Worksheet and Quiz

Explain the reasons for

a) a large area of thylakoid membrane in the chloroplast

b)low rates of photosynthesis growing beneath trees, where the light has already passed through the tree's leaves.

c) large amounts of RuBP carboxylase in the chloroplast.

Explain the relationship between the absorption and action spectrum.

Outline the induced fit model of enzyme activity.

State two products of the light-dependent reactions.

Explain the light-independent reactions in photosynthesis.

This is also known as the calvin cycle. It uses ATP and NADPH to convert CO2 to triose phosphate. First, each CO2 molecule is attached to RuBP which splits in half and makes two G3P. Next is reduction. Each glycerate 3 phosphate molecule is phosphorylated by ATP and reduced by NADPH. Then, each molecule is dephosphorylated. Finally, RuBP is regenerated.

How is the proton gradient generated in chloroplasts during photosynthesis?

Flow of electrons from carrier to carrier in the thylakoid membrane causes pumping of protons across the thylakoid membrane.

Chlorophyll is the dominant pigment in the chloroplast that absorbs red and blue wavelengths and transmits and reflects green light making plants green. As temperature increases, the rate of photosynthesis increases until the optimum temperature is reached. If the temperature continues to increase past the optimum temperature, the rate of photosynthesis decreases dramatically. As the carbon dioxide concentration increases, so does the rate of photosynthesis. However, when it reaches the