

Delhi Public School Ghaziabad
Class XI
Biology Lesson plan based on DOL
Chapter 14 – Respiration in plants

Unit	Plant Physiology (Chapter 14 Respiration in plants)
Class Transaction	Total: 4 periods
Pre-requisite for the course	This lesson requires • Basic knowledge of respiration • Knowledge of site of respiration i.e. mitochondria • Knowledge of difference between aerobic and anaerobic respiration • Glycolysis and kreb's cycle
Assessment of qualifying knowledge	• Written test • Lab activity • Oral questioning
Objective	Students would be able to understand • Respiration in plants • Glycolysis • Fermentation • Aerobic respiration • The respiratory balance sheet • Amphibolic pathway • Respiratory quotient
Learning Outcomes	<u>KNOWLEDGE</u>- <i>Students will know and understand</i> • How do plants breathe?. • Mechanism of cellular respiration • Mechanism of glycolysis and Kreb's cycle <u>SKILLS</u>- <i>Students would be able to</i> • Differentiate between aerobic and anaerobic respiration • Mechanism of alcoholic and lactic acid fermentation • Understand importance of formation of proton gradient and breakdown of proton gradient for ATP synthesis 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	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 , HALF YEARLY EXAMINATION, ANNUAL 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> 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 and is given by CBSE.

Day 1:

- Students will be shown a ppt and will be made aware of the site of respiration.
- Students will be told about the respiratory substrates.
- Students will be told about the glycolysis

Guided practice: DOL 1

- Students will be made to list all the steps of glycolysis.
- Students will be made to describe and discuss in groups how plants breathe.

Communication and brainstorming: Students develop effective communication skills and learn to put across their views.

Collaboration: Students learn to work in collaboration to achieve a common goal. They learn to manage time and divide and delegate work and responsibilities.

Summarize and check for understanding: DOL 2

- Oral questioning based on the day's teaching.
- Students will be asked to list all the respiratory substrates.

Independent practice: DOL 3

- Students will be asked to revise the work done in class.

Day 2:

- Students will be shown a ppt and will be made aware of fermentation.
- Students will be told about the types of fermentation.
- Students will be made aware of Kreb's cycle.

d. Students will be told about pyruvate decarboxylation.
Guided practice: DOL 1
a. Students will be made to recall all the intermediates of Krebs's cycle.
c. Students will be asked to describe and discuss in groups about the importance of fermentation.
Critical thinking and problem solving: Helps students to think critically and solve the given problem
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – Why are we so interested in proton gradient?
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 major pathways of anaerobic respiration.

Day 3:
a. Students will be shown a ppt and will be made aware of the Electron transport chain.
b. Students will be told about the importance of chemiosmosis
c. Students will be made aware of importance of oxygen in aerobic respiration.
Guided practice: DOL 1
a. Students will be made to list all the five complexes in electron transport chain.
b. Students will be asked to make diagram to show maintaining proton gradient and role of ATP synthase in breakdown of proton gradient.
c. Students will be asked to describe and discuss in groups about the production of ATP and NADH in respiration.
Collaboration: Students learn to work in collaboration to achieve a common goal. They learn to manage time and divide and delegate work and responsibilities.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching

c. Discussion on the topic in groups – number of ATP and NADH molecules synthesized in Kreb's cycle.
Communication: Involves sharing of ideas and information to advance scientific understanding, processes, theories and discoveries
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.
b. Students will be asked to make flow chart to show Electron Transport Chain.

Day 4:
a. Students will be shown a ppt and will be made aware of the respiratory balance sheet.
b. Students will be told about the amphibolic pathway.
c. Students will be made aware of respiratory quotient.
Guided practice: DOL 1
a. Students will be made to write number of ATP molecules formed in respiration by complete oxidation of one glucose molecule.
b. Students will be asked to describe and discuss in groups about the interrelationship among metabolic pathways showing respiration mediated breakdown of different organic molecules to CO ₂ and H ₂ O.
Collaboration: Students learn to work in collaboration to achieve a common goal. They learn to manage time and divide and delegate work and responsibilities.
Communication and brainstorming: Students develop effective communication skills and learn to put across their views.
Summarize and check for understanding: DOL 2
a. Oral questioning based on the day's teaching
b. Discussion on the topic in groups – The respiratory pathway comes into the picture both during breakdown and synthesis of fatty acids.
Communication: Involves sharing of ideas and information to advance scientific understanding, processes, theories and discoveries
Independent practice: DOL 3
a. Students will be asked to revise the work done in class.
b. Students will be asked to make a diagram to show ATP synthesis in mitochondria.

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

