



## Biology Benchmark Study Guide Key

1. What organelle would active cells need the most of? **Mitochondria**
2. How does an enzyme affect the activation energy needed to start a chemical reaction? **It gets lower**
3. If a cell makes a lot of protein, what organelle must it also have a lot of? **Ribosomes**
4. Which macromolecule provides energy? **Carbohydrates**
5. What macromolecule stores and transmits genetic information? **DNA**
6. What macromolecule would give immediate energy to sustain a vigorous workout? **Carbohydrates**
7. What is formed when you connect many glucose monomers together? **Polysaccharides (starch)**
8. Which group of macromolecules are enzymes classified into? **Proteins**
9. Which macromolecule can catalyze (speed up) chemical reactions by lowering the activation energy?  
**Enzymes**
10. What are proteins made of? **Amino acids joined by peptide bonds**
11. What do chloroplasts do? **Carry out Photosynthesis**
12. What structure acts as a barrier between the inside and the outside of the cell? **Cell membrane**
13. What part of a plant cell provides support because it is very rigid? **Cell wall**
14. What property of the cell membrane describes its ability to move certain materials in and out of the cell?  
**Selective permeability to allow only certain materials to pass through**
15. What organelle stores water and dissolved wastes? **Vacuole**
16. What kind of cell does not have a nucleus? **Prokaryotic (bacteria)**
17. Where does the enzyme attach to the substrate? **Active site**
18. How does an enzyme start to catalyze a reaction? **The enzyme binds to a specific active site of a specific substrate**
19. What two organelles obtain and use energy? **Chloroplasts and mitochondria**
20. What cells may contain a cell wall? **Plant cells and some bacteria**
21. What part of a cell controls all of its activities? **Nucleus**

22. Which organelle can transport macromolecules around within a cell? **Endoplasmic Reticulum (E.R.)**
23. What organelle makes proteins? **Ribosomes**
24. What are cell membranes made of? **Two layers of phospholipids with proteins inserted**
25. What is inside of the nuclear membrane? **Nucleolus**
26. What is another name for enzymes? **Catalysts**
27. Give some examples of enzyme names. **Lactase, protease, helicase**
28. What macromolecule covers many plants to form a waterproofing “waxy” layer that prevents water loss? **Lipids**
29. Which type of macromolecule regulates heredity? **Nucleic acids**
30. Name two nucleic acids. **DNA and RNA**
31. What is formed when nucleotides are put together? **Nucleic acids**
32. What are the two main jobs of a lipid? **To insulate for conserving heat and long term energy storage**
33. What is the name of the macromolecule that is composed of amino acids and functions to allow cells to communicate, repair tissues, and enhance immunity? **Protein**
34. What type of molecule can break down other molecules during bodily processes such as digestion?  
**Enzymes**
35. Name a monosaccharide. **Glucose**
36. Name some examples of carbohydrates. **Glycogen, maltose, cellulose**
37. Name the molecule that is changed by an enzyme. **Substrate**
38. Can any enzyme break down any substrate? **No enzymes only act on specific substrates**
39. What are the building blocks of life? **Cells**
40. What are the building blocks of cells? **Macromolecules**