WebQuest – Cells and Cell Specialization **Name:_____**

Part 1: The basics of cells and cell specialization

Use your notes or a search engine on the internet to help you answer these questions:

1. What is a "cell"?

2. Not all cells are alike. Explain the differences between these types of cells:

Prokaryotic cells vs. Eukaryotic cells	Animal cells vs. Plant cells

3. What are stem cells?

4. What can stem cells do that other cells in our body cannot do?

PART 2: Cell Specialization Quizlet

Go to: https://quizlet.com/269259272/biology-cell-specialization-terms-flash-cards/?new
Study the terms, then complete the "Learn" or take the "Test." Once you get 100%, have your teacher initial:

_____

PART 3: Cell Biology

Go to: http://www.ck12.org/life-science/Cell-Biology-in-Life-Science/lesson/Cell-Biology-MS-LS/?referrer=featured_content Read this short section and answer these review questions from the bottom of the page:

1. What are the three basic parts of the cell theory?
   - _____
   - _____
   - _____
2. According the cell theory, can you create a cell by combining molecules in a laboratory? Why or why not?
3. Specialized cells in the body are designed for specific tasks. That means that the cell's function is partly based on what?
4. Give a short explanation for how each of these cells are shaped, and how that helps with their function.
   - Red blood cells-
   - Nerve cells-
   - Skin cells-
5. What is a tissue?
6. What is the relationship between tissues and organs?

PART 4: STEM CELLS-WHERE IT ALL BEGINS!

Go To: https://stemcells.nih.gov/info/basics/1.htm

Select section: Introduction: What are stem cells, and why are they important?

Stem cells have the _____to develop into any of the cell types in the body during early life and growth. In many tissues they serve as a sort of _____ _____ _____, dividing without limit to replenish other cells. When a stem cell divides, each new cell has the potential either to _____ __ _____ _____ or become another type of cell with a more _____ _____, such as a muscle cell, a red blood cell, or a brain cell.

In the newly formed embryo, at the blastocyst stage, **embryonic stem cells** differentiate into all of the specialized cell types in the body such as: _____, _____, _____, _____, _____, and other _____.

Adult stem cells are found in adult tissues such as _____ _____, _____, and _____ and generate _____ for cells that are injured, old, or sick.

PART 5: Cells of the Human Body

Go to: https://www.ck12.org/book/CK-12-Biology-Advanced-Concepts/section/17.1/ read and answer these questions

1. How is the human body like a machine?

2. Cells are the basic unit of life, but what does it mean that each cell is specialized?

3. What is cell differentiation?

4. During differentiation, certain _____ are turned on, or become activated, while other genes are switched off, becoming inactivated. This process is _____ by the cell. A differentiated cell will develop specific structures and perform certain _____.

5. What is the difference between a totipotent cell and a pluripotent cell?

6. Embryonic stem cells are _____, while adult stem cells are _____.

7. Why are stem cells interesting to medical researchers?