Male Reproduction Worksheet

- What is the primary sex organ of the male reproductive system? Accessory organs?
- What is the primary purpose of the primary sex organ? Accessory organs?
- What is the male gamete? What is a gamete?
- What is the overall organization of the male reproductive system and where in each located in the body?
- From the outside, right of the scrotum to the midline (raphe), what are the tissue layers?
- What is the purpose of the cremaster and dartos muscles? The scrotum as a whole?
- What are the two functions of the tunica albuginea? What is the division created by this tunic called?
- What is the coiled, tube-like structure confined in a lobule? What is its primary function?
- Taking a cross-section of the seminiferous tubules, what is the organization and cells involved from outside toward the lumen?
    - What is the purpose of Leydig (interstitial) cells? What is the pathway of hormonal regulation?
    - What is the purpose of Sertoli (sustentacular) cells? What is the pathway of hormonal regulation?
    - What is the purpose of spermatogonia? Where are they located?
    - What is the blood-testes barrier?
- What is spermatogenesis? What is the purpose of spermatogenesis? Starting cell? Ending cell?
- Where do spermatogonia originate (where did the originally come from)?
- What is the location of spermatogonia? What division process do spermatogonia undergo? What is the result of this division as far as types of cells and the number of chromosomes? Haploid or diploid?
- What is the difference between a type A and type B cell? Which cell continues spermatogenesis?
- Is the primary spermatocyte haploid or diploid? What happens to the primary spermatocyte next?
- At the completion of meiosis I, two secondary spermatocytes are formed. What would be the benefit of them remaining connected? How many chromosomes are in each cell? Are the secondary spermatocytes haploid or diploid?
- What is the next step of spermatogenesis? At the completion of this step, how many cells are formed? Are they connected or not? Either way, are they connected to anything else? How many chromosomes are formed? Are they haploid or diploid?
- How do late spermatids differ from early spermatids?
- What is spermiogenesis? Is spermiogenesis a part of spermatogenesis? What is the resulting cell of spermiogenesis? Where might this cell be located?
- What is the structure of a fully differentiated sperm cell? Anything special about the head, middle piece and tail?
- Are spermatozoa fully mature sperm that are capable, if removed from the testes, of fertilizing an egg?
- What happens to the sperm when it is made? How and when would it do this?
- What is the pathway of sperm out of the testes? Where does it exit the testes? What does it enter?
- What is the organization of the epididymis? What types of cells make up the epididymis? What are the functions of the epididymis?
- Follow the path of sperm out of the epididymis. Where does it exit? What structure does it enter?
- What are the tissue layers of the vas (ductus) deferens? What if the ductus deferens were cut or severed? How does this affect the function of sperm?
- Trace the path of sperm through the ductus deferens. What structure is carrying the ductus deferens from the external environment into the internal body? What else is found here? How does this structure enter the body?
- What is the ampulla of the ductus deferens? Which side of the bladder would you find the ampullas?
- What are seminal vesicles? Where are they located? What secretions do they release? How and where do these secretions interact with sperm?
- What happens to the path of sperm as it enters the prostate gland?
- Where did the urethra originate? What are the different areas of the urethra? Are there any issues with having urination and reproduction in the same tubing system?

- What function does the prostate have on reproduction? What is the composition of prostate secretions? What might happen if the prostate were to be enlarged due to infection or cancerous growth?
- As the urethra passes through the urogenital diaphragm, sperm receives secretions from the Cowper's (bulbourethral) glands. What is the composition and function of Cowper-gland secretion?
- What is the structure of the penis, both uncircumcised and circumcised?
- Take a cross-section of the penis. What are the layers of tissue of the penis?
- How is the penis attached to the internal body structures?
- What is the structure and function of the corpora cavernous?
- What is the structure and function of the corpus spongiosum?
- What is the male sexual response and how does it occur?
    - How does an erection actually happen? What might prevent this from happening?
    - What is meant by ejaculation? What substance is actually ejaculated?
    - What is an orgasm and how does this occur?
    - What is meant by the term flaccid? What happens if this state is not met following an erection?
    - What is meant by resolution?
- What is semen?
    - What are the components of semen?
    - What are the physical characteristics of semen?
    - What role do prostaglandins have in reproduction?
    - What is the role of relaxin in reproduction?
    - How much semen is typically produced per ejaculation?
    - How much sperm is in each milliliter of semen?
    - When might a male be considered infertile?
- What is the hypothalamic-pituitary-gonadal axis?
- Gonadotropin-releasing hormone: Origination? Transport? Target? Response of target? Regulation?
- Luteinizing Hormone: Origination? Transport? Target? Response of target? Regulation?
- Follicle-Stimulating Hormone: Origination? Transport? Target? Response of target? Regulation?
- Testosterone: Origination? Transport? Target? Response of target? Regulation?
- Androgen-binding protein: Origination? Transport? Target? Response of target? Regulation?
- Inhibin: Origination? Transport? Target? Response of target? Regulation?
- Overview: Mitosis and meiosis of the spermatogonia

  Overview: Production and flow of sperm from the testes to the external environment.
- Overview: Secretions of accessory organs and their contribution to semen.
- Overview: Male Sexual response
- Overview: Regulation of male reproduction.