OVERVIEW

BIG IDEA
Adolescence is a time of physical, mental and social change.

OBJECTIVE
4.3 Explain the anatomy & physiology of the female reproductive system.

AGENDA
1. Diagram/Labeling
2. Reading
3. Note-taking
4. Discussion

HOMEWORK
Analyze the diagram depicting the menstrual cycle and answer the questions that follow.

LESSON 4.3
Female Reproductive System

SUMMARY:

This lesson will provide a basic background of the male reproductive system, focusing on the structures and functions of the main reproductive organs. Students will complete a labeling exercise, a short reading, note-taking, and discussion.

STANDARDS:

Next Generation Science Standards:

LS1.A: Structure and Function

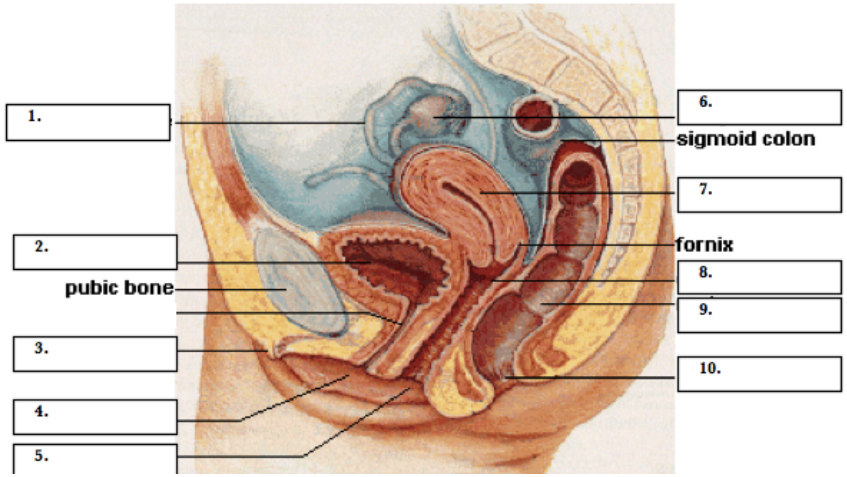
MODULE 4: SEXUAL HEALTH LESSON 4.3

Female Reproductive System

Obj. 4.3: Explain the anatomy & physiology of the female reproductive system.

DO NOW

Label the diagram with the structures of the male reproductive system. If you don't know any, leave them blank. If you think you might know some, take some guesses!



NEW INFO

Take notes to accurately record the 10 structures of the female reproductive system shown above.

Part	Description
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

DO NOW: Show students a frontal image on the next slide to help them understand how the reproductive system is organized from both angles.

NEW INFO:

1. **Fallopian tube:** Carry eggs to the uterus, fertilization happens here
2. **Pubic bone:** Front bony portion of pelvis
3. **clitoris:** Nerve center for female genitals, can produce pleasure during sex
4. **urethra:** Tube carrying urine from bladder to outside (separate from vagina)
5. **vagina:** 1. birth canal; 2. route for menstruation; 3. route for sexual intercourse
6. **ovary:** Two walnut-sized structures, store eggs and nurture them prior to ovulation
7. **uterus**: Pear-shaped (upside down) structure; home for developing embryo/fetus
8. **cervix**: Opening of the mouth of the uterus into the vagina
9. **rectum:** Last segment of large intestine (colon)
10. **anus:** Opening of colon; closed by anal sphincter

READ

Read the following short excerpt from kidshealth.org:

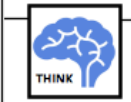
All living things reproduce. Reproduction — the process by which organisms make more organisms like themselves — is one of the things that set living things apart from nonliving matter. But even though the reproductive system is essential to keeping a species alive, unlike other body systems, it's not essential to keeping an individual alive.

In the human reproductive process, two kinds of **sex cells**, or **gametes** (pronounced: **gah**-meetz), are involved. The male gamete, or **sperm**, and the female gamete, the **egg** or **ovum**, meet in the female's reproductive system to create a new individual. Both the male and female reproductive systems are essential for reproduction. The female needs a male to fertilize her egg, even though it is she who carries offspring through pregnancy and childbirth.

Humans, like other organisms, pass certain characteristics of themselves to the next generation through their **genes**, the special carriers of human traits. The genes that parents pass along to their children are what make children similar to others in their family, but they are also what make each child unique. These genes come from the father's sperm and the mother's egg, which are produced by the male and female reproductive systems.

Most species have two sexes: male and female. Each sex has its own unique reproductive system. They are different in shape and structure, but both are specifically designed to produce, nourish, and transport either the egg or sperm.

Unlike the male, the human female has a reproductive system located entirely in the pelvis (that's the lowest part of the abdomen). The external part of the female reproductive organs is called the **vulva**, which means covering. Located between the legs, the vulva covers the opening to the **vagina** and other reproductive organs located inside the body. A female's internal reproductive organs are the vagina, uterus, fallopian tubes, and ovaries.



Post-reading questions:

1. What is the function of the human reproductive systems?

2. What are the major differences between the female and male reproductive system?

3. What questions do you have about the female reproductive system? (List at least one below).

NEW INFO: Ask students what diseases, illnesses, or problem they have heard about pertaining to parts of the female reproductive system? (Ex: ectopic pregnancy in fallopian tubes, female genital mutilation of the clitoris in some cultures, ovarian cancer or ovarian cysts, endometriosis, cervical cancer, etc.)

READ: Remind students of the importance of using the appropriate medical/scientific terms, not common nicknames.

THINK: Provide students an opportunity to write questions anonymously on notecards. Explain that the instructor will read these outside of class to ensure the answers provided are medically accurate, however remind them that some questions dealing with personal health issues should be addressed with their health care practitioner. This can be a norm that is carried out throughout the entire module.

NEW INFO

1. **FUNCTIONS:** What are the 3 main functions of the female reproductive system?

   1.

   2.

   3.

2. **SEX CELLS:** What are the female sex cells and how are they protected and nurtured?

   ovum:

   ovaries:

   uterus:

3. **PUBERTY: What are some changes females undergo during puberty?**

Phases of the Menstrual Cycle

The uterine lining, the ovum (or egg) and hormone levels are all changing and cycling throughout the entire monthly process. There are essentially four phases of the menstrual cycle: menstruation, the follicular phase, ovulation and the luteal phase.

1. **Menstruation.** The uterine lining and blood sheds, signaling the beginning of the menstrual cycle. Also known as having a period. This phase varies in length from woman to woman, usually lasting 4-7 days, contributing to the differences in menstrual cycle length.

2. **The Follicular Phase.** During this time, the ovaries are being stimulated to produce a mature egg. Additionally, the uterine lining is growing, preparing for possible egg implantation if pregnancy would occur. The length of this phase also varies.

3. **Ovulation.** The ovaries release a mature egg after a surge of hormones that triggers the event.

4. **The Luteal Phase.** This phase lasts a consistent length of time, an average of 14 days with a day or two variation. During this time, the uterine lining continues to grow, preparing for embryo implantation (baby). If pregnancy doesn't occur, the cycle begins again with menstruation.

DISCUSS

What might happen if the egg is fertilized (meets a sperm)? How would this interrupt the menstrual cycle? How might twins be formed? What may cause this?

NEW INFO: Have students draw a timeline of the menstrual cycle to better understand these phases. The next slide contains a useful diagram. Also, remind students that these timeframes are only averages and that it can take much longer or shorter for phases to happen, especially among adolescent females whose menstrual cycles may not be regulated yet.

DISCUSS: **Twins** can either be monozygotic ("identical"), meaning that they develop from one zygote that splits and forms two embryos, or dizygotic ("fraternal"), meaning that they develop from two eggs, each fertilized by separate sperm cells.

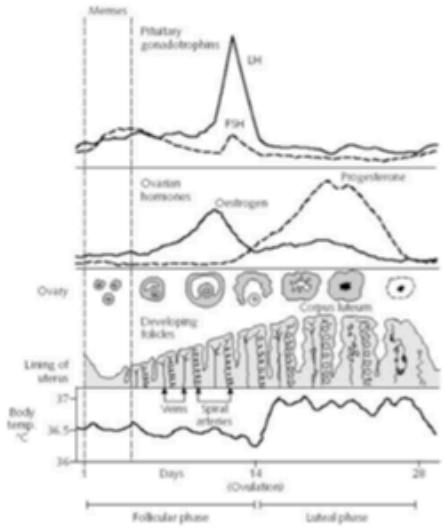
ASSESS

Describe how the female reproductive system accomplishes it's function of providing a nourishing environment for a growing egg. Use at least 4 new reproductive system terms in your description.

HOME WORK

At the time of ovulation there is a small rise in body temperature. Some women feel mild pain in the abdomen around the time of ovulation, lasting from a few minutes to a couple of hours; it is probably caused by irritation of the abdominal wall due to blood and fluid escaping from the ruptured follicle. The mature ovum is transported from the ovaries to the fallopian tubes, where it either becomes fertilized by sperm and will attach to the lining in the uterus to become a zygote, or it was remain unfertilized and will be flushed from a woman's system during her period. During menstruation, pain or cramps might be caused by contractions in the uterus that push the lining through the vagina. Changes in the cervical mucus also occur about the time of ovulation.

Figure 1: Changes of hormone concentrations in the blood during a 28-day menstrual cycle.



On a separate sheet of paper, answer the following:

1. During approximately which days of the cycle might a woman have her menses (bleeding)?
2. At approximately what day (#) during the cycle is there a surge (big increase) in LH?
3. According to Figure 1, on what approximate day (#) does ovulation occur?
7. Describe what is happening on Day 14 of the menstrual cycle.
8. At what range of days is the lining of the uterus the thickest?
9. When do the follicular phase and luteal phase take place, respectively?
10. Describe the journey of an unfertilized ovum.

HOMEWORK: The purpose of this homework assignment is for students to spend more time internalizing the events of menstruation, a fairly complex process. They will also practice the skill of analyzing a diagram/graph as they answer the questions.