Chapter 12: The Reproductive System

Throughout the chapter, refer back to the building blocks of the body by asking students questions such as *What's a molecule? What's a cell? What's an organ? What's a tissue?*

Production of sperm
To illustrate the process of sperm production, draw a picture of a very large tube on the board. This is a seminiferous tubule. On the walls of the inside of the tube draw small circles. These are the spermatocytes. The inside of the tube is the lumen. Show one spermatocyte on the wall of the tube and divide it into four. These are the spermatids. Then draw a picture of the four spermatids in the lumen.

The path of sperm
To help students understand the path of sperm from the epididymis to outside the body, copy the figure on page 256 on an overhead transparency. As you explain the process, trace the path of sperm on the transparency.

Hand out strips of paper which state the steps in this process. (see page 256) Have students put the steps in order.

Have students match the structures of the male reproductive system with their function. You can do this by making cards to match. For example, one card says *epididymis* and the other card says *the place where sperm mature*.

The ovarian cycle
Copy the figure on page 266 on an overhead transparency. Have students listen to you explain this cycle slowly.

To illustrate the concept of the oocyte on about day 14 dividing into two cells due to the secretion of estrogen, take a round piece of clay and tell students that it is the oocyte. Put it in a plastic bag. Tell students the bag is the follicle. Fill the bag partway with water. The water is the estrogen plus other fluids. Then take the clay and twist it into two parts, a larger part and a smaller part. Now there are two cells. The larger cell is the secondary oocyte and the smaller cell is the polar body. Then take out the "polar body". Now only the oocyte remains inside the follicle.

Add more water to the bag and make it burst, thus the oocyte is released. Again, divide the oocyte in half. Make the smaller part fall away. Thus only the larger part remains. This is the ovum.

Go to the steps of the ovarian cycle on page 267. Put students into pairs. Have one student read two steps. The other student who is listening summarizes what he/she has heard. Then that student reads the next two steps and the other student summarizes what he/she hears. Finally the student who had started reading reads step five and the other student summarizes it.

The menstrual cycle and the ovarian cycle
To have students think about the menstrual cycle occurring at the same time, draw two time lines horizontally on a piece of paper. One line represents the menstrual cycle, the other line represents the ovarian cycle. Divide the line into 28 parts, each part represents one day. Write in the events that correspond to the ovarian cycle on the ovarian line, and the events that correspond to the menstrual cycle on the menstrual cycle line. For example, on day 14 of the ovarian cycle write *ovulation occurs* on day 14 of the menstrual cycle write *progesterone begins to become dominant, causing the endometrium to store glycogen*. Challenge students to volunteer the remaining pieces on information and writing it on the board.

Fertilization and embryonic development
Draw a sperm on the left side of the board. On the right side of the board draw an ovum. Between them draw six long vertical lines. These lines signify the barriers the sperm must overcome to fertilize the egg. Label each one as follows starting with the barrier closest to the sperm: Sperm can fall out the vagina, acidic vaginal fluids, must swim uphill, uterine mucus, uterine movement, cilia beating in the fallopian tubes. Then erase part of the line to signify the sperm swimming through. Write down how the sperm overcame this barrier. Starting from the first barrier and going to the fifth barrier the following solutions are present: 1. clotting factors, 2. semen is alkaline, 3. Millions of sperm, 4. Mucus is watery during ovulation, 5.Again there are millions of sperm and only one is needed, 6. Again there are millions of sperm and only one is needed to fertilize the ovum.