

Delhi Public School Ghaziabad
Class XII
Biology
Lesson plan based on DOL
Chapter 2 – Sexual reproduction in flowering plants

Unit	Reproduction (Chapter 2: Sexual reproduction in flowering plants)
Class Transaction	Total: 05 periods
Pre-requisite for the course	This lesson requires: • Basic knowledge of the major events of sexual reproduction and the examples. • Basic process of gamete formation
Assessment of qualifying knowledge	Written test Lab activity Online quiz
Objective	• To provide students with knowledge of microsporogenesis and megasporogenesis. • To make students able to research on common examples of organisms showing parthenocarpy, apomixis. • To make students able to understand embryogenesis and endosperm development.
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and understand <i>Modes of reproduction in organisms, fertilization events in organisms</i> <u>SKILLS</u>- Students would be able to Understand and differentiate between asexual and sexual reproduction, prefertilization, fertilization and post fertilization events.
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- <i>Brain Storming</i>-The class would start with a discussion on what the students have already learnt in the previous classes and hence what is it that they would learn now. They would also be told the significance of the topic that they would be studying. Communication and brainstorming: Students develop effective communication skills and learn to put across their views. <i>Introduction of the topic</i>- ppt and Digital Content would be shared <i>Guided practice followed by Independent Practice</i>- NCERT questions to be discussed in the classroom. Techniques to be used: Student - teacher interaction, collaborative learning, independent research, differentiated teaching, peer learning Competencies: collaborative learning, critical thinking and problem solving, character building, communication, citizenship
Resources	NCERT text book, Reference Book, CBSE Exemplar, DPSG Spiral
Self Study, Home Work,	Independent Practice: Students would do the given questions in their spirals. It is also advised that the students come to the class with proper background

Assignments	knowledge of the topic under discussion. They can refer to the resources stated above.
Assessments	UNIT TESTS, MID TERM EXAMINATION, HALF YEARLY EXAMINATION, ANNUAL BOARD EXAMINATION
Addressing Classroom Diversity	Due to various social backgrounds and multiple intelligences, the classroom might be a diverse arena. The following techniques can be used for various groups: <i>For high scoring students:</i> Encouragement for referring other resources <i>For low scoring students:</i> Peer education Provide grade-up classes <i>For differently abled students:</i> Call parents at regular intervals Provide PCC classes Encourage and motivate them at every level.
Marks	Weightage of unit – 14 marks and chapter - 5 marks

Day 1:
a. Students will be shown a ppt and will be made aware of reproductive parts of a flower.
b. Students will be told about the prefertilization events in plants.
c. Students will be told about the stamen, microsporangia.
Guided practice: DOL 1
a. Students will be made to draw diagrams to show stamen, microsporangium, microsporogenesis.
b. Students will be asked to write events of microsporogenesis.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups– Advantages and disadvantages of pollen grains.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Collaboration, Character and citizenship: Group discussion helps to develop interpersonal skills, respecting and valuing views of others
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.
b. Students will be asked to research on various pollen syrups / tablets or other supplements derived from pollen grains.

Day 2 :
d. Students will be shown a ppt and will be made aware of changes taking place after microsporogenesis.
e. Students will be told about the pollination in plants.
f. Students will be told about the development of pollen grains and pollen banks.

Guided practice: DOL 1
c. Students will be made to draw diagrams to show stamen, pollen banks and development of pollen grains.
d. Students will be asked to write events of microsporogenesis and development of pollen grains.
Summarize and check for understanding: DOL 2
c. Oral questioning based on the day's teaching
d. Discussion on the topic in groups– Advantages and disadvantages of pollen banks.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Collaboration, Character and citizenship: Group discussion helps to develop interpersonal skills, respecting and valuing views of others
Independent practice: DOL 3
c. Students will be asked to revise the work done in class.
b. Students will be asked to do question numbers 1 to 17 in assignment copy from the given assignment.
c. Students will be asked to research on various pollen syrups / tablets or other supplements derived from pollen grains.

Day 3:
a. Students will be shown a ppt and will be made aware of pistil and the megasporangium.
b. Students will be told about the process of megasporogenesis, development of embryo sac and double fertilization.
c. Students will be made aware of all different types of cells present in embryo sac and their ploidy.
Guided practice: DOL 1
a. Students will be made to recall megasporogenesis.
b. Students will be asked to make a diagram to show megasporogenesis and development of embryo sac.
c. Students will be asked to list all cells present in a mature embryo sac.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – ploidy of megaspore mother cell, embryo sac and cells present in embryo sac.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Character and citizenship: Group discussion helps to develop interpersonal skills, respecting and valuing views of others
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.

b. Students will be asked to describe process of megasporogenesis and development of embryo sac.
c. Students will be asked to describe process of double fertilization.
d. Students will be asked to do question numbers 18 to 30 in assignment copy from given assignment.

Day 4:
a. Students will be shown a ppt and will be made aware of pollination and different types of pollination.
b. Students will be told about various outbreeding devices of plants.
c. Students will be made aware of pollen pistil interaction.
Guided practice: DOL 1
a. Students will be made to collect at least five flowers to study their adaptations for different types of pollination.
b. Students will be asked to list all outbreeding devices developed in plants.
c. Students will be asked to explain pollen pistil interaction in plants.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – advantages of outbreeding devices.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Collaboration, Character and citizenship: Group discussion helps to develop interpersonal skills, respecting and valuing views of others
Critical thinking and problem solving: Helps students to think critically and solve the given problem
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.
b. Students will be asked to explain inbreeding depression and strategies in plants to avoid inbreeding depression.
c. Students will be asked to draw a diagram to show pollen pistil interaction.
d. Students will be asked to do question numbers 31 to 40 in assignment copy from given assignment.

Day 5:
a. Students will be shown a ppt and will be made aware of endosperm development and embryogenesis.
b. Students will be told about monocot and dicot seeds.
c. Students will be made aware of polyembryony and apomixis.
Guided practice: DOL 1

a. Students will be made to discuss importance of endosperm.
b. Students will be asked to explain difference between monocot and dicot embryo.
c. Students will be asked to describe advantages of apomixes and various ways of developing apomictic seeds.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – Advantages of producing apomictic seeds in case of hybrid plants.
Character and citizenship: Group discussion helps to develop interpersonal skills, respecting and valuing views of others
Creativity and innovation: Students use the knowledge given in class and create projects and models and perform research to give innovative solutions to the problem studied.
Collaboration: Students learn to work in collaboration to achieve a common goal. They learn to manage time and divide and delegate work and responsibilities.
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.
b. Students will be asked to explain embryogenesis diagrammatically.
c. Students will be asked to draw a diagram to monocot embryo.
d. Students will be asked to do question numbers 41 to 47 in assignment copy from given assignment.

Closure of the lesson
Summarizing the lesson by mind mapping
Giving them revision worksheets