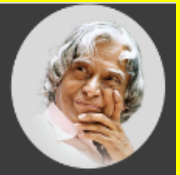
Srini Science Mind

Abdul Kalam Physical Science Group



NEW

10th class

PHYSICAL SCIENCE

MODEL LESSON PLAN

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MODEL LESSON PLAN

CLASS: 10 **SUBJECT:** PS **Name of the Teacher:** M.SRINIVASA RAO **Name of the School:** A.G.K.M.H.School,Gudivada

Name of the Lesson/Unit	Topic	No.of Periods Required	Timeline for teaching		Any specific information
			From	To	
Electromagnetism (Chapter – 10)	Oersted experiment	1	xx/xx/xxxx	xx/xx/xxxx	
	Magnetic field – Lines of magnetic field	1	xx/xx/xxxx	xx/xx/xxxx	
	Magnetic flux - Magnetic flux density	1	xx/xx/xxxx	xx/xx/xxxx	
	Magnetic field due to currents	2	xx/xx/xxxx	xx/xx/xxxx	
	Magnetic force on moving charge and Current carrying wire	2	xx/xx/xxxx	xx/xx/xxxx	
	Electric Motor	2	xx/xx/xxxx	xx/xx/xxxx	
	Electromagnetic induction	2	xx/xx/xxxx	xx/xx/xxxx	
	Faraday's Law – lenz law – Applications of Faraday's law of electromagnetic induction	1	xx/xx/xxxx	xx/xx/xxxx	
	Electric Generator and Alternating – Direct Currents	1	xx/xx/xxxx	xx/xx/xxxx	

Prior Concept/Skills:

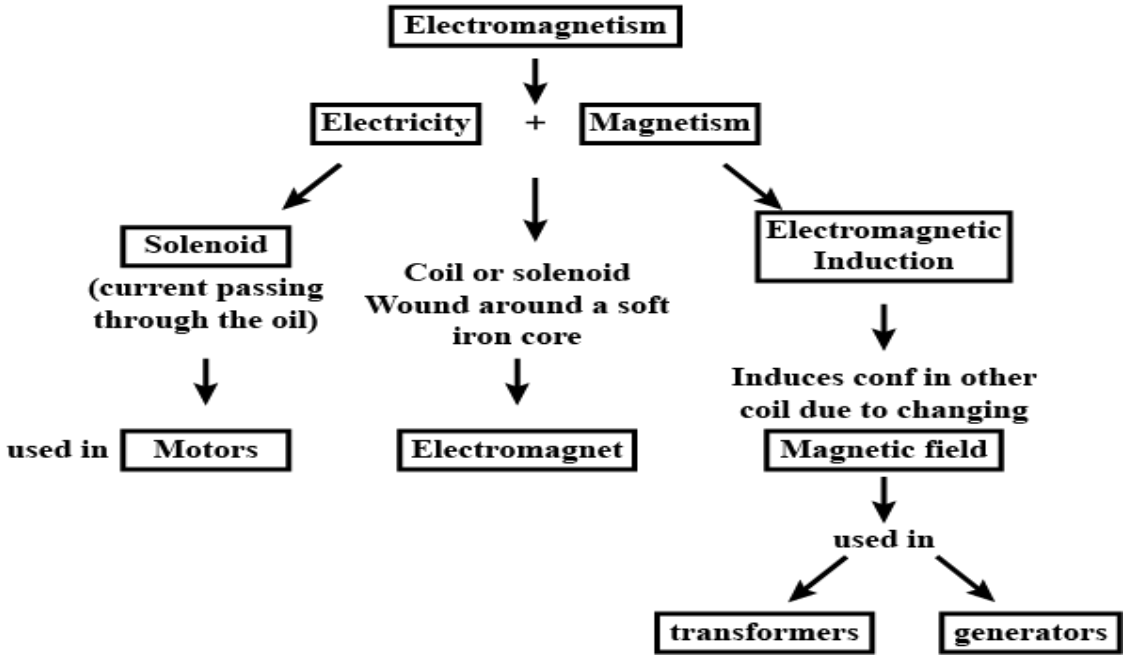
1. Give examples of heating effects of electric current.
2. What is magnetic field? How many poles in a magnet?
3. Is there any relation between electricity and magnetism?

Learning Outcomes:	No. of Periods
1. Takes initiative to know about scientific discoveries and invention of Oersted's discovery that electricity and magnetism are related.	1
2. Plans and conducts investigations and experiments to arrive at and verify the facts of a current carrying wire produces a magnetic field.	1
3. Relates processes and phenomena with causes and effects of deflection of compass needle due to magnetic effect of electric current.	1
4. Draws labelled diagrams of magnetic field lines.	1
5. Uses scientific conventions to represent units of magnetic flux, magnetic flux density symbols, formulae and equation.	1
6. Draws conclusion of magnetic field due to electric field and electric field due to magnetic field.	1
7. Explains processes and phenomena of working of electric motor.	1
8. Communicates the findings and conclusions effectively of faraday law of electromagnetism.	1
9. Explains processes and phenomena of working of generator.	1

10. Applies scientific concepts in daily life and solving problems of applications of Faraday's law of electromagnetic induction. 11. Draws labelled diagrams of electric motor and generator. 12. Exhibits creativity in designing models using eco-friendly resources of working model of electric motor and generator. 13. Makes efforts to conserve environment of uses energy efficient electric devices.	1 1 1 1

TEACHING LEARNING PROCESS

Induction/Introduction:



Experience and Reflection:

1. Students learn the inextricable relationship between electricity and magnetism and apply it to future needs.
2. Students use devices that work on the basis of electromagnetic induction to avoid pollution of the environment.
3. Students will be able to tell which objects in their home, work by the electromagnetic induction.

Explicit Teaching/Teacher Modelling (I Do)	Group Work (We Do)	Independent Work (You Do)	Notes for:
1. Discussion and conduct Oersted Experiment. 2. Explain and conduct an activity on magnetic field and lines of magnetic	1. Students explain procedure of Oersted experiment. 2. "Magnetic field lines are closed and they start at north pole of bar magnet	1. Students arrange the apparatus of the Oersted experiment. 2. Students draw the magnetic field lines around the	1. Why does the needle get deflected by the magnet? 2. What is magnetic field?

field.	and end at south pole" - Based on above statement rewrite the statement and frame questions	magnet.	
3. Explain uniform and non-uniform magnetic field.	3. Students explain uniform and non-uniform field.	3. Students complete the homework.	3. How can we find the strength of the field and direction of the field?
4. Discussion and explain magnetic flux and magnetic flux density.	4. Can we generalize the formula of flux for any orientation of the plane taken in the field? – Discuss.	4. Students write the definitions of magnetic flux and magnetic flux density.	4. What is the flux through the plane taken parallel to the field?
5. Explain and Demonstrate magnetic field due to straight wire carrying current, magnetic field due to circular coil, magnetic field due to solenoid.	5. Students explain magnetic field due to straight wire carrying current, magnetic field due to circular coil, magnetic field due to solenoid.	5. Students compare the magnetic field lines of a bar magnet and magnetic field lines of a solenoid.	5. Why do solenoid behaves like a bar magnet?
6. Explain Magnetic force on the moving charge in parallel and perpendicular to a magnetic field.	6. Students collect information of magnetic force on the moving charge in parallel and perpendicular to a magnetic field.	6. Students give the reason, Why magnetic force is zero, when a charge moving parallel to a magnetic field?	6. What happens to a charged particle when it moves perpendicular to a magnetic field?
7. Discussion and explain Magnetic force on a current carrying wire which is placed along and perpendicular to a magnetic field.	7. Group discussion on electric field effects on the magnetic field.	7. Students complete the homework.	7. Write Right-hand rule for positive charge.
8. Explain and conduct an experiment on a current carrying conductor experiences a force when it is kept in magnetic field.	8. Students conduct an experiment in the classroom with help of the teacher.	8. Students describe the activity in own way.	8. In which situation a current carrying does not experience any force in uniform magnetic field?
9. Demonstrate electric motor and Explain the working of the electric motor.	9. Students making models of electric Motor.	9. Students draw a neat diagram of the electric motor and label its parts.	9. What happens when a coil without current is made to rotate in magnetic field?
10. Explain the concept of Electromagnetic induction.	10. Students collect information on electromagnetic induction.	10. Students complete the homework.	10. Could the ring be levitated if DC is used?
11.Discussion and demonstrate Faraday's law and Lenz law	11. Students explain Faraday's law.	11. Students write Lenz law.	11. Is there emf in an open circuit?
12. Discussion and explain the	12. Students collect information on	12. Students read the	12. What is the equation of

applications of Faraday's law of electromagnetic induction. 13. Explain working of AC and DC generators.	applications of Faraday's law of electromagnetic induction. 13. Students making models of electric AC and DC generators.	biography of Faraday. 13. Can AC and DC current flow in same wire?	Faraday's law of induction? 13. What are the differences between AC and DC generators?

Check For Understanding Questions	**TLM's (Digital+Print)**
1. Factual: 1. Why steel is not used in solenoid? 2. Why does a moving charge experience a force in the magnetic field? 3. How does Lenz's law relate to Faraday's law? **2. Open Ended/Critical Thinking:** 1. What happens to the magnetic field when the number of turns in the coil is increased? 2. Why DC generators are not used in modern vehicles? 3. What happens if Earth loses its magnetic field? **3. Student Practice Questions & Activities:** 1. Are the magnetic field lines closed? Explain. 2. How can you verify that a current carrying wire produces a magnetic field with the help of an experiment? 3. Explain the working of electric motor with a neat diagram. 4. Explain the working of DC generator with a neat diagram.	1. Used prepared Quiz paper. 2. Utilized digital classroom. 3. Provide video links QR codes, DIKSHA App 4. YouTube video links
Assessment: 1. Describe an activity to find magnetic field due to a straight wire carrying current. 2. Explain Faraday's law of induction with the help of an activity. 3. Draw a neat diagram of an AC generator. Name the parts 4. Write the applications of Faraday's law of electromagnetic induction. 5. Collect information about the generation of current by using Faraday's law	

SIGNATURE OF THE TEACHER

SIGNATURE OF THE HEADMASTER

VISITING OFFICER WITH REMARKS