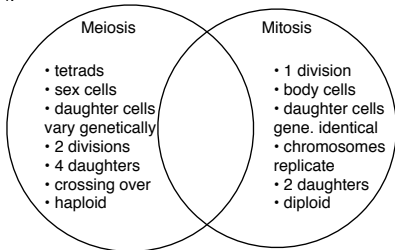


1. In mitosis, prophase occurs, in which the cell's nucleolus is no longer visible, followed by metaphase, wherein the spindle fibers align at the equator of the cell. In anaphase, the spindle fibers split and revert to each pole of the cell. finally, in telophase, nuclear envelopes are reformed and the chromosomes uncoil.
2. Similarly to mitosis, the nuclear envelope disappears and the DNA condensation occurs. However, the chromosomes visible are tetrads. Next, the tetrads line up at the equator, wherein crossing over occurs. In Anaphase, the tetrads pull apart, followed by telophase, when the two chromatids de-condense and a nuclear envelope is reformed. In Prophase II, chromosomes condense, like normal. Next, the spindle is formed when the chromatids line up at the equator. Chromosomes then split in Anaphase II, but only one goes to the pole. Finally, in Telophase II, chromosomes with only a single chromatid de-condense and are re-enveloped.
3. See *attached*.
4. When a cell isn't dividing, it is in interphase, recognizable by its possession of a nuclear membrane.
5. Mitosis keeps enough cells alive for the organism and accomplishes reproduction, while meiosis is used for sexual reproduction, in which genetic recombination can occur, and more daughter cells are born of the process.
6. Mitosis occurs in all cells, while meiosis only occurs in sex cells.
7. The daughter cells after mitosis are identical to their parent cells.
8. After meiosis, their daughter cells are genetically altered from the original, as crossing over occurs.
9. Haploid is having a set of unpaired chromosomes, while diploid is having a full and matched set.
10. $2N$ means diploid cells, as there are two of them. N refers to the number of chromosomes and is only used to avoid needing the specific knowledge of the quantity.
11. Crossing over occurs during Meiosis, and is when certain genetic attributes are changed by way of one chromosome's alleles replacing another. It is important as it promotes variety and diversity.
12. Homologous chromosomes are paired chromosomes with identical genetics attributes.
13. A chromatid is a long wound structure which contains a double helix of DNA and into which a chromosomes unwinds into.
- 14.



1. *See attached.*
2. The base pairing rules are cytosine:guanine and adenine:thymine, along with each's reciprocal.
3. The twisted ladder appearance of DNA is called a double helix.
4. The DNA molecule is antiparallel as it is in a helix shape and bonded together, though the ends are opposite.
5. DNA is the original copy, containing two strands, all of which is double-stranded. The RNA is a single strand which codes and encodes for DNA, and composed of largely different molecules, hence the different acronym.
6. DNA copying itself is referred to as DNA replication.
7. The process of making RNA from DNA is called transcription.
8.
 - a. mRNA is used as DNA's communicatory outlet to the cell.
 - b. tRNA is used to transfer representations of DNA.
 - c. rRNA is used to combine with protein to form a ribosome, which later functions as a site for protein synthesis.
9. A triplet is a three-pair set of codons to be coded for, a codon is an individual chromosome to be coded for, and an anticodon is the corresponding opposite to codons on mRNA.
10. Protein synthesis, known as translation, takes place in the cell's ribosomes.
11. Proteins are made of amino acids and DNA-instructed strands. They are composed of the primary, secondary, tertiary, and quaternary structures, which is highly important as the structure is how many know their function or are identified by the organism.
12. A protein becoming denatured means that the protein's bonds are broken. It will not work, as the energy stored is lost.
13. GUA would be the complementary codon to CAT.
14. Three characteristics of enzymes discovered in Lab 8 were that they were not consumed after use (we could use them more than once), they could not be used after denaturing (samples exposed to high temperatures did not work), and enzymes are merely organic catalysts (they are naturally produced but act as catalysts still.)
15. ATC would be the anticodon complementary to mRNA codon UAG.
16. The amino acid sequence specified by the DNA strand would be:
 - (is to): AUG, UUU, CGC, ACU, CGU, GGC, ACA, GCU
 - (is to): Methionine, Phenylalanine, Arginine, Threonine, Arginine, Glycine, Threonine, Alanine

