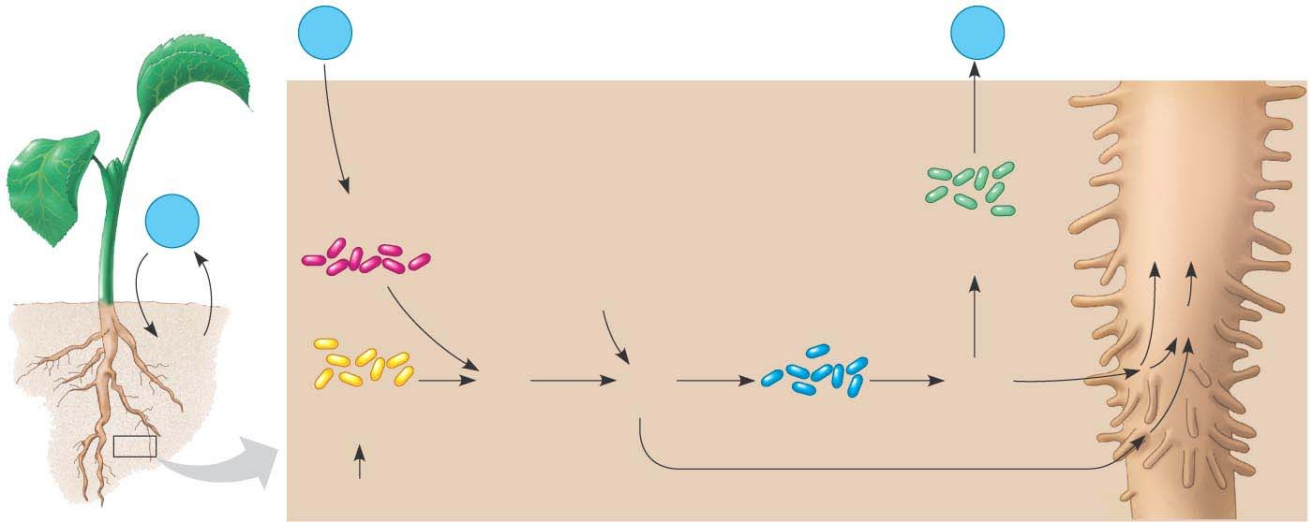
3. What is a primary role of magnesium?

4. What three macronutrients are most commonly deficient? You should notice that these are the same three nutrients found in most fertilizers.

Concept 37.3 Plant nutrition often involves relationships with other organisms

5. Which nutrient is most limiting to plant growth on a global scale?

6. Plants have mutualistic relationships with bacteria that help make nitrogen more available. *Nitrogen-fixing* bacteria such as *Rhizobium* are able to convert atmospheric nitrogen (N_2), which plants cannot use, to ammonia (NH_3), which they can use. Review the *nitrogen cycle* by labeling this diagram.



7. Where is the nitrogen-fixing bacterium *Rhizobium* found?

8. The principle of *crop rotation* employs alternation of a crop that depletes nitrogen with a legume crop that fixes nitrogen. In the United States, this often means alternation of corn with soybeans. Which of these two crops is the nitrogen depleter? The nitrogen fixer?

9. How do *mycorrhizae* enhance plant nutrition?

10. In many parts of the eastern United States, garlic mustard has become a serious pest. What is its negative impact on native species, and how does it appear to do this?

11. What is an *epiphyte*? Name three different plant types that are epiphytic.

12. *Dodder* and *Indian pipes* are nongreen, nonphotosynthetic flowering plants. How do they obtain nutrients?

13. *Carnivorous plants* such as the Venus flytrap and sundews are photosynthetic. Why, then, do they capture insects?

Testing Your Knowledge: Self-Quiz Answers
Now you should be ready to test your knowledge. Place your answers here:

1._____ 2._____ 3._____ 4._____ 5._____ 6._____ 7._____

8._____ 9._____ 10._____