Name: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Review Sheet: Cells**

Part I: Write the name of the organelle beside the description of its function.

1. “control room”, houses the DNA and controls the cell **NUCLEUS**
2. Jelly-like substance the organelles “float” around in **CYTOPLASM**
3. “security fence”, supports the cell (plant cells only) **CELL WALL**
4. “warehouse”, stores waste, water, and cellular materials **THE VACUOLE**
5. Controls the movement of materials into and out of the cell **THE CELL MEMBRANE**
6. Contains the nucleus and controls transport into/out of nucleus **THE NUCLEAR MEMBRANE**
7. “blueprints”, Contains the hereditary information and instructions for protein synthesis **THE DNA**
8. “rooftop garden”, gathers solar energy to make food (sugars), only in plants **THE CHLOROPLAST**
9. “packaging facility”, transports proteins out of the cell **THE GOLGI BODY**
10. “assembly line workers”, make proteins **THE RIBOSOMES**
11. “generator”, takes food and converts it into energy the cell can use **THE MITOCHONDRIA**
12. “Assembly line”, moves cellular products through the cell **THE ENDOPLASMIC RETICULUM**

Part II: General Cell Questions

1. Are all cells the same? Provide an example to support your answer.

**NO, FOR EXAMPLE PLANT VS. ANIMAL CELLS, PROKS VS. EUKS, OR BLOOD VS SKIN CELLS**

1. How do cells become specialized?

**THEY USE DIFFERENT PARTS OF THE DNA TO MAKE DIFFERENT PROTEINS. SOMETIMES THEY HAVE**

**DIFFERENT AMOUNTS OF ORGANELLES.**

1. Do all cells in the same organism have the same DNA?

**THEY DO, YES. THEY JUST DON’T ALWAYS USE ALL OF IT.**

1. Name three ways that plant and animal cells are different and three ways they are similar.

**PLANTS HAVE CHLOROPLASTS, CELL WALLS AND LARGE VACUOLES. ANIMALS HAVE CENTRIOLES**

**AND LYSOSOMES.**

**PLANTS AND ANIMALS HAVE ALL OTHER ORGANELLES IN COMMON: MITOCHONDRIA, CELL**

**MEMBRANE, RIBOSOMES, ETC.**

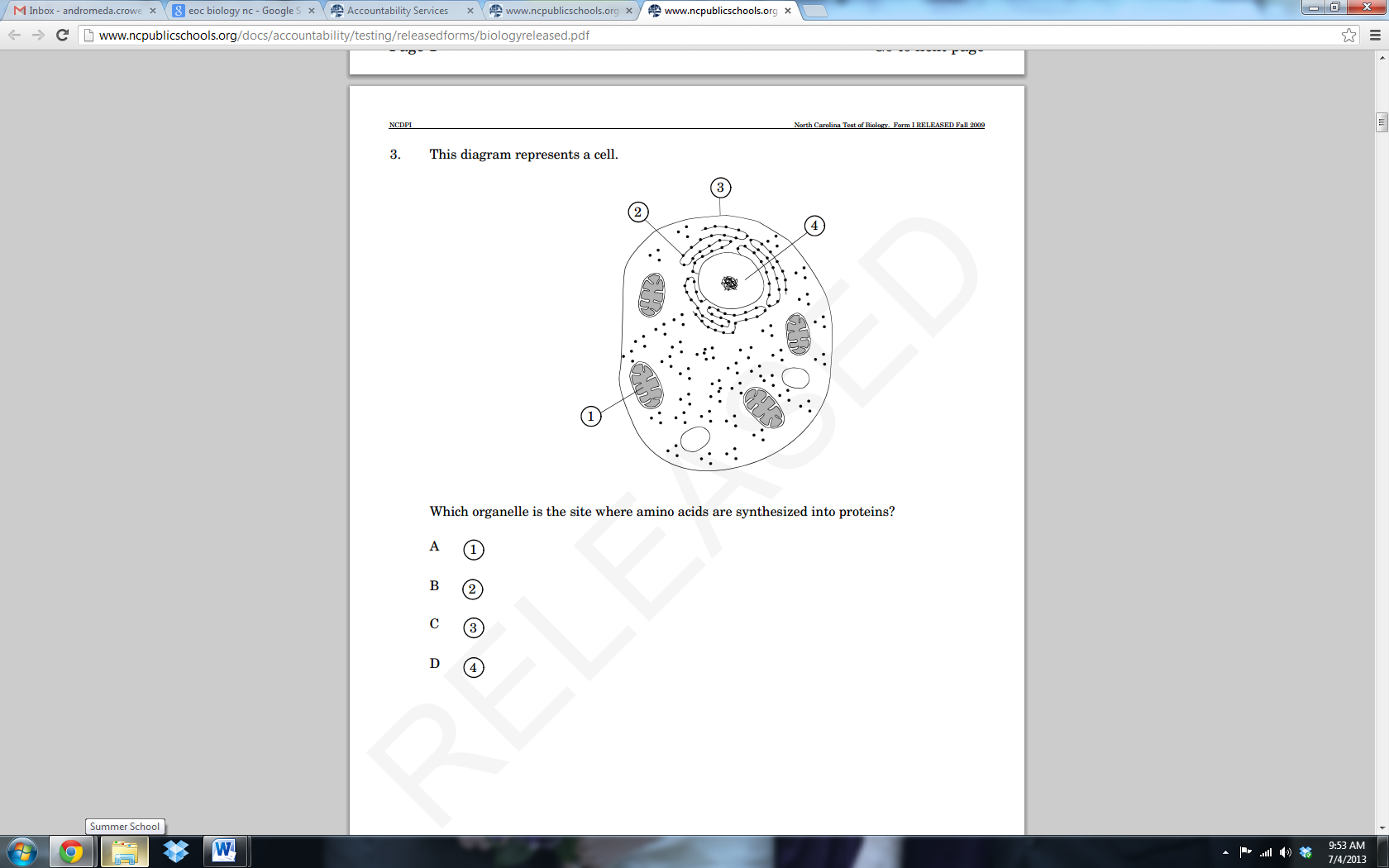
1. Name three ways that prokaryotic and eukaryotic cells are different and three ways they are similar.

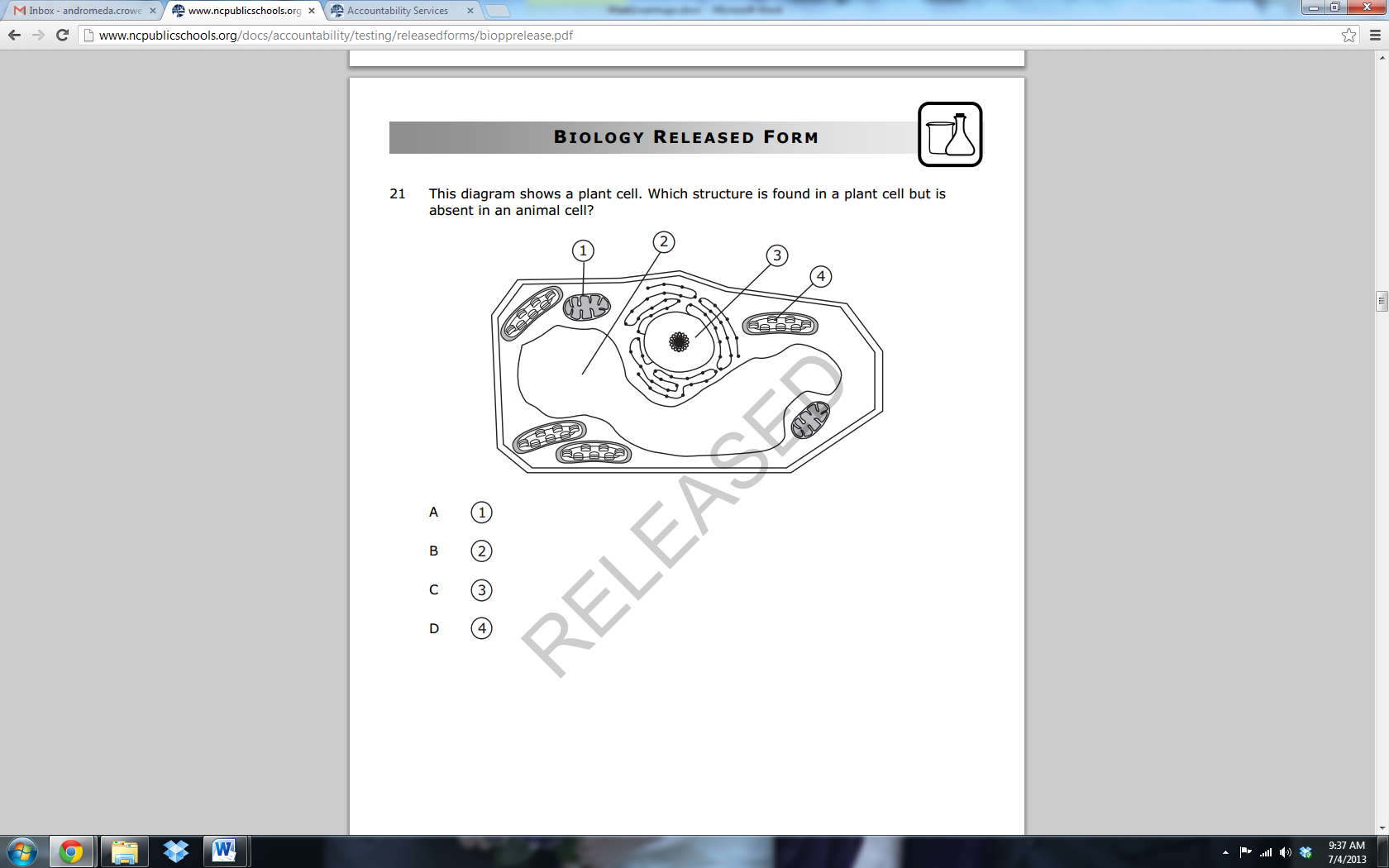
**PROKS: no nucleus, no MB organelles, smaller.**

**SIMILARITIES: CELL MEMBRANE, RIBOSOMES, DNA, VACUOLE**

1. Give an example of a prokaryote and a eukaryote.

**PROKS: BACTERIA EUKS: PLANTS, ANIMALS, FUNGI, AND PROTISTS**

1. Label the following cell diagrams:



1. MITOCHONDRIA 1. MITOCHONDRIA
2. VACUOLE 2. RIBOSOME
3. NUCLEUS 3. CELL MEMBRANE
4. CHLOROPLAST 4. NUCLEUS
5. List these terms from the simplest to the most complex organization: organism, organ, tissue, cell, organ system. **CELL, TISSUE, ORGAN, ORGAN SYSTEM, ORGANISM**

Part III: Cell Membranes

1. What macromolecules compose the cell membrane? **LIPIDS (PHOSPHOLIPIDS), PROTEINS, CARBS**
2. Which macromolecule composes the bilayer? Give an example. **LIPIDS (PHOSPHOLIPIDS)**
3. Which macromolecule assists in transport of molecules? Give an example. **PROTEINS (CARRIER OR CHANNEL PROTEINS)**
4. Which macromolecule assists in cell-cell recognition? Give an example. **CARBS (GLYCOPROTEINS)**
5. What does hydrophobic mean? Hydrophilic? **WATER FEARING, WATER LOVING**
6. Draw a picture of a phospholipid and label the hydrophobic and hydrophilic sides.

Part IV: Cell Transport

1. What factors can make diffusion go faster?

**PRESSURE (STIRRING), HEAT, INCREASE CONCENTRATION GRADIENT**

1. Why would osmosis and diffusion be known as “passive” transport?

**THEY DON’T REQUIRE ENERGY**

1. What is the direction molecules move for active transport? (with or against the concentration gradient?)

**AGAINST**

1. What is the direction molecules move for passive transport (osmosis and diffusion)?

**WITH THE CONCENTRATION GRADIENT (HIGH TO LOW)**

1. How is osmosis a special case of diffusion?

**JUST FOR WATER**

1. What would happen to a human blood cell placed in pure (distilled) water? Placed in salt water?

**SWELL/BURST, SHRINK**

1. Although animal cells burst in hypotonic situations, plant cells don’t. What do they have that prevents bursting?

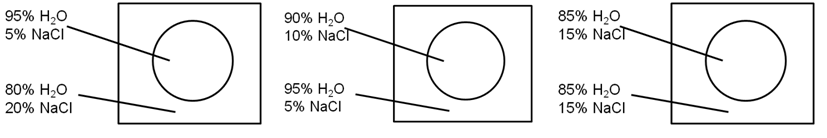
**CELL WALL**

1. Why is it good that the cell membrane is semi-permeable?

**LET NEEDED THINGS IN BUT KEEP UNWANTED THINGS OUT**

1. If a substance must travel against its concentration gradient, what method of transport is likely going to be used? **ACTIVE TRANSPORT**
2. What types of substances use endo/exocytosis? **VERY LARGE**
3. Draw arrows on these diagrams to show the direction of water movement. Label each as isotonic, hypertonic, or hypotonic.

1) HYPERTONIC, WATER MOVES OUT 2) HYPOTONIC, WATER MOVES IN 3) ISOTONIC, NO NET WATER MOVEMENT



Part V: Vocabulary List (define any words you don’t know!)

|  |  |  |
| --- | --- | --- |
| 1. Diffusion 2. Solute 3. Passive Transport 4. Active transport 5. Homeostasis 6. Concentration Gradient 7. DNA 8. Cell 9. Protein 10. Nucleic Acid 11. Eukaryote | 1. Osmosis 2. Hypertonic 3. Hypotonic 4. Isotonic 5. Endocytosis 6. Exocytosis 7. Semi-permeable 8. Cell Membrane 9. Cell Wall 10. Amino Acid 11. Cell Theory 12. Robert Hooke | 1. Nucleus 2. Mitochondria 3. Chloroplast 4. Ribosome 5. ER 6. Golgi Body 7. Vacuole 8. Lysosome 9. Plant 10. Animal 11. Prokaryote 12. FREE SPACE |