

Fill in blanks:

1. The three building blocks of a nucleic acid are:

_____, _____, and _____

2. Translation takes place in _____ on a _____

3. tRNA brings proper _____ to proper triplets of mRNA.

4. RNA has _____ instead of thymine.

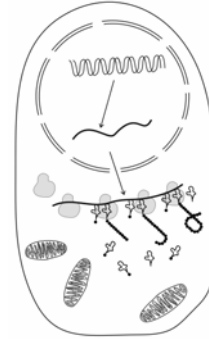
5. All enzymes have one or more _____.

6. Which of the following never happens in a eukaryotic cell?

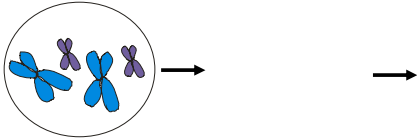
- a) DNA → DNA
- b) RNA → protein
- c) protein → RNA
- d) DNA → RNA

7. Proteins are organic molecules composed of _____

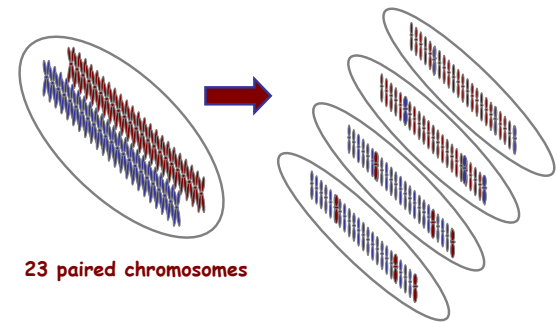
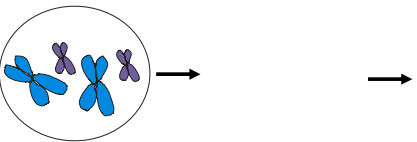
The diagram below illustrates the central dogma of molecular biology. Name the structures marked with letters:



Draw the next two stages of mitosis



Draw the next two stages of meiosis

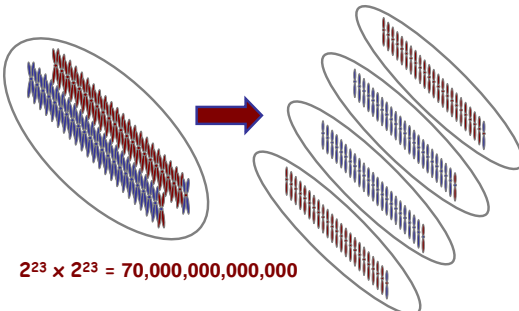


23 paired chromosomes

How many different chromosomal arrangements are possible?

$$2^{23} = 8,388,604$$

2²³ possible gametes from each parent

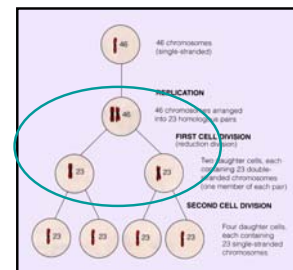


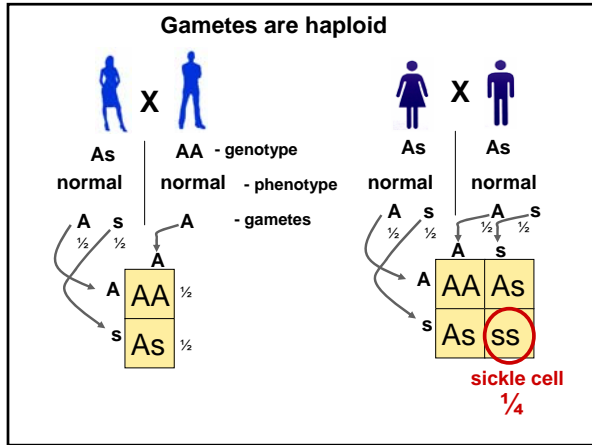
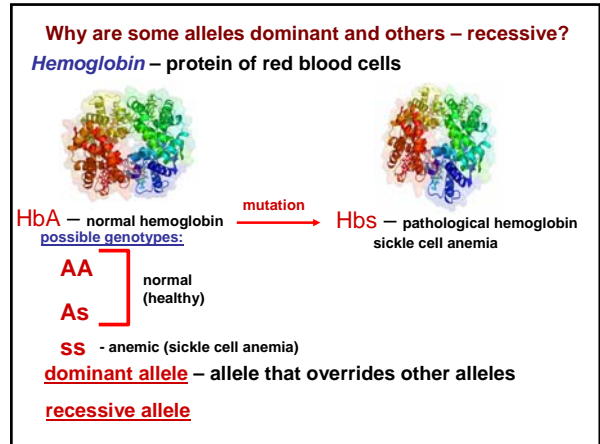
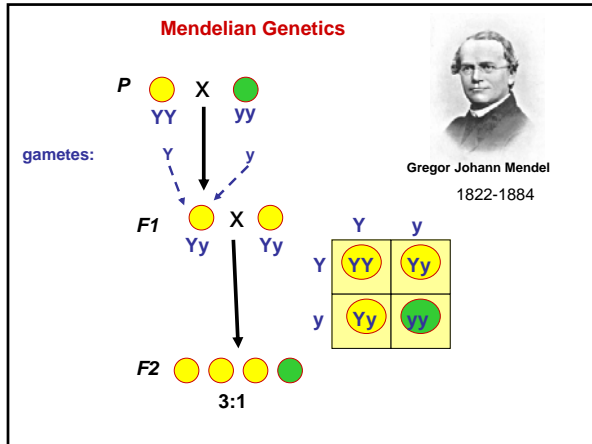
$$2^{23} \times 2^{23} = 70,000,000,000,000$$

1/ 70 trillion chance of having identical children

"Law of Segregation"

The members of each pair of alleles controlling a trait in an individual separate into different haploid gametes





"Law of Independent Assortment"

Traits coded by genes located on different chromosomes are inherited independently

