

Delhi Public School Ghaziabad

Class XII

Biology

Lesson plan based on DOL

Chapter 6 – Molecular Basis of Inheritance

Unit	Genetics and evolution (ch. Molecular basis of inheritance)
Class Transaction	Total: 04 periods
Pre-requisite for the course	This lesson requires: • Basic knowledge of the chromosomes and genes. • Basic knowledge of structure and function of DNA
Assessment of qualifying knowledge	• Written test • Lab activity • Online quiz
Objective	To provide students with knowledge of the DNA, RNA, replication, transcription, genetic code, translation, regulation of gene expression, human genome project and DNA fingerprinting
Learning Outcomes	<u>KNOWLEDGE</u>- Students will know and understand DNA, RNA, replication, transcription, genetic code, translation, regulation of gene expression <u>SKILLS</u>- Students would be able to Understand and differentiate between transcription and translation. Understand mechanism of gene expression
Transaction Methodology (The teacher can use the mentioned techniques, wherever applicable, and can use any other too.)	Transaction would proceed in the following manner- Brain Storming-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. Introduction of the topic- ppt and Digital Content would be shared Guided practice followed by Independent Practice- NCERT questions to be discussed in the classroom. Techniques to be used: Student - teacher interaction, collaborative learning, independent research, differentiated teaching, peer learning Competencies developed in students: collaborative learning, critical thinking and problem solving, character building, communication, citizenship
Resources	NCERT text book, Reference Book, CBSE Exemplar, DPSG Spiral www.learncbse.in/cbse-notes/ https://mycbseguide.com www.examfear.com
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, 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 the unit is 18 marks and is provided by CBSE

Day 1:
a. Students will be shown a ppt and will be made aware of structure of double stranded trinucleotide, concept of central dogma, nucleoid, NHC proteins and their importance.
b. Students will be told about the packaging of DNA in eukaryotes, euchromatin and heterochromatin.
c. Students will be told about the transformation and transforming principle.
Guided practice: DOL 1
a. Students will be made to draw diagrams to show structure of double stranded DNA.
b. Students will be made to draw diagrams to show packaging of DNA in eukaryotes.
c. Students will be asked to describe the process of the experiment which demonstrates transformation and how was transforming principle characterized chemically.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching.
b. Discussion on the topic in groups: Sophisticated machinery of nature to pack DNA
Collaboration, 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.
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.
b. Students will be asked to show transformation diagrammatically.

Day 2:
a. Students will be shown a ppt and will be made aware of semiconservative mode of DNA replication.
b. Students will be told about the process of DNA replication and various enzymes involved in DNA replication.
c. Students will be made aware of all raw materials required for DNA replication.
Guided practice: DOL 1
a. Students will be made to recall steps of DNA replication.

b. Students will be asked to make a flow chart to show experiment which proves that DNA replication is semiconservative.
c. Students will be asked to list all requirements of DNA replication.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – semiconservative mode of replication and its importance.
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 and communication: 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 describe process of DNA replication.
c. Students will be asked to describe dual role of deoxyribonucleotides.

Day 3:
a. Students will be shown a ppt and will be made aware of process of transcription.
b. Students will be told about the process of translation.
c. Students will be made aware of regulation of gene expression in prokaryotes and eukaryotes.
Guided practice: DOL 1
a. Students will be made to draw a diagram to show process of transcription.
b. Students will be asked to list all stages of translation.
c. Students will be asked to diagrammatically explain regulation of gene expression in prokaryotes.
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 differential gene expression in prokaryotes and eukaryotes.
Collaboration and communication: 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 transcription diagrammatically.
c. Students will be asked to draw a diagram to show translation.

Day 4:
a. Students will be shown a ppt and will be made aware of DNA polymorphism.

b. Students will be told about Human Genome Project.
c. Students will be made aware of DNA fingerprinting.
Guided practice: DOL 1
a. Students will be made to investigate and discuss importance DNA polymorphism.
b. Students will be asked to explain DNA fingerprinting.
c. Students will be asked to describe various techniques of genome sequencing.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – Genome sequencing methodologies.
Collaboration and communication: 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 list advantages of genome sequencing.
c. Students will be asked to describe the technique of DNA fingerprinting.

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