

Grade 6			
Ch. 2 Lesson 2			
Life Science			
Page #	Question	Answer(s)	Links/Sources
56	Where does the prokaryotic cell store the genetic material?	*In the cytoplasm	
56	What protects the nucleus and separates it from the cytoplasm of the eukaryotic cell?	*The nuclear membrane	
56	What are the words used to describe those two categories?	Unicellular and multicellular	
56	What have you learned about cells so far?	Sample answer: Student have learned about the main characteristics of cells, the basic structure of cells and how the cell transports things.	
56	What characteristics would you use to separate cells into two groups?	Sample answer: How big the cells are, by their shape, by what parts they have or don't have.	
56	How do you think the nuclear membrane controls the movement of materials in and out of the nucleus?	Sample answer: It must have some kind of openings that allow materials to pass in and out, maybe like the cell membrane.	
57	Is an amoeba a prokaryotic or a eukaryote? How do you know	*An amoeba is a eukaryote. It has many different types of organelles, including a nucleus.	
57	How do you think a prokaryote cell duplicates or reproduces?	Sample answer: It duplicates its chromosomes then pinches in half making sure that each half gets half the cytoplasm and full set of chromosomes.	
57	What are some other characteristics of prokaryotes and eukaryotes?	Sample answer: They both have cell genetic material, they both reproduce, they both use energy, they both are microscopic.	
58	How does the volume of a cube change when the surface area changes?	Sample answer: It increases faster than the surface area.	
58	What is the surface-area-to-volume ratio of a flat object?	Sample answer: The surface area and volume are the same.	
59	Do think a cell can carry out its life functions efficiently if it were larger? Why or why not?	Sample answer: If cell is larger it requires more raw materials, space, and energy. The larger the cell, the more difficult it is to pass nutrients and gases in and out of the cell.	

59	How much more surface area do the smaller cells have?	Subtract $16,200\ \mu\text{m} - 5400\ \mu\text{m} = 10,800\ \mu\text{m}$	
59	How does a higher total surface area affect the rate at which nutrients enter and wastes exit cells in an organism?	*With more total surface area, the cell can get the nutrients they need to function. The cells can also remove wastes more efficiently with a larger surface area.	
59	What is surface area?	*Surface area is the total area of all the faces of a solid object.	
59	As the surface area of the cell increases, what happens to the overall volume of the cell?	*Volume increases much more as the surface area increases.	
59	What are some advantages several small cells have over one large cell?	*Sample answer: The small cell can take in nutrients and release wastes at a higher rate because of its higher surface-area-to-volume ratio.	
60	What does Ephesians 4:11 describe that is like cell specialization?	*Ephesians 4:11 describes some of the different roles Jesus has given his followers: apostles, prophets, evangelists, pastors, and teachers. Point out that verses 12-15 that the purpose of all of these is to build up the body of Christ in unity, knowledge, and love.	
60	How does the form of these specialized cells relate to their jobs?	*Sample answer: The main job of blood cells is to circulate through the body, so they need no nucleus to direct their activities. The shape allows them to squeeze through the capillaries.	
60	What differences do you see in models of prokaryotic and eukaryotic cells?	*Sample answer: The eukaryotes have a nucleus inside. There are more organelles inside eukaryote cells than the prokaryote cells,	
60	What is another way you would classify cells?	Sample answer: They could be classified, by the structures they have, or by functions they perform.	
60	Do you think classifying cells by size might be helpful?	Sample answer: Size would not be helpful.	
60	What about classifying them based on their shape?	Sample answer: Shape might work, but shape is not always consistent.	
60	Would this method of classification be most helpful in studying prokaryotes or eukaryotes? Why?	Sample answer: Eukaryotes.	

60	You might think that would make all the cells identical but that is not the case. Why?	Sample answer: Because different cells respond to different DNA instructions, based on their individual functions.	
	* Means the answer is found in the TE.		