

Science

Quarter 3 – Module 2: The Female Reproductive System and The Menstrual Cycle



Science – Grade 10

Alternative Delivery Mode

Quarter 3 – Module 2: The Female Reproductive System and Menstrual Cycle

First Edition, 2020

Republic Act 8293, section 176 states that: No copyright shall subsist in any work of the Government of the Philippines. However, prior approval of the government agency or office wherein the work is created shall be necessary for exploitation of such work for profit. Such agency or office may, among other things, impose as a condition the payment of royalties.

Borrowed materials (i.e., songs, stories, poems, pictures, photos, brand names, trademarks, etc.) included in this module are owned by their respective copyright holders. Every effort has been exerted to locate and seek permission to use these materials from their respective copyright owners. The publisher and authors do not represent nor claim ownership over them.

Published by the Department of Education

Secretary: Leonor Magtolis Briones

Undersecretary: Diosdado M. San Antonio

Development Team of the Module

Writer:	Arlene T. Abellera
Editor:	Analyn D. Tulagan
Reviewers:	Jaime Campos, Jr. Rica C. Macam Jesus V. Macam Ma. Criselda G. Ocang Gina A. Amoyen Evangeline A. Cabacungan
Illustrator:	Marte B. Ilumin Anjo C. Layoso
Layout Artist:	Bobbit Dale M. Bulatao Christopher David G. Oliva
Management Team:	Tolentino G. Aquino Arlene A. Niro Editha R. Pridas Gina A. Amoyen Arlene B. Casipit Editha T. Giron

Printed in the Philippines by _____

Department of Education – Region I

Office Address: Flores St., Catbangen, City of San Fernando, La Union

Telefax: (072) 682-2324; (072) 607-8137

E-mail Address: region1@deped.gov.ph

10

Science

Quarter 3 – Module 2:

The Female Reproductive System and Menstrual Cycle



Introductory Message

This Self-Learning Module (SLM) is prepared so that you, our dear learners, can continue your studies and learn while at home. Activities, questions, directions, exercises, and discussions are carefully stated for you to understand each lesson.

Each SLM is composed of different parts. Each part shall guide you step-by-step as you discover and understand the lesson prepared for you.

Pre-tests are provided to measure your prior knowledge on lessons in each SLM. This will tell you if you need to proceed on completing this module or if you need to ask your facilitator or your teacher's assistance for better understanding of the lesson. At the end of each module, you need to answer the post-test to self-check your learning. Answer keys are provided for each activity and test. We trust that you will be honest in using these.

In addition to the material in the main text, Notes to the Teacher are also provided to our facilitators and parents for strategies and reminders on how they can best help you on your home-based learning.

Please use this module with care. Do not put unnecessary marks on any part of this SLM. Use a separate sheet of paper in answering the exercises and tests. And read the instructions carefully before performing each task.

If you have any questions in using this SLM or any difficulty in answering the tasks in this module, do not hesitate to consult your teacher or facilitator.

Thank you.



What I Need to Know

Menstruation is the monthly discharge of blood that occurs in most women of child-bearing age. Whether you are a female or a male, this topic has triggered curiosity in you when you were in your early puberty period. Although you had a background on the menstrual cycle during your fifth grade, don't you wonder how this cycle is being regulated by other organs of the female human body? Most students are aware that once menstruation started in a woman, she is capable of producing children.

This module will provide you with information and simple activities that will help you understand the female reproductive system, its parts and their functions, and the complexity of the menstrual cycle.

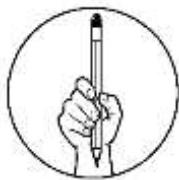
After going through this module, you are expected to:

1. describe the feedback mechanisms involved in regulating processes in the female reproductive system (e.g., menstrual cycle)
(S10LT-IIIc-35);
2. relate the menstrual cycle of the female to the ability to get pregnant or reproduce; and
3. spread awareness within the family about family planning and the national crisis on teenage pregnancy.

Going through this module can be a meaningful learning experience. All you need to do is make use of your time and resources efficiently. To do this, here are some tips for you:

1. Take the pretest (What I Know) before reading the rest of the module.
2. Take time in reading and understanding the lesson. Follow instructions carefully. Do all activities diligently. It is better to be slow but sure than to hurry and miss the concepts you are supposed to learn.
3. Use a separate sheet of paper for your answers in each activity or assessment. Don't forget to write your name. Label it properly.
4. Try to recall and connect the ideas about the lessons that you had in the lower years. Use the concept discussed in the lesson to explain the results of activities or performance task.
5. Be honest. When doing the activities, record only what you have really observed. Take the assessments after each activity, but do not turn to the Answer Key page unless you are done with the entire module.
6. Don't hesitate to ask. If you need to clarify something, approach or contact your teacher or any knowledgeable person available to help you. You may also look into other references for further information.
7. Take the posttest prepared at the end of the module, so you can assess how much you have learned from this module.

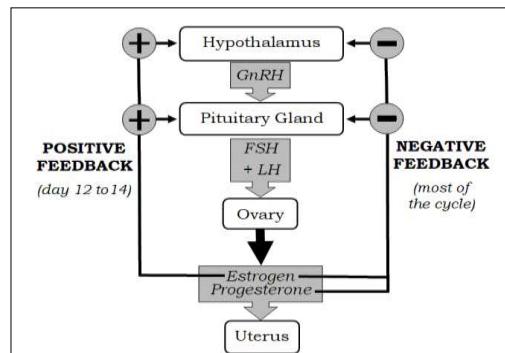
8. You can check your answers in the activities, self-assessments, and posttest after you finished the entire module to know how much you have gained from the lesson and the activities.



What I Know

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. What is considered as the ovulation day for regular menstrual cycle?
A. 1st day B. 14th day C. 20th day D. 28th day
2. Which birth control method is **best** used for safe sex?
A. abstinence B. condom C. IUD D. pills
3. In humans, fertilization normally occurs in the _____.
A. cervix B. fallopian tube C. uterus D. vagina
4. What do we call the female sex hormone that is responsible for the development and maintenance of typical female sexual characteristics?
A. estrogen B. FSH C. LH D. progesterone
5. What is the periodic shedding of tissues and blood from the inner lining of the uterus?
A. menstruation B. menopause C. ovulation D. pregnancy
6. Which of the following produces ova and secretes estrogen and progesterone?
A. hypothalamus B. ovary C. pituitary D. uterus
7. Hormones affect various processes in the body as they regulate the activities of organs, tissues, and cells. Which of the following statements is **true** about female hormones? They _____.
A. act in very small amounts but results to great deal of change in the body
B. lead to growth of facial hair and development of Adam's apple
C. may cause pain and headaches
D. trigger the development and release of ovum
8. Please refer to the diagram on the right.
During the menstrual cycle, which feedback mechanism keeps levels of FSH, LH, estrogen, and progesterone relatively stable?
A. combined
B. negative
C. none
D. positive



9. The menstrual cycle temporarily stops during ____.
A. adolescence B. ovulation C. pregnancy D. puberty
10. The ability to reproduce begins at ____.
A. adolescence B. adulthood C. childhood D. infancy
11. Menstruation is a sign that a girl is ____.
A. already menopausal. C. capable of producing offspring.
B. already pregnant. D. not capable of reproduction.
12. Menstruation can be described as the discharge of blood from the ____.
A. fallopian tube B. ovary C. uterine wall D. vagina
13. Which of the following **doesn't happen** during ovulation?
A. A mature egg is released from the ovary.
B. A slight increase in body temperature can be observed.
C. Cervical mucus increases in volume and becomes thicker.
D. Menstrual periods are irregular and can be late for up to 10 days or more.
14. Which hormone helps control the menstrual cycle and stimulates the growth of eggs in the ovaries?
A. follicle stimulating hormone B. luteinizing hormone
C. progesterone D. testosterone
15. Physiological processes are commonly moderated via two distinct feedback mechanisms – positive and negative feedback. Which of the pairs of events and feedback regulation is **incorrect**?
A. Childbirth: positive feedback.
B. Lactation: positive feedback.
C. Menstruation: negative feedback.
D. Ovulation: negative feedback.



Answer Key on page 16

How did you find the pretest? What was your score? If you got 15 items correctly, you may not take this module. But if your score is 14 and below, you must proceed with the module.

*Have fun in learning about the female reproductive system and menstrual cycle!
God bless you!*

Lesson 1

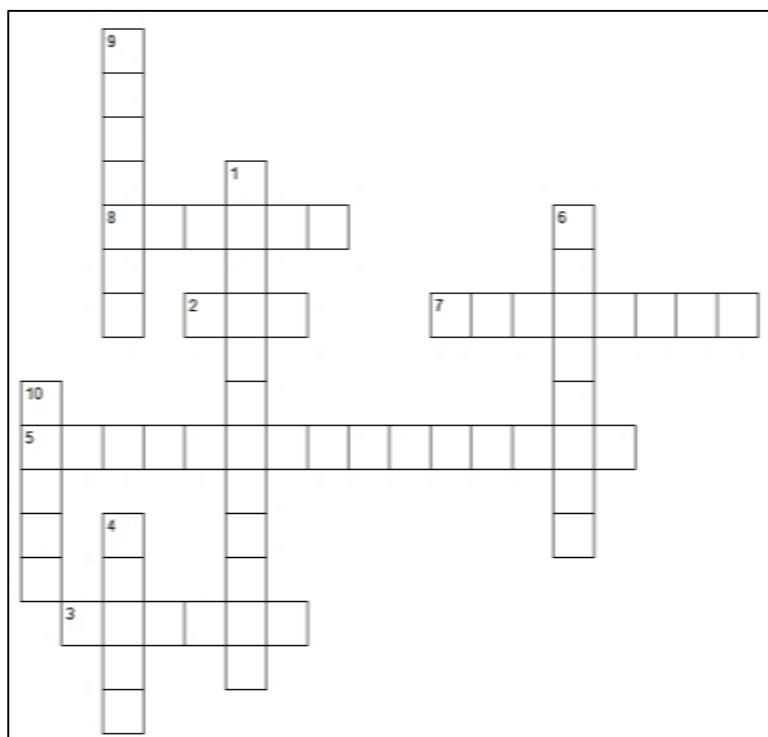
The Female Reproductive System and Menstrual Cycle



What's In

Our human body has a complex design. As we grow older, our body changes in so many ways. Many changes occur during our **adolescence** (age 10-19). The changes in males are very different from those in females. One of these differences is that girls menstruate while boys don't. At this stage, the changes that are common to both sexes include the development of pubic hair and production of **gametes** or sex cells. Our ability to reproduce begins at adolescence, too. The sex hormones cause these changes, including the events that happen during the menstrual cycle and those leading to reproduction.

Directions: Your Module 1 for the Quarter 3 deals with the endocrine system, its glands and hormones. Let us recall important words from your previous module that will be used in this module. Below is a short crossword puzzle consisting of ten important words to remember and used throughout our lesson. Read the clues on the right side to identify the words on the puzzle. Write your answers on a separate sheet of paper.



ACROSS:

2. Female sex cells
3. Passageway for menstruation and baby
5. Controls the activity of other glands
7. Responsible for typical female sex characteristics
8. Site of zygote implantation

DOWN:

1. Prepares and maintains the uterus for pregnancy
4. Produces egg cells
6. Chemical messengers secreted by endocrine glands
9. Another name for fallopian tube
10. Male sex cells

How many words do you remember? You may refer back to the previous page when you want to recall the definition of the terms included in the crossword puzzle.



What's New

The Wheel Keeps on Turning

Have you ever wondered how menstrual period works? Why does it come every month? What does it have to do with getting pregnant? The activity below will give you a better understanding of the menstrual cycle, specifically on the events taking place in the usual 28-days cycle.

What you need:

- ✓ separate sheet of paper
- ✓ ball pen and pencil
- ✓ ruler and compass or any round object
- ✓ coloring materials

What you have to do:

1. Get a separate sheet of paper for your answers. Copy Figure 1. (blank Menstrual Cycle Diagram) on your paper. You may also opt to scan or photocopy the diagram if you wish to. Do not copy the questions, just write your answer or observations.
2. Look at the diagram below. This is called a Menstrual Cycle Diagram.
 - a. How many days do we usually have in a month? _____
 - b. How many days do we have in a menstrual cycle? _____

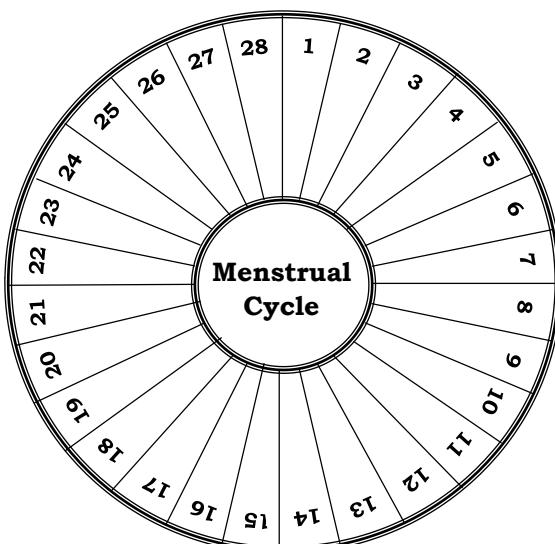


Figure 1. Menstrual Cycle Diagram (blank)

Adapted with modifications from <https://www.tes.com/teaching-resource/menstrual-cycle-cut-stick-and-color-7220045>

3. Identify the numbers/days in a month that correspond to the different events in a menstrual cycle listed on the phases below. Color them accordingly in the copied Menstrual Cycle Diagram.

- c. The periodic or regular shedding of tissues and blood from the inner lining of the uterus is called the **menstruation** or period. It could be described as the discharge of blood from the uterine wall. These days are numbers _____ and will be colored **red**. Note: Different girls have different menstruation length, but the usual is 5 to 7 days.
- d. Uterine lining starts to thicken with new layer of tissue. An egg is developing in the ovary. This is called **follicular phase** and covers the first half of the menstrual cycle. These days are numbers _____ and will be colored **yellow**. Note: While menstruation happens in the early part of this phase, the ovaries are simultaneously preparing to ovulate again.
- e. The day when an egg may be released from any of the two ovaries is on day _____. This is called **ovulation** and will be colored **blue**. It is half-way in the cycle. Note: A female can get pregnant although ovulation is a one-day occurrence each month and the ovum can only survive from 12-24 hours after ovulation. Conception can occur within a six-day window, the five days leading up to ovulation and the day of ovulation, because sperm can live in the female body for up to five days.
- f. If the egg was not fertilized or implantation did not occur, hormonal changes signal the uterus to prepare to shed its lining. This is called the **luteal phase**, and it happens on days _____. Color these days **green**. Note: This phase starts right after ovulation and lasts until the next period.
- g. What might happen if the egg was fertilized by a sperm? _____

How did you find the previous activity? Was it easy or challenging? The next part of this module will clarify further the scope of the four phases of the menstrual cycle.



What is It

Menstruation is a sign that a girl is capable of producing offspring. The menstrual cycle is a series of changes during which an egg matures, and the uterus is prepared for possible pregnancy. It entails biological **feedback system** that regulates the activities of the structures involved in the processes.

The menstrual cycle is influenced by the endocrine system through the complex interaction of the hypothalamus, pituitary and **gonads** (reproductive or sex organs, specifically the ovaries and testes). The length of the menstrual cycle varies from woman to woman but the average cycle is 28 days.

Figure 2, below, summarizes the changes in the uterus and the events in a woman's monthly period. The menstrual cycle can be divided into two parts: the follicular phase and the luteal phase.

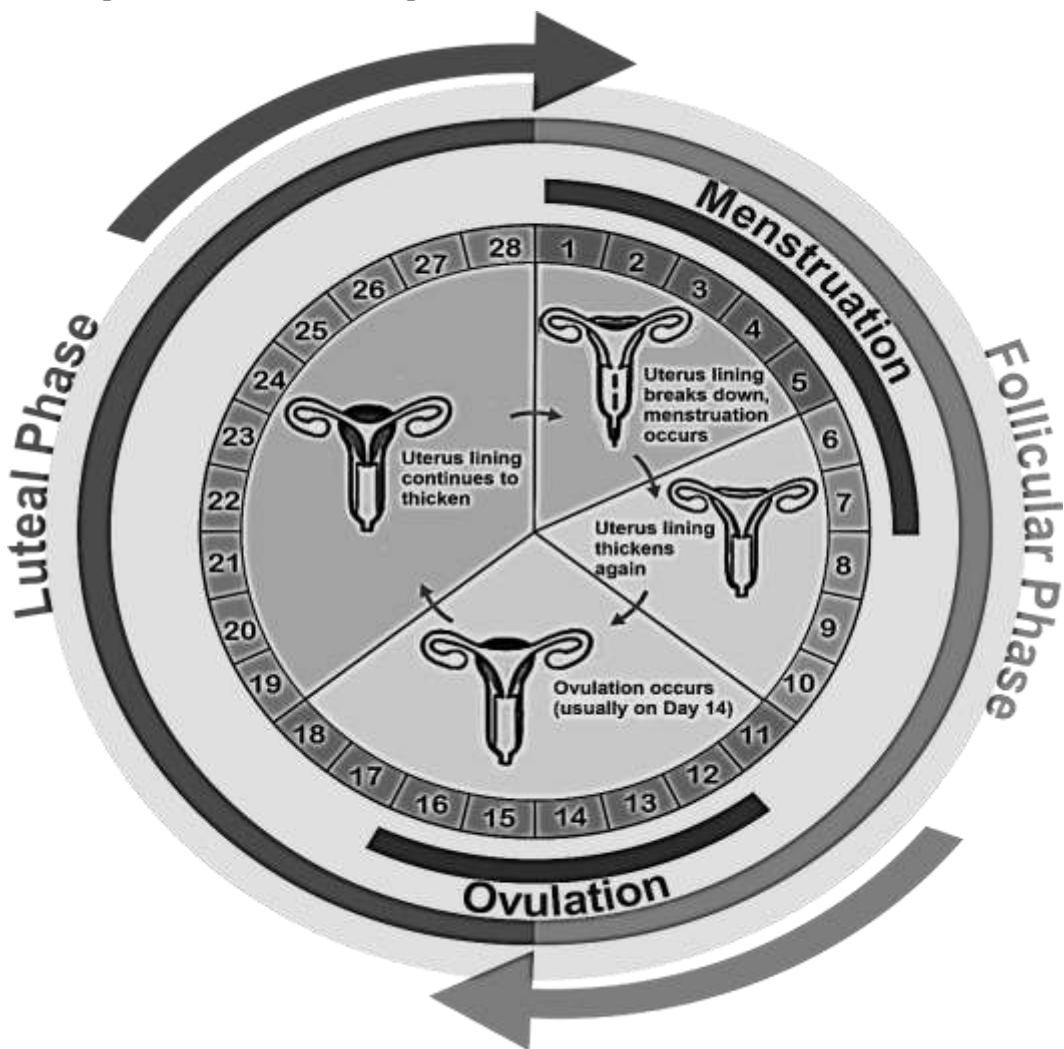


Figure 2. The Phases of Menstrual Cycle

Illustrator: Marte B. Ilumin, adapted with modifications from
<https://medium.com/@MHHub/prepared-for-your-daughters-period-754f02e66acf>

Follicular Phase. The follicular phase starts on day 1 of menstruation and ends with ovulation (day 14). The brain (anterior pituitary) sends the **Follicle Stimulating Hormone** (FSH) to the ovaries to signal follicles to grow and mature. These follicles produce **estrogen**. Estrogen acts on the uterus to stimulate the thickening of the **endometrium** (uterine lining). When estrogen peaks, it signals the brain to release **Luteinizing Hormone** (LH). This triggers ovulation.

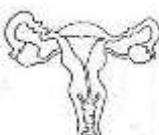
Ovulation occurs mid-cycle, around two weeks or so before menstruation starts. On this day, the mature egg from the follicle travels from the ovary down to the fallopian tube and into the uterus. At any time during the egg's journey, sperm can fertilize it. If fertilization does not occur during this phase, the egg continues to the uterus and dies within 6 to 24 hours.

Luteal Phase. The luteal phase includes the day after ovulation to the day before your next period. During the luteal phase, LH and FSH levels decrease. Once it releases its egg, the empty follicle develops into a new structure called the corpus luteum which produces **progesterone**. If the egg isn't fertilized, the corpus luteum degenerates and estrogen level decreases. The hormonal changes of this phase are associated with symptoms of premenstrual syndrome (PMS) such as pimples, headaches, fatigue, dizziness, mood changes, bloating, pain, swelling of the breasts, and food cravings.

The menstrual cycle can continue in a woman for about 40 years stopping temporarily during pregnancy and resumes after giving birth. Some pain, cramping, and discomfort during menstrual periods is normal. Excessive pain that causes you to miss work or school must be given medical attention.

Table 1 below summarizes the functions of the four important hormones in the menstrual cycle.

Table 1. Menstrual Hormones and Their Functions

Endocrine Gland	Hormone	Function
 Anterior Pituitary	Follicle Stimulating Hormone (FSH)	<ul style="list-style-type: none"> Stimulates follicular growth in ovaries Stimulates estrogen secretion from developing follicles (<i>small sac containing eggs</i>)
	Luteinizing Hormone (LH)	<ul style="list-style-type: none"> Surge causes ovulation Results in the formation of a corpus luteum (<i>a structure formed as a mature egg pops out of a follicle</i>) Triggers corpus luteum to secrete progesterone
 Ovaries	Estrogen	<ul style="list-style-type: none"> Thickens endometrium Stimulates the pituitary gland to release LH causing ovulation Stops FSH being produced so that only one egg matures in a cycle
	Progesterone	<ul style="list-style-type: none"> Thickens endometrium Inhibits FSH and LH (luteal phase)

Illustrator: Anjo C. Layoso, adapted with modifications from
<https://ib.bioninja.com.au/standard-level/topic-6-human-physiology/66-hormones-homeostasis-and-menstrual-cycle.html>



What's More

You have learned in our first activity and in the previous mini-lesson the different phases of the menstrual cycle. Here are some enrichment activities for you to work on to strengthen the basic concepts you have gained previously.

Activity 1. The Shifting Messengers

Our body's chemical messengers are the **hormones** produced by the glands of the endocrine system. Endocrine glands pass them straight into the bloodstream. Hormones affect various processes in the body as they regulate the activities of organs, tissues, and cells. Hormones, even in little amounts, can control many of the changes in the reproductive system including those leading to the menstrual cycle. The activity below will explain the functions of each hormone in the menstrual cycle.

What you need:

- ✓ separate sheet of paper and ball pen

What you have to do:

1. Get a separate sheet of paper for your answers and observations. Copy Table 2 on your answer sheet. Make sure to provide ample space for your answers.

Table 2. The Hormonal Changes in the Menstrual Cycle

Menstrual Phase	Hormone Levels			
	Estrogen	FSH	LH	Progesterone
Menstruation	<i>Low</i>			
Follicular			<i>high</i>	
Ovulation				
Luteal				<i>High</i>

2. Supply Table 2 with information about the changing/shifting levels of each hormone in the different phases. You may refer to the discussion in "What Is It" and Table 1 for clues. Use either word **high** or **low** for each blank cell. Three entries on the table serve as your guide. The gray areas on some cells mean the hormone is not evident in the phase.

*Let us see if you have grasped the essence of our first enrichment activity.
Answer the assessment on the next page.*

Assessment 1

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. Which hormone helps control the menstrual cycle and stimulates the growth of eggs in the ovaries?
A. follicle stimulating hormone B. luteinizing hormone
C. progesterone D. testosterone

2. Which endocrine gland produces estrogen and progesterone?
A. anterior pituitary C. pancreas
B. ovaries D. testes

3. Hormones affect various processes in the body as they regulate the activities of organs, tissues, and cells. Which of the following statements is **true** about female hormones? They ____.
A. act in very small amounts but results to great deal of change in the body
B. lead to growth of facial hair and development of Adam's apple
C. may cause pain and headaches
D. trigger the development and release of ovum

4. During the luteal phase, progesterone tends to ____.
A. fall C. rise
B. remain steady D. shift unsteadily

5. Which hormone surge results to ovulation?
A. estrogen B. luteinizing C. progesterone D. testosterone

Activity 2. The Plus and Minus

You have known about the four hormones involved in the menstrual cycle in the previous activity. This time, let's see how the **feedback mechanisms** affect the female reproductive system.

Feedback loops are biological processes that maintain homeostasis or body balance. Remember this difference between positive and negative feedback:

➤ **positive feedback** intensifies a response while **negative feedback** reduces the effect of a stimulus.

A negative feedback affects the production and release of hormones in the menstrual cycle. High levels of one hormone may inhibit the production of another hormone. During the cycle, negative feedback mechanism keeps the levels of hormones relatively stable.

Figure 3, below, shows how feedback loops happen in a menstrual cycle.

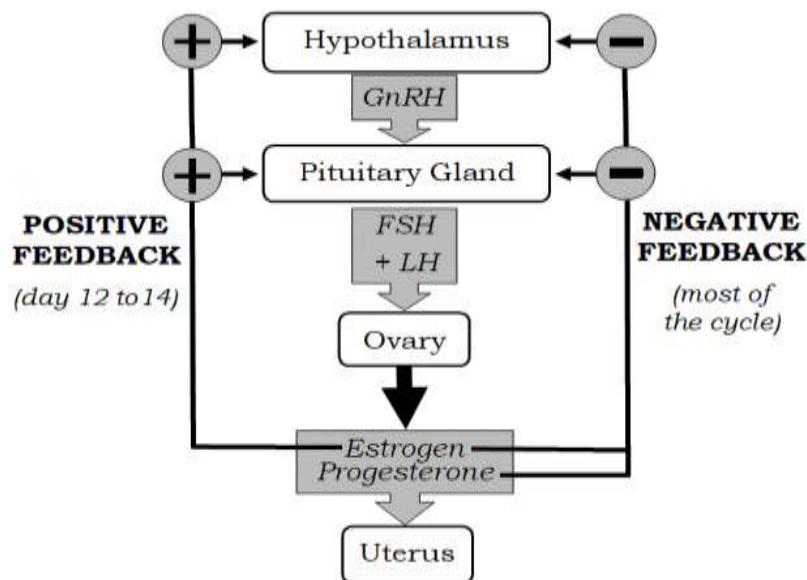


Figure 3. Feedback Mechanisms in the Menstrual Cycle

Adapted with modifications from Cornell, B. 2016. <https://ib.bioninja.com.au/standard-level/topic-6-human-physiology/66-hormones-homeostasis-and/menstrual-cycle.html>

What you need:

- ✓ separate sheet of paper and ball pen

What you have to do:

1. Get a separate sheet of paper for your answers. Do not copy the statements or items. Just indicate the situation number on your paper, and write the correct symbol for your answer later.
2. Read the situations/events in the female reproductive system and the brief explanation for each event in Table 3. Analyze the underlined words as they were given as clues.
3. Determine whether a positive or a negative feedback mechanism is taking place in each example. Put a plus (+) sign if it is a positive feedback mechanism and a negative (-) sign if it is a negative feedback mechanism.

Table 3. Positive and Negative Feedback Mechanism

Situations		Brief Explanation	Type of Feedback
1	childbirth	The stretching of uterine walls causes contractions that <u>further</u> stretch the walls. These continues until birthing occurs.	
2	lactation	Suckling <u>stimulates</u> milk production which causes further feeding (continues until baby stops feeding).	

3	menstruation	Follicles becomes the corpus luteum, and this produces estrogen and progesterone which <u>inhibit</u> FSH and LH secretion by the pituitary.	
4	ovulation	The dominant follicle releases estrogen which <u>stimulates</u> LH and FSH release to promote further follicular growth.	

How did you find the example situations in the previous activity? Do you understand how feedback mechanisms affect the female reproductive system? It's now time to test your knowledge by answering Assessment 2.

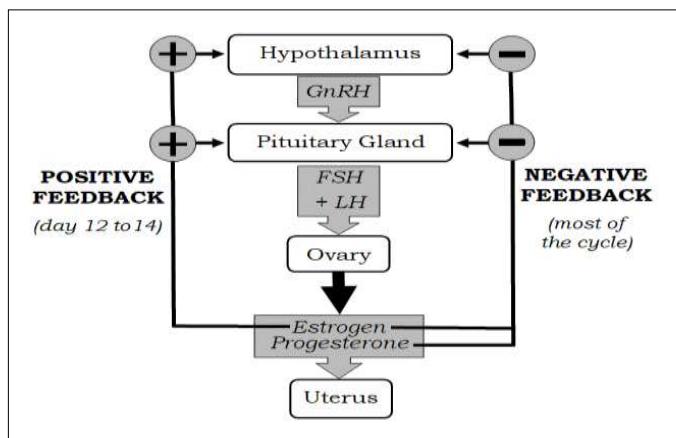
Assessment 2

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. Please refer to the diagram on the right.

During the menstrual cycle, which feedback mechanism keeps levels of FSH, LH, estrogen, and progesterone relatively stable?

- A. combined
- B. negative
- C. none
- D. positive



2. Physiological processes are commonly moderated via two distinct feedback mechanisms – positive and negative feedback. Which of the following pairs of events and feedback regulation is **incorrect**?
- A. Childbirth: positive feedback.
 - B. Lactation: positive feedback.
 - C. Menstruation: positive feedback.
 - D. Ovulation: negative feedback.

3. Which of the following statement about feedback mechanisms is **true**?

- A. Positive and negative feedback go away from a target.
- B. Positive feedback intensifies a response while negative feedback reduces the effect of a stimulus.
- C. Positive goes to a target while negative does the opposite.
- D. Positive lessens a response while negative feedback increases the effect of a stimulus.

4. A negative feedback affects the production of hormones in the menstrual cycle, where high levels of one hormone may _____ the production of another hormone.

- A. encourage
- B. increase
- C. inhibit
- D. maximize

5. What is maintained by the continuous feedback mechanisms in our body?
A. growth B. health C. homeostasis D. life

After knowing more about feedback mechanism, it is now time to improve your understanding of menstruation and pregnancy. Do the next activity with an open mind.

Activity 3. The Possibilities Are Endless

Males might find the topic in this module very unfamiliar, but learning about periods and the menstrual cycle can help both sexes better understand family planning and various methods of contraception. Further, this information could help prevent social problems like early and/or unwanted pregnancies, abortion, and population explosion. Remember that part of being socially aware is having a good background on ovulation. It is a part of the menstrual cycle that occurs when an egg is released from an ovary. When the egg is released, it may or may not be fertilized by a sperm. If fertilized in the fallopian tube, the egg may travel to the uterus and implants itself, leading to pregnancy.

As a student and an adolescent, are you open-minded about these social issues? Do the next activity to enlighten you more about menstruation and pregnancy.

What you need:

- ✓ separate sheet of paper and ball pen
- ✓ Figure 1 or blank Menstrual Cycle Diagram on page 4
- ✓ Coloring materials

What to do:

1. Get a separate sheet of paper for your answers. Copy again Figure 1. (blank Menstrual Cycle Diagram) on your paper. This time, label the diagram “Ovulation Chart.”
2. On your ovulation chart, mark the unfertile, likely to be fertile, and the most fertile days. You may use green for **unfertile day/s**, yellow for likely to be **fertile day/s** and red for the **most fertile day/s**. Hint: five days out of the average 28 days are considered to be most fertile.
3. Based on our previous activities and readings in this module, write a short description on the sides of each fertility groupings.
4. *The next statements are taken from realities happening between sexually active couples, just be open-minded and supply the best possible and most honest answer you can give.* You are encouraged to interview your parents or any married couple in your family to provide you the needed information. Copy and complete each statement.

- A. During fertile days, if a married couple decide not to have a child yet, then they should practice safe sex. What are the common methods of contraception available to couples? _____.
- B. Based on your understanding, which type of birth control device or method is best used for safe sex to prevent the spread of STI or sexually transmitted infection? Why? _____.
- C. What is abstinence? How does it help in birth control and preventing the spread of STI? _____

You did well! It's now time to do an assessment of your understanding. Do your best!

Assessment 3

Directions: Read each item carefully. Write only the letter of the correct answer for each question. Use a separate sheet for your answers.

1. What is considered as the most fertile day in a regular menstrual cycle?
A. 1st day B. 14th day C. 20th day D. 28th day
2. Which birth control method is **BEST** used for safe sex?
A. abstinence B. condom C. IUD D. pills
3. In which part of the female reproductive system is egg fertilized?
A. cervix B. fallopian tube C. uterus D. vagina
4. If two people don't have sex, sperm can't fertilize an egg, and there's no possibility of pregnancy. What is this simplest form of birth control?
A. abortion B. abstinence C. calendar D. withdrawal
5. For how many days in the regular menstrual cycle are females considered to be most fertile?
A. one B. five C. ten D. all days



What I Have Learned

Great job! You are almost done with this module. Let's summarize what you have learned from the lesson and activities by answering the following items.

Complete the following statement by choosing the correct word inside the parenthesis. Use a separate sheet of paper and write only your answer. Do not copy the statements.

1. Our human body is a complex design. Our ability to reproduce begins at (adolescence, adulthood).
2. During adolescence, males and females change very differently; girls menstruate while boys don't. The sexually related change common to both sexes is the development of (breast tissues, pubic hair).
3. The periodic or regular shedding of tissues and blood from the inner lining of the uterus is called the (menopausal, menstruation) or period.
4. The (follicular, luteal) phase happens when the uterine lining/walls starts to thicken with new layer of tissue. An egg is developing in the ovary, too.
5. (Menstruation, Ovulation) is a sign that a girl is capable of producing offspring.
6. The length of the menstrual cycle varies from woman to woman but the average cycle is (28, 30) days
7. The menstrual cycle can continue in a woman for 40 years, but it temporarily stops during (ovulation, pregnancy).
8. Our body's chemical messengers are the (hormones, neurotransmitters) produced by the glands of the endocrine system.
9. Endocrine glands pass chemical messages straight into the (bloodstream, organs).
10. Hormones affect various processes in the body as they (change, regulate) the activity of organs, tissues, and cells.
11. Despite the fact that hormones act in very (large, small) amounts, they can control many of the changes in the reproductive system including the menstrual cycle.
12. (Activity, Feedback) loops are biological processes that maintain homeostasis or body balance.

13. (Negative, Positive) feedback amplifies the initiating stimulus.
14. (Negative, Positive) feedback reduces the stimulus.
15. If fertilized in the (fallopian tube, uterine cavity), the egg may travel to the uterus and implants itself, leading to pregnancy.



What I Can Do

NOTE: This is a make-believe activity. Pretend and internalize the role you are asked to do. Enjoy!

You are an active member of your barangay SK Council. You have observed the increase in number of unwanted pregnancies and large family size in your area.

On a piece of short bond paper, write a three-minute speech in the language you prefer about contraceptive measures used for family planning. Make a thorough research on different methods available, their effectiveness, reliability, and their pros and cons that could help you develop an informative material. List down your sources of information below your written speech.

Practice delivering your speech realistically or with conviction. When you are already at ease, ask your family members to act as your audience. Take a video recording of yourself as you deliver your speech in front of your family. Submit your written speech and its recording or digital copy to your subject teacher for evaluation.

Now that you have performed your make-believe performance task, answer briefly and honestly the questions below:

Discussion of Possible Outcomes:

1. What do you think are the keys to the accomplishment of your goals?
2. What do you think are the factors that may hinder the couples in your barangay to accept your suggestions? Why?

Your output on the make-believe activity will be rated by your teacher according to the following criteria:

Standards Rubric

Appropriateness (safe sex and population control)	5 points
Accuracy (taken from real scenario and reliable sources)	5 points
Grammar and Spelling (English and/or vernacular)	5 points
Techniques (persuasiveness/humor in words and actions)	5 points

TOTAL - 20 points

Very well done! You are now ready to have your posttest. You may want to go over again the lessons, activities and maps to review for the final assessment. God bless you!



Assessment

Directions: Read each item carefully. Use a separate sheet for your answers. Write only the letter of the correct answer for each question.

1. The ability to reproduce begins at ____.
A. adolescence B. adulthood C. childhood D. infancy
2. Menstruation is a sign that a girl is ____.
A. already menopausal. C. capable of producing offspring.
B. already pregnant. D. not capable of reproduction.
3. Menstruation is the discharge of blood from the ____.
A. fallopian tube B. ovary C. uterine wall D. vagina
4. An egg maybe released from the ovary through a process called ____.
A. Dilation B. Fertilization C. Gestation D. Ovulation
5. What is considered as the ovulation day for regular menstrual cycle?
A. 1st day B. 14th day C. 20th day D. 28th day
6. Which of the following produces ova and secrete estrogen and progesterone?
A. hypothalamus B. ovary C. pituitary D. uterus
7. Hormones affect various processes in the body as they regulate the activities of organs, tissues, and cells. Which of the following statements is **true** about female hormones? They ____.
A. act in very small amounts but estrogen must be dominant.
B. are sometimes released by organs.
C. cause pain and pelvic cramps.
D. trigger headaches.
8. Which hormone thickens uterine lining (endometrium) in preparation for implantation, and inhibits FSH and LH?
A. estrogen B. FSH C. LH D. progesterone
9. Which hormone helps control the menstrual cycle and stimulates the growth of eggs in the ovaries?
A. follicle stimulating hormone B. luteinizing hormone
C. progesterone D. testosterone

10. In the female human reproductive system, fertilization normally occurs in the _____.
A. cervix B. fallopian tube C. uterus D. vagina
11. Which refers to the “period” which occurs in females if no fertilization takes place?
A. Puberty B. Menopause C. Menstruation D. Ovulation
12. Physiological processes are commonly moderated via two distinct feedback mechanisms –positive and negative feedback. Which of the pairs of events and feedback regulation is **incorrect**?
A. Childbirth: positive feedback.
B. Lactation: positive feedback.
C. Menstruation: negative feedback.
D. Ovulation: negative feedback.
13. During the first half of the cycle, which feedback mechanism keeps levels of FSH, LH, estrogen, and progesterone relatively stable?
A. combined B. negative C. neutral D. positive
14. Which birth control device is **best** used for safe sex?
A. abstinence B. condom C. IUD D. pills
15. Menstruation is a monthly occurrence. When will there be menstruation?
A. when the egg is not fertilized by a sperm
B. when the egg is released from the ovary
C. when the egg meets the sperm
D. when the egg reaches the uterus



Answer Key on page 19

How was the Assessment? What was your score? Congratulations if you got 12 to 15 items correctly. If your score is below 12, you must review the parts of the lesson that you did not understand well. You may also ask your teacher/facilitator for further explanation on these parts.



Answer Key

What I Know

What's In

What's New

a. 28 to 31	e. 14(blue)	b. 28	f. 15 to 28 (green)	c. 1 to 7 (red)	g. pregenancy	d. 1 to 13 (yellow)
1. B	6. B	2. egg	3. vaginia	4. ovary	5. pituitary gland	6. hormones
2. B	6. C	1. progesterone	2. progesterone	3. estrogen	4. A	5. A
7. A	11. C	Down:	Across:	8. uterous	9. oviduct	10. sperm
7. A	12. C			7. estrogen	8. C	14. A
2. B	6. B			3. B	8. B	13. D
7. A	11. C			4. B	9. C	10. A
2. B	6. B			5. A	9. C	15. D

Activity 1 (Table 1)

Assessment 1

1.A
2.B
3.A
4.C
5.B

Activity 2 Assessment 2

1.B	2.C	3.B	4.C	5.C
1.+	2.+	3.-	4.-	5.-

Activity 3

A to C - Answers may vary

Assessment 3

1.B
2.B
3.B
4.B
5.B

What I Have Learned

What I Can Do

(see rubric on page 16)

Assessment

1. A 6. B 11. C
2. C 7. A 12. A
3. C 8. D 13. B
4. D 9. A 14. B
5. B 10. B 15. A

References

Printed Material:

H. Acosta, L. Alvarez, D. Angeles, R. Arre, MP. Carmona, A. Garcia and A. Gatpo, *Science - Grade 10 Learner's Material* (Pasig City, Philippines: Rex Bookstore, Inc. and Department of Education, 2015).

Electronic Sources/Websites:

Learning Resource Portal, “*Science Modules*” accessed October 13, 2019,
<https://lrmds.deped.gov.ph/detail/6838>.

Anita Patel, “*Menstrual Cycle*” accessed October 13, 2019,
<https://www.tes.com/teaching-resource/menstrual-cycle-cut-stick-and-color-7220045>

B. Cornell, 2016, “*Menstrual Cycle*” accessed October 13, 2019,
<https://ib.bioninja.com.au/standard-level/topic-6-human-physiology/66-hormones-homeostasis-and-menstrual-cycle.html>.

Laurie Ray DNP, “The Menstrual Cycle: More Than Just Your Period” HelloClue, last modified December 12, 2018, <https://helloclue.com/articles/cycle-a-z/the-menstrual-cycle-more-than-just-the-period>.

Charlotte Amrouche, “Prepared for your daughter’s period?”, Mentrual Health Hub, last modified August 16, 2019, <https://medium.com/@MHHub/prepared-for-your-daughters-period-754f02e66acf>.

Aditi Gupta and Tuhin Paul, “Phases of Menstrual Cycle”, Menstrupedia, accessed October 13, 2019, <https://menstrupedia.com/articles/physiology/cycle-phases>.

Amanda Howe, “The 2 Phases Of Your Period Cycle”, As Nature Intended accessed October 13, 2019, <https://www.asnatureintended.com.au/naturopath/2-phases-period-cycle>.

BBC, “Oestrogen and Progesterone In The Control Of The Menstrual Cycle” accessed October 13, 2019, <https://www.bbc.co.uk/bitesize/guides/zxhktv4/revision/2>

CK-12 Foundation, “Menstrual Cycle and Menstruation” accessed October 13, 2019, <https://www.ck12.org/c/biology/menstrual-cycle/lesson/The-Menstrual-Cycle-Advanced-BIO-ADV/>

For inquiries or feedback, please write or call:

Department of Education - Bureau of Learning Resources (DepEd-BLR)

Ground Floor, Bonifacio Bldg., DepEd Complex
Meralco Avenue, Pasig City, Philippines 1600

Telefax: (632) 8634-1072; 8634-1054; 8631-4985

Email Address: blr.lrqad@deped.gov.ph * blr.lrpd@deped.gov.ph