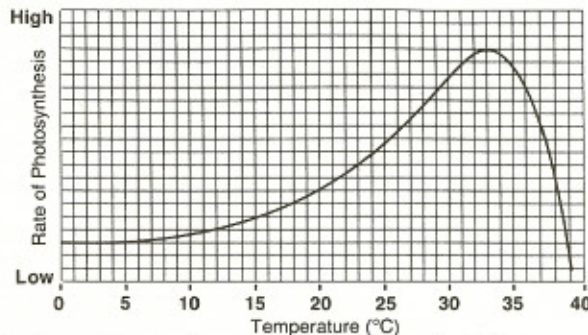
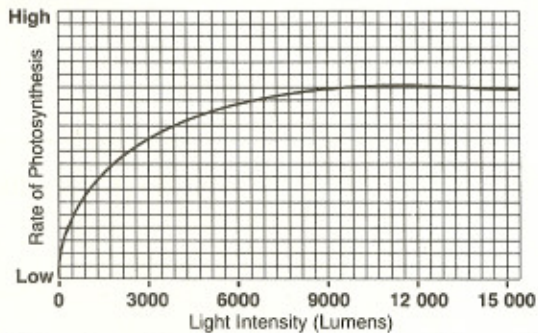


CHAPTER 6 CRITICAL THINKING / PROBLEM SOLVING

TWO FACTORS AFFECTING PHOTOSYNTHESIS

The rate at which photosynthesis occurs is not always the same. The amount of light, the level of temperature, the supply of carbon dioxide, the supply of water, and the availability of minerals are important factors that affect the rate of photosynthesis in land plants. The rate also varies by the species and its health and maturity. The two graphs below show the effects of light intensity and temperature on the rate of photosynthesis in land plants. These two factors affect many enzymes that control photosynthetic reactions. (Light intensity is measured in lumens, the SI unit of light flow.) Study the graphs and answer the questions.



1. What does Graph 1 tell about the effect of light intensity on the rate of photosynthesis?

2. What happens when the light intensity rises over 9000 lumens?

3. What adaptive advantages would a plant have if its photosynthetic rate kept increasing above 9000 lumens?

4. What does Graph 2 show about the effect of temperature on the rate of photosynthesis?

5. What happens when the temperature rises past 33°C?

6. What might cause this change?

7. What light intensity and temperature levels allow the highest photosynthesis rate?
