Name	Period
AP Biology	Date

RAVEN CHAPTER 9 GUIDED NOTES: HOW CELLS HARVEST ENERGY

1.	De	fine the following terms		
	a.	autotrophs		
	b.	heterotrophs		
		digestion		
		catabolism		
		aerobic respiration		
	f.	anaerobic respiration		
		fermentation		
2.		what bonds is the chemical energy stored in fats and in carbohydrates?		
3.	Но	w is energy stored in chemical bonds?		
4.	lde	entify some activities the cell uses ATP for.		
5.	Ex	plain why ATP is such a "high energy" molecule.		

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6.	How does ATP drive endergonic reactions? How does ATP function in "coupled re	actions"?		
7.	Explain how ATP synthase produces ATP.			
8.	Briefly distinguish between the two methods of producing ATP in respiration: a. substrate-level phosphorylation			
	b. aerobic respiration			
9.	List the four stages of cellular respiration:			
	ab.			
	c			
10	d.			
10	List two classes of prokaryotes that utilize anaerobic respiration and explain what they use as electron acceptors (instead of oxygen).	molecules		
	a			
	b			

- c. produces?_____
- d. yields how much ATP?_____
- 14. If the body has enough ATP, what is the fate of acetyl-CoA?

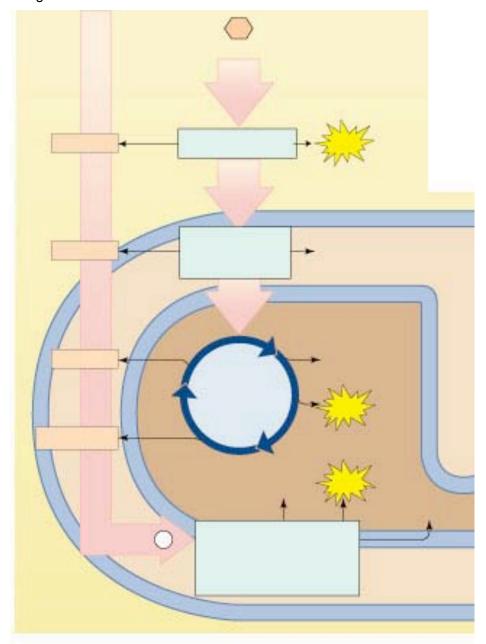
15. STAGE 3: The Krebs Cycle

- a. occurs where? ______
- b. starts with?
- c. produces?_____
- d. yields how much ATP?_____
- e. produces ATP through what process?

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16.	6. What is the major function of the Kreb's cycle?	
	-	
17.	Define each of the following:	
	a. oxidation	
	b. reduction	
18.	What are the roles of NAD ⁺ & FAD ⁺² in respiration?	
19.	STAGE 4: The Electron Transport Chain	
	a. occurs where?	
	b. starts with?	
	c. produces?	
	d. yields how much ATP?	
	e. produces ATP through what process?	
20.	What is the final electron acceptor in the Electron Transport Chain?	
21.	Describe the role of the Electron Transport Chain. What happens to the electron	ns and H⁺?
22.	. What is chemiosmosis and how is it generated?	

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23.	Ex	plain why respiration is considered exergonic.
24.	Wh	nat is the main reason energy is harvested <u>in stages</u> in respiration
25.	Wr	nat happens to most of the energy released during cell respiration?
26.		nat is the theoretical ATP yield of aerobic respiration?the actual yield? Explain why
27.		entify examples of each of the following feedback mechanisms in aerobic respiration:
		negative feedback positive feedback
28.	Wr	ite the summary equation for cellular respiration:
		Where did the glucose come from? Where did it go?
		Where did the CO2 come from? Where did it go?
		Where did the ATP come from?
	f.	What else is produced that is not listed in this equation?

29. Label the diagram.



- 30. What is the fate of these other organic molecules when they are used as fuel molecules:
 - a. proteins _____
 - b. fats _____
 - _____

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31.	. <u>Fе</u>	<u>Fermentation</u>		
	a.	Alcoholic fermentation converts glucose to		
	b.	Alcoholic fermentation is utilized by what organisms?		
	С.	Lactic acid fermentation converts glucose to		
	d.	Lactic acid fermentation is utilized by what organisms?		
32.	Bio	g Picture Thought Questions		
	a.	Why do we eat?		
	_			
	b.	Why do we breathe?		
	_			