Chapter 3 HW Answers

Section 3.1

1. It leads to growth, development and repair
2. It condenses and forms chromosomes
3. Cells divide to make more cells, which allow multicellular organisms to grow. As cells divide, they can specialize. Damaged cells are also replaced by cell division.
4. It wraps in coils around proteins, and then compacts further as it arranges into chromosomes
5. Skin cells wear out quickly, so they duplicate frequently. Brain cells usually last a long time and do not replace themselves often. Skin heals faster because its cells are better equipped to replace themselves.
6. Depends on organism

Section 3.2

1. Interphase and cell division
2. Two complete sets of DNA, twice the size of when it was first formed
3. They are identical
4. Chromosomes form (prophase), chromosomes line up (metaphase), chromosomes separate (anaphase), nuclei form (telophase)
5. In both plant and animal cells, cytokinesis is the division of the cytoplasm. In plant cells, a cell plate forms and becomes a new cell wall and cell membrane. In animal cells, the cell membrane pulls inward, forming a cleavage furrow, and pinches into two new cells
6. Yes, because cytokinesis is the division of the cytoplasm and prokaryotes have cytoplasm to divide.