Cell Division and the Cell Cycle (pp. 148-49; 168-169; 150-157)

1. Why is cell division important – what are the 3 functions of cell division?

2. What are some kinds of cells of our bodies that replace dead ones (used up) fairly often?

3. What are some kinds of cells of our bodies that seldom or never get replaced after we're fully grown?

4. Do you think you have any cells in your body now that you had at the age of 6? Explain your answer.

5. It can be said, "Cells are like people – they have a life span and a circle of life." Explain this statement.

6. What are the 2 major phases or parts of the life cycle or life span of a cell, and what percentage does each one make up for a typical cell?

7. For most of its life, a cell carries out its purpose or function – liver cells do liver functions, brain cells do brain functions, nerve cells do nerve functions, etc. What is the name of this phase of a cell's life cycle?

8. What is the name of the 4-phase process of a parent cell splitting to become 2 identical daughter cells?

9. For each of the 4 phases of mitosis (PMAT), name the phase, write a once sentence description, and draw a diagram of a cell in that phase.

10. Why does the genetic material need to be duplicated during the final portion of interphase in the cell cycle?

11. At the end of mitosis, a cell splits or separates into 2 cells – what is the name for this separation process? How is it different in animal cells than in plant cells?

12. After mitosis, how do the daughter cells compare to the parent cell?

13. A somatic human cell has 46 chromosomes. After the cell has undergone mitosis, how many chromosomes would you expect to find in each cell?

14. When a new cell begins, what is the first thing it does in this first portion of its interphase?

15. On p. 152 of *Nelson Science 9* text, there are a couple of misunderstandings that could result. First, the red subtitle, "The Phases of Mitosis" should really read, "The Phases of Cell Division". The first phase or step listed is "1. Interphase", which is indeed the first stage of cell division. The 4 phases of mitosis are next (2, 3, 4, 5). The second misunderstanding is the last step should be "6. Cytokinesis". (Interphase is the beginning of each of the 2 new cells, not really part of the division of the original/parent cell.) To try to clarify the stages or phases of the life cycle of a cell in more detail:
    a) Name the 2 phases or portions of a full cell cycle.
    b) Name the 6 phases or steps of cell division.
    c) Name the 4 phases of mitosis.