

Grade 6			
Ch. 2 Lesson 4			
Life Science			
Page #	Question	Answer(s)	Links/Sources
72	Where do carbon dioxide and water come from?	*Carbon dioxide comes from the air and water comes from the soil.	
72	What is the role of the Sun in this reaction?	*The Sun provides the energy to power the photosynthesis reaction.	
72	Why can a plant make food and not you?	*Plants have chlorophyll.	
72	How do they get energy?	Sample answer: Plants get their food by converting light energy into chemical energy.	
72	What is a plant's food?	Sample answer: The plant's food is sugar (glucose).	
72	How do animals benefit from this captured energy?	Sample answer: They get the sugar by eating plants.	
72	What would happen if photosynthesis did not occur?	Sample answer: Most life on Earth would die, because they would not be able to get the energy needed for life.	
73	Which structures control water loss?	*Guard cells, cuticle, and epidermis.	
73	What do you think the epidermis protects the leaf from?	*Disease, fungus, water loss.	
73	How are the palisade layer and spongy layer different?	*The palisade layer is one cell thick. The cells are tall and rectangular in shape and are packed tightly together. The spongy layer has randomly spaced cells with air spaces between the cells.	
73	Where does the light reaction take place in the leaf, and how is it different from the dark reaction?	*It occurs in the stacked membrane sacs (grana) of the chloroplasts. This reaction occurs mainly in the palisade layer and in the spongy mesophyll and occurs only when sunlight is present. The difference is that in the light reaction light energy is used to produce ATP, in the dark reaction energy from ATP is used to produce glucose.	
73	What color is mentioned in Genesis 1:30?	*Green plants are mentioned in Genesis 1:30 as providing for all creatures.	

73	What does this have to do with the process of photosynthesis?	*Plants look green because of the chlorophyll in their chloroplasts. It is the chlorophyll that traps the Sun's energy during the process of photosynthesis.	
73	How do the guard cells support photosynthesis?	*Guard cells open and close the stomata (pores) to let carbon dioxide enter and oxygen to leave the leaf.	
73	What are the products of the dark reaction?	*Carbon compounds and water.	
73	Where do they occur?	*In the stroma of the chloroplasts.	
73	Explain the role of the veins in photosynthesis.	*After the complex reactions of photosynthesis are completed, the veins transport the sugar and starch to other parts of the plant.	
74	What is produced by photosynthesis?	Sample answer: The products of photosynthesis is glucose (sugar) and oxygen.	
74	What effect does a mixture of baking soda and water have on photosynthesis?	Sample answer: It increases the rate of photosynthesis.	
74	How does the color of light affect photosynthesis?	Sample answer: Different colors of light result in different rates of photosynthesis. White light and red light produce the highest rate of photosynthesis.	
75	Where do the two steps of respiration occur?	*The first step occurs in the cytoplasm. The second step or series of reactions occurs inside the mitochondria	
75	If God is like the Sun, and photosynthesis is like spending time with Him in prayer and Bible study every day, what might be a spiritual representation for cell respiration?	*Sample answer: Remembering and applying what you learned from your Bible reading as you make your decisions, claiming God's promises to give you wisdom in school, asking for strength to do what is right or courage to share your faith.	
75	How are the processes in the cytoplasm different from those in the mitochondria?	*Sample answer: The processes in the cytoplasm do not require oxygen. They also produce ATP.	
76	How do photosynthesis and cell respiration interact?	*Sample answer: They each use each other to produce the chemical materials for reactions and store energy interchangeably in the form of ADP and ATP.	

76	Can air or oxygen enter a bottle or balloon from outside? Why or why not?	*Because the balloon seals the bottle.	
76	What is the source of energy for this process?	*The source of energy is sugar.	
76	Which organism performs the process?	*Yeast (unicellular organisms) performs the process.	
76	What happens during cellular respiration?	*The cell breaks down sugars for energy.	
77	What role do these reactions play in meeting the energy needs of the cell?	*Each provides the location where reactions that produce ATP and ADP can occur providing the source of energy that all life on Earth depends upon.	
77	What similarities do you see between the two processes?	*The same basic molecules are used in each process: oxygen, water, carbon dioxide, ATP, and sugar.	
78	Why do you think Pasteur believed the structure of crystals showed God's artistic expression?	*Sample answer: Pasteur may have hypothesized that the orientation was designed by the Creator as a characteristic of life.	
79	What do they need to do to identify such agents?	*Students may say they need to follow the scientific method and research to find the agents.	
79	Why is what they do valuable?	*It can prevent the introduction and spread of new diseases.	
	* Means the answer is found in the TE.		