

Delhi Public School Ghaziabad
Class XII
PHYSICS
Lesson plan (Based on DOL)
Unit 1- ELECTROSTATICS

Unit	UNIT 1 CH 1 -ELECTRIC CHARGES AND FIELDS CH2 -ELECTROSTATIC POTENTIAL AND CAPACITANCE
Class Transaction	Total: 20 periods
Pre-requisite for the course	This lesson requires: • Basic knowledge of electric field and charge
Assessment of qualifying knowledge	• Written test • Lab activity • Online quiz
Objective	To provide students with knowledge of Enhance ability to accurately recognize and use appropriate terminology related to charge, force and field To make students able to research on common examples of electrostatics
Learning Outcomes	<u>KNOWLEDGE</u> - Students will know and understand <i>Modes Critical Thinking</i> <i>Creative</i> <u>SKILLS</u> - Students would be able to Understand and differentiate between electrostatics and electric current
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: collaborative learning, critical thinking and problem solving
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, PRE 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	Unit – 08 marks

DELHI PUBLIC SCHOOL GHAZIABAD
CLASS XII LESSON PLAN
Unit 1- ELECTROSTATICS
(Based on DOL)

Anticipatory Set: Facilitator introduces the topic **ELECTROSTATICS**

Objective:

- Given questions based on the topic. Learners will be able to revise the basic principle of geography.
- To make students able to solve questions based on the topics to be discussed
- They will be able to track the growth of subject.

Techniques to be used:

- Peer Assessment
- Quiz

Materials required and Teaching Aids: blackboard, chalk, duster, Text book

Strategy

Student – teacher interaction, collaborative learning, independent practice

DAY 1

- Students will read, interpret and discuss the characteristics of charges.
- Students will learn the process of electric conduction and induction with help of working of Gold Leaf Electroscope.
- Students will represent Coulombs law of electrostatic forces in vector form.
- **Watch smart class modules**

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electrostatic charge particles (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

Day 2:

- Students will read, interpret and discuss the characteristics of charges.
- Students will learn the process of electric conduction and induction with help of working of Gold Leaf Electroscope.
- Students will represent Coulombs law of electrostatic forces in vector form.
- *Watch smart class modules*

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electrostatic charge particles (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

Day 3:

- Students will read, interpret and discuss the characteristics of charges.
- Students will learn the process of electric conduction and induction with help of working of Gold Leaf Electroscope.
- Students will represent Coulombs law of electrostatic forces in vector form.
- *Watch smart class modules*

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher

Students will be asked convention of electrostatic charge particles (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 4 :

- **Recap**
- Student will explore the concept of Electric Field.
- Students will discuss properties of Electric Field.
- Students will learn about Electric Flux

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electric flux (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 4

- **Recap**
- Student will explore the concept of Electric Field.
- Students will discuss properties of Electric Field.
- Students will learn about Electric Flux

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electric flux (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

- Students will be asked to revise the work done in class.
- Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

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DAY 5

• **Recap**

- Student will explore the concept of Electric Field.
- Students will discuss properties of Electric Field.
- Students will learn about Electric Flux

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electric flux (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

- Students will be asked to revise the work done in class.
- Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 6:

Recap

- Student will discuss about electric dipole and dipole moment
- Students will discuss electric field due to dipole
- Students will discuss torque on a dipole in uniform electric field
- Collaborative learning- the students will work in groups to compare Electrostatic and Gravitational forces.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked existence of dipole (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 7:

Recap

- Student will discuss about electric dipole and dipole moment
- Students will discuss electric field due to dipole
- Students will discuss torque on a dipole in uniform electric field
- Collaborative learning- the students will work in groups to compare Electrostatic and Gravitational forces.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked existence of dipole (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 8

Recap

- Student will discuss about electric dipole and dipole moment
- Students will discuss electric field due to dipole
- Students will discuss torque on a dipole in uniform electric field
- Collaborative learning- the students will work in groups to compare Electrostatic and Gravitational forces.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked existence of dipole (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching

- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 9

- **Recap**

- Student will discuss about Gauss's theorem
- Students will discuss applications of Gauss's theorem
- Students will solve questions about electric flux

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of uniform charge distribution (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 10

- **Recap**

- Student will discuss about Gauss's theorem
- Students will discuss applications of Gauss's theorem
- Students will solve questions about electric flux

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of uniform charge distribution (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 11

• **Recap**

- Student will discuss about Gauss's theorem
- Students will discuss applications of Gauss's theorem
- Students will solve questions about electric flux

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher

Students will be asked convention of uniform charge distribution (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 12

- Students will read, interpret and discuss the electric potential.
- Students will learn the process of electric potential and equipotential surface.
- Students will represent dielectric and polarization.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher

Students will be asked convention of electric potential (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 13

- Students will read, interpret and discuss the electric potential.
- Students will learn the process of electric potential and equipotential surface.
- Students will represent dielectric and polarization.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
Students will be asked convention of electric potential (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 14

- Students will read, interpret and discuss the electric potential.
- Students will learn the process of electric potential and equipotential surface.
- Students will represent dielectric and polarization.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
Students will be asked convention of electric potential (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 15

- **Recap**
- Student will explore the concept of electric potential energy.

- Students will discuss relation between electric field and potential.
- Collaborative learning- the students will work in groups to compare Electrostatic and Gravitational forces.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
Students will be asked convention of electric potential and electric field (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 16

Recap

- Student will explore the concept of electric potential energy.
- Students will discuss relation between electric field and potential.
- Collaborative learning- the students will work in groups to compare Electrostatic and Gravitational forces.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
Students will be asked convention of electric potential and electric field (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 17

• **Recap**

- Student will explore the concept of electric potential energy.

- Students will discuss relation between electric field and potential.
- Collaborative learning- the students will work in groups to compare Electrostatic and Gravitational forces.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
Students will be asked convention of electric potential and electric field (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 18

- **Recap**
- Students will derive expression of parallel plate capacitor
- Students will be able to state and prove energy stored in capacitor
- Students will prove loss of energy in a capacitor.
- Students will work in think- pair-square.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
Students will be asked convention of electric flux (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 19

- **Recap**
- Students will derive expression of parallel plate capacitor
- Students will be able to state and prove energy stored in capacitor

- Students will prove loss of energy in a capacitor.
- Students will work in think- pair-square.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electric flux (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

- e. Students will be asked to revise the work done in class.
- f. Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping

DAY 20

- **Recap**
- Students will derive expression of parallel plate capacitor
- Students will be able to state and prove energy stored in capacitor
- Students will prove loss of energy in a capacitor.
- Students will work in think- pair-square.

Guided practice:

- Students will solve selected questions from NCERT book of exercise in their note book in the class with the help of their teacher
- Students will be asked convention of electric flux (Problem solving)

SUMMARIZE AND CHECK FOR UNDERSTANDING

- Oral questioning based on days teaching
- Discussion on the topic

Communication:

Independent practice:

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

Students will be asked to do question in assignment copy from the given assignment.

Critical thinking:

Help students develop reasoned problem solving and decision making skills

Closure of the lesson

Summarizing the lesson by mind mapping