1. What is the definition of –omics? What are some examples?
   -Omics is the study of a field in biology.
   Structural Genomics- determines the DNA sequences of the entire genome.
   Functional Genomics- determines the functions of genes by using genomic-based approaches.
   Comparative Genomics- studies how genes evolve.
   Proteomics- analyzes the complete set of proteins found in a cell.
   Transcriptome- all the RNA molecules transcribed from a genome.
   Proteome- all the proteins encoded by the genome.
2. What is the difference between genomics and the genome?
   -Omics is the field of study (Genomics) and –Ome is the object of study (genome).
3. What is the difference between a genetic map and a physical map?
   Genetic Maps show the location of genes, relative to the location of other genes **based on rate of recombination**.
   Physical Maps are based on the physical location of a gene on a chromosome in terms of base pairs.
   a. What are the units of a genetic map and a physical map?
      Genetic Map- cM (centiMorgans)
      Physical Map-kbp (kilobasepairs)
   b. What are the limitations of a genetic map?
      Limited detail and inaccurate representation of distances between bases.
4. The following words help classify genes. Explain the following words.
   a. Homolog: evolutionarily conserved gene/ genes that are evolutionarily related.
      i. Ortholog: (EXACT) homologous genes in different species that evolved from the same gene in a common ancestor.
      ii. Paralog: (IN PARALLEL) homologous genes arising by duplication of a single gene in the same organism.
         Ex. Hemoglobin in humans, and myoglobin in chimpanzees.
5. Explain Shotgun sequencing. A laboratory technique.
   1. Obtain the genomic DNA
   2. DNA is broken up/digested
   3. Fragments are cloned
   4. Fragments are sequenced
   5. Computer determines overlaps in the sequences to find contigs
      Contigs-are a continuous stretch of DNA
      *We do shotgun sequencing because we don't have the technology to sequence the whole genome as one fragment.
      * ONLY used for small genomes.