<u>**CONCEPT:**</u> DEVELOPMENT OF ANIMAL GAMETES

● In animals, there are development systems that _____ the sperm and the egg

    □ **Spermatogenesis** is the process that creates the gametes in the male animal

        - **Diploid primordial germ cells** are the cells that use meiosis to create male gametes
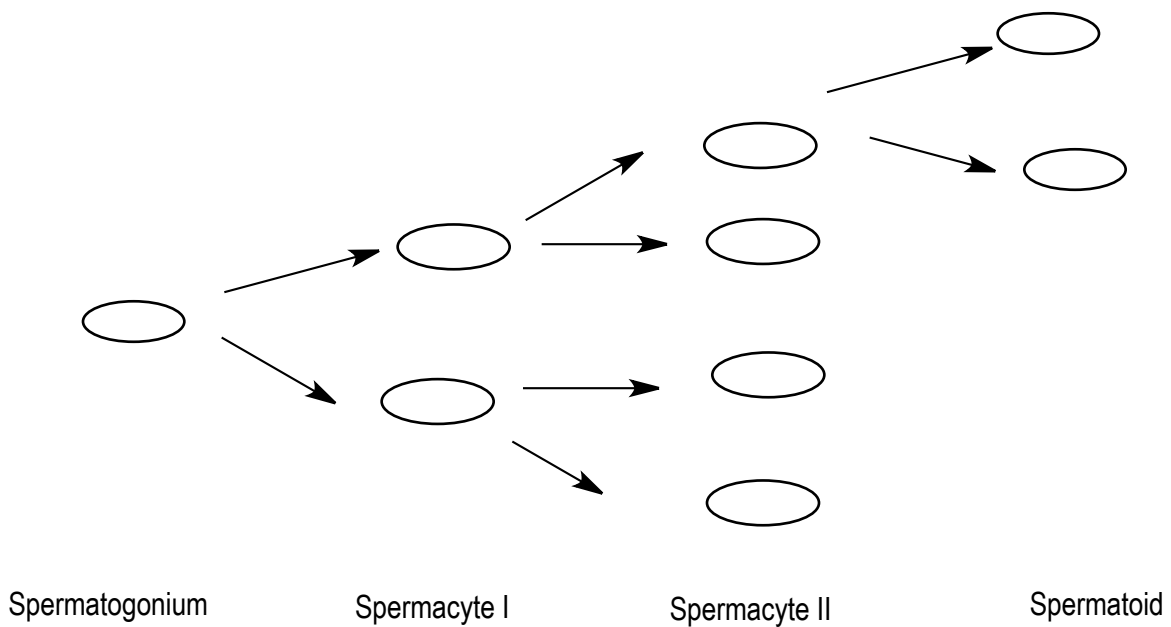
        1. **Spermatogonia** are formed via mitotic division of the primordial germ cells

        2. The **primary spermatocyte** enters into meiosis (diploid)

        3. The **secondary spermatocyte** are two haploid cells formed via meiosis I

        4. The **spermatids** are formed via meiosis II (haploid)

EXAMPLE:

Spermatogonium   Spermacyte I   Spermacyte II   Spermatoid

□ **Oogenesis** is the process that creates the female gametes

- *Diploid primordial germ cells* also exist in females

1. **Oogonia** are formed via mitotic division of the primordial germ cells

2. The **primary oocytes** enter into prophase I (diploid)

3. Meiosis I occurs, but the cytoplasm is divided unequally

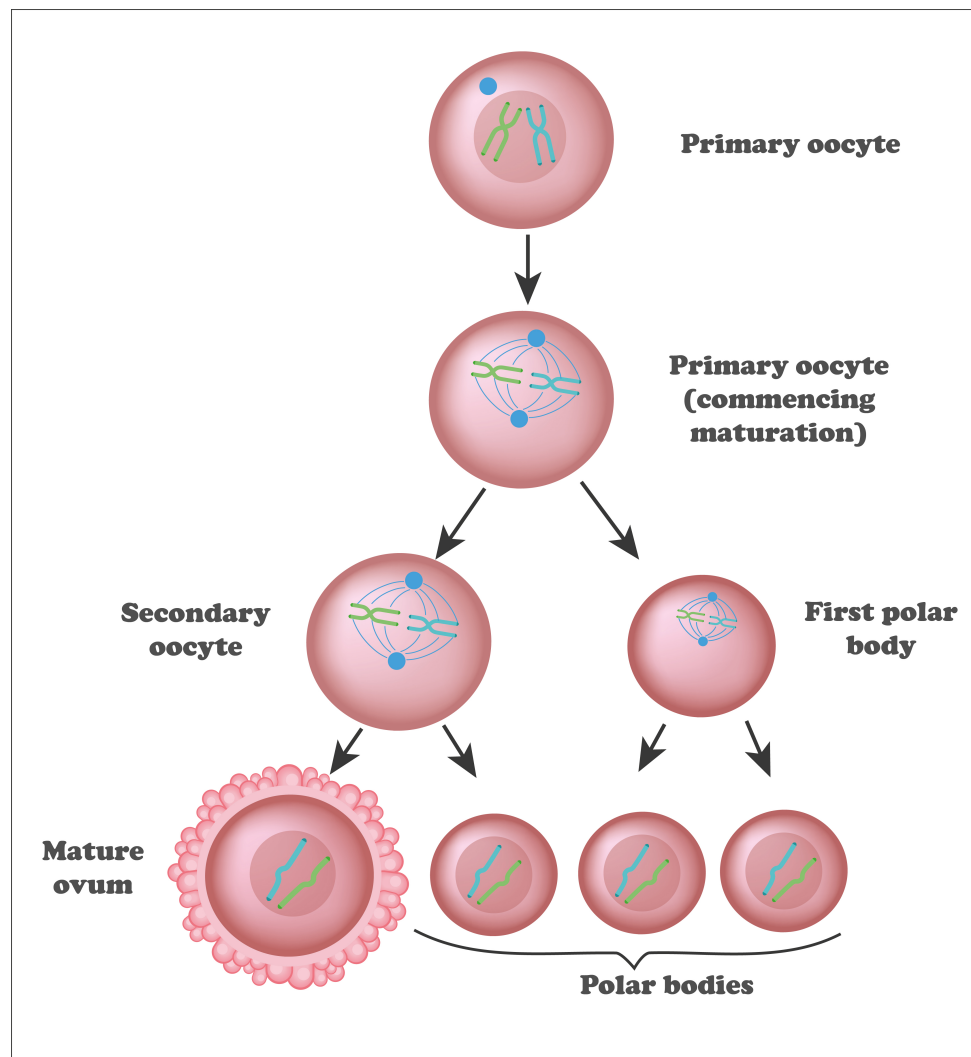- The **secondary oocyte** is the larger cell formed during meiosis I

- The **first polar body** is the smaller cell formed during meiosis I

4. Meiosis II occurs on the secondary oocyte, and again there is an unequal division of cytoplasm

- The **ovum** is the mature female gamete (haploid)

- The **secondary polar body** is the smaller cell formed during meiosis II

EXAMPLE:

PRACTICE:

1. Horse diploid cells contain 64 chromosomes (2n=64). How many chromosomes will be present in spermatogonium cells?

   a. 32

   b. 64

   c. 128

   d. 40

2. Horse diploid cells contain 64 chromosomes (2n=64). How many chromosomes will be present in primary oocyte cells?

   a. 32

   b. 64

   c. 128

   d. 40

3. Horse diploid cells contain 64 chromosomes (2n=64). How many chromosomes will be present in spermatids cells?

    a. 32

    b. 64

    c. 128

    d. 40

4. What is the correct term for the mature female gamete?

    a. Ovum

    b. Secondary polar body

    c. Secondary oocyte

    d. Oogonia