

Delhi Public School Ghaziabad
Class XII
Biology
Lesson plan based on DOL
Chapter 5 – Principles of Genetics

Unit	Genetics and evolution (Chapter 5 – Principles of Genetics)
Class Transaction	Total: 5 periods
Pre-requisite for the course	This lesson requires • Basic knowledge of reproductive health: problems and strategies. • Knowledge of causes of population explosion and birth control. • Knowledge of medical termination of pregnancy • Sexually transmitted diseases
Assessment of qualifying knowledge	Written test Lab activity Oral questioning
Objective	Students would be able to understand reproductive health: problems and strategies, causes of population explosion and birth control, and risks associated with medical termination of pregnancy, causes and preventive measures of sexually transmitted diseases
Learning Outcomes	<u>KNOWLEDGE-</u> <i>Students will know and understand</i> 1.Reproductive health: problems and strategies 2. Causes of population explosion and birth control 3. Risks associated with medical termination of pregnancy 4. Causes and preventive measures of sexually transmitted diseases <u>SKILLS-</u> <i>Students would be able to</i> Understand problems associated with reproductive health Understand ways of birth control. Understand causes and preventive measures of sexually transmitted diseases Competencies developed in students: collaborative learning, critical thinking and problem solving, character building, communication, citizenship
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. <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: Quiz MCQ Peer Assessment Case Studies Lab Activities Any Other
Resources	Text Book: NCERT text book Reference Book CBSE Exemplar DPSG Spiral Weblinks: https://www.youtube.com/watch?v=9AiE9ADkhNM https://www.youtube.com/watch?v=9O5JQqlngFY
Self Study, Home Work, Assignments	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 knowledge of the topic under discussion. They can refer to the resources stated above.
Assessments	UNIT TESTS HALF YEARLY EXAMINATION ANNUAL BOARD EXAMINATION INTERNAL ASSESSMENT - Practical – 30 marks
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> High order thinking questions to be done Encouragement for referring other resources <i>For low scoring students:</i> Spiral questions Peer education PCC classes

	<i>For differently abled students:</i> Call parents at regular intervals Provide grade-up classes Encourage and motivate them at every level.
Marks	The weightage of whole unit is 18 marks.

Day 1:
a. Students will be shown a ppt and will be made aware of concept of inheritance and mechanism of inheritance and variations.
b. Students will be told about the salient features of Mendel's experiments.
c. Students will be told about the monohybrid cross and dihybrid cross.
d. Students will be told about the test cross and back cross.
Guided practice: DOL 1
a. Students will be made to make a monohybrid cross and write genotypic and phenotypic ratio.
b. Students will be made to make a dihybrid cross and write genotypic and phenotypic ratio.
c. Students will be asked to mention all the characters studied by Mendel.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching.
b. Discussion on the topic in groups: Reasons for success of Mendel and why his work was recognized by contemporary scientists.
Communication: Involves sharing of ideas and information to advance scientific understanding, processes, theories and discoveries
Collaboration and brainstorming: Students develop effective communication skills and learn to put across their views.
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.

Day 2:
a. Students will be shown a ppt and will be made aware of concept of codominance.
b. Students will be told about the incomplete dominance.
c. Students will be told about the multiple alleles.
Guided practice: DOL 1
a. Students will be made to make a monohybrid cross and write genotypic and phenotypic ratio.

b. Students will be made to make a dihybrid cross and write genotypic and phenotypic ratio.
c. Students will be asked to mention all the characters studied by Mendel.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching.
b. Discussion on the topic in groups: Reasons for success of Mendel and why his work was recognized by contemporary scientists.
Communication: Involves sharing of ideas and information to advance scientific understanding, processes, theories and discoveries
Collaboration and brainstorming: Students develop effective communication skills and learn to put across their views.
Independent practice: DOL 3
b. Students will be asked to revise the work done in class.

Day 3:
a. Students will be shown a ppt and will be made aware of chromosomal theory of inheritance.
b. Students will be told about the linkage and recombination.
c. Students will be made aware of creation of genetic maps.
Guided practice: DOL 1
a. Students will be made to recall chromosomal theory of inheritance.
b. Students will be asked to make a flow chart to show formation of parental combinations in case of linked and non-linked genes.
c. Students will be asked to make a flow chart to show creation of genetic maps.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – importance of genetic maps.
Communication: Involves sharing of ideas and information to advance scientific understanding, processes, theories and discoveries
Collaboration and brainstorming: Students develop effective communication skills and learn to put across their views.
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 creation of genetic maps.
c. Students will be asked to describe differences between crossing over and translocation.

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Day 4:
a. Students will be shown a ppt and will be made aware of various methods of sex determination.
b. Students will be told about Sex chromosomes and autosomes and male heterogamety and female heterogamety .
c. Students will be made aware of mutation, frame shift mutation, point mutation and mutagen.
Guided practice: DOL 1
a. Students will be made to draw a diagram to show various methods of sex determination.
b. Students will be asked to list all organisms showing male and female heterogamety.
c. Students will be asked to investigate various types of mutations and their causes.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – mutations and genetic disorders.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Critical thinking and problem solving: Helps students to think critically and solve the given problem
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 explain methods of sex determination.
c. Students will be asked to differentiate between mendelian and chromosomal disorders.

Day 5:
c. Students will be shown a ppt and will be made aware of autosomal dominant disorders.
d. Students will be told about autosomal recessive disorders.
d. Students will be made aware of sickle cell anemia.
Guided practice: DOL 1

d. Students will be made to draw a diagram to show non-disjunction.
e. Students will be asked to list all autosomal disorders.
f. Students will be asked to investigate non-disjunction types in different disorders.
Summarize and check for understanding: DOL 2
c. Oral questioning based on the day's teaching
d. Discussion on the topic in groups – impact of abnormality in genetic disorders.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Critical thinking and problem solving: Helps students to think critically and solve the given problem
Character and citizenship: Group discussion helps to develop interpersonal skills, respecting and valuing views of others
Independent practice: DOL 3
d. Students will be asked to revise the work done in class.
e. Students will be asked to explain various probable abnormalities in meiosis that are age related.
f. Students will be asked to differentiate between autosomal dominant and autosomal recessive disorders.

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