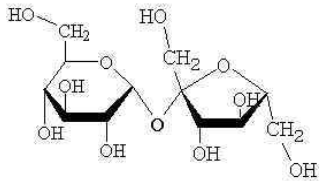


## Chemical Basis of Life Review

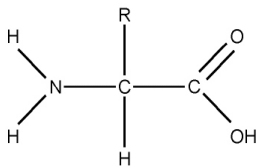
### Hearts



1. What is the chemical formula for galactose?
2. Identify the following molecule:



3. The monomer of all important polysaccharides is:
4. What is the consequence of the second law of thermodynamics.
5. What are covalent bonds and why do they form?
6. The name of the bond that links amino acids together is called...
7. Name 2 types of tertiary protein structures. (2)
8. Why are weak acids (or weak bases) used to construct a buffer?
9. Identify the following molecule:



10. Sketch and name the functional group found in all organic acids. (2)
11. Why do atoms react with each other?

Enzyme Review  
Diamonds



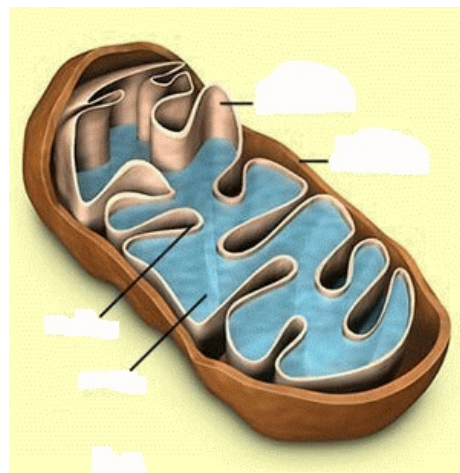
1. What does a catalyst do in a chemical reaction?
2. What is the relationship between the substrate and the active site?
3. When investigating enzyme activity, what are two possible independent variables? (2)
4. Explain what an enzyme does during a condensation reaction.
5. Structure determines \_\_\_\_\_.
6. How does an acidic solution effect the tertiary structure of a protein?
7. Explain how competitive inhibition saved Lorenzo's life.
8. Why is Ribulose bisphosphate carboxylase/oxygenase (rubisco) possibly the most important enzyme on earth?
9. What is allosteric inhibition?
10. Lorenzo had a defective protein. What is the normal function of this protein?
11. What does catalase do and why is it necessary in living cells? (2)

## Cellular Respiration Review

### Spades



1. What is the chemical equation for aerobic cellular respiration?
2. Why is oxygen a necessary part of aerobic cellular respiration (ie. where is it used in the series of reactions)?
3. Where do the following reactions take place? (3)  
glycolysis:                      Kreb's cycle:                      ETC:
4. What is the role of ATP in the cell? Give a specific example.
5. Name and explain the single most important reaction for energy transfer. (2)
6. Explain substrate level phosphorylation
7. When does pyruvate oxidation occur and why is it important? (2)
8. If anaerobic cellular respiration only makes 2 ATP, why do yeast and animals perform it?
9. How many ATP are made when just using the electron carriers produced during a single Krebs cycle? (3)
10. Label the following diagram: (2)



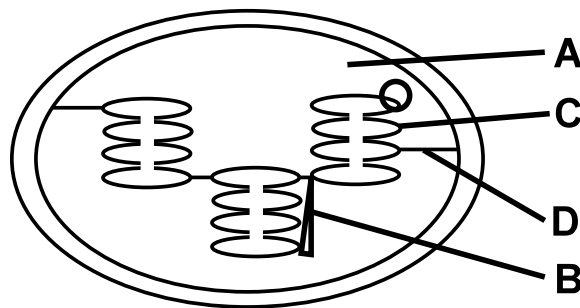
11. Cyanide prevents oxygen gas from accepting electrons. What is the result of this?

# Photosynthesis Review

## Clubs



1. What is the chemical equation for photosynthesis?
2. Where do the following reactions take place:  
light dependant reactions:  
dark reactions (Calvin Cycle):
3. Explain the following statement: "Without cellular respiration, photosynthesis would come to a halt."
4. How many molecules of carbon dioxide must enter the Calvin Cycle to produce one molecule of glucose?
5. In your opinion, what is the most important product of the light reaction in plants, for humans? Justify.
6. Why do plants appear green?
7. "The dark reactions stop in the dark", explain this statement.
8. Why is a high surface area in the chloroplast important for its survival?
9. Why is water broken during photosynthesis?
10. Label the following diagram (2)



11. Why does spinach extract turn red in bright light?

