

Sexual Reproduction in Man

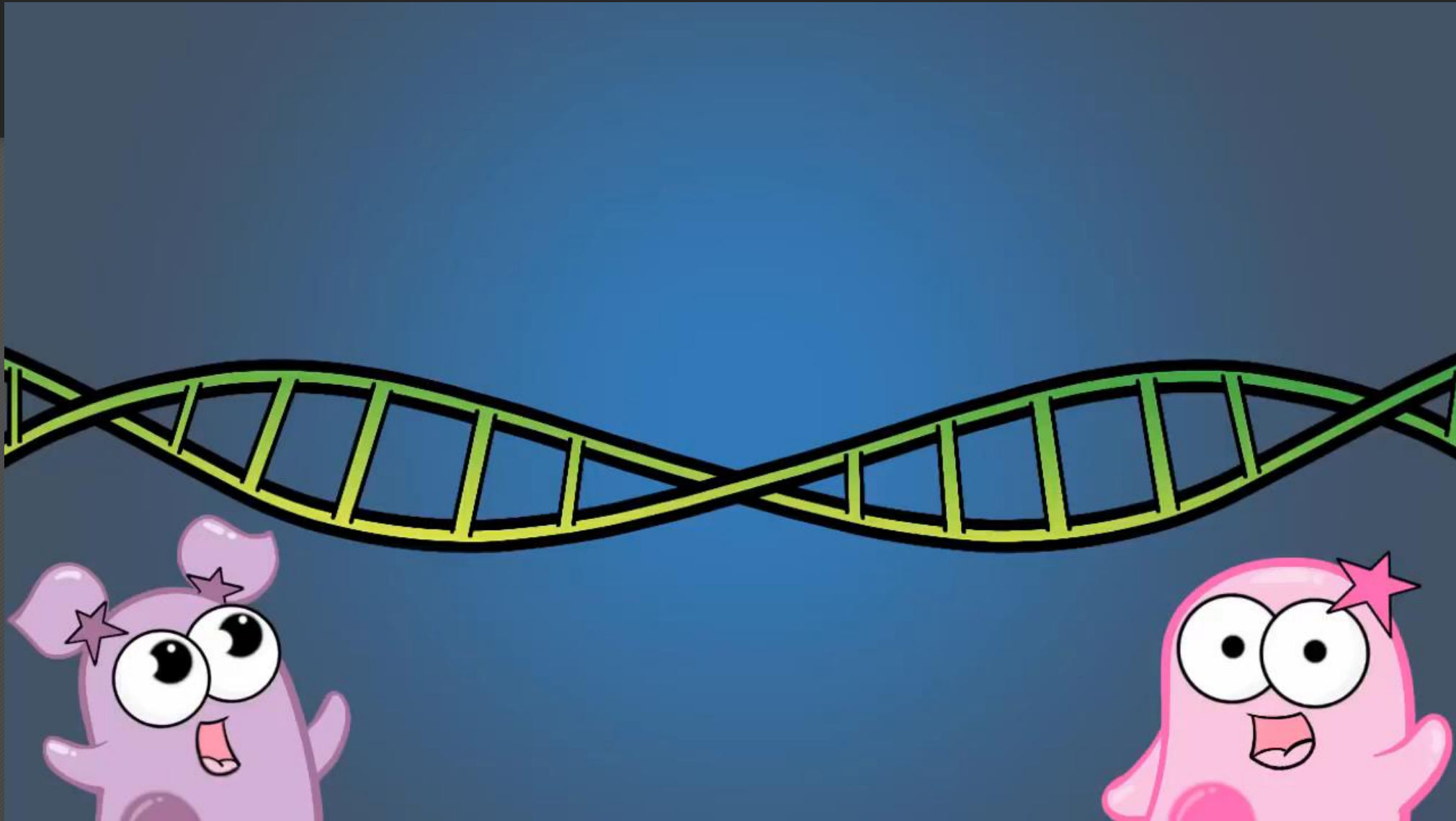
4A Mr. Erick Santizo

Introduction:

- By the end of the session use scientific terms for both Male and female reproductive parts and processes involved.

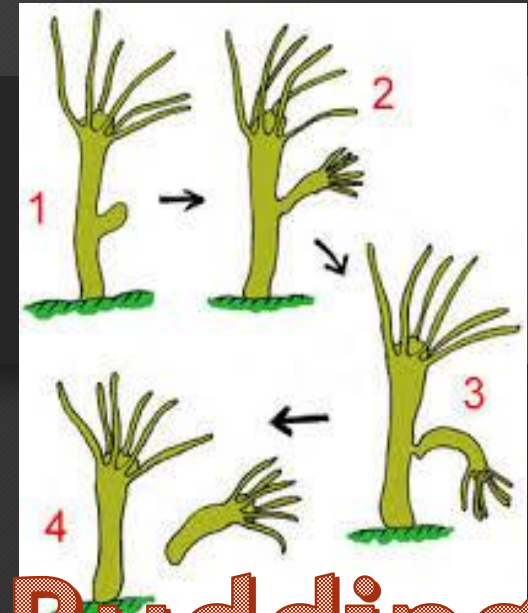


Explore



Asexual reproduction

- there is only one parent.
- All the offspring are genetically identical to the parent as they inherit exactly the same genetic information.
- very little variation amongst the offspring.
- Any variation is due to the effect of the environment
- for example the availability of nutrients and water determine how well organisms grow.
- A group of individuals that are all genetically identical is called a **clone**.



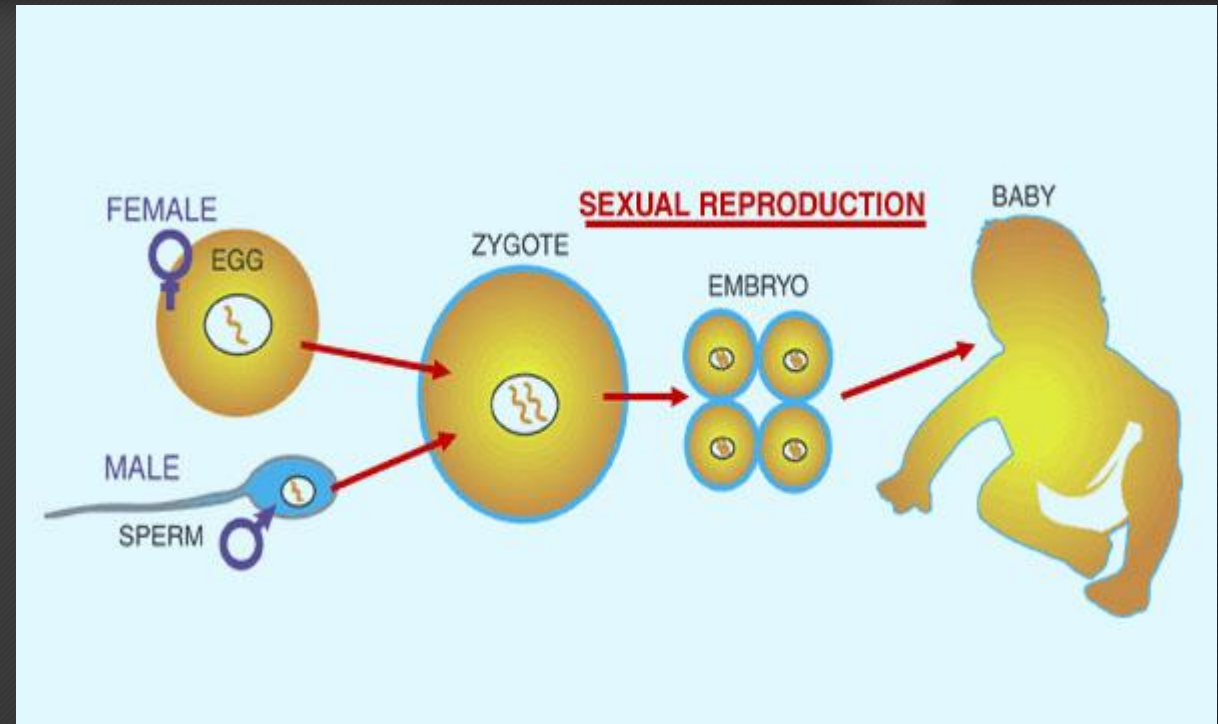
Budding



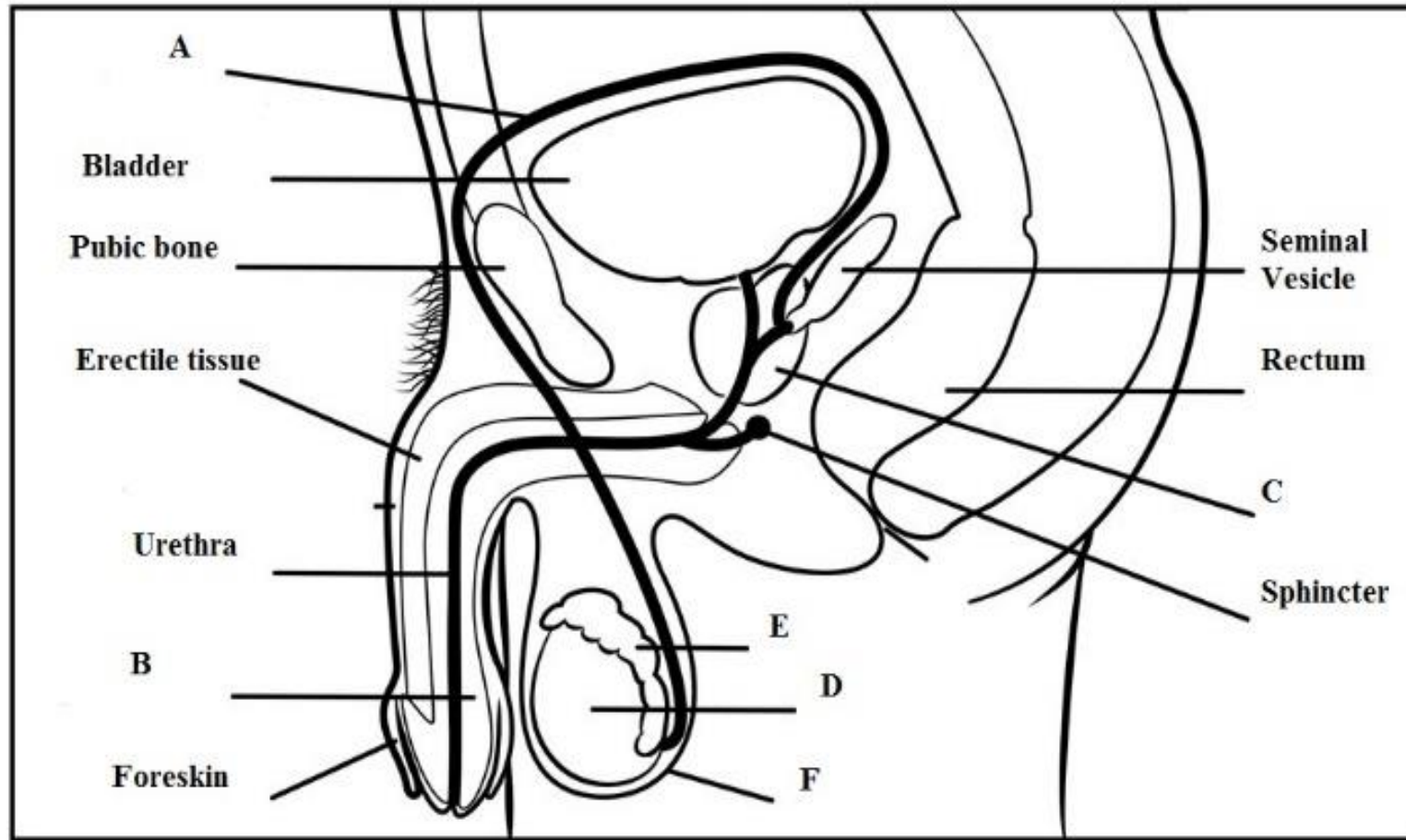
Binary fission

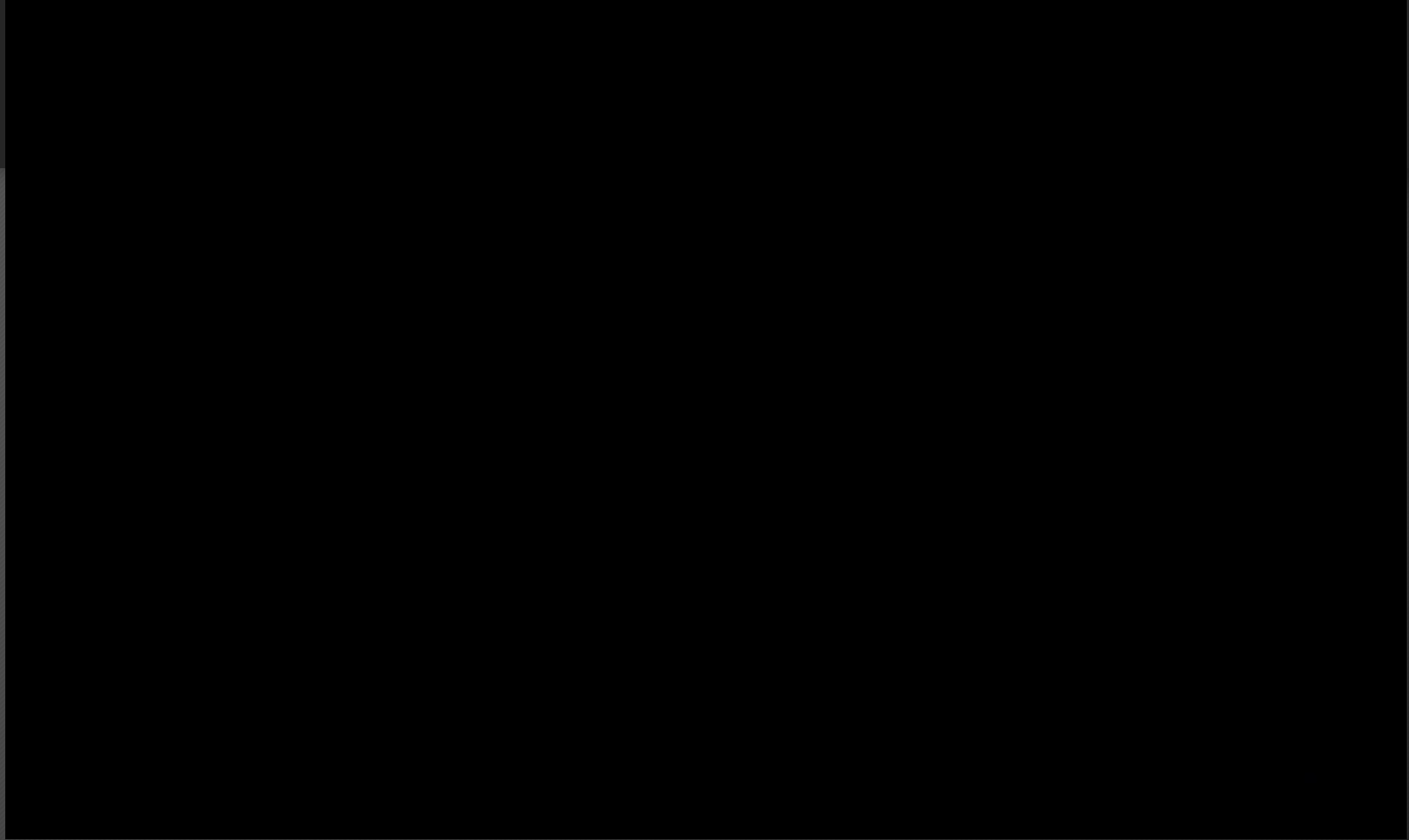
Sexual Reproduction

- involves the fusion of male and female sex cells, known as gametes, to form a zygote.
- The offspring produced are genetically different from each other and from their parents.
- This gives rise to much variation among the offspring.

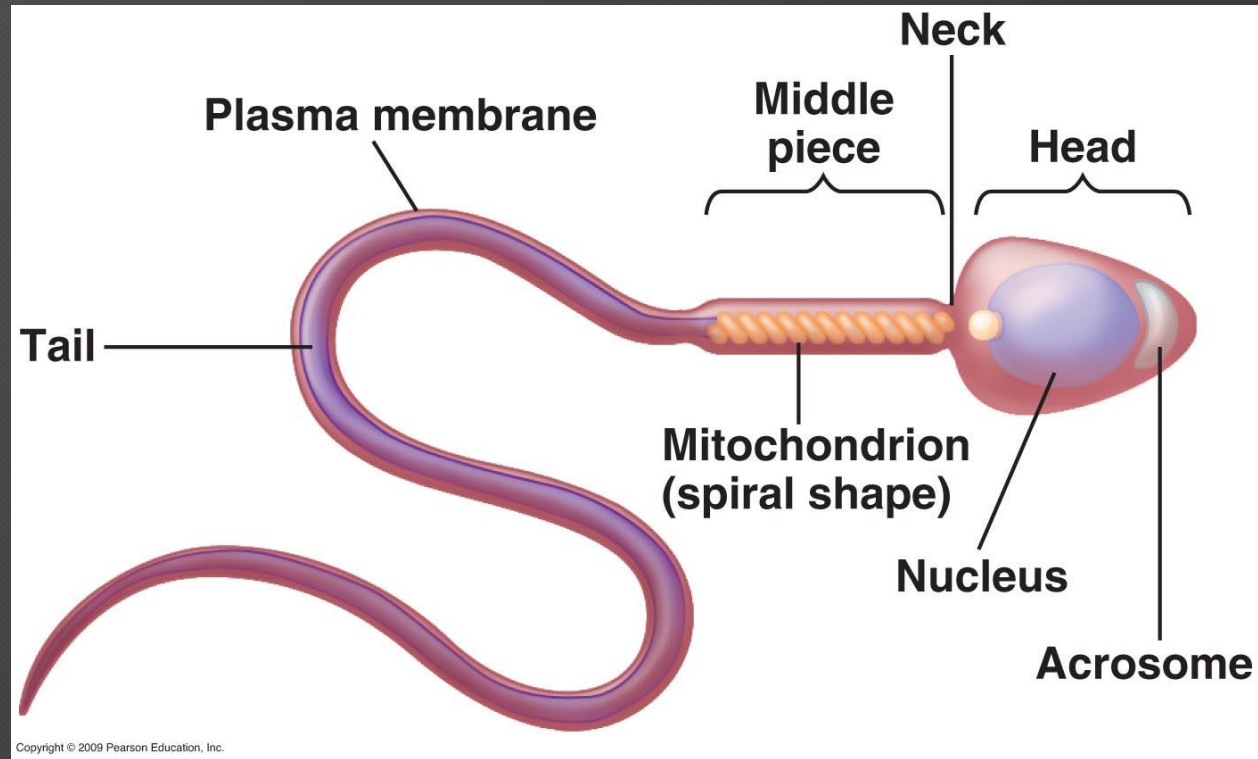


Explore the male reproductive system.





Draw structure of sperm cell and parts



Review Questions

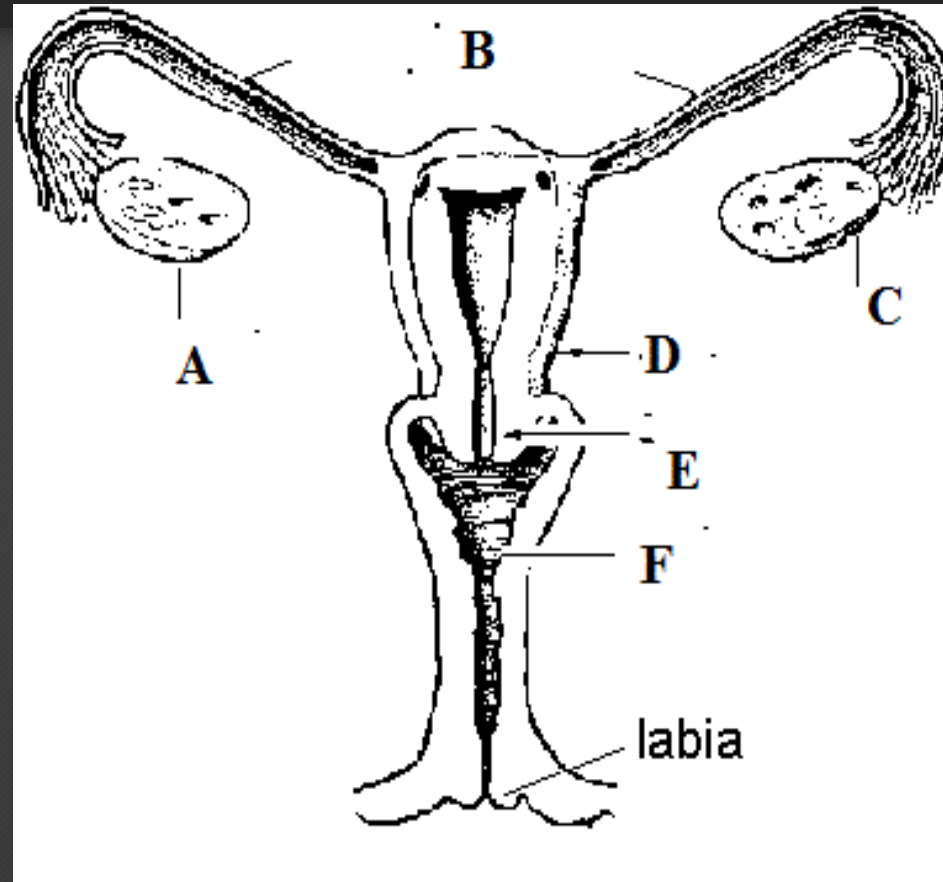
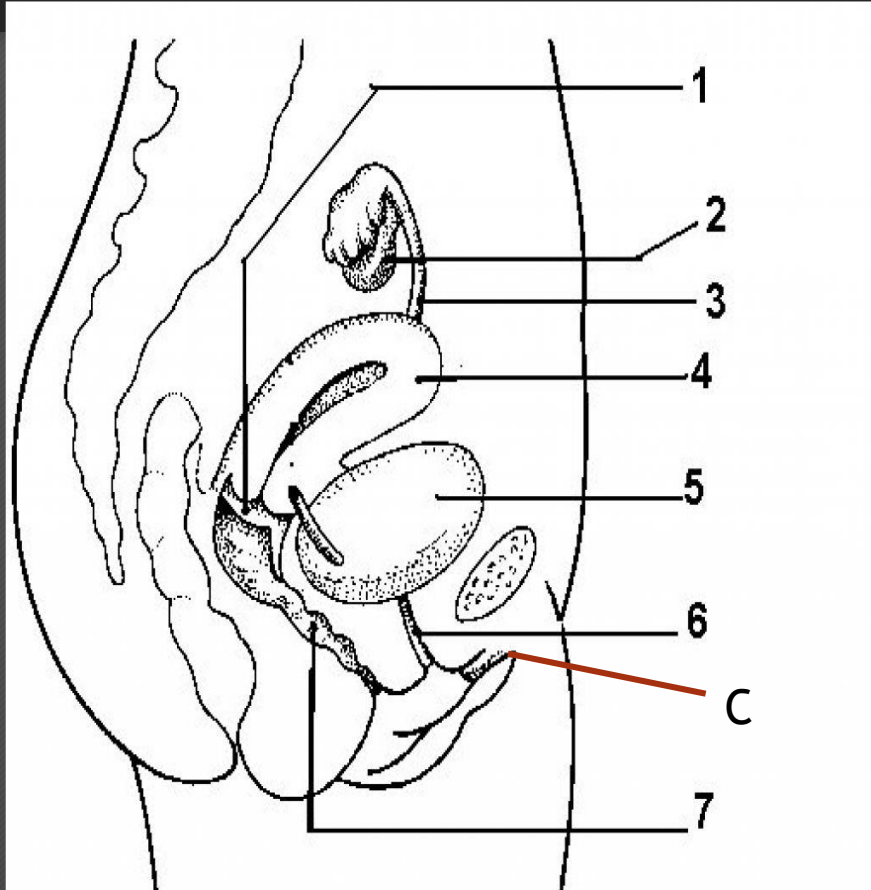
- Name two differences between sexual and asexual reproduction?
- Name the organs that produce sperm?
- What type of cell division produces sperm?
- Describe two features of a sperm that allow it to move and one feature of a sperm that allows it to penetrate an ovum.

Intro:



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Explore the female reproductive system



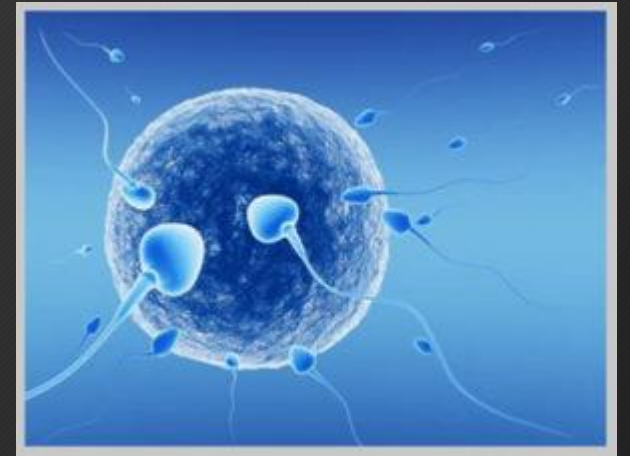
Functions of the female reproductive system

Ovary: produces and releases eggs (female gametes).

- Secretes oestrogen that stimulates development of secondary sexual characteristics.
- Secretes **progesterone** that maintains the soft lining of uterus during the second half of the menstrual cycle and during pregnancy.

Oviduct (fallopian tube): moves eggs from ovary to uterus using **cilia** and peristalsis.

- Site of fertilisation



Uterus: lining provides site for implantation and early development of the embryo.

- Fetus develops within the uterus; Muscle in the outer layer contracts during birth.

Cervix: ring of muscular and glandular tissue at the base of the uterus

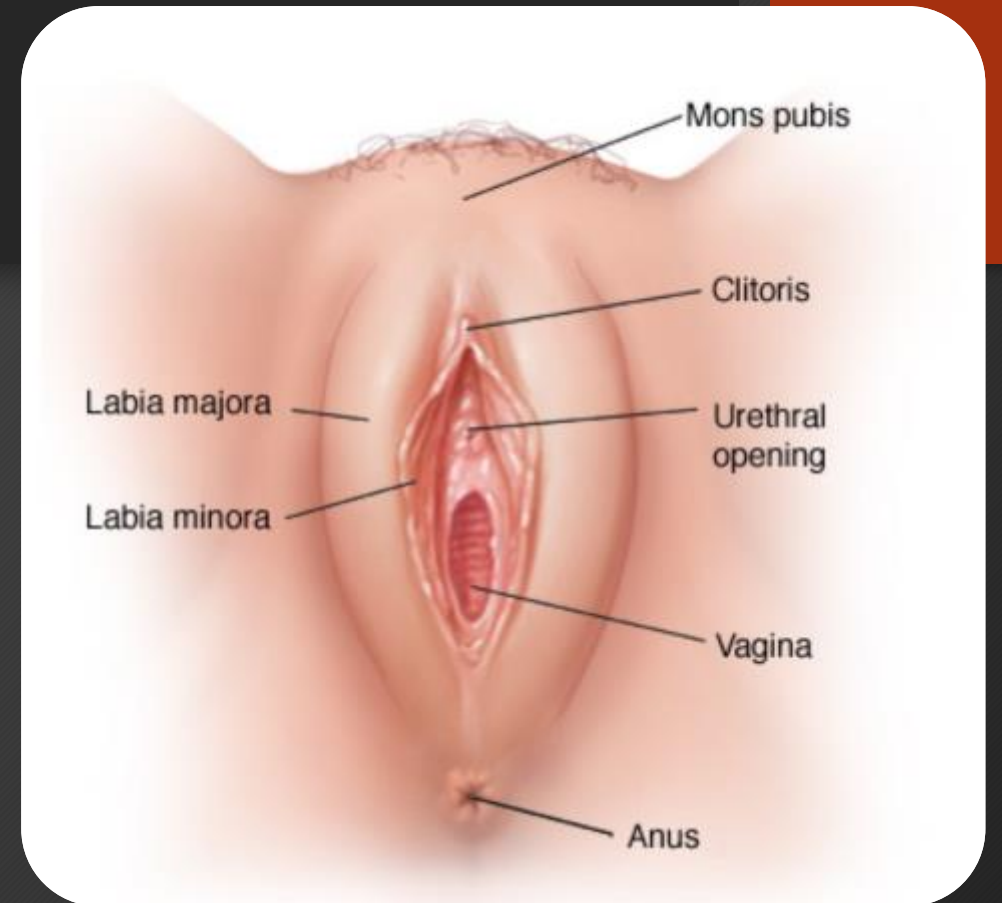
- Secretes different forms of mucus during the menstrual cycle
- Retains contents of uterus during pregnancy



Vagina: lining secretes mucus

- Sperm are deposited in the vagina.
- Widens to form the birth canal

Clitoris: Sensitive region at entry to vagina with many receptors that are stimulated during sexual intercourse.



Menstrual cycle:

What is the
Menstruation, ovulation
and implantation?

What are four hormones
involved in menstrual
cycle?

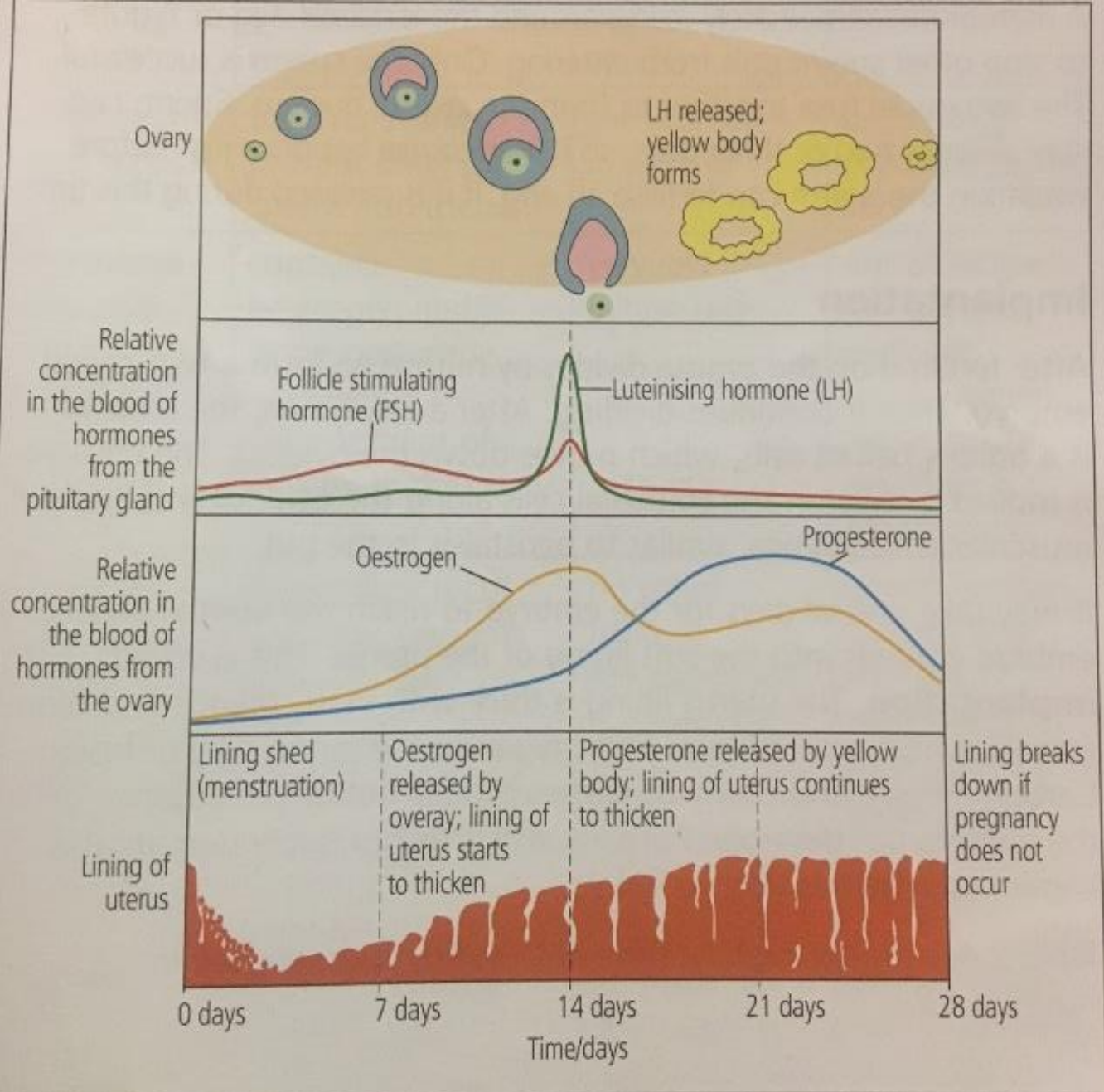
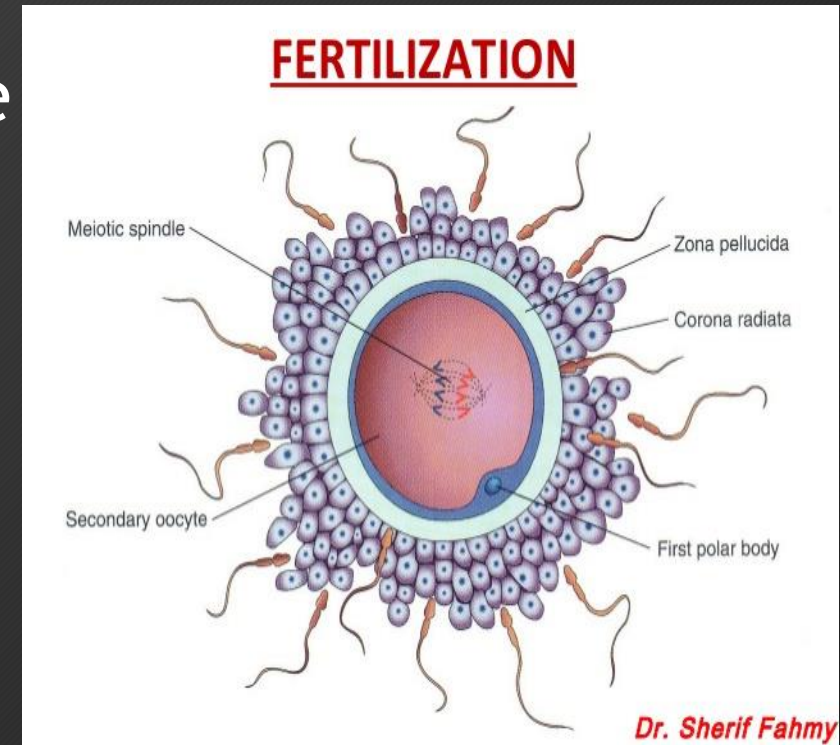


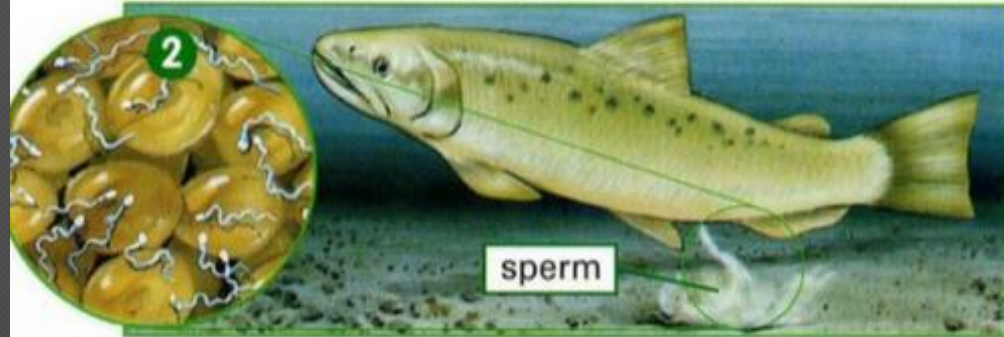
Figure 9.3.2 Changes in the ovary and uterus are coordinated by FSH and LH secreted by the pituitary gland.

Introduction: Fertilization

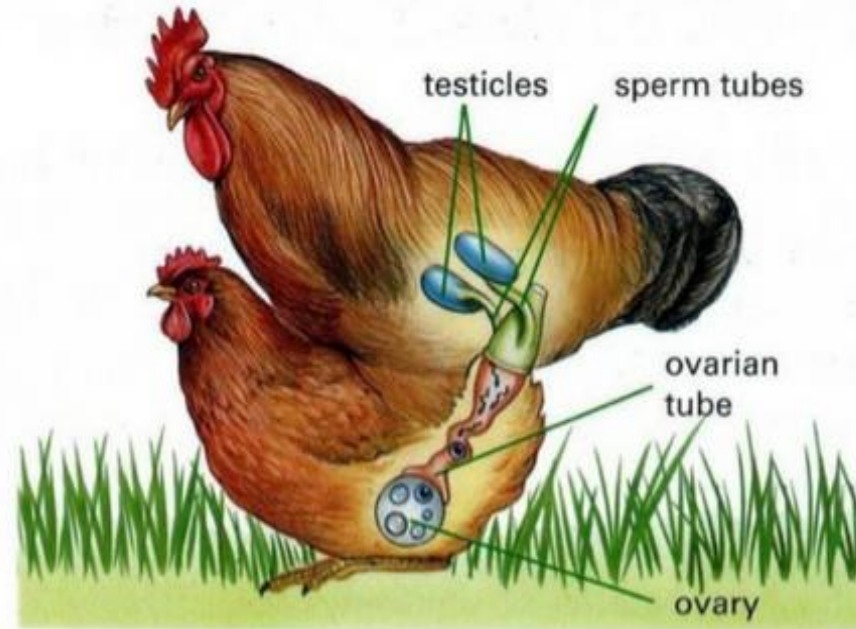
- **Transfer of the sperm to the ovum:** Sperm are specialized for swimming. They have a tail-like **flagellum** that moves them through water or a water-based liquid..
- **External fertilization:** releasing of sperm into the water and females release their ova into the water and the sperm then swim through the water to fertilise the ova.
- **Internal Fertilization:** Ejaculate their sperm in special fluid into the bodies of the females. Fertilization is much more likely to occur.



External Fertilization vs Internal Fertilization



Fertilisation is external in salmon. The female deposits her ova on the riverbed (1). The male then deposits his sperm in the water and they swim to fertilise the ova (2).



The fertilisation between a cock and hen is an example of internal fertilisation.

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Fetal development

- after fertilization the zygote divides by mitosis to form a two-celled embryo.
- continues dividing, after a few hours the embryo is a hollow ball of cells (blastocyst). Which moves down the oviduct.
Embryo moved by cilia and by muscular contractions (similar to peristalsis).
- the embryo embeds into the soft lining of the uterus. (implantation).
- Uterus is thick with many glands and blood vessels which provide food and oxygen to the embryo by diffusion.
- - once embryo has developed organs and is recognisably human it is known as a fetus.

EMBRYO DEVELOPMENT



Foetus - 20 weeks



Foetus - 16 weeks



Foetus - 10 weeks



Foetus - 4 weeks



Fertilized egg



2-cell stage



4-cell stage



8-cell stage



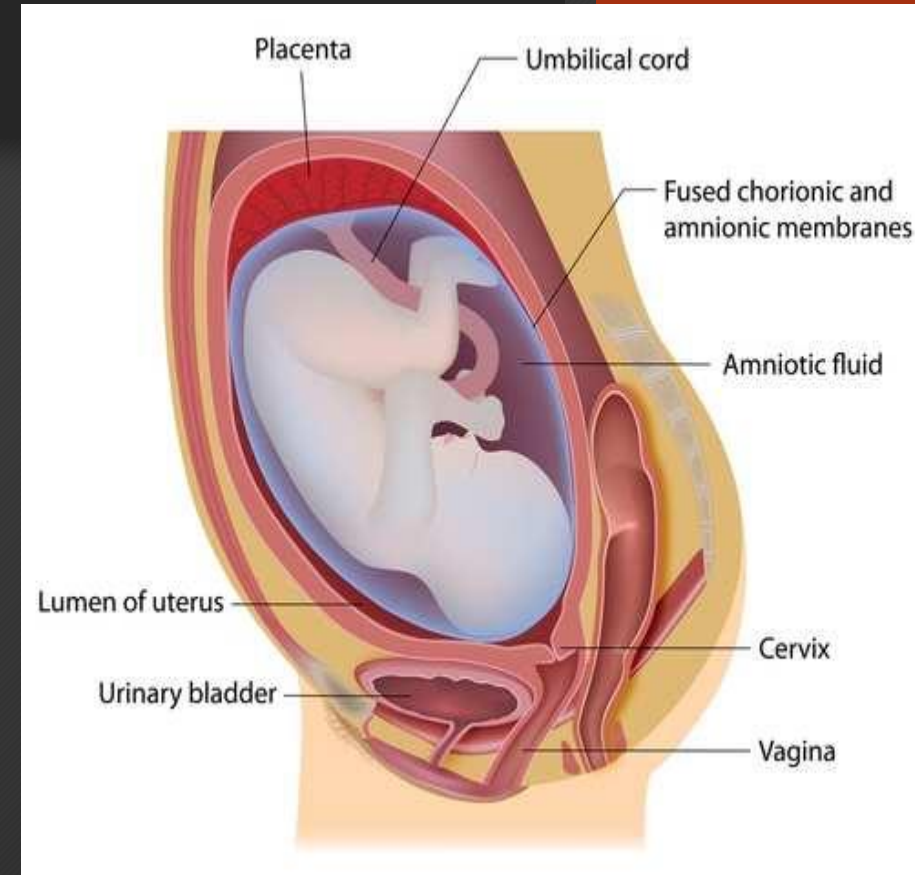
16-cell stage



Blastocyst

Fetal parts and accessory organs

- Amnion: thin layer of cells and fibrous tissue. Encloses fetus in a watery fluid, the amniotic fluid, which provides protection against mechanical damage.
- Placenta: disc of tissue that has many villi giving a large surface area. Exchange of substances between fetal blood and maternal blood.
- Umbilical cord: Rubbery cord, containing an artery and two veins. Deoxygenated blood flows to the placenta. Oxygenated blood returns to the fetus.




Stages of child birth:

- Dilation of the cervix: cervix gets wider to allow the baby to pass through. The muscles of the uterus contract quite strongly and rupture the amnion; allowing the amniotic fluid to escape. This is called the breaking of the waters.
- Delivery of the baby: strong contractions of the muscles of the uterus push the baby head first through the amniotic fluid to escape. This is called the breaking of the waters.
- Delivery of the after birth: after the baby has been born, the uterus continues to contract and pushes the placenta out, together with the membranes that surrounds the baby. This is known as after birth.

Child birth

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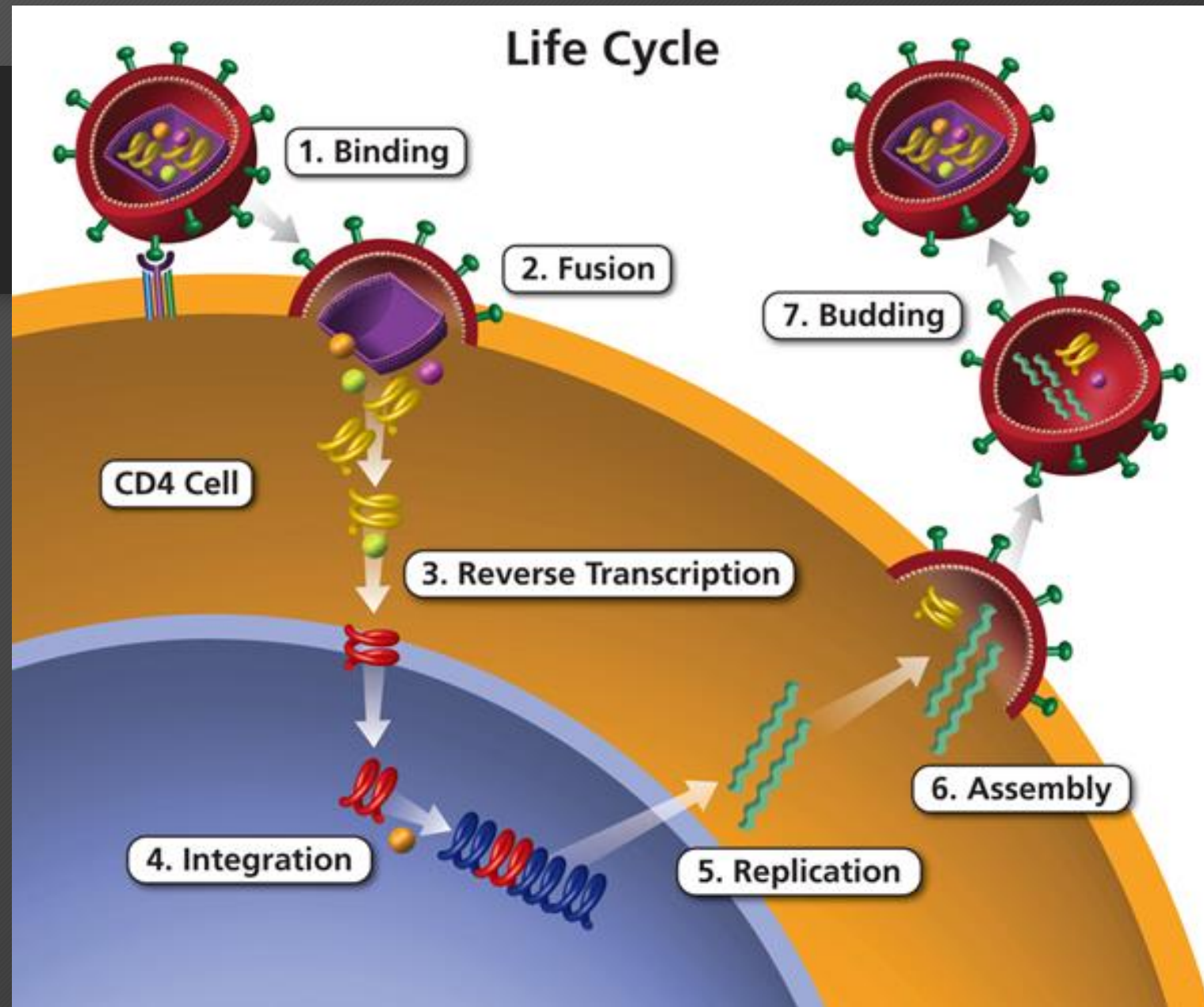
Review questions:

1. Barrier
 2. Tubal ligation
 3. Vasectomy
 4. Rhythm Method
 5. Withdrawal
 6. IUD
 7. Hormonal pill
 8. 1st stage of birth
 9. 2nd stage of birth
 10. Amnion
- A. taken orally, have oestrogen and progesterone
 - B. menstrual cycle must be regular to work.
 - C. strong contractions push baby out
 - D. serve as cushion for the baby
 - E. cervix gets wider; rupturing of amnion sac.
 - F. protects from STI's
 - G. Surgical tying or burning of oviduct
 - H. Coitus interruptus
 - I. Surgical tying or burning of vas deferens
 - J. made of plastic or copper,

HIV/AIDS



HIVAIDS



Assignment: Research

- Gonorrhoea and syphilis
 - microbe name and type
 - The cause
 - method of transmission
 - first symptoms
 - treatment
 - prevention
- Carry out an internet search and make sure to have references about data on HIV and AIDS statistics in your country and how they compare with other countries throughout the world. (At least 5 countries). Find the most up to date figures for HIV infection and deaths from AIDS.
- What is our country doing in response to the HIV/AIDS epidemic?
- Write a report of your findings.
- Make sure to have references.