9 Reproduction in Animals

Lesson at a Glance

- The process of reproduction is not essential for the survival of an individual but reproduction is essential for the continuation of a species.
- **Modes of Reproduction:** Like plants, animals also reproduce by (*i*) Sexual reproduction and (*ii*) Asexual reproduction.
  - ➤ **Sexual Reproduction:** The type of reproduction beginning from the fusion of male and female gametes is known as *sexual reproduction.* In this process of sexual reproduction, a male and a female gamete (reproductive cells) fuse to form a single cell called **Zygote.** This zygote gradually develops into an adult, similar to the parents. The individual that grows from a zygote, receives characters of both the parents—mother and father.
  - ➤ **Asexual Reproduction:** The type of reproduction in which only a single parent is involved is called *asexual reproduction.* In asexual reproduction, sex cells (gametes) are not produced. No fusion of gametes takes place for the production of zygote or offsprings.
- **The reproductive parts in humans and the process of reproduction in them.**

  In humans, male and female reproductive parts are present in separate individuals.

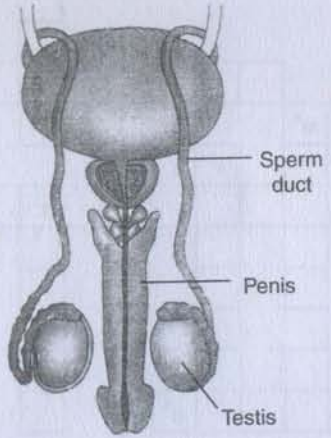


Fig. 9.1 Human—male reproductive organs.

- ➤ **Male Reproductive Organs:** Male human reproductive organs contain:
  - — A *pair of testes* (singular—testis), *two sperm duct* and a *penis.*
  - — The *testes* produce the male gametes called *sperms.*
  - — The *sperm ducts* carry sperms to the penis.
  - — The penis is used for ejecting sperms and also passing urine. *The tail in sperm helps in movement of the sperm to reach the egg in the female sex organs.*
  - — *Human Sperm:* A sperm is unicellular (single celled), has a head, a middle piece and a tail.

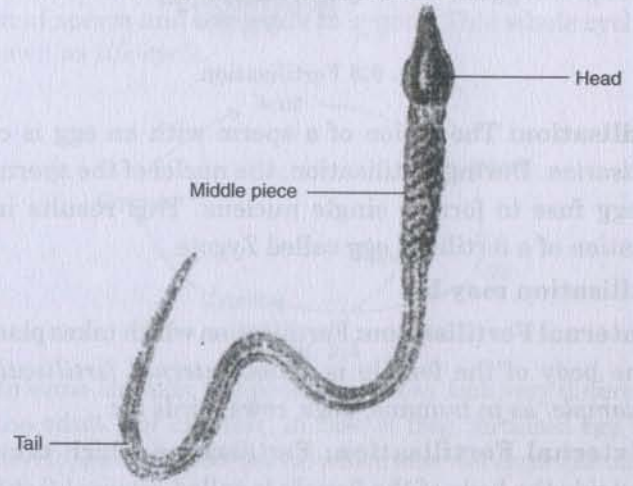


Fig. 9.2 A human sperm.

- ➤ **Female Reproductive Organs:** Female human reproductive organs contain:
  - — A pair of *ovaries* which produce female gametes called *ova (eggs).*
  - — *Oviduct* (fallopian tubes): A single matured egg is released into the oviduct by one of the ovaries every month.
  - — *Uterus:* Uterus is the part where development of the baby takes place.
  - — *Egg (ovum):* Like a sperm, an egg is also a single cell. It contains a nucleus and the cytoplasm. The egg may be very small as in humans, much larger as in ducks and hens. Ostrich egg is the largest.

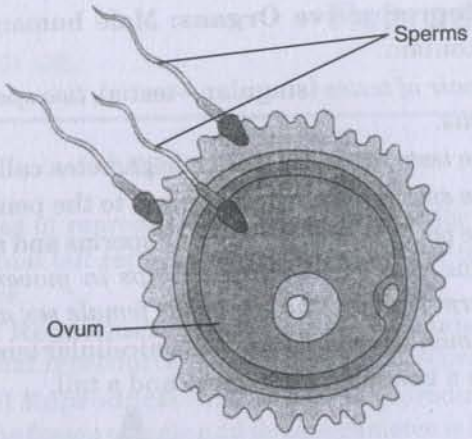


Fig. 9.3 Fertilisation.

- **Fertilisation:** The fusion of a sperm with an egg is called *fertilisation*. During fertilisation, the nuclei of the sperm and the egg fuse to form a single nucleus. This results in the formation of a fertilised egg called Zygote.

Fertilisation may be:

➤ **Internal Fertilisation:** Fertilisation which takes place inside the body of the female is called *internal fertilisation. For example:* as in humans, dogs, cows, birds etc.

➤ **External Fertilisation:** Fertilisation which takes place outside the body of the female is called *external fertilisation.* It is very common in aquatic animals, such as fish, starfish and amphibians (animals who live in water as well as on land such as frogs).

➤ **IVF or *in vitro* Fertilisation:** The fertilisation of an egg that takes place outside the body in a test tube or in any other apparatus is known IVF or *in vitro* fertilisation.

➤ **Test Tube Babies:** In this technique freshly released egg and sperms are put together for a few hours for IVF. In case fertilisation occurs, the zygote is allowed to develop for about a week and then placed in the uterus of the mother. Complete development takes place in the uterus and the baby is born like any other normal baby. The term test tube babies is misleading, because babies cannot grow in test tubes.

- **Embryo:** The stage, when cells produced by the division of the zygote begin to form groups that develop into different tissues and organs of the body, is termed as an embryo.
- **Foetus:** The stage of embryo in which all the body parts can be identified is known as *foetus.*
- **Viviparous:** The animals such as dog, lion, elephant, cat etc., which give birth to young ones are called viviparous.
- **Oviparous:** The animals, such as lizards, butterfly, crow and hen, which lay eggs that hatch and give rise to young ones are called oviparous.
- **Life-cycle of Animals:** Sexually reproducing animals start their life from a zygote which develops into an embryo that grows into mature adult. The adult produces sex cells (egg and sperm). The fusion of sperm and egg leads to zygote. This whole cyclic order is known as *life-cycle.*

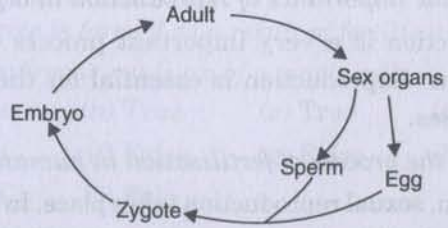


Fig. 9.4

- In some animals, the young ones may look very different from the adult. *For example*, in case of frog, fertilised egg (zygote) develops into *tadpole* (larva) which later develops into adult frog.

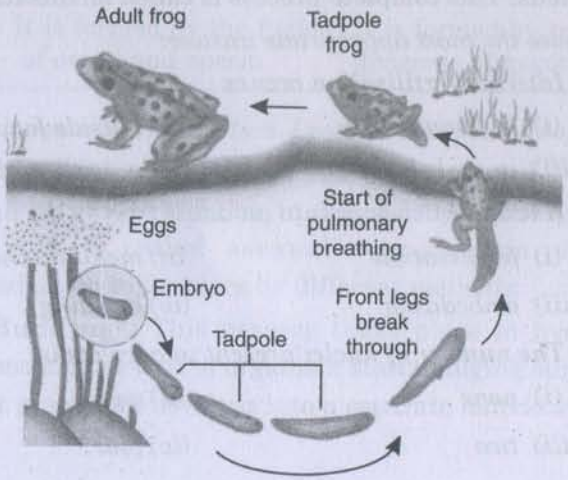


Fig. 9.5

The tadpole (larva), which is very different from the adult frog and is unable of jumping, transforms into adult frog that is capable of jumping and swimming.

The process of transformation of the larva into an adult through drastic changes is called metamorphosis.

Like frog, metamorphosis is also found in silk moth and butterfly.

- **Asexual Reproduction:** The type of reproduction in which only a single parent is involved is called *asexual reproduction. For example,* budding and binary fission.

TEXTBOOK QUESTIONS SOLVED

Q. 1. *Explain the importance of reproduction in organisms.*

Ans. Reproduction is a very important process for the living organisms. Reproduction is essential for the continuation of a species.

Q. 2. *Describe the process of fertilisation in human beings.*

Ans. In human, sexual reproduction takes place. In human beings internal fertilisation takes place. Male releases sperms inside female's body. Sperms and ovum fuse together in fallopian tube to form zygote. During this process the nucleus of sperm fuses with the nucleus of ovum to form a single nucleus. This complete process is called fertilisation.

Q. 3. *Choose the most appropriate answer:*

(*a*) *Internal fertilisation occurs*

(*i*) *in female body* (*ii*) *outside female body*

(*iii*) *in male body* (*iv*) *outside male body.*

(*b*) *A tadpole develops into an adult frog by the process of*

(*i*) *fertilisation* (*ii*) *metamorphosis*

(*iii*) *embedding* (*iv*) *budding.*

(*c*) *The number of nuclei present in a zygote is*

(*i*) *none* (*ii*) *one*

(*iii*) *two* (*iv*) *four.*

Ans. (*a*) (*i*) in female body (*b*) (*ii*) metamorphosis

(*c*) (*ii*) one.

Q. 4. *Indicate whether the following statements are True or False.*

(*a*) *Oviporous animals give birth to young ones.*

(*b*) *Each sperm is a single cell.*

(*c*) *External fertilisation takes place in frog.*

(*d*) *A new human individual develops from a cell called gamete.*

(*e*) *Egg laid after fertilisation is made up of single cell.*

(*f*) *Amoeba reproduces by budding.*

(*g*) *Fertilisation is necessary even in asexual reproduction.*

(*h*) *Binary fission is a method of asexual reproduction.*

(*i*) *A zygote is formed as a result of fertilisation.*

(*j*) *An embryo is made up of a single cell.*

Ans. (*a*) False (*b*) True (*c*) True (*d*) False

(*e*) True (*f*) False (*g*) False (*h*) True

(*i*) True (*j*) False

Q. 5. *Give two differences between a zygote and a foetus.*

Ans.

Zygote	Foetus
(*i*) It contains only single cell.	It contains many cells.
(*ii*) It is formed by the fusion of ovum and sperm.	It is formed by repeated divisions of zygote.

Q. 6. *Define asexual reproduction. Describe two methods of asexual reproduction in animals.*

Ans. The type of reproduction in which only single parent is involved is called asexual reproduction. Asexual reproduction takes place by different methods:

(*i*) **Buddings:** This process takes place in hydra and bacteria. A part of organism starts bulging out. Slowly it grows and develops into a separate individual.

(*ii*) This type of reproduction takes place in Amoeba. The nucleus of amoeba gets divided into two followed by division of their bodies, each part getting one nucleus. Each part developed into separate amoeba. This type of reproduction is common in unicellular organisms.

Q. 7. *In which female reproductive organ does the embryo get embedded?*

Ans. In uterus.

Q. 8. *What is metamorphosis? Give example.*

Ans. The transformation of larva into an adult through drastic changes is called metamorphosis. Example: frog and butterfly.

Q. 9. *Differentiate between internal fertilisation and external fertilisation.*

Ans. The internal fertilisation takes place inside the body of female but the external fertilisation takes place outside the body of female.

In internal fertilisation the sperms are released in females body by the male while in external fertilisation sperms are released in open like in water.

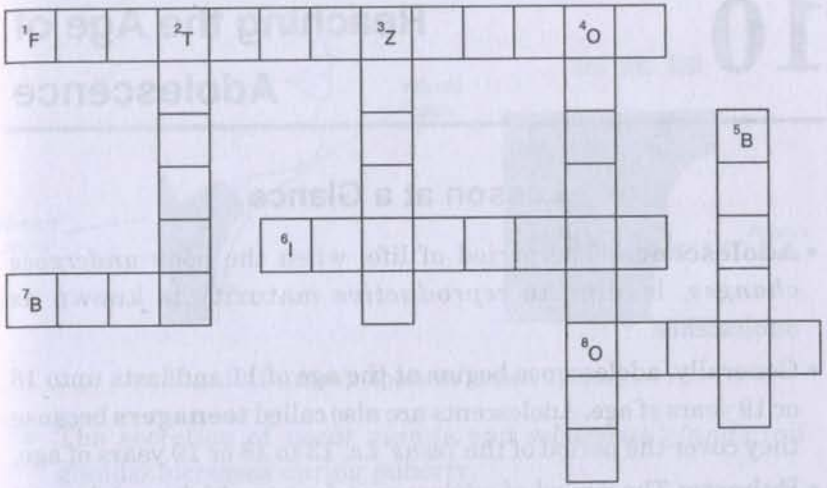
Q. 10. *Complete the crossword puzzle using the hints given below.*

Across

1. *The process of the fusion of the gametes.*
6. *The type of fertilisation in hen.*
7. *The term used for bulges observed on the sides of the body of hydra.*
8. *Eggs are produced here.*

Down

2. *Sperms are produced in these male reproductive organs.*
3. *Another term for the fertilised egg.*
4. *These animals lay eggs.*
5. *A type of fission in amoeba.*



Ans.