MATERIALS NEEDED
Textbook
Human torso
Model of the male reproductive system
Anatomical chart of the male reproductive system
Compound microscope
Prepared microscope slides of the following:
  - Testis section
  - Epididymis, cross section
  - Penis, cross section

The organs of the male reproductive system are specialized to produce and maintain the male sex cells, to transport these cells together with supporting fluids to the female reproductive tract, and to produce and secrete male sex hormones.

These organs include the testes, in which sperm cells and male sex hormones are produced, and sets of internal and external accessory organs. The internal organs include various tubes and glands, whereas the external structures are the scrotum and the penis.

PURPOSE OF THE EXERCISE
To review the structure and functions of the male reproductive organs and to examine some of these organs microscopically.

LEARNING OBJECTIVES
After completing this exercise, you should be able to
1. locate and identify the organs of the male reproductive system;
2. describe the functions of these organs;
3. recognize sections of the testis, epididymis, and penis microscopically;
4. identify the major features of these microscopic sections.

PROCEDURE A—MALE REPRODUCTIVE ORGANS
2. As a review activity, label figures 47.1 and 47.2.
3. Observe the human torso, the model, and anatomical chart of the male reproductive system. Locate the following features:
   - testes
   - seminiferous tubules
   - interstitial cells
   - epididymis
   - vas deferens
   - ejaculatory duct
   - seminal vesicles
   - prostate gland
   - bulbourethral glands
   - scrotum
   - penis
   - corpora cavernosa
   - corpus spongiosum
   - glans penis
   - prepuce
Figure 47.1  Label the major structures of the male reproductive system in this sagittal view.

Figure 47.2  Label the diagram of (a) the sagittal section of a testis and (b) a cross section of a seminiferous tubule by placing the correct numbers in the spaces provided.
PART A

Complete the following statements:

1. Connective tissue subdivides a testis into many lobules, which contain

2. The ____________________________ is a highly coiled tube on the outer surface of the testis.

3. The ____________________________ cells of the epithelium that lines the seminiferous tubules give rise to sperm cells.

4. Undifferentiated sperm cells in the male embryo are called ____________________________.

5. ____________________________ is the process by which sperm cells are formed.

6. The number of chromosomes normally present in a human sperm cell is ____________________________.

7. The anterior end of a sperm head, called the ____________________________, contains enzymes that aid in the penetration of an egg cell at the time of fertilization.

8. Sperm cells undergo maturation while they are stored in the ____________________________.

9. The secretion of the seminal vesicles is rich in the monosaccharide called ____________________________.

10. Prostate gland secretion helps neutralize seminal fluid because the prostate secretion is ____________________________.

11. The secretion of the ____________________________ glands lubricates the end of the penis in preparation for sexual intercourse.

12. The sensitive, cone-shaped end of the penis is called the ____________________________.

PART B

1. Prepare a labeled sketch of a representative section of the testis.
2. Prepare a labeled sketch of a region of the epididymis wall.

3. Prepare a labeled sketch of a penis cross section.

4. Briefly describe the function of each of the following:
   a. supporting cells in seminiferous tubules
   b. spermatogenic cells
   c. interstitial cells
   d. epididymis
   e. corpora cavernosa and corpus spongiosum
FEMALE REPRODUCTIVE SYSTEM

MATERIALS NEEDED

Textbook
Human torso
Model of the female reproductive system
Anatomical chart of the female reproductive system
Compound microscope
Prepared microscope slides of the following:
  - Ovary section with maturing follicles
  - Uterine tube, cross section
  - Uterine wall section

For Demonstration:
Prepared microscope slides of the following:
  - Uterine wall, early proliferative phase
  - Uterine wall, secretory phase
  - Uterine wall, early menstrual phase

The organs of the female reproductive system are specialized to produce and maintain the female sex cells, to transport these cells to the site of fertilization, to provide a favorable environment for a developing offspring, to move the offspring to the outside, and to produce female sex hormones.

These organs include the ovaries, which produce the egg cells and female sex hormones, and sets of internal and external accessory organs. The internal accessory organs include the uterine tubes, uterus, and vagina. The external organs are the labia majora, labia minora, clitoris, and vestibular glands.

PURPOSE OF THE EXERCISE

To review the structure and functions of the female reproductive organs and to examine some of their features microscopically.

LEARNING OBJECTIVES

After completing this exercise, you should be able to
1. locate and identify the organs of the female reproductive system;
2. describe the functions of these organs;
3. recognize sections of the ovary, uterine tube, and uterine wall microscopically;
4. identify the major features of these microscopic sections.

PROCEDURE A—FEMALE REPRODUCTIVE ORGANS

1. Review the sections entitled “Ovaries,” “Female Internal Accessory Organs,” “Female External Reproductive Organs,” and “Mammary Glands” in chapter 19 of the textbook.
2. As a review activity, label figures 48.1, 48.2, and 48.3.
3. Observe the human torso, the model, and anatomic chart of the female reproductive system. Locate the following features:
   - ovaries
     - medulla
     - cortex
   - uterine tubes (oviducts; fallopian tubes)
     - infundibulum
     - fimbriae
   - uterus
     - body
     - cervix
     - endometrium
     - myometrium
     - perimetrium (serous membrane)
Figure 48.1  Label the structures of the female reproductive system in this sagittal view.

1. Urinary bladder
2. Symphysis pubis
3. Urethra
4. Anus
5. Rectum
6. Perimetrium
7. Myometrium
8. Endometrium
9. Rectouterine pouch
10. Anus

Figure 48.2  Label this ovary by placing the correct numbers in the spaces provided.

1. Corona radiata
2. Corpus albicans
3. Primary follicle
4. Corpus luteum
5. Primary oocyte
6. First polar body
7. Secondary oocyte
8. Follicular fluid
9. Zona pellucida
10. Ovulation site
Figure 48.3  Label the structures of the breast (anterior view), using the terms provided.

Terms:
Adipose tissue
Alveolar glands
Areola
Lactiferous duct
Nipple

vagina
vaginal orifice
hymen
mucosal layer
muscular layer
fibrous layer
vulva (external accessory reproductive organs)
labia majora
labia minora
clitoris
vestibular glands

breasts
nipple
areola
alveolar glands
lactiferous ducts
adipose tissue

PROCEDURE B—MICROSCOPIC ANATOMY

1. Obtain a microscope slide of an ovary section with maturing follicles and examine it with low-power magnification (fig. 48.4). Locate the outer layer, or cortex, of the ovary, which is composed of densely packed cells, and the inner layer, or medulla, which largely consists of loose connective tissue.

2. Focus on the cortex of the ovary, using high-power magnification (fig. 48.5). Note the thin layer of small cuboidal cells on the free surface. These cells comprise the germinal epithelium. Also locate some primordial follicles just beneath the germinal epithelium. Note that each follicle consists of a single, relatively large primary oocyte with a prominent nucleus and a covering of follicular cells.

3. Prepare a labeled sketch of the ovarian cortex in Part B of the laboratory report.

4. Use low-power magnification to search the cortex for maturing follicles in various stages of development. Prepare three labeled sketches in Part B of the laboratory report to illustrate the changes that occur in a follicle as it matures.

**FEMALE REPRODUCTIVE SYSTEM**

**PART A**

Complete the following statements:

1. The ovaries are located in the lateral wall of the ________________ cavity.
2. The ovarian cortex appears granular because of the presence of ________________
3. A primary oocyte is closely surrounded by flattened epithelial cells called ________________ cells.
4. When a primary oocyte divides, a secondary oocyte and a(n) ________________ are produced.
5. Primordial follicles are stimulated to develop into primary follicles by the hormone called ________________.
6. ________________ is the process by which a secondary oocyte is released from the ovary.
7. Uterine tubes are also called ________________.
8. The ________________ is the funnel-shaped expansion at the end of a uterine tube.
9. A portion of the uterus called the ________________ extends downward into the upper portion of the vagina.
10. The inner mucosal lining of the uterus is called the ________________.
11. The myometrium is largely composed of ________________ tissue.
12. The vaginal orifice is partially closed by a thin membrane called the ________________.
13. The group of external accessory organs that surround the openings of the urethra and vagina comprise the ________________.
14. The rounded mass of fatty tissue overlying the symphysis pubis of the female is called the ________________.
15. The female organ that corresponds to the male penis is the ________________.
16. The ________________ of the female correspond to the bulbourethral glands of the male.

**PART B**

1. Prepare a labeled sketch of a representative region of the ovarian cortex.
2. Prepare a series of three labeled sketches to illustrate follicular maturation.

3. Prepare a labeled sketch of a representative section of the wall of a uterine tube.

4. Prepare a labeled sketch of a representative section of the uterine wall.

5. Complete each of the following:
   a. Describe the fate of a mature follicle.

   b. Describe the function of the cilia in the lining of the uterine tube.

   c. Briefly describe the changes that occur in the uterine lining during the menstrual cycle.