**Study Guide Chapter 3 Part 2**

**Sexual Reproduction and Chromosome Transmission**

***Key Terms***

Asexual reproduction

Autosomes

Egg cell

Embryo sac

Endosperm

Gametes

Gametogenesis

Gametophyte

Germ cells

Heterogametic sex

Heterogamous

Homogametic sex

Isogamous

Oogenesis

Ovum

Pollen grain

Sex chromosomes

Somatic cell

Sperm cells

Spermatogenesis

Sporophyte

*3.5 Sexual Reproduction*

1. Define sexual reproduction.

**2. Describe how animals make sperm (Fig. 3.13a) and egg cells (Fig. 3.13b).**

Spermatogenesis and oogenesis

3. Explain how plants alternate between haploid and diploid generations. Describe the process of gamete formation and fertilization in flowering plants (Fig 14).

They make spores which become the gametophyte and then the gametophyte forms gametes which becomes a seed which then becomes the sporophyte

*3.6 The Chromosome Theory of Inheritance and Sex Chromosome*

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1. List the key tenets of the chromosome theory of inheritance.

Chromosomes contain the genetic material

Chromosomes are replicated and passed down from parents to offspring

The nuclei of eukaryotic cells contain chromosomes that are found in homologous pairs, they are diploid

During the formation of gametes different types of chromosomes segregate independently

Each parent contributes one set of chromosomes to its offspring

2. Explain the relationship between meiosis and Mendel’s laws of inheritance.

1. Outline different mechanisms of sex determination.

The chromosomes play a role in sex determination

Humans: presence of Y determines maleness- Y is passed down by the male

Insects: males are X0 and females are XX

The ratio between the X chromosomes to the sets of autosomes (flies)

X/A = .5 – male

X/A = 1 female

Birds: ZW- males ZZ, females ZW

Bees: Males = drones, they are haploid

Females are diploid, produced from fertilized eggs

Can also be determined by temperature: turtles, crocodiles

Be able to determine gender and explain sex determination (Table 4.2 has a summary) in a variety of organisms using the following systems:

XY - Mammals (including humans)

ZW – Birds, some fish

Ratio of X to # of autosome sets - Genic Balance - Drosophila

XO - Insects

. Haplo-diploid system - bees

Environmental system - certain reptiles, fish