I. DNA Replication

A. Chromosome

a. Deoxyribonucleic acid (DNA)

b. Protein

1. Forms

a. Euchromatin

\*Relaxed

b. Heterochromatin

\*Condensed

B. Chromosome number

1. Human

C. DNA Structure

1. Nucleotide

a. Sugar

b. Phosphate

c. Nitrogenous base

\*Four bases

D. Types of nucleotides

1. Purine

2. Pyrimidine

E. Complimentary base pairing

F. DNA Shape

G. Function

1. Semiconservative replication

H. Steps of DNA replication

1. Unzip

a. DNA Helicase

2. Copy

b. DNA polymerase

I. Replicated chromosome

1. Centromere

a. Kinetochore

2. Chromatids   
II. Cell division

A. Cell types

1. Somatic cells

a. Type of division

\*Ploidy begin

\*Ploidy finish

b. Diversity?

2. Germ cells

a. Type of division

\*Ploidy begin

\*Ploidy finish

b. Gamete

\*Male

\*Female

c. Diversity?

d. Chromosome number

B. Cell Cycle

1. Interphase

2. Mitosis

3. Cytokinesis

III. Mitosis

A. Interphase

1. G-1

2. S

3. G-2

B. Prophase + prometaphase

C. Metaphase

D. Anaphase

E. Telophase

F. Cytokinesis

1. Animal cell

2. Plant cell

G. Purpose

1. Asexual reproduction

2. Growth

3. Repair

IV. Meiosis

A. Function

1. Reduce chromosome number

2. Genetic diversity

a. Mechanisms

\*Independent assortment

\*Crossing over

B. Overview

1. Start

a. Ploidy

b. How many

2. Replicate DNA once

3. Divide twice

4. End

a. Ploidy

a. How many

C. Location

1. Male

a. Product

2. Female

a. Product

D. Homologous pair

1. Sister chromatids

2. Non-sister chromatids

E. Phases

1. Interphase I

2. Prophase I

a. Homologous pairs

a. Crossing over

3. Metaphase I

a. Independent assortment

4. Anaphase I

5. Cytokinesis I

6. Interphase II

7. Prophase II

8. Metaphase II

9. Anaphase II

10. Telophase II

11. Cytokinesis II

V. Gamete development

A. Spermatogenesis

a. Location

1. Spermatogonium

a. Ploidy

b. Interphase I

2. Primary (1o) spermatocyte

a. Ploidy

b. Meiosis I

3. Secondary (2o) spermatocyte

a. Ploidy

b. Meiosis II

4. Spermatids

a. Ploidy

5. Sperm

a. Ploidy

B. Oogenesis

a. Location

1. Oogonium

a. Ploidy

b. Interphase I

2. Primary (1o) oocyte

a. Ploidy

b. Meiosis I

3. Secondary (2o) oocyte + first polar body

a. Ploidy

b. Meiosis II

4. Ovum + second polar body

a. Ploidy