

READING GUIDE

What you are expected to learn from this reading:

1. What the difference is between *mitosis* and *meiosis*:
 - What types of cells these processes produce
 - Why they occur (when does your body use mitosis vs. when does it use meiosis)?
 - Where these processes occur in your body
2. What is meant by the *cell cycle*, and what happens in each of the following phases:
 - Interphase
 - Mitosis
3. You should remember that the cell spends most of its life in interphase, performing its normal functions.
4. For the phases of mitosis, you should be able to put the steps in order and match the names of the phases with images of cells.
(Hint: I've made a file that contains the images and text from the mitosis figure in the reading; you can find it on the Course Website. Print out that file, cut out the various pieces, and practice putting them in order.)
5. You should be able to summarize briefly (in 6-10 words) what the purpose behind a *checkpoint* is.
6. You should be able to state how many pairs of chromosomes a normal human body cell has.
7. You should be able to distinguish between the terms *diploid* and *haploid*.
8. You should be able to explain why it is important that meiosis produces eggs and sperm with only half the normal number of chromosomes.
9. You should remember that crossing over is something that is unique to meiosis (it doesn't happen in mitosis), and that crossing over swaps genetic information between the two chromosomes in a pair.
10. You should recognize that mistakes that occur during cell division can cause disease, using the following two examples:
 - cancer
 - Down syndromeFor each of these, you should be able to briefly say (in 6-10 words) what the mistake is that leads to each disease.
11. You should understand the importance of using other (non-human) organisms to study human diseases and you should be able to give examples of these organisms.