

**CBSE Class 10 Science**  
**NCERT Exemplar Solutions**  
**Chapter 8**  
**How Do Organisms Reproduce?**

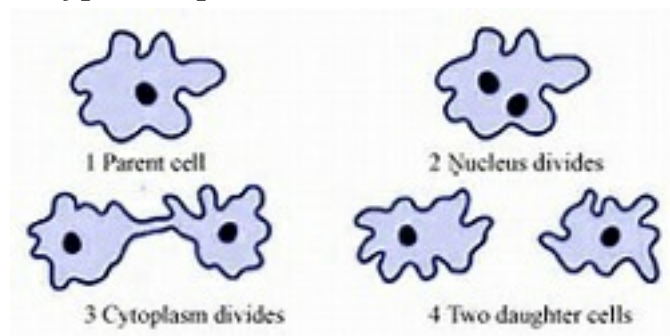
**Short Answer Questions**

**28. In a bisexual flower inspite of the young stamens being removed artificially, the flower produces fruit. Provide a suitable explanation for the above situation.**

**Ans.** When the stamens of a bisexual flower are removed artificially, cross pollination takes place. This ensures fertilization. Due to this, flower is able to produce fruit.

**29. Can you consider cell division as a type of reproduction in unicellular organism? Give one reason.**

**Ans.** In unicellular organism, new individual is created after cell division. Creation of new individual is called reproduction. Hence, cell division in unicellular organism can be termed as type of reproduction.



**30. What is a clone? Why do offsprings formed by asexual reproduction exhibit remarkable similarity?**

**Ans.** A true copy of anything is called a clone. In case of asexual reproduction, genes are contributed by a single parent. Due to this, offsprings produced by asexual reproduction are clones of their parent.

**31. Explain how, offspring and parents of organisms reproducing sexually have the**

**same number of chromosomes?**

**Ans.** Sexual reproduction involves gamete formation. Number of chromosomes is halved during gamete formation. As a result, when two gametes fuse during fertilization, the number of chromosomes in zygote becomes same as in somatic cell of the organism. This ensures that offsprings produced by sexual reproduction have the same number of chromosomes as their parents.

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**32. Colonies of yeast fail to multiply in water, but multiply in sugar solution. Give one reason for this.**

**Ans.** Yeast is a fungus and needs a supply of energy for its living and growth. Sugar supplies this energy. (Your body also gets much of its energy from sugar and other carbohydrates.) Water does not provide required nutrition.

Yeast can use oxygen to release the energy from sugar

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**33. Why does bread mould grow profusely on a moist slice of bread rather than on a dry slice of bread?**

**Ans.** Spores of bread mould need nutrition and moisture for germination and further growth. A dry slice of bread can provide nutrition but it lacks moisture. Due to this, bread mould grow profusely on a moist slice of bread rather than on a dry slice of bread.

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**34. Give two reasons for the appearance of variations among the progeny formed by sexual reproduction.**

**Ans.** Two reasons for the appearance of variations among the progeny formed by sexual reproduction are:

(a) Genes are contributed by two parents

(b) Crossing over during meiosis also results in variations.

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**35. Would a Planaria cut vertically into two halves regenerate into two individuals?**

Complete Figure 8.2 D and E by indicating the regenerated regions.

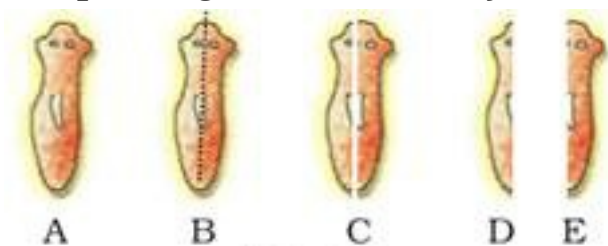
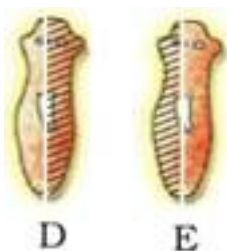


Fig. 8.2

**Ans.** Planaria has the capability of regeneration. Due to this, a cut portion of planaria would develop complementary portion to become a new individual. Following figures show new individuals from D and E:



36. From the internet, gather information about the chromosome numbers of five animals and five plants. Correlate the number with the size of organism and answer the following questions.

**Ans.**

Plant	No. of chromosomes (2n)	Animal	No. of chromosomes (2n)
Black mulberry	308	Mouse	40
Rattlesnake fern	184	Humans	46
Pineapple	50	Gorilla	48
Oat	42	Elephant	56
Mango	40	Goat	60

**(a)** Do larger organisms have more number of chromosomes/cells?

**Ans.** Mango (40) and rattlesnake fern (184) show that size of organism has nothing to do with number of chromosomes.

**(b)** Can organism with fewer chromosomes reproduce more easily than organisms with more number of chromosomes?

**Ans.** Gestation period in elephant is much longer than that in goat. Goat has a larger number of chromosomes than elephant. This shows that an organism with fewer number of chromosomes need not reproduce more easily than organisms with more number of chromosomes.

**(c)** More the number of chromosomes/cells greater is the DNA content. Justify.

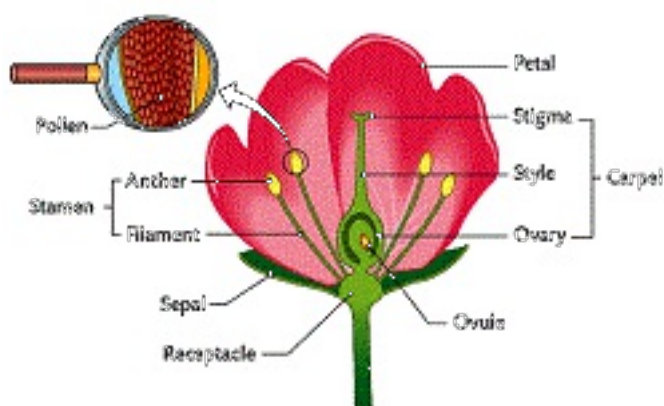
**Ans.** Chromosomes are composed of DNA. Hence, it can be said that more the number of chromosomes/cells greater is the DNA content.

**37. In tobacco plant, the male gametes have twenty-four chromosomes. What is the number of chromosomes in the female gamete? What is the number of chromosomes in the zygote?**

**Ans.** Number of chromosomes in both the gametes is equal. Hence, female gametes of tobacco plant will have 24 chromosomes. Number of chromosomes in zygote would double the number in gametes, hence it would be 48.

**38. Why cannot fertilisation take place in flowers if pollination does not occur?**

**Ans.** Pollination is the process by which pollen grains are transferred to the stigma. Once pollen grains land on stigma, they germinate to produce pollen tubes and subsequently to facilitate fertilization. Hence, fertilization cannot take place in flowers if pollination does not occur.

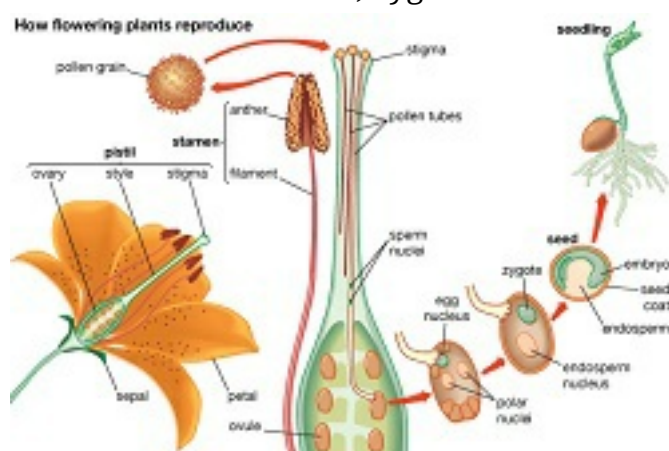


**39. Is the chromosome number of zygote, embryonal cells and adult of a particular organism always constant? How is the constancy maintained in these three stages?**

**Ans.** After the formation of zygote, further development takes place through mitosis. We know that after mitosis, the number of chromosomes in daughter cells is same as in mother cell. Due to this, number of chromosomes in embryo is same as in zygote. For the same reason, number of chromosomes in an organism is same as in zygote or embryo. So, it is clear that the chromosomes number of zygote, embryonal cells and adult of a particular organism is always constant.

#### 40. Where is the zygote located in the flower after fertilization?

**Ans.** After fertilization, zygote is located in the ovary.



#### 41. Reproduction is linked to stability of population of a species. Justify the statement.

**Ans.** Every organism faces a lot of competition for survival. Barring a very few, most of the organisms end up being food for some other organism. Competition and predation result in drastic reduction in population of a species. But reproduction ensures that population of a species is maintained at optimum level. So, it can be said that reproduction is linked to stability of population of a species.

#### 42. How are general growth and sexual maturation different from each other?

**Ans.** General growth is about growth in size of an organism. Sexual maturation is about the accomplishment of ability to reproduce. General growth begins right from the time an organism comes into this world. Sexual maturity begins at a later stage called Adolescence. In most of the animals, general growth stops after a certain age and this coincides with attainment of sexual maturity.

**43. Trace the path of sperm during ejaculation and mention the gland and their functions associated with the male reproductive system.**

**Ans.** Path of sperm during ejaculation: testes -> epididymis -> vas deferens -> prostate -> urethra.

Glands associated with male reproductive system	Function
Testes	Secretion of testosterone
Prostate gland	Makes the medium of semen alkaline
Seminal vesicle	Addition of fluid content to semen
Cowper's gland	Lubricates urethra and neutralizes acidic traces of urine

**44. What changes are observed in the uterus if fertilisation does not occur?**

**Ans.** Following changes take place in uterus if fertilization does not occur:

- The extra lining of uterus degenerates.
- Fragments of the uterine lining are discharged through vagina.
- Unfertilized egg is also discharged.
- Menstruation take place.

**45. What changes are observed in the uterus subsequent to implantation of young embryo?**

**Ans.** Following changes take place in uterus after implantation of young embryo:

- Uterine lining thickens to support to developing embryo.(PLACENTA)
- Uterine lining is richly supplied with blood vessels so that nutrition and oxygen could be supplied to the developing foetus.

**46. What are the benefits of using mechanical barriers during sexual act?**

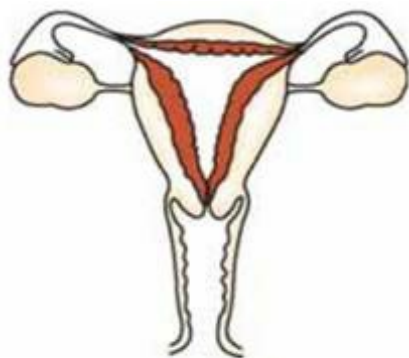
**Ans.** Following are the benefits of mechanical barriers during sexual act:



- Prevention of unwanted pregnancy.(Fertilisation)
- Prevention of STDs.

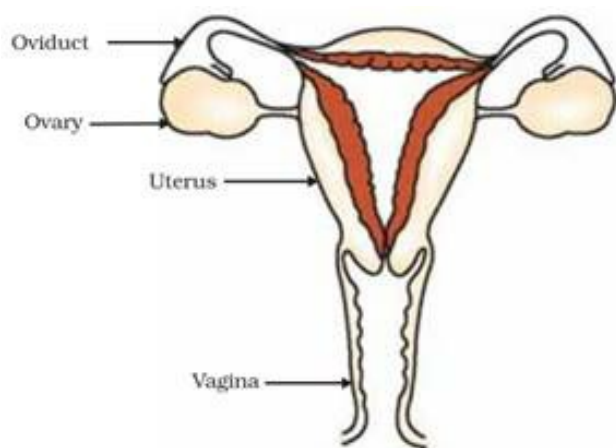
**47. In the given Figure 8.3 label the parts and mention their functions**

- (a) Production of egg
- (b) Site of fertilisation
- (c) Site of implantation
- (d) Entry of the sperms



**Fig. 8.3**

**Ans.**



**48. What would be the ratio of chromosome number between an egg and its zygote?  
How is the sperm genetically different from the egg?**

**Ans.** The ratio of chromosome number between an egg and its zygote is 1:2, because the zygote matures into embryo with halving of the number of chromosomes.