

SI A&P - Full Discipline Demo - Fetal Pig

The Reproductive System

Final Report - Answer Guide

Institution	Science Interactive University
Session	SI A&P - Full Discipline Demo - Fetal Pig
Course	SI A&P - Full Discipline Demo - Fetal Pig
Instructor	Sales SI Demo

Test Your Knowledge

Classify each structure as part of the male or female reproductive system.

	Male	Female
☐ Fallopian Tubes		
☐ Vas Deferens	1	
☐ Epididymis		2
☐ Endometrium		
☐ Ovary		
☐ Uterus		
☐ Penis		
☐ Scrotum		
☐ Vagina		
☐ Testis		

Correct answers:

1 Vas Deferens Testis Scrotum Penis Epididymis

2 Fallopian Tubes Endometrium Ovary Uterus Vagina

Classify each microscopic structure as pertaining to the male or female reproductive system.

	Male	Female
⌘ Theca ⌘ Sertoli cell ⌘ Leydig cell ⌘ Primordial follicle ⌘ Oocyte ⌘ Spermatocyte ⌘ Granulosa cell ⌘ Spermatogonium	1	2

Correct answers:

- 1 Sertoli cell Leydig cell Spermatocyte Spermatogonium
- 2 Theca Oocyte Primordial follicle Granulosa cell

Exploration

The ____ is a tightly coiled tube where sperm cells are stored until they mature.

- ☐ vas deferens
- ☒ epididymis
- ☐ seminal vesicle
- ☐ urethra



The testes contain _____, the site of sperm production.

- ☐ Sertoli cells
- ☒ seminiferous tubules
- ☐ Leydig cells
- ☐ testosterone

✓

The primary follicle eventually develops into the mature Graafian follicle.

- ☒ True
- ☐ False

✓

Exercise 1

The slide you viewed in this exercise was from a mammal, but not a human. How is the slide you viewed different from that of a human? What does this tell you about the mammal the sample originated from?

If the slide were that of a mature human ovary, the ovary would normally have just one mature Graafian follicle. In the slide of the mammal there are multiple mature Graafian follicles. This indicates the mammal this sample came from typically gives birth to multiple young.

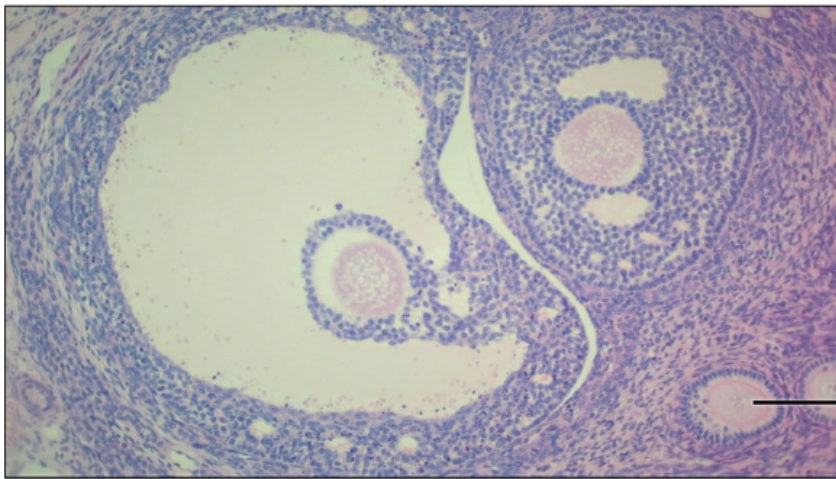
The ovary that is on the prepared slide is in what phase of the ovarian cycle? What is happening to the uterus during this time?

The ovary is in the follicular phase of the ovarian cycle when the follicles are growing. The uterus is also increasing the thickness of its lining.

What type of cell did you locate outside of the seminiferous tubule? What is the function of these cells?

The Leydig cells are located outside of the seminiferous tubules. These cells produce testosterone.

Photo 1: Primary Follicle
(SAMPLE ANSWER BELOW)



Primary
follicle

Data Table 1: Microscopic Examination of the Reproductive System
(SAMPLE ANSWER BELOW)

Structure	Magnification	Comments
Primordial Follicle	150X	Student will only comment if a structure could not be identified.
Primary Follicle	150X	Student will only comment if a structure could not be identified.
Mature (Graafian) Follicle	150X	Student will only comment if a structure could not be identified.
Testis - Seminiferous Tubule	600X	Student will only comment if a structure could not be identified.

Photo 2: Secondary Follicle
(SAMPLE ANSWER BELOW)

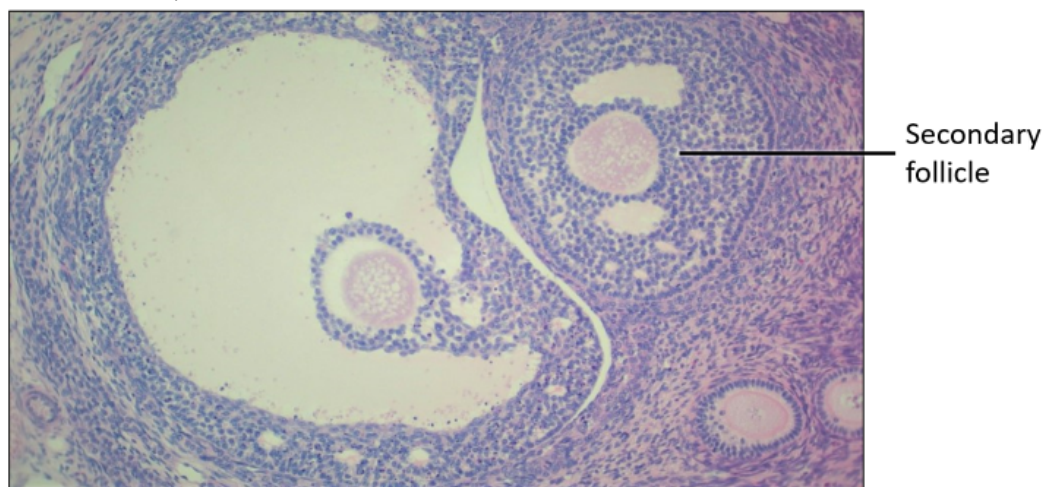


Photo 3: Mature (Graafian) Follicle
(SAMPLE ANSWER BELOW)

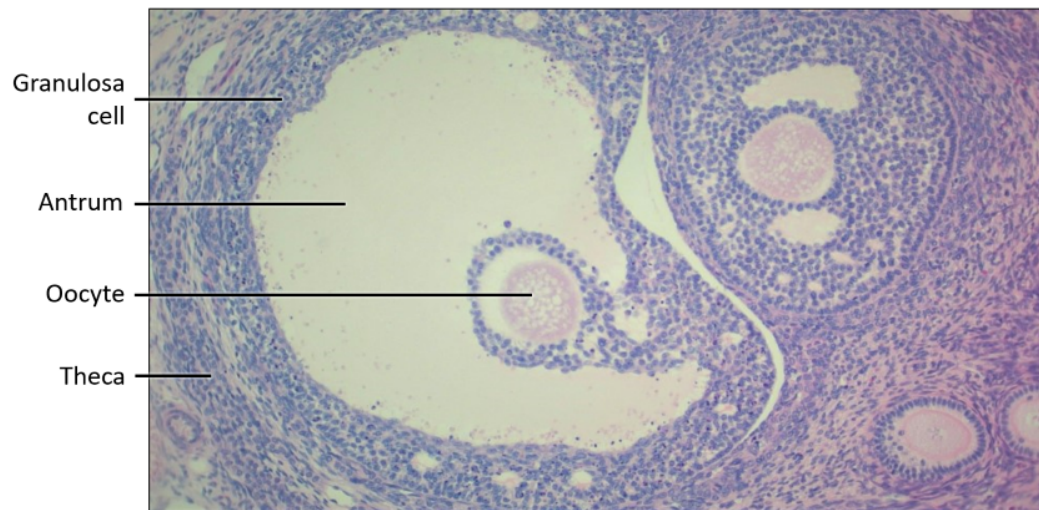
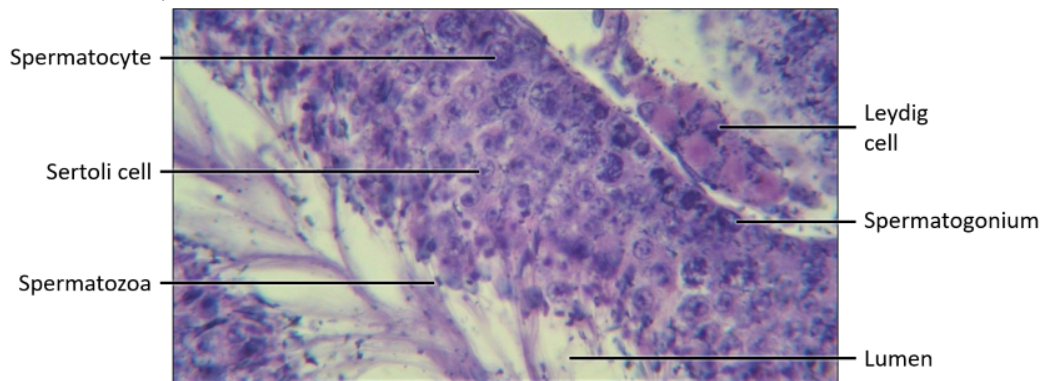


Photo 4: Testis – Seminiferous Tubule
(SAMPLE ANSWER BELOW)



Exercise 2

What are the functions of the ovary and endometrium as described on the virtual model program?

The ovary is a genital gland that produces ova and the sex hormones estrogen and progesterone. The endometrium is the mucus lining of the inside of uterus that receives the fertilized ovule.

What are the functions of the testicle and epididymis as described on the virtual model program?

The testicle is the male sex gland that produces spermatozoa and secretes the male hormone testosterone. The epididymis functions as a long, folded canal that stores spermatozoa where they mature until ejaculation.

Describe the location of the myometrium in relation to the endometrium as displayed on the virtual model.

The myometrium is superficial or external to the endometrium.

Describe the location of the prostate in relation to the seminal vesicles as displayed on the virtual model.

The prostate is located below or inferior to the seminal vesicles as displayed by the virtual model.

Photo 5: Virtual Model Male Reproductive System
(SAMPLE ANSWER BELOW)

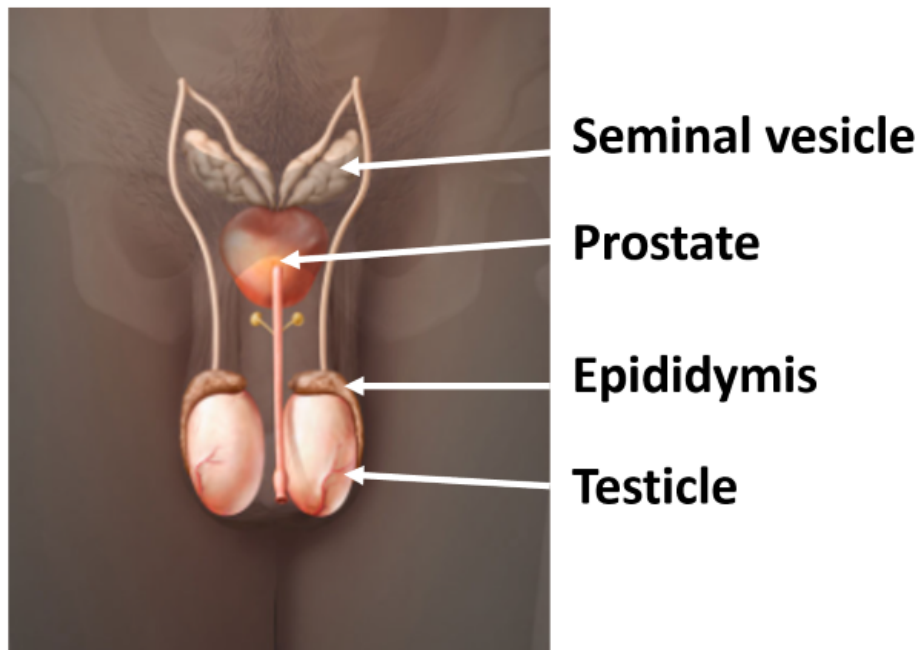
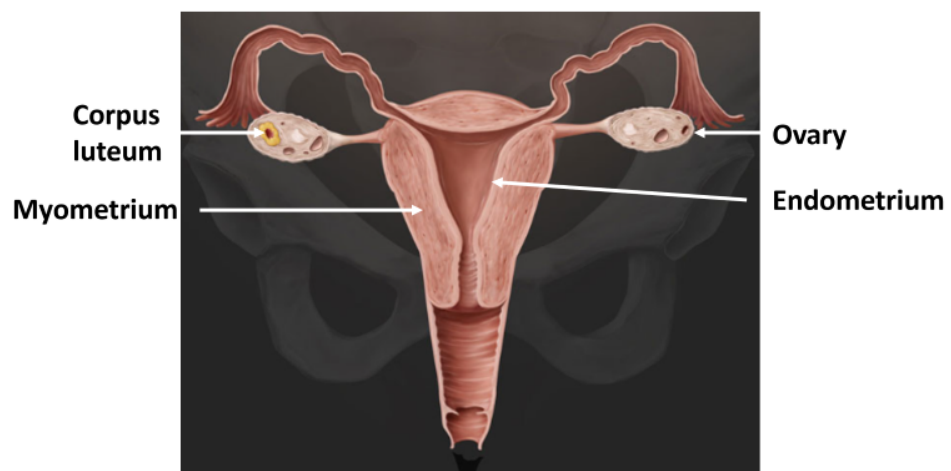


Photo 6: Virtual Model Female Reproductive System
(SAMPLE ANSWER BELOW)



Exercise 3

Describe the external sex organs of your fetal pig. How did you use these structures to determine the sex of your pig?

If students had a male pig, they should describe two scrotal sacs. If students had a female pig, they should describe a urogenital papilla.

Where are the testes located and why?

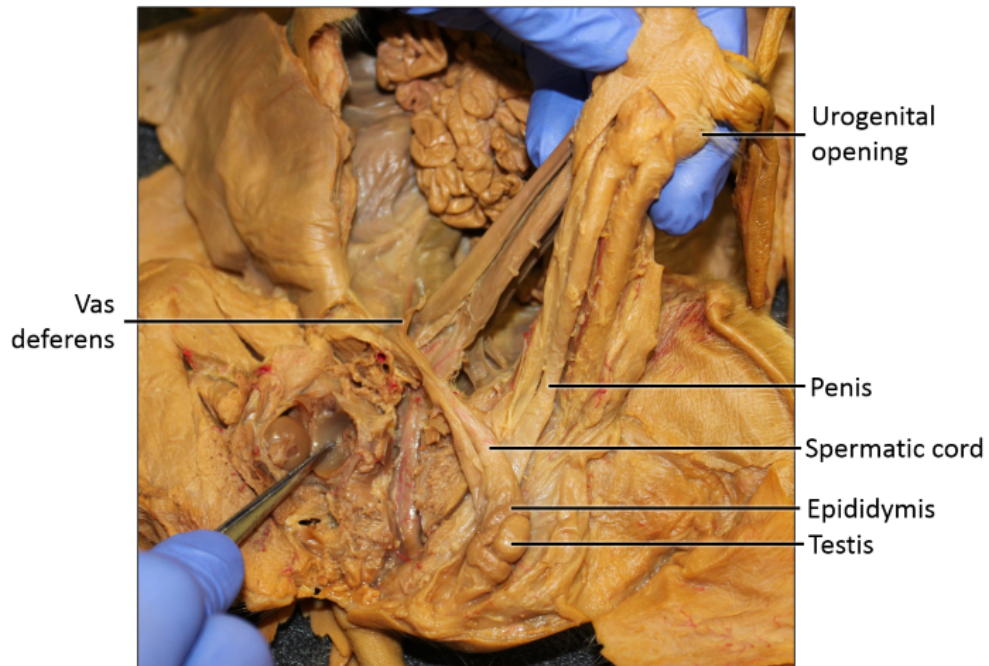
The testes are located in the scrotal sacs so they are external to the body. Because of this, the temperature of the testes is slightly cooler than the internal body temperature, which is ideal for sperm production.

What structure do the female fetal pigs possess instead of the fallopian tubes?

Female fetal pigs have uterine horns instead of fallopian tubes.

What are some of the differences between the reproductive structures of a pig and those of a human?

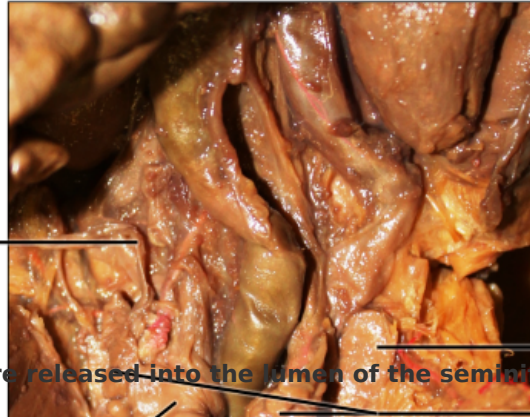
Photo 7: Pig Reproductive Organs
(SAMPLE ANSWER BELOW)
Male



Female

Complete

Broad
ligament
(cut)



Ovary

Spermatozoa are released into the lumen of the seminiferous tubules.

- ☐ True
- ☐ False

✓

The ____ transports the sperm to the urethra using smooth muscle contractions.



- ☐ epididymis
- ☐ vas deferens
- ☐ prostate
- ☐ scrotum

✓

The ____ is a hollow organ in which fetal development occurs.

- ☐ ovary
- ☐ fallopian tube
- ☐ uterus
- ☐ vagina

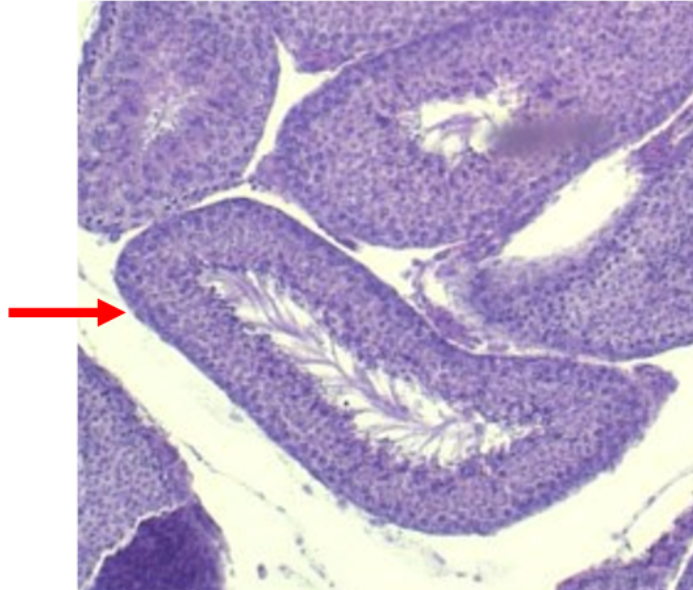
✓

At the start of the menstrual cycle, folliculogenesis begins with the maturation of one of the primordial follicles into a primary follicle.

- ☐ True
- ☐ False

✓

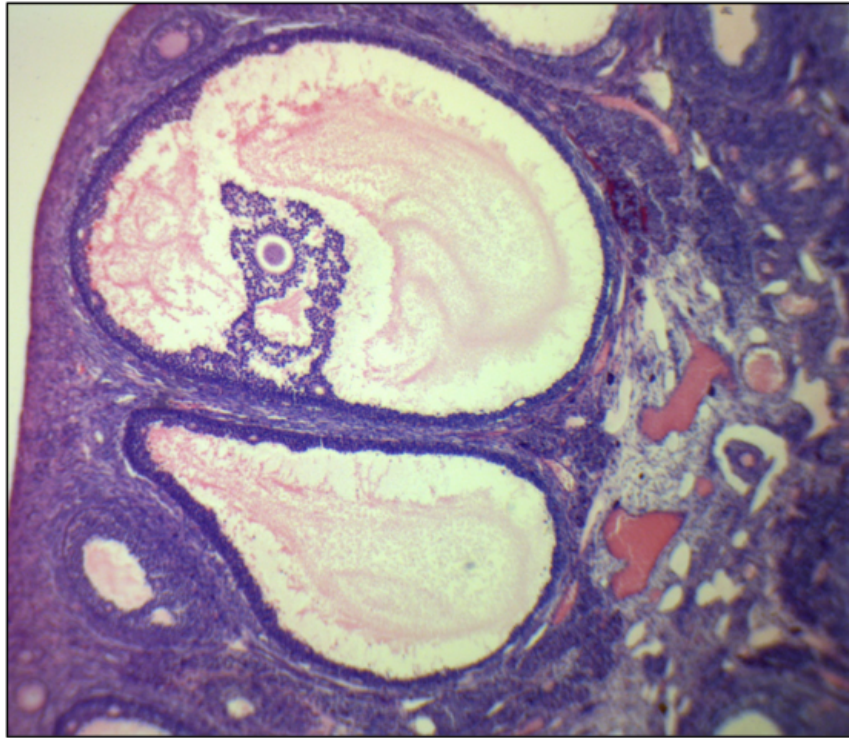
The arrow in the micrograph is pointing towards a ____.



- ☒ seminiferous tubule
- ☐ primary follicle
- ☐ granulosa cell
- ☐ zygote

✓

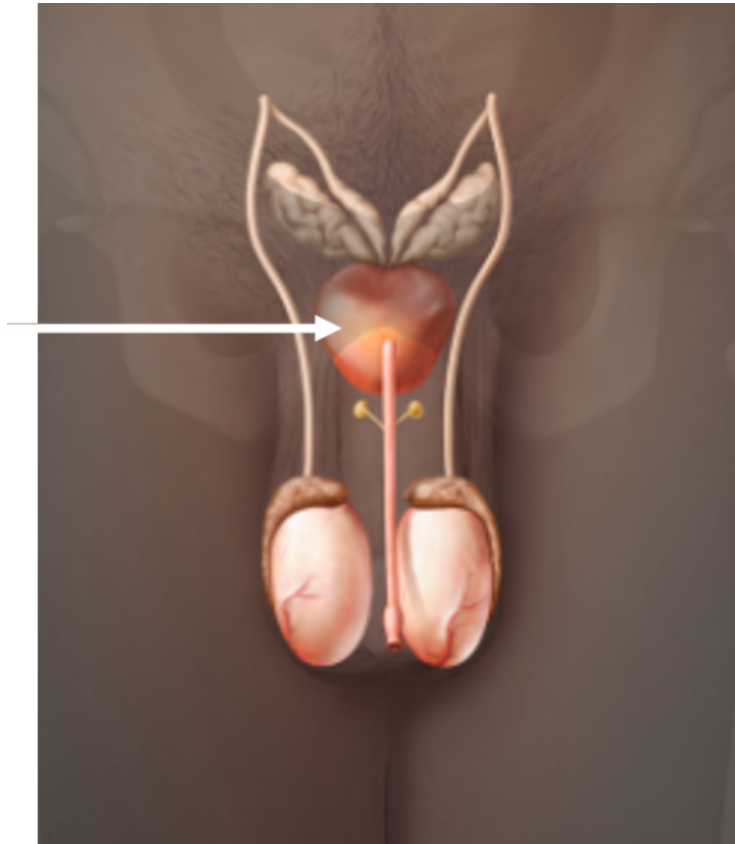
A ____ is present in the micrograph.



- ☐ seminiferous tubule
- ☒ mature (Graafian) follicle
- ☐ spermatogonia
- ☐ zygote

✓

The arrow in the image of the virtual model below is pointing to the ____.



- ☐ testis
- ☐ ovary
- ☒ prostate
- ☐ endometrium

✓

The myometrium appears external or superficial to the endometrium when viewing the virtual model.

- ☒ True
- ☐ False

✓

Extension Questions

A vasectomy is a procedure a male can undergo in which the vasa deferentia are cut and sealed, whereas castration is a procedure in which the testicles are removed or otherwise deactivated. Describe the physiological similarities as well as the physiological differences these two procedures would have on a male. (SAMPLE ANSWER BELOW)

Both procedures would result in no sperm in the male ejaculate. However, after a vasectomy full function of the testicles is retained and normal hormone and sperm production continues, the sperm is simply unable to enter the urethra. After castration, no sperm is produced at all and the production of many male hormones, most notably testosterone, is greatly reduced. This can have wide reaching impacts on the body beyond sterility.