



# Delhi Public School Guwahati

"Under the aegis of the Delhi Public School Society, Delhi"

## ACADEMIC UPDATE

**CYCLE – I: 5<sup>th</sup> April, 2021 to 30<sup>th</sup> April, 2021**

**Grade: XII**

**Subject: BIOLOGY**

<i>Name of the Lesson</i>	<i>Lesson Objectives</i>	
	<i>General</i>	<i>Specific</i>
<i>Reproduction in Organisms</i>	To learn about the process of Reproduction in general in living organisms	To learn <ol style="list-style-type: none"><li>1. Definition of reproduction</li><li>2. Types of reproduction – Sexual and Asexual</li><li>3. Different types of asexual reproduction in single celled organisms, simple organisms and plants</li><li>4. Sexual reproduction and different phases – Juvenile, Vegetative and Senescence</li><li>5. Various events of Sexual reproduction – pre-fertilization, fertilization and post fertilization events.</li><li>6. Types of gametes and process of formation of gametes</li><li>7. Formation of zygote and its development</li></ol>
<i>Sexual Reproduction in Flowering Plants</i>	To learn in details about the sexual reproduction in plants	To learn <ol style="list-style-type: none"><li>1. Various floral structures involved in sexual reproduction</li><li>2. process and stages of formation of male and female reproductive cells</li><li>3. different kinds and agents of pollination</li><li>4. technique of artificial hybridization</li><li>5. formation and development of embryo and seeds</li></ol>



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### Estimated Duration:

No. of Time Table periods allocated: 22

### *Pre-Requisites Of The Lesson-*

1. Student should have a general understanding of reproduction and its significance.
2. Student should have knowledge of cell division, its types and their significance.
3. Students should be aware of the various parts of a flower.

<i>Teaching Methodology-</i>	Class Lectures with day today examples, discussion of various questions and answers. Hands – on – practical for better understanding.
<i>Teaching Aids-</i>	Online Software and Hardware

### Instructional Procedures:

<i>Periods</i>	<i>Topics to be covered</i>	<i>Scientific terms</i>	<i>Applications in day today life/Natural phenomenon to be discussed</i>	<i>Practical/Demonstrations to be done (if any)</i>
½	<ul style="list-style-type: none"><li>• Introduction to Reproduction</li></ul>	<ul style="list-style-type: none"><li>• Life span</li><li>• Reproduction</li></ul>	Life Span of regularly observed organisms	Nil
1	<ul style="list-style-type: none"><li>• Asexual reproduction</li></ul>	<ul style="list-style-type: none"><li>• Clone</li><li>• Cell division</li><li>• Binary fission</li><li>• Zoospores, Budding, Gemmules</li></ul>	Various techniques such as Grafting used for producing better varieties of flowers and vegetable crops.	Nil



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		<ul style="list-style-type: none"><li>• Vegetative propagation</li></ul>		
1	<ul style="list-style-type: none"><li>• Sexual Reproduction</li></ul>	<ul style="list-style-type: none"><li>• Juvenile phase</li><li>• Vegetative phase</li><li>• Oestrus cycle, Menstrual cycle</li></ul>	Example of human reproductive system and women’s menstrual cycle.	Nil
1	<ul style="list-style-type: none"><li>• Events of Sexual Reproduction</li><li>• Pre fertilization event</li></ul>	<ul style="list-style-type: none"><li>• Gametogenesis</li><li>• Homogametes and Heterogametes</li><li>• Antherozoid</li><li>• Homothallic / Monoecious</li><li>• Heterothallic / Dioecious</li><li>• Hermaphrodites</li><li>• Haploid and Diploid</li><li>• Meocytes</li></ul>		Nil
1	<ul style="list-style-type: none"><li>• Fertilization event</li></ul>	<ul style="list-style-type: none"><li>• Pollination</li><li>• Syngamy, Fertilization</li><li>• Parthenogenesis</li></ul>	Honey Bee example for parthenogenesis.	Nil
1	<ul style="list-style-type: none"><li>• Post fertilization event</li></ul>	<ul style="list-style-type: none"><li>• Zygote</li><li>• Embryogenesis</li><li>• Differentiation</li><li>• Oviparous and Viviparous</li><li>• Pericarp and Ovary</li></ul>		Nil
1	<ul style="list-style-type: none"><li>• Revision</li></ul>	<ul style="list-style-type: none"><li>• Revision of chapter – 1</li></ul>		
1	<ul style="list-style-type: none"><li>• Discussion</li></ul>	<ul style="list-style-type: none"><li>• Discussion of various questions and answers on chapter – 1</li></ul>		
½	<ul style="list-style-type: none"><li>• Sexual Reproduction in Flowering plants</li><li>• Floral male and female</li></ul>	<ul style="list-style-type: none"><li>• Stamen, Filament, Anther, Dithecous</li></ul>	Discussion of various flowers and its parts	Nil



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	Reproductive structure			
2	<ul style="list-style-type: none"><li>• Formation of male reproductive cells</li></ul>	<ul style="list-style-type: none"><li>• Microsporengia</li><li>• Tapetum</li><li>• Sporogenous tissue</li><li>• Microsporogenesis</li><li>• Microspore tetrad</li><li>• Pollen grain</li><li>• Exine and intine</li><li>• Germ pores</li><li>• Vegetative cell, Generative cell</li></ul>		
2	<ul style="list-style-type: none"><li>• Formation of female reproductive cells</li></ul>	<ul style="list-style-type: none"><li>• Pistil, Megasporangium</li><li>• Embryo sac, Locule</li><li>• Placenta</li><li>• Megasporangia</li><li>• Funicle, Hilum, Integuments, Micropyle, Chalaza, Nucellus, Synergids</li><li>• Megasporogenesis</li></ul>		Nil
2 (theory) + 2 (practical)	<ul style="list-style-type: none"><li>• Pollination and fertilization</li></ul>	<ul style="list-style-type: none"><li>• Autogamy</li><li>• Chasmogamous</li><li>• Cleistogamous</li><li>• Geitonogamy</li><li>• Xenogamy</li><li>• Biotic and Abiotic agents</li></ul>	Examples of common flowers and their modes of pollination	<ul style="list-style-type: none"><li>• Practical on Pollen Germination</li><li>• Study of Pollen Germination and Growth of Pollen Tube</li><li>• Study of Adaptations for flowers for pollination.</li></ul>
1	<ul style="list-style-type: none"><li>• Artificial hybridization</li></ul>	<ul style="list-style-type: none"><li>• Outbreeding</li><li>• Emasculation, Bagging</li></ul>		Exercise on Controlled Pollination



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3	<ul style="list-style-type: none"><li>Embryo formation and its development</li></ul>	<ul style="list-style-type: none"><li>PEN (primary endosperm nucleus)</li><li>Triple fusion</li><li>Double fertilization</li><li>Primary endosperm cell (PEC).</li><li>Endosperm</li><li>Proembryo, Mature embryo</li><li>Cotyledons</li><li>Epicotyls, Hypocotyls</li><li>Root cap, Scutellum</li><li>Coleoptiles, Coleorrhiza</li><li>Perisperm, Pericarp</li><li>Apomixes, Polyembryony</li></ul>		Nil
1	<ul style="list-style-type: none"><li>Revision</li></ul>	<ul style="list-style-type: none"><li>Revision of chapter – 2</li></ul>		
1	<ul style="list-style-type: none"><li>Discussion</li></ul>	<ul style="list-style-type: none"><li>Discussion of various questions and answers on chapter – 2</li></ul>		

### Questions to be done as CW/HW/Assessment:

1. NCERT textbook questions, Chapter – 1, Page No. – 17
2. NCERT textbook questions, Chapter – 2, Page No. – 40
3. What do you mean by Life Span?
4. Define reproduction and its types.
5. What is a clone? Which type of reproduction is involved in the formation of a clone and why?
6. What are the different modes of asexual reproduction observed in single celled organisms?
7. What is vegetative propagation? Give some examples of vegetative propagules.
8. Write a note on “Terror of Bengal”.
9. What is a Menstrual cycle?



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10. What is a gamete? What are the different types of gametes based on its structure?
11. What are hermaphrodites? Give example from Plant and Animal kingdoms.
12. What is the difference between Haploid and Diploid?
13. Which type of cell division is observed in Gametogenesis? Why?
14. Why the number of male gametes produced is usually much more than female gametes?
15. Differentiate between internal and external fertilization.
16. Differentiate between cell division and cell differentiation.
17. Why are chances of survival of young ones greater in viviparous animals?
18. What is a pericarp? What is its function?
19. Write a note on male and female reproductive organs of plants.
20. Draw and discuss structure of microsporangium.
21. Differentiate between microsporogenesis and megasporogenesis.
22. Differentiate between vegetative and generative cells in a pollen grain.
23. Discuss various steps involved in megasporogenesis.
24. What are the different kinds of pollination?
25. What are chasmogamous flowers? Is cross pollination possible in cleistogamous flowers? Why?
26. Why flowers pollinated by abiotic agents have less color and no nectar compared to biotic agents pollinated flowers?
27. What is inbreeding depression? Mention the devices to prevent it.
28. What is artificial breeding? How does bagging and emasculation help in artificial breeding?
29. Explain different stages of embryogenesis.
30. What are false fruits? Explain with the help of an example.
31. Distinguish between triple fusion and double fertilization.
32. What are advantages of parthenocarpic fruits?
33. What do you understand by apomixis?
34. Write a note on polyembryony in plants.