**Unit 1 Reading Guide Name:**

**1-2 Scientific Method**

1. What is a hypothesis?
2. How do you set up a controlled experiment?

**1-3 Characteristics of Living Things**

1. What are the characteristics of living things?
2. Explain what each of the characteristics of living things mean.

**2-3 Biological Molecules**

1. What makes carbon so special?
2. What is a macromolecule?
3. What are the four groups of organic compounds found in living things?
4. What do living things use carbohydrates for?
5. What are monosaccharides? Give an example.
6. What are polysaccharides? Give an example.
7. Draw a sketch of starch. What are the individual units that make up starch?
8. What do living things use lipids for?
9. Give examples of lipids.
10. What do living things use nucleic acids for?
11. Draw a sketch of a nucleotide. What are the 3 parts?
12. What do living things use proteins for?
13. What are the four levels of protein structure? Make a sketch.
    1. **Types of Cells**
14. What are the three ideas of cell theory?
15. Explain the similarities that all cells share.
16. Explain the differences between eukaryotic and prokaryotic cells.

**7-2 Cell Organelles**

1. How is a eukaryotic cell like a factory?
2. What are organelles?
3. What is cytoplasm and what is found there?
4. What is the function of the nucleus?
5. What is the nuclear membrane? What moves through it?
6. What form is the DNA usually in?
7. What form is the DNA in when the cell divides?
8. What is made by the nucleolus?
9. What do ribosomes make and where do they get their instructions from?
10. What does the endoplasmic reticulum do?
11. What are the differences between the rough and smooth endoplasmic reticulum?
12. What is the function of the Golgi apparatus (body)?
13. What do lysosomes do?
14. What are vacuoles used for?
15. What are the role of the mitochondrion in the cell?
16. Do plants cells have mitochondria?
17. What is the role of the chloroplast in plants?
18. What does the cytoskeleton do?

**7-3 Diffusion and Osmosis**

1. What does the cell membrane do?
2. Describe or draw the structure of the cell membrane.
3. What is the function of a cell wall?
4. Do animal cells have a cell wall?
5. Explain the process of diffusion. A diagram may help.
6. What is osmosis?
7. Explain the terms isotonic, hypertonic and hypotonic.
8. What will happen to a red blood cell placed in an isotonic solution?
9. What will happen to a red blood cell placed in a hypertonic solution?
10. What will happen to a red blood cell placed in a hypotonic solution?
    1. **ATP**
11. What is ATP and what is it used for?
    1. **Photosynthesis**
12. What is photosynthesis?
13. Where does photosynthesis occur?
14. What is the equation for photosynthesis?
15. What are the inputs and outputs of photosynthesis?

**9-1** **Cellular Respiration**

1. What is cellular respiration?
2. Where does cellular respiration occur?
3. What is the equation for cellular respiration?
4. What are the inputs and outputs of cellular respiration?

**10-2 Cell Cycle and Mitosis**

1. What is a chromosome? Make a sketch.
2. What happens during the cell cycle?
3. Which phase does DNA replication occur?
4. What is the goal of mitosis?
5. What are the 4 phases of mitosis?
6. What are the major events of prophase?
7. What are the major events of metaphase?
8. What are the major events of anaphase?
9. What are the major events of telophase?
10. What happens in cytokinesis?

**11-4 Meiosis**

1. What does diploid mean?
2. What does haploid mean?
3. What are homologous pairs?
4. What is the purpose of meiosis?
5. What happens during meiosis I?
6. What happens during meiosis II?
7. How are mitosis and meiosis different?

**12-3 Protein Synthesis (This section of the textbook has WAY more information than you need in grade 11)**

1. What are genes?
2. What is RNA and how is it related to DNA?
3. What is produced in the process of transcription? Where does this happen?
4. What is produced in the process of translation? Where does this happen?