

# IDENTIFICATION AND ANALYSIS OF REPRODUCTIVE ANATOMY



## LESSON INTRODUCTION:

The purpose of this lesson is to have students identify internal and external male and female reproductive anatomy. Students will also analyze how the brain and hormones are involved in the human sexual response cycle in relationship to reproduction.



## OBJECTIVES:

**Students will be able to...**

- Identify the key structures that make up reproductive system anatomy for males and females
- Analyze the relationship between human sexual response, hormones and reproduction



## VOCABULARY

### Brain

- Attraction
- Estrogen
- Feelings
- Frontal lobe: higher level thinking
- Hormone
- Hypothalamus
- Pituitary gland
- Progesterone
- Puberty
- Testosterone
- Thoughts

### Internal

- Cervix
- Endometrium
- Fallopian tubes
- Gamete: ova, sperm
- Gonads: ovaries
- Menstruation
- Ovulation
- Spermatogenesis
- Urethra
- Uterus
- Vagina

### External

- Clitoris
- Labia: majora, minora
- Perineum
- Scrotum
- Secondary sex characteristics
- Gonads: testes
- Menstruation
- Penis
- Vulva

**GRADE:** High School

**LENGTH OF LESSON:** 60 min

**SEQUENCE:** 4



## ACTIVITIES:

- 4.1 Anonymous Question Box and Assessment
- 4.2 Reproductive Anatomy "Gonads to Gonads" Game
- 4.3 Menstruation and The Path of the Egg
- 4.4 Human Sexual Response and Reproduction
- 4.5 Assessment



## MATERIALS/TECHNOLOGY:

- "Gonads to Gonads" Term Cards
- Handout: Brain Diagram
- Handout: External Female Genitalia
- Handout: Male Genitalia
- Handout: Internal Female Genitalia
- Menstrual Cycle Fact Sheet: <https://www.womenshealth.gov/files/documents/fact-sheet-menstrual-cycle.pdf>
- Student and Teacher Worksheets: Human Sexual Response Cycle



## STANDARDS:

### ***Wisconsin Standard for Health Education***

- Students will demonstrate the ability to access valid health information and products and services to enhance health.

### ***National Sexuality Education Standards***

- By the end of the 12th grade, students should be able to:
  - **AP.12.CC.1** Describe the human sexual response cycle, including the role hormones play.



## Activity 4.1: Anonymous Question Box and Assessment of Lesson 3

**(5 minutes)**

Take a moment to check in on the ground rules for the Human Growth and Development unit. If there are questions in the anonymous question box, answer them using the **Answering Difficult Questions Protocol**. Remind students that the box will be available throughout the Human Growth and Development unit. Then ask students for examples of “I” Statements that they either used or thought about in retrospect after a difficult conversation. Assess the quality of “I” Statements based on the structure offered during **Lesson 3**.



## Activity 4.2: Reproductive Anatomy “Gonads to Gonads” Game (20 minutes)

In **Lesson 3**, students were given the assignment to watch at least one short video on reproductive anatomy to watch online. The videos were:

1. Female Sexual Response (animated)

[https://www.youtube.com/watch?v=iMHq\\_WuT6g0&oref=https%3A%2F%2F](https://www.youtube.com/watch?v=iMHq_WuT6g0&oref=https%3A%2F%2F)

2. Porn Sex versus Real Sex

<https://www.youtube.com/watch?v=CGsa1CGmlzc>

Check to see that most students watched a video.

Based on the information they learned from the videos, ask the students if they can name any corresponding male to female parts. For example: a man has testes and a woman has ovaries, both produce sex hormones. Or the clitoris in a female is like the penis in a male, both external and highly sensitive.

Let them know that they will be playing a game to review what they learned.

Break the class up into three teams and assign them **Internal**, **External**, and **Brain**.

Ask the students why the brain is a part of the reproductive anatomy (**Answer:** because the brain has structures that produce sex hormones and the brain is where humans process emotions relating to sex such as love and arousal). Ask students what physical parts of the brain interact with the internal and external organs (**Answer:** hypothalamus, pituitary gland).

Once the students are in three teams, distribute the **Gonads to Gonads Term Cards** based on group assignments. Give teams time to go through their term cards and make sure everyone knows what the terms are.

If there is confusion, this is the time to talk about it. During puberty the body changes physically (menstruation, body hair, growing body parts), but hormones are changing as well. Hormones signal your brain and body to want to have sexual intercourse.

Post around the room the following handouts: **Brain Diagram**, **External Female Genitalia**, **Male Genitalia**, and **Internal Female Genitalia**. Explain that the game is like “Apples to Apples.” To play, a team will play a card, then all the other teams will also

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play a card and explain how the cards are related. The first team to get rid of all their cards will win.

Choose a team to put down the first card. Allow teams to refer to the diagrams as they explain how their cards relate to the first card that was put down. If the class agrees on the relatedness of the cards, move on to the next team, asking them to put a card down. If there is a card played that does not seem to relate, ask that team to pick their card back up. Once the cards are all played, and you have a clear winning team, issue a prize of your choosing.



Activity 4.2: Gonads to Gonads Term Cards

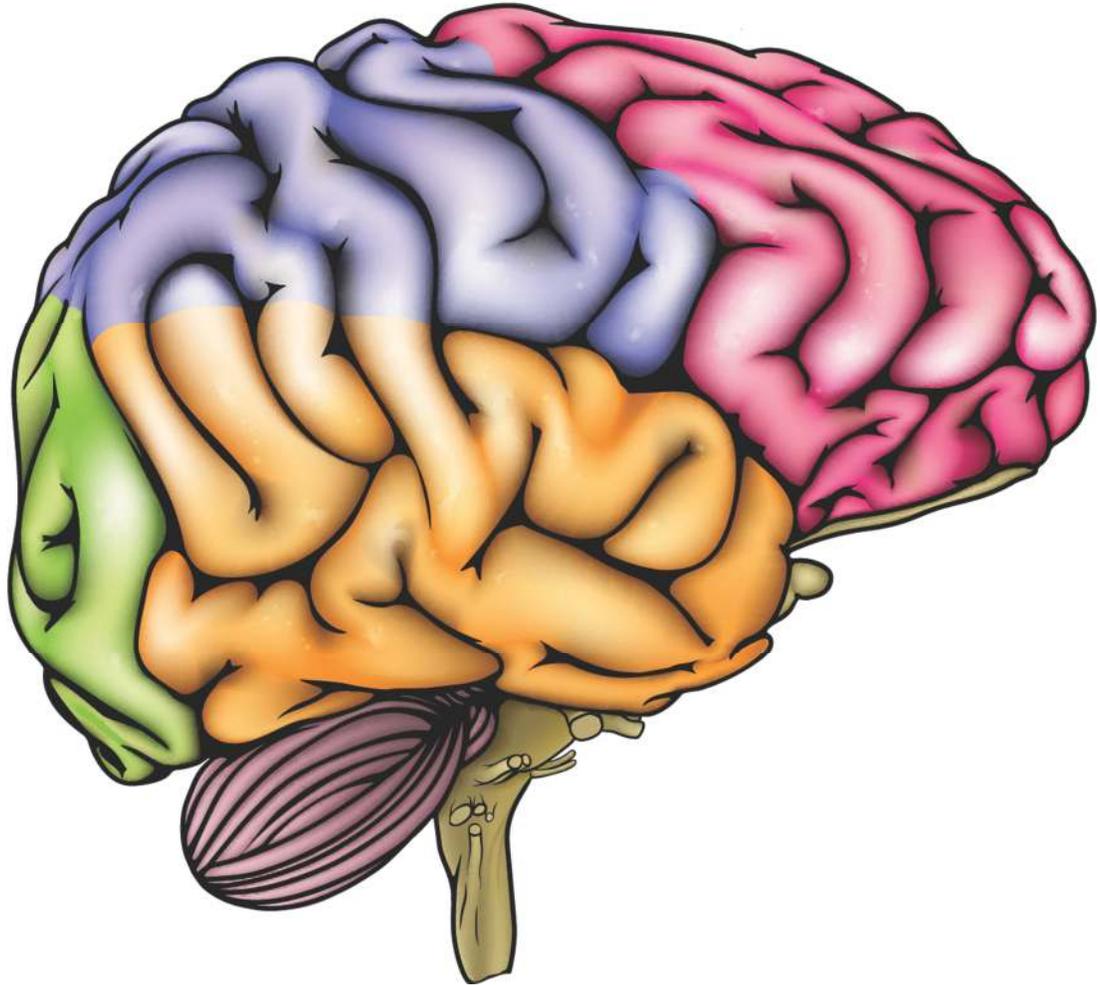
Brain: <b>Puberty</b>	Brain: <b>Progesterone</b>
Brain: <b>Hypothalamus</b>	Brain: <b>Attraction</b>
Brain: <b>Hormone</b>	Brain: <b>Feelings</b>
Brain: <b>Testosterone</b>	Brain: <b>Thoughts</b>
Brain: <b>Estrogen</b>	Brain: Pituitary gland
Brain:	Internal: <b>Uterus</b>

Frontal lobe higher level thinking	
Internal: <b>Gonads – ovaries</b>	Internal: <b>Fallopian tubes</b>
Internal: <b>Spermatogenesis</b>	Internal: <b>Endometrium</b>
Internal: <b>Menstruation</b>	Internal: <b>Cervix</b>
Internal: <b>Ovulation</b>	Internal: <b>Gamete – ova, sperm</b>

Internal: <b>Vagina</b>	Internal: <b>Urethra</b>
External: <b>Labia – majora, minora</b>	External: <b>Clitoris</b>
External: <b>Secondary sex characteristics</b>	External: <b>Perineum</b>
External: <b>Vulva</b>	External: <b>Scrotum</b>
External: <b>Menstruation</b>	External: <b>Gonads – testes</b>
External: <b>Penis</b>	

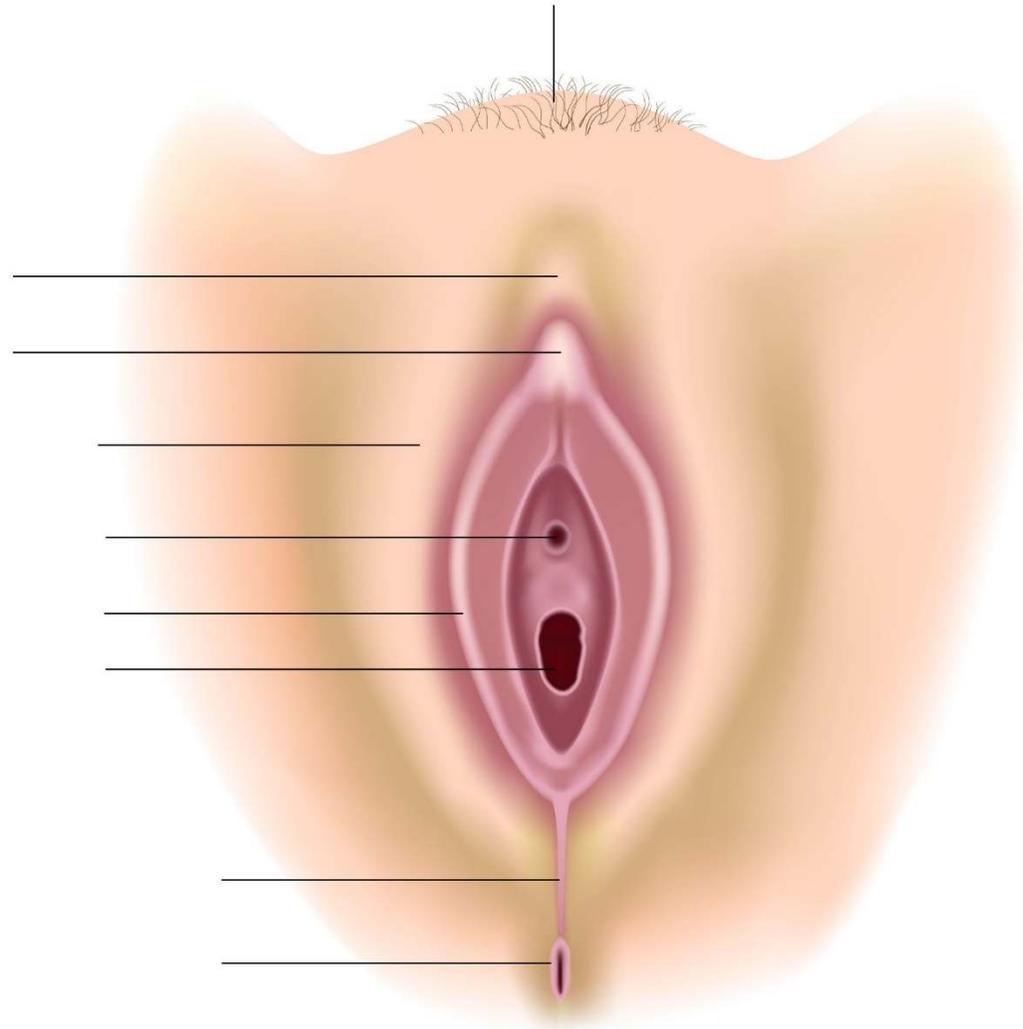
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## Activity 4.2: Brain Diagram Handout



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## Activity 4.2: External Female Genitalia Handout

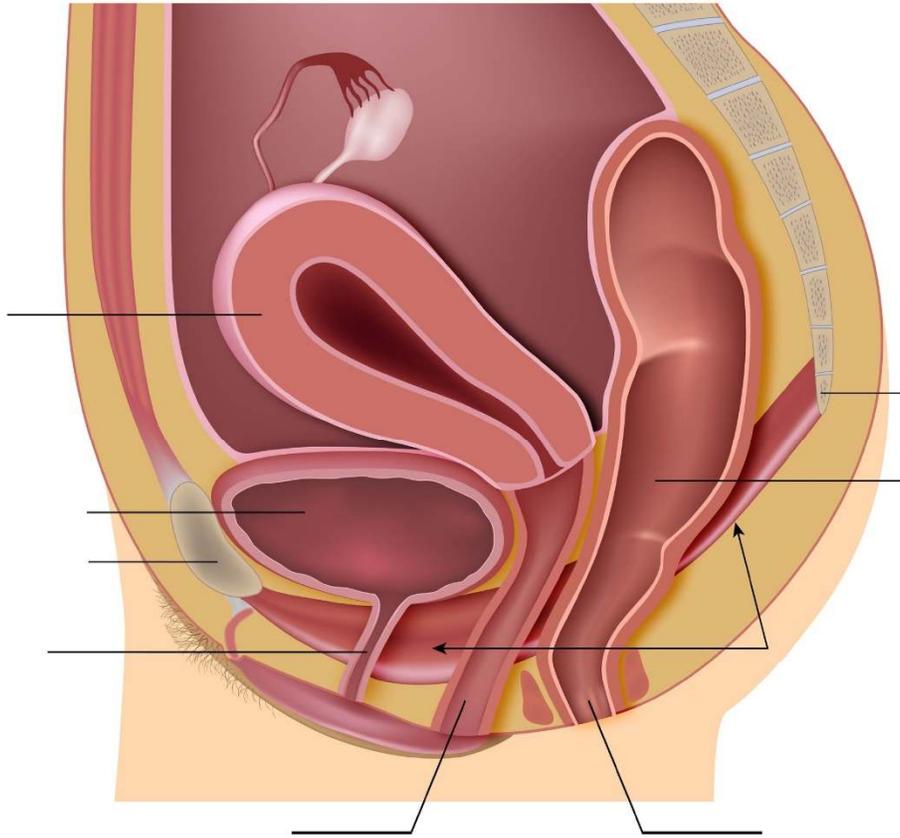




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## Activity 4.2 + Activity 4.3: Internal Female Genitalia Handout





## Activity 4.3: Menstruation and the Path of the Egg

(10 minutes)

Utilize the **Internal Female Genitalia Handout**. Refer to the **Menstrual Cycle Fact Sheet**. Ask students when an egg is released during a 28-day cycle. Talk about that the egg will travel down the fallopian tube towards the uterus during ovulation. Emphasize that during this phase the sperm can fertilize the egg. Ask what happens if the egg is not fertilized. Then discuss that menstruation or a “period” is when the lining of the uterus, called the endometrium, breaks down and sheds from the body.

Be sure to explain the following Functional Health Knowledge related to the menstrual cycle to the students:

- Explain the average 28-day menstrual cycle
- Describe the different phases of the menstrual cycle
- If an egg is not fertilized...
- A “period” is when the endometrial lining of the uterus breaks down and is shed from the body



## Activity 4.4: Human Sexual Response and Reproduction (20 minutes)

Explain that the biological urge to reproduce is built into every species. Although current understanding is that humans are one of the only species to engage in sex for reasons other than reproduction, human bodies are still wired to assist reproduction during sexual activity.

Let the class know that after the review of anatomy and physiology they had during the “Gonads to Gonads” game, you are now going to talk about sexual response and how the changes the body goes through during sexual activity exist to aid in fertilization (regardless of who the partners are or their genders).

If you have not talked about it in the past, remind students that in the male reproductive system, the testicles produce and store sperm cells. When sperm are released into a female reproductive system that is ovulating, this can cause pregnancy.

Pass out the **Human Sexual Response Cycle Worksheet**. The worksheet is divided into sections based on the research of Masters and Johnson<sup>1</sup>.

As you talk through sexual response using the worksheet as a guide, have students fill in the grids. Like the “Gonads to Gonads” game, ask students to pay attention to the processes that are the same. Refer to the **Teacher Worksheet** for notes and the correct answers to fill in the charts.

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<sup>1</sup> Masters, W. H., Johnson, V. E., & Reproductive Biology Research Foundation (U.S.). (1966). Human sexual response [by] William H. Masters, research director [and] Virginia E. Johnson, research associate, the Reproductive Biology Research Foundation, St. Louis, Missouri. Boston: Little, Brown.



## Activity 4.4: Student Worksheet: Human Sexual Response Cycle

### What is the sexual response cycle?

The sexual response cycle refers to the sequence of physical and emotional changes that occur as a person becomes sexually aroused and participates in sexually stimulating activities, including intercourse and masturbation. Knowing how your body responds during each phase of the cycle can enhance your relationship. This was originally researched by Masters and Johnson. It is not the only model of a sexual response cycle, but it is the best known one.

### What are the phases of the sexual response cycle?

The sexual response cycle has four phases: excitement, plateau, orgasm, and resolution. All people experience these phases, although the timing usually is different. In addition, the intensity of the response and the time spent in each phase varies from person to person. Understanding these differences may help partners better understand one another's bodies and responses to enhance the sexual experience.

#### Phase 1: Excitement

General characteristics of this phase, which can last from a few minutes to several hours, include the following:

Characteristic	Male	Female	Role in fertilization?
Increase in muscle tension			
Heart rate and breathing quicken			
Skin may become flushed			
Nipples hard or erect			
Increase blood flow to genitals; swelling of the clitoris and labia minora (inner lips), and erection of the penis			
Vaginal lubrication			
Breasts fuller, vagina swells and walls turn a dark purple			
Testicles swell, scrotum tightens, begins secreting lubricating liquid			

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## Phase 2: Plateau

During this phase, the changes that occur during excitement are intensified. General characteristics of this phase, which extends to the brink of orgasm, include the following:

Characteristic	Male	Female	Role in fertilization?
The clitoris becomes highly sensitive (may even be painful to touch) and retracts under the clitoral hood.			
Vagina elongates, uterus draws up and back in the body.			
The testicles are withdrawn up into the scrotum.			
Muscle spasms may begin in the feet, face, and hands.			

## Phase 3: Orgasm

This phase is the climax of the sexual response cycle. It is the shortest of the phases and generally lasts only a few seconds. General characteristics of this phase include the following:

Characteristic	Male	Female	Role in fertilization?
Involuntary muscle contractions begin.			
Blood pressure, heart rate, and breathing are at their highest rates, with a rapid intake of oxygen.			
There is a sudden, forceful release of sexual tension.			
Muscles of the vagina contract. The uterus also undergoes rhythmic contractions.			
Rhythmic contractions of the muscles at the base of the penis result in the ejaculation of semen.			
A rash or sex flush may appear over entire body.			

## **Phase 4: Resolution**

During this phase, the body slowly returns to its normal level of functioning. Swelled and erect body parts return to their previous size and color. This phase is marked by a general sense of well-being, enhanced intimacy and, often, fatigue. Female structures are capable of a rapid return to the orgasm phase with further sexual stimulation and may experience multiple orgasms. After male ejaculation, the recovery time is called a refractory period, during which it is not possible to reach orgasm again. The duration of the refractory period varies and changes with age.

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## Activity 4.4: Teacher Worksheet: Human Sexual Response Cycle

### What is the sexual response cycle?

The sexual response cycle refers to the sequence of physical and emotional changes that occur as a person becomes sexually aroused and participates in sexually stimulating activities, including intercourse and masturbation. Knowing how your body responds during each phase of the cycle can enhance your relationship. This was originally researched by Masters and Johnson. It is not the only model of a sexual response cycle, but it is the best known one.

### What are the phases of the sexual response cycle?

The sexual response cycle has four phases: excitement, plateau, orgasm, and resolution. All people experience these phases, although the timing usually is different. In addition, the intensity of the response and the time spent in each phase varies from person to person. Understanding these differences may help partners better understand one another's bodies and responses to enhance the sexual experience.

### Phase 1: Excitement

General characteristics of this phase, which can last from a few minutes to several hours, include the following:

Characteristic	Male	Female	Role in fertilization?
Increase in muscle tension	X	X	
Heart rate and breathing quicken	X	X	
Skin may become flushed	X	X	
Nipples hard or erect	X	X	
Increase blood flow to genitals; swelling of the clitoris and labia minora (inner lips), and erection of the penis	X	X	External structures prepare for penetration and stimulation of external sex organs
Vaginal lubrication		X	Vagina prepares for penetration. Becomes less acidic and friendlier for sperm
Breasts fuller, vagina swells, and walls turn a dark purple		X	External structures prepare for penetration and stimulation of external sex organs
Testicles swell, scrotum tightens, begins secreting lubricating liquid	X		Penis lubricating liquid will make penetration more pleasurable

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## Phase 2: Plateau

During this phase, the changes that occur during excitement are intensified. General characteristics of this phase, which extends to the brink of orgasm, include the following:

Characteristic	Male	Female	Role in fertilization?
The clitoris becomes highly sensitive (may even be painful to touch) and retracts under the clitoral hood.		X	Clitoris position enables pleasurable sensations to maintain arousal and response of internal structures
Vagina elongates, uterus draws up and back in the body.		X	The cervix drops into a pool of vaginal secretions to make it easier for sperm to enter cervix and uterus
The testicles are withdrawn up into the scrotum.	X		Body temperature rather than external temperature regulates sperm
Muscle spasms may begin in the feet, face and hands.	X	X	Spasms precede contractions of the muscular structures of the reproductive system

## Phase 3: Orgasm

This phase is the climax of the sexual response cycle. It is the shortest of the phases and generally lasts only a few seconds. General characteristics of this phase include the following:

Characteristic	Male	Female	Role in fertilization?
Involuntary muscle contractions begin.	X	X	
Blood pressure, heart rate and breathing are at their highest rates, with a rapid intake of oxygen.	X	X	
There is a sudden, forceful release of sexual tension.	X	X	
Muscles of the vagina contract. The uterus also undergoes rhythmic contractions.		X	Contractions draw the sperm up deeper into the uterus toward the ovum (egg)
Rhythmic contractions of the muscles at the base of the penis result in the ejaculation of semen.	X		Allows for the release of the sperm
A rash or sex flush may appear over entire body.	X	X	

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## **Phase 4: Resolution**

During this phase, the body slowly returns to its normal level of functioning. Swelled and erect body parts return to their previous size and color. This phase is marked by a general sense of well-being, enhanced intimacy and, often, fatigue. Female structures are capable of a rapid return to the orgasm phase with further sexual stimulation and may experience multiple orgasms. After male ejaculation, the recovery time is called a refractory period, during which it is not possible to reach orgasm again. The duration of the refractory period varies and changes with age.

## Activity 4.5: Assessment (5 minutes)

Collect student worksheets. Ask students what benefits there are to understanding sexual response. Possible answers might include:

- The link to sexual response and increased risk of pregnancy for heterosexual intercourse without protection
- Sexual response is complex
- See sexual response as a specific biological process with phases that can be impacted by thoughts, emotions, and controlled by the brain. A reminder can be made that just because a person feels a certain way or has certain thoughts, no action is required.

Use the following rubric to assess student learning based on class discussion and the handout.

Student name:			
Learning Outcome	Not Present	Developing	On Target
Identify the key structures that make up reproductive system anatomy for males and females.	Student participation and work reflects minimal to no understanding of the objective.	Student participation and work reflects some understanding of the objective.	Student participation and work reflects thorough understanding of the objective.
Analyze the relationship between human sexual response, hormones and reproduction.	Student participation and work reflects minimal to no understanding of the objective.	Student participation and work reflects some understanding of the objective.	Student participation and work reflects thorough understanding of the objective.
Teacher comments:			